ORS Collection Manual

Office of Compensation and
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Preface

The Occupational Requirements Survey (ORS) Collection Manual is the primary document providing instructions on survey procedures, data collection, and coding for the Occupational Requirements Survey. This document provides broad collection and coding instructions applicable across all ORS collection activities and includes detailed data element definitions, explanations, and examples.

This Manual reflects current concepts, definitions, and practices. It will be updated periodically and supplemented by Technical Memoranda and Procedures Alerts issued from the Office of Compensation Levels and Trends (OCLT). See specific changes listed in the Major Changes Table.

Introduction

The Social Security Administration (SSA) administers two large national programs that provide disability benefits to individuals who cannot work due to mental or physical disabilities. SSA uses an adjudication process to determine if individuals meet eligibility requirements to receive benefits. To support this adjudication process, SSA needs information about job requirements in the national economy.

In 2012, SSA and the Bureau of Labor Statistics (BLS) signed an interagency agreement to collect and publish job requirements data. As a result, the BLS established the Occupational Requirements Survey (ORS). This manual outlines the concepts and technical procedures to collect ORS data elements, including: critical job function, critical job task list, physical demands, environmental conditions, education and training, as well as mental and cognitive demands.

For additional information about the Occupational Requirements Survey, see https://www.bls.gov/ors.

Information Reference Guide

Useful references are shown below.

References

- To view the ORS Public Website: https://www.bls.gov/ors/
- To view the Standard Occupational Classification: https://www.bls.gov/soc/
- To view the O*NET SOC Crosswalk: https://www.onetonline.org/crosswalk/
- To view information on SSA's Occupational Information System Project: https://www.ssa.gov/disabilityresearch/occupational_info_systems.html
- For definitions of numerous ORS terms, see the Glossary.
- For system reference information, see the CIERA User Guide.

Formatting Key

The formatting in this manual is designed to improve conceptual understanding and to promote clarity.

Style	Purpose
Regular Text	Regular text is in Tahoma, font size 11.
Systems Labels	System labels are denoted by blue Consolas, font size 12. This font is used whenever a label from IDC, CIERA, or any other system is included in instruction.
Chapter Header	Chapter headers are in Century Schoolbook, font size 28, and are denoted by underlined navy font.
Section	Sections are in Century Schoolbook, font size 18 and are denoted by underlined, bold navy font.
Subsection 1	First-level subsection headers are in Tahoma, font size 11 and are denoted by underlined, bold navy font.
Subsection 2	Second-level subsection headers are in Tahoma, font size 11, with bolded blue font.
Glossary Terms	Glossary terms are in Tahoma, font size 11 and are denoted by bold navy font. These terms are key concepts and their definitions are included in the glossary.
Table Titles	Table titles are in Tahoma, font size 11 and are denoted by underlined, black font. Table titles are assigned to each table. They include the chapter number and the table number within the chapter and the table name. Example: Table 1-1: Critical/Incidental Tasks Examples

Chapter 1: Key Concepts

The purpose of the Occupational Requirements Survey (ORS) is to provide the Social Security Administration (SSA) with data about the requirements of work as it is performed in the national economy.

Jobs are performed differently from one establishment to another. ORS collects information from establishments about job demands related to the critical tasks of selected jobs within the establishment. These individual data are combined to represent the job demands for the occupations in the national economy.

This chapter outlines key concepts and definitions associated with ORS collection:

- Task, Worker, Job, Occupation
- Critical Job Function, Critical and Incidental Tasks
- Job Demands
- Thresholds
- Frequency and Duration
- Accommodations

1_01 Task, Worker, Job, Occupation

Task

A **task** is a distinct activity assigned to, or performed by, workers who are carrying out job duties that result in a specific outcome.

Worker

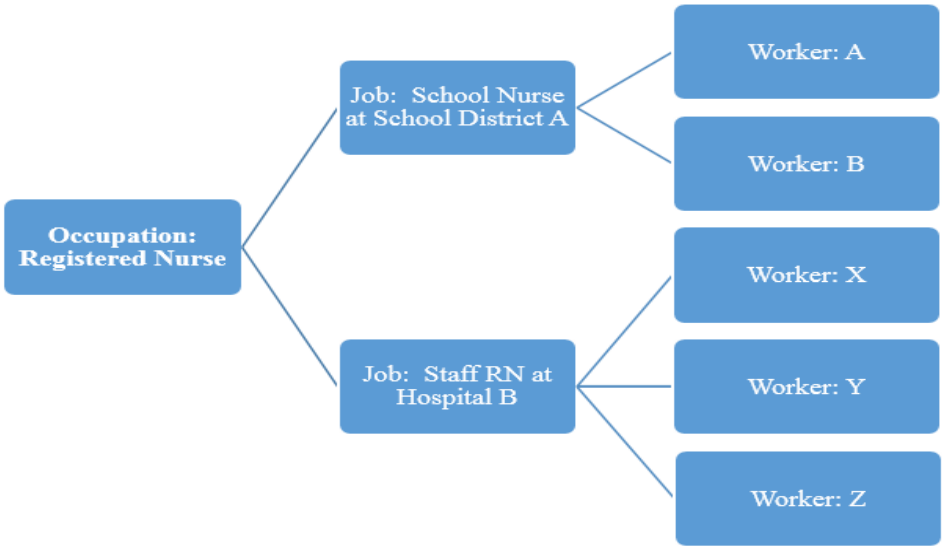
A **worker** is an employee who is assigned a specific set of tasks. The term worker is equivalent to the term position, historically used in the *Dictionary of Occupational Titles* and the *Revised Handbook for Analyzing Jobs*.

Job

A **job** represents all workers in an establishment with the same or similar tasks such that they may be analyzed collectively. In ORS, a sampled quote represents a job.

Occupation

An **occupation** is a broad term representing a defined set of responsibilities, skills, and tasks common across establishments rather than specific to an individual company. In ORS, all sampled jobs are assigned to an occupation defined in the Standard Occupation Classification (SOC) system. For more information about SOC classifications, see Fundamentals of NCS and ORS, Chapter 4 Occupational Classification found on the NCS-ORS Procedure Library.



1_02 Critical Job Function, Critical and Incidental Tasks

Establishments may assign tasks to a job that are necessary for establishment operations but are not typically performed by the occupation. As outlined in this section, ORS applies the concepts of critical job function(s) and critical tasks to define the scope of tasks included for incidence and duration coding at the establishment.

Critical Job Function

The **critical job function** is the main purpose of the job. It consists of critical tasks that are integral to the job. The job would not exist without the critical job function(s), which is the primary pay factor for the job.

A job's critical function is broad and often corresponds to the detailed SOC occupational definition. Some basic examples of critical job functions include:

- Janitors clean the building and grounds.
- Teachers prepare and present lessons and monitor students.
- Nurses provide medical care.

Most jobs have one or a very limited number of critical job functions. An example of a job with multiple critical job functions is a combination job. While combination jobs are typically assigned the SOC code associated with the highest skill level required by the job, all critical job functions and the critical tasks supporting those functions are included for ORS collection.

Critical Tasks

A **critical task** is an activity workers must perform to carry out their critical job function(s). A task is considered critical when it is a primary and required component of the critical job function(s).

Critical tasks are:

- Tasks that workers are evaluated and rated on
- Tasks that are necessary to carry out the critical job function(s), despite the frequency they are performed
- Tasks that are expected, usual, and performed 10% or more of the work time, regardless of their relation to critical job function

All critical tasks are required, but not all required tasks are critical. This means not every task a respondent indicates workers perform is in scope for ORS collection. While jobs may be expected to perform a variety of tasks, any required task must meet at least one of the criteria noted above to be considered a critical task.

The same occupation in different establishments may be expected to perform different critical tasks depending on the size and nature of the establishment.

Collect and code ORS elements based on how workers perform *all* critical tasks of a job, even if those tasks or functions relate to more than one SOC detailed occupation.

For more information on how to collect and document critical job function(s) and critical tasks in ORS, see Chapter 4: Task Lists.

Incidental Tasks

An **incidental task** does not support and is not a primary or required component of the job's critical function(s). Incidental tasks are excluded from ORS collection.

Incidental tasks are performed less than 10% of the work time and meet at least one of the following conditions:

- Are not tasks the job is evaluated and rated on
- Are not required to carry out the critical job function(s)
- May be carried out by workers in any job at the establishment (these tasks may be important but are not a function of any one job at the establishment)

Exclude, regardless of the time workers spend performing them, incidental tasks that:

- Are voluntary
- Occur by chance (includes response to unusual or emergency situations unless a critical function of the job is emergency response)
- Are specific to only one or a few workers in a job whenever a job has multiple workers

Note
Annual or one-time events workers must attend like field trips, tradeshows, conferences, award ceremonies, etc., are typically excluded unless the employer indicates these are critical tasks on which the job is rated and evaluated or the tasks take more than 10% of the workers' time over the course of work year.

Table 1-1: Critical/Incidental Tasks Examples

	Tasks Example	Type	Reason
1	Retail sales workers in a small store are responsible for selling store merchandise. The establishment evaluates retail sales workers on the following tasks: running register, answering customer questions, stocking merchandise, and cleaning duties to maintain store appearance during their shift.	Critical	All would be critical tasks for the retail sales workers at this establishment because they are primary tasks retail sales workers are evaluated on.
2	Firefighters climb ladders infrequently, but must be able to perform this task in order to fight fires.	Critical	Tasks that are necessary to carry out the critical job function(s) are critical, despite the frequency they are performed.
3	Accountants in a real estate leasing office carry out accounting tasks as their critical job function. Accountants in this establishment are also expected to spend 10% or more of their time inspecting and showing potential tenants rental properties.	Critical	Inspecting and showing rental properties to potential tenants is an assigned task for accountants at this establishment. This task would not usually support the critical job function of accountants, but since workers spend 10% or more of their work time doing this task, it is included as a critical task for this job.
4	In a multiple person landscaping crew, all workers rotate and must be able to drive the company truck to the various job locations.	Critical	All workers in the job are expected to drive to locations where work is performed and the task is necessary to carry out the critical job function.

	Tasks Example	Type	Reason
5	Accountants in a real estate leasing office carry out accounting tasks as their critical job function. When rental agents are on vacation, accountants inspect and show potential tenants rental properties. Accountants cover for rental agents a few days per year (less than 2% of their work time).	Incidental	Inspecting and showing rental properties to potential clients to back up rental agents is an assigned task for accountants at this establishment. This task does not support the critical job function of accountants and workers do not spend 10% or more of their time doing this work.
6	All plant personnel at a food processing plant are required to help wash and sanitize equipment one day per month.	Incidental	Important, required task but not specific to any single establishment job and does not meet 10% threshold, so this is not a critical task for this job.
7	All employees in a hotel are instructed to smile and greet customers when they enter the establishment or in passing.	Incidental	Important, expected task but not specific to any single establishment job. Include only for jobs where workers spend 10% or more time doing.
8	When the copier is out of paper, any staff member refills the machine.	Incidental	Important task but not specific to any single establishment job.
9	In a two-person landscaping crew, at least one worker must be able to drive the company truck to the various job locations. A driver's license is not required for the job, but at least one worker of the pair must be able and needs to perform the intra-day commuting for the crew.	Incidental	Important task specific to only one or a few workers in a job whenever a job has multiple workers.
10	All workers in a factory spend a few minutes entering their timesheets using a computer each week.	Incidental	Required task that is not specific to any one job, does not support the critical job function of factory jobs, and does not meet the 10% threshold.

1_03 Job Demands

Job demands are the knowledge, cognitive abilities, and physical actions required to perform critical tasks, as well as environmental conditions experienced while completing critical job tasks.

Job demands include observable and unobservable behaviors:

- Observable behaviors: typing, driving, standing, lifting, reaching, etc.
- Unobservable behaviors: learning and applying knowledge, perception, problem solving, etc.

ORS captures a variety of job demands organized into four broad areas:

- Specific Vocational Preparation
- Cognitive Elements
- Physical Demands
- Environmental Conditions

While ORS captures over 50 distinct job demands, not every job demand needed to perform critical tasks is in-scope for ORS collection. Job demands included in ORS are those that have been identified as important for determining whether individuals with mental or physical disabilities can work. Some examples of demands ORS does not capture include: bending or twisting movements, the need to have depth perception, and exposure to environmental conditions such as radiation or biohazards, etc.

1_04 Thresholds

A **threshold** is a magnitude or intensity that must be met or exceeded for a certain demand to be considered for ORS collection.

Overall Collection Threshold for All ORS Elements

Only the knowledge, cognitive abilities, physical actions, and environmental conditions needed to perform a job's critical tasks are in-scope for ORS.

For more information about collecting the presence of ORS elements associated with critical tasks, see Chapter 4: Task Lists.

Thresholds for Individual ORS Elements

Many individual ORS data elements must also meet additional thresholds, conditions, or have unique guidelines before the element presence and duration is collected and coded.

Thresholds exist for the following individual ORS elements:

Cognitive Elements	Physical Demands	Environmental Conditions
• Problem Solving	• Sitting/Standing/Walking • Lifting/Carrying • Pushing and Pulling • Reaching • Low Postures-Stooping	• Outdoors • Extreme Cold • Extreme Heat • Wetness • Humidity • Hazardous Contaminants • Proximity to Moving Mechanical Parts • Heavy Vibration • High, Exposed Places

Refer to the section on each element for a description of the relevant threshold.

1_05 Frequency and Duration

Frequency is the number of times a worker experiences a demand while performing critical tasks. Many cognitive demands for ORS are measured using frequencies, for example, the frequency work is checked by a supervisor or lead worker (e.g., a supervisor checks work once per day).

Duration is the total time a worker performs critical tasks using certain physical demands or is exposed to an environmental condition. Most physical demands and environmental conditions for ORS are measured using duration ranges, for example, the amount of time workers spend speaking (e.g., workers spend one hour of an 8-hour day speaking which is coded as Occasional 2% up to 1/3).

When a respondent indicates that an element is not performed or experienced as part of the critical tasks, duration is coded as not present.

Additionally, when a data element does not meet an associated threshold, it is out-of-scope, and duration is coded not present**.**

When an element is present and the associated threshold (if applicable) is met, capture the amount of time a worker actively performs a physical demand or is exposed to an environmental condition. Percent of time is based on the full work day and captured according to the following duration scale:

Table 1-2: Duration Scales

Duration	Percent of Time	Daily*	Weekly*	Annually*
Seldom	Up to 2%	Less than 10 minutes	Less than 45 minutes	Less than 1 week
Occasional	2% up to 1/3	10 minutes up to 2½ hours	45 minutes up to 13 hours	1 week up to 4 months
Frequent	1/3 up to 2/3	2½ hours up to 5½ hours	13 hours up to 3½ days	4 months up to 8 months
Constant	2/3 or more	5½ hours or more	3½ days or more	8 months or more

*Times are approximate and have been rounded for collection purposes based on 8 hours daily, 40 hours weekly, 2080 hours annually work schedule.

Duration is different than frequency*.* For example, workers may use a computer “all day” (frequency) but may actually only be typing or manipulating a mouse for four hours of an eight hour work day. The other time is reading material on a screen, or performing other tasks that

are not keyboarding. The duration for keyboarding in this example is 50% and is coded as Frequent (i.e., 1/3 up to 2/3).

Duration for Critical Tasks that Occur Less than Daily

If a physical demand or environmental condition associated with critical tasks occurs weekly, monthly, annually, or seasonally, collect and code the duration a worker experiences over the broader range of time.

Use the duration scale as a guide with respondents and request they provide the duration a worker experiences over the broader range of time. Calculations are not necessary if the correct ORS duration range can be determined without them because:

- The appropriate range is obvious based on the information provided by the respondent, or
- The respondent is able to select a range based on an estimated average of all critical tasks and job demands performed and the field economist verifies the range is reasonable based on the other data reported.

Table 1-3: Duration Coding Examples

Example 1 – Teachers
Teachers rotate playground and drop-off/pick-up duties as part of their critical tasks. When they perform playground and drop-off/pick-up duties, they are outside 1 hour of a 7.5 hour day. They perform these duties 1 out of every 10 work days.
Duration Coding Code duration for Outdoors as **`Up to 2%`**. Using the duration scale, 1 hour biweekly falls into the Seldom category (Less than 45 minutes per week).

Example 2 – Restaurant Servers
Servers work at a restaurant that has an outdoor seating area open 3 months out of the year. Servers spend 1/3 to 2/3 of their shift outside while the patio is open, if they are assigned to the section. During the remaining nine months of the year, servers work inside only.
Duration Coding Code duration for Outdoors as **`2% up to 1/3`**. Using the duration scale, the amount of time described on an annual basis falls into the Occasional category (1 week up to 4 months).

Example 3 – Fast Food Crew Members

A fast food crew worker is expected to rotate through different critical tasks such as working at the cash register, serving food, working at the drive through, cleaning tables or taking out trash. During a typical shift, only 1 of multiple crew workers has to take out the trash weighing 20 pounds for approximately 10% of their shift. However, on a weekly basis, the respondent estimates that a typical crew worker would only spend up to 10 minutes per week taking out the trash. This is the most weight crew workers would lift.

Duration Coding

Code Lifting/Carrying weight range as 11-25 lbs. for the **Up to 2%** frequency. Using the duration scale, the amount of time described on a weekly basis falls into the Seldom category (Less than 45 minutes per week).

Example 4 – Potato Chip Factory

At a potato chip factory, workers hired as "packers" are expected to perform and rotate through three distinct functions: packing, picking, and trimming.

- Function 1 – Packing: Takes bags of chips off the line and packs them into boxes. They also assemble the boxes.
- Function 2 - Picking: Watches the chips go by on a conveyer belt, moves them around with hands, pulls out and throws away the burnt ones.
- Function 3 - Trimming: Watches potatoes that have come out of the peeling machine move down a belt, pulls out bad ones and either trims them with a knife or throws them away depending on the overall condition

In a typical shift, 16 workers are packing, 2 workers are picking, and 2 workers are trimming. When performing picking, workers can sit all day, but when assigned to the other two functions they must stand all day.

Duration Coding

Code Sitting = 10% and Standing/Walk = 90%
Calculation:

- Function 1 Packing = 80% (16 workers/20 total)
- Function 2 Picking = 10% (2 workers/20 total)
- Function 3 Trimming = 10% (2 workers/20 total)

1_06 Accommodations

Accommodations are adjustments to tasks or the work environment, enabling a person with a disability to compete equally or perform critical tasks. Not all employers can offer the same accommodations.

Collect job demands based on how most workers perform critical tasks without accommodation. When an adjustment is available to all workers in the job, it is not considered an accommodation.

Table 1-4: Accommodation Determination

	Accommodations Examples	Accommodation?	Reason
1	Allowing a worker to avoid/ reassigning *critical tasks* to other workers in the job	Yes	Employer modification for one worker to perform critical tasks
2	Allowing a worker to avoid/reassigning *incidental tasks* to other workers in the job	Not Applicable	Accommodations apply to critical tasks only and all incidental tasks are excluded from ORS collection
3	Allowing a worker to stand for a job normally performed sitting or sit for a job normally performed standing	Yes	Employer modification for one worker
4	Allowing all workers in the job the option to stand for a job normally performed sitting or sit for a job normally performed standing	No	Offered to all workers
5	Buildings with ADA-compliant compliant ramps and other unrestricted ADA-compliant equipment	No	Employer does not provide or restrict their use
6	Tools such as eyeglasses, contacts, and hearing aids	No	Employer does not provide or restrict their use

Chapter 2: Collection Strategies

The goal of ORS is to describe how work is performed in the US economy by collecting as much quality data as possible in an efficient manner. Strategies for success rely on positive respondent feedback, knowledgeable field economists, and expedited collection procedures. Good response rates are the foundation of reliable statistical data. Field economists collect high quality data by obtaining cooperation from a large portion of sampled establishments and ensuring the respondents at these establishments provide complete and accurate data.

ORS presents a unique collection opportunity because most people are familiar with the Social Security Administration (SSA) programs. While it does not guarantee cooperation, this familiarity may help field economists get quality information for ORS. The following strategies, explained further in this chapter, facilitate successful ORS collection:

- Use Job Descriptions and Other Descriptive Documents to Prepare for Collection
- Identify a Collection Approach
- Prioritize to Maximize Data Collected
- Take Advantage of Opportunities to Observe Workers on Jobs

2_01 Use Job Descriptions and Other Documents to Prepare for Collection

Job descriptions and other establishment documents (e.g., workers compensation forms, OSHA/workplace safety forms, and organizational charts) are valuable tools when making a preliminary assessment of jobs and in expediting collection. However, the value of ORS is the quality of data obtained by the interaction of field economists with respondents while conducting an interview.

Use caution with establishment documents that include references to ORS elements and duration. Job demands listed in job descriptions and other establishment documents may not match the definitions and thresholds for ORS elements. The description may also reflect the maximum exertion or exposure a worker could experience instead of the normal expectations and requirements of the job.

Before using any job descriptions or other descriptive documents, verify with the respondent they are current and accurately reflect the critical function and critical tasks of the job. Critical tasks, job demands and durations listed in a job description cannot be used until they have been confirmed and verified by a knowledgeable respondent. Probing questions are necessary to determine incidental tasks, and to reconcile incomplete, unclear, or conflicting information present in a job description. Job descriptions, or any other company documentation, are aids to collection and do not substitute for an interview.

Job descriptions and other establishment documents may expedite collection by helping to:

- Identify the potential critical job function(s) and critical tasks
- Verify Standard Occupational Classification (SOC) coding
- Review O*NET (Occupational Information Network Online) task lists associated with possible SOC options
- Launch discussions with the respondent on task lists, ORS data elements, and leveling
- Provide information on work schedules and supervisory responsibilities
- Learn about educational, training, certification, licensure, and experience requirements for Specific Vocational Preparation (SVP)

The presence of ORS data elements may be evident from the occupational information obtained from job descriptions and respondent discussion. For example:

- Presence/absence of physical demand elements (e.g., writing is present, so gross and fine manipulation must be present)
- Presence/absence of environmental condition elements (e.g., tasks performed entirely in an office so working outdoors is not present)

Clarify any conflicting information that arises between respondent information collected early in the interview, or through job descriptions, and answers provided later in the collection interview. Confirm with the respondent that the researched information applies to the selected

occupations. Resolve discrepancies with the respondent, during the interview or through follow up as needed.

For more information about using job descriptions to create task lists, see 4_02: Use of Job Descriptions in Creating Task Lists

Special Situations

In special situations, it is more common for establishment documentation to be generalized descriptions of the jobs. Central offices and temporary help firms are examples where this occurs, but it can also occur in maintenance and service industries where the nature of the call influences the activities.

These special situations should be evaluated on the occupational information provided, including the ability of the respondent to provide valid responses. When using establishment descriptions, a quote may be coded usable if the respondent can confirm the critical job function and critical tasks the company defined as relevant for the occupation. Any specific vocational preparation, cognitive demands, physical demands, and environmental conditions elements coded based on establishment descriptions must be verified by the respondent.

For temporary help establishments, consider the duties and responsibilities for which the temporary help establishment is recruiting when determining ORS requirements. For example, if a temporary help establishment hires data entry personnel, consider the critical tasks associated with the temporary help establishment's definition of the data entry job, not specific tasks required by any individual client establishment.

2_02 Identify a Collection Approach

Determine the best collection approach based on personal preference, establishment size, industry, and respondent personality. Options include collecting:

- Each quote individually.
- Multiple quotes concurrently.
- A portion of the interview for each quote individually and a portion for multiple quotes concurrently.

Seek respondents with direct knowledge of the job. More than one individual may provide information to maximize the quality of data collected. Try to discuss jobs with as many knowledgeable respondents as may be available such as:

- First-line supervisors
- Occupational safety managers
- Risk managers
- Lead workers
- Recruiters
- Workers in the job

2_03 Prioritize to Maximize Data Collected

Efforts must be made to collect all data for all selected occupations. Sometimes that is not possible due to respondent constraints. Apply the following collection priorities to maximize data collected. Collect these items first:

- Task Lists
- SVP
- Cognitive Elements

These three elements inform the conversation and coding for all of the other elements.

Collect these physical demand elements next:

- Sitting vs. Standing/Walking and Sit/Stand at Will
- Lifting/Carrying
- Pushing/Pulling: hand/arm and foot/leg

Collect the remaining elements to the greatest extent possible. At a minimum, attempt to collect the presence or absence of each item. Conversational interviewing techniques can increase efficiency. Use information provided throughout the interview to support coding decisions. For example, if the task list for an occupation includes use of a computer, near visual acuity is present and may be assumed.

2_04 Take Advantage of Opportunities to Observe Workers on Jobs

ORS is collected by interviewing respondents who understand their establishment's job demands. Observations of workers can also be helpful in understanding how work is performed. Direct observations enable a better understanding of the physical actions and tools workers use as well as the environmental conditions in which they perform critical tasks.

- Notice workers and what they are doing while walking to and from the respondent's office.
- Accept offers for a company tour, especially for unfamiliar industries and jobs.
- Ask to observe jobs.
- Probe respondent while on a company tour to clarify what you observe to determine whether it is usual and associated with critical tasks.
- Document how your observations affect coding selections.

Chapter 3: Classifying Jobs

This chapter outlines the procedures for classifying and distinguishing jobs during the ORS collection process. Matching jobs found in individual establishments to the closest standard occupation in the national economy ensures any job demands collected reflect the correct occupation. Other factors may also result in the need to further distinguish jobs during collection.

- SOC Classification
- Job Characteristics
- Work Schedules
- Other ORS Variations

3_01 SOC Classification

ORS classifies selected jobs found in establishments into the most detailed occupational code available. Federal statistical agencies are mandated to use the SOC system for the purpose of collecting, calculating, or disseminating occupational or labor market data. For more information about SOC coding, see Fundamentals of NCS and ORS, Chapter 4 Occupational Classification found on the NCS-ORS Procedure Library.

3_02 Job Characteristics

Jobs in ORS are also classified by broad characteristics such as full-time/part-time and their work level, including supervisory duties. For more information about classifying full-time/part-time status and work level, see Fundamentals of NCS and ORS, 3_01 Worker Characteristics and Chapter 5 Leveling found on the NCS-ORS Procedure Library.

3_03 Work Schedules

For guidelines on coding work schedules in ORS schedules, see Fundamentals of NCS and ORS, Chapter 6 Work Schedule found on the NCS-ORS Procedure Library.

3_04 Other ORS Variations

Jobs in ORS can vary for other reasons than those described earlier in this chapter. For more information about addressing ORS Variations, see Fundamentals of NCS and ORS, 3_08 Most Narrowly Defined Job found on the NCS-ORS Procedure Library.

Chapter 4: Task Lists

A **task list** outlines the critical job function(s) and itemizes the critical tasks performed within a job. Only the knowledge, cognitive abilities, physical actions, and environmental conditions associated with a job's critical tasks are in-scope for ORS.

The collection of task lists is essential to understanding how the critical tasks performed relate to the job demand elements. Therefore, coding of task lists is itself a required ORS element.

This chapter outlines the procedures for using task lists during the ORS collection process:

- Collecting Task Lists
- Use of Job Descriptions in Creating Task Lists
- Documenting an ORS Task List
- Consistency between Task List and Element Coding
- Job Demands when Traveling is Involved

4_01 Collecting Task Lists

Task lists reflect and record the detailed activities workers perform to accomplish critical functions. Task lists support SOC coding. Task lists also serve as a bridge between the critical job function(s) and ORS element coding. There are many strategies for obtaining this information from respondents.

Possible ways to start the conversation include:

- What are the most important things this job does for your organization?
- What is the purpose of this job?
- What do workers in this job do in a regular day?

Critical tasks are not always obvious. When they are not, you must ask additional questions. Verify any unusual tasks for the occupation that are required, primary, and in support of the critical job function(s) of the job. Exclude any incidental tasks.

Several questions that may help determine whether to include/exclude a task are:

- If workers could not do this, could the main purpose of the job still be accomplished?
- If no one in this job could perform this task, would the job still be useful to your organization?
- Are workers rated or evaluated on how well they perform this task?
- Is this something that anyone in the organization could do?

ORS Task Lists Examples

Table 4-1: ORS Task List Examples

Court Room Clerk
Critical Job Function Performs clerical and courtroom duties in support of the municipal court **Critical Tasks** • Prepares docket or calendar of cases to be called • Assigns new court dates • Prepares legal forms, prepares and corrects convictions on computer • Reviews and researches documents online and in law library • Answers phone inquiries from attorneys, court personnel and the public • Accompanies judge with files into the courtroom on docket day • Pushes cart with files and hands judge files as requested
Excluded tasks*: • Crawls under desk to plug in new equipment (Critical job function consists of clerical and courtroom duties. Plugging in equipment is not related to either. Task is infrequent, occurs by chance, and would not meet the 10% threshold for coding.) • Voluntarily carries heavy packages delivered to reception area on the way into the office (Task is optional, voluntary, and could be done by any job in the organization.) • Walks across the street from the office to the courts building, climbing stairs to get into the building (Exclude climbing steps to enter and exit public buildings and non-residential structures from both work and structure related climbing.)

*Documenting excluded tasks is optional, and shown for purposes of this example.

Middle School Teacher
Critical Job Functions Plans and provides classroom instruction to students in grades 6-8 in accordance with district and school policies and monitors students while on school premises. **Critical Tasks** • Prepares, plans, and delivers instruction to students • Meets with assigned team to develop lesson plans • Uses smartboard in classroom teaching • Grades assignments and enters scores into computers • Monitors students getting on and off buses in the parking lot and during recess to ensure safety
Excluded tasks*: • Goes on annual field trip to a local water sanitation plant with students (The field trip is not a primary component of instructing and monitoring students and is not a regular part of the job. See incidental tasks.) • Decorates classroom with posters (This task does not involve actual instruction or monitoring of students. Additionally, a teacher can decide whether to decorate the classroom or not so it is optional.)

*Documenting excluded tasks is optional, and shown for purposes of this example.

Hairdresser
Critical Job Function Provides beauty services relating to clients' requests. **Critical Tasks** • Shampoos, cuts, colors, blow dries hair for men, women, and children • Recommends styling products • Perms hair • Waxes eyebrows and facial hair • Creates up-dos for special occasions like weddings or prom
Excluded tasks*: • Answers phone when receptionist is at lunch (It is not related to providing beauty services and is generally done by another job.) • Helps delivery person to offload shipment of beauty supplies for 30 minutes per week (It is not a critical task associated with providing beauty services and is performed less than 10% of time.)

*Documenting excluded tasks is optional, and shown for purposes of this example.

4_02 Use of Job Descriptions in Creating Task Lists

Job descriptions often provide considerable information about the tasks that jobs perform, but they can be outdated and misleading. See 2_01 Use Job Descriptions and Other Documents to Prepare for Collection. Respondents are the primary source of information. If a respondent is insistent that a job description be used to code tasks, the following must be verified before using the information:

- Description is current
- Description is for the correct job
    - Title/job code matches quote selection.
    - Description covers sufficiently narrow tasks/duties (e.g., if the selected quote is an art teacher then the description for a primary teacher would not be narrow enough).
- Tasks/duties are accurately portrayed (job descriptions often overstate tasks/duties)
    - All critical tasks are included.
    - Incidental tasks are identified for exclusion.

Even after verification of the above items, proceed with caution. Job descriptions can be useful in determining what tasks should be included, but they often don't describe how tasks are performed. If the respondent doesn't have direct knowledge of sampled positions in order to verify the accuracy of a job description and the information provided on it, attempt to contact a different respondent with more knowledge of the position. If it is not possible to get verification from a knowledgeable respondent, then the information is not usable.

4_03 Documenting an ORS Task List

Document the critical job function(s) and the critical tasks performed in support of the critical job function(s) for every usable quote. Task lists must be complete in order to be used. Helpful factors to include for context and improved understanding of potential ORS elements are:

- How tasks are performed
- Where tasks are performed
- What materials are used (e.g., types of data, tools, and equipment, etc.)
- What the origination and destination of materials or information used are
- Who are the people with whom the job interacts

Using a simple approach similar to the one used by O*NET makes comparisons more straightforward:

- Start with a verb to state the action.
- State the object of the action (if any) and, when relevant, the frequency.
- State the purpose of the action (if relevant).
- Keep bulleted items brief and uniformly formatted.
- Enter task lists in the Task List screen in CIERA.
- Mark the 10% task checkbox when tasks that are otherwise incidental are included as critical tasks because they are performed 10% or more of the time.

Copying/pasting entire job descriptions, the O*NET task list, the O*NET definition, or the SOC Manual definition is unacceptable and does not meet the task list documentation requirement. If the respondent doesn't have direct knowledge of the sampled jobs in order to verify the accuracy of a job description and the information provided on it, attempt to contact another respondent with more knowledge of the position. If it is not possible to get validation from a knowledgeable respondent, do not use the information.

Documenting an ORS Task List Example

Using the approach above as a guide, a field economist discusses with a respondent the tasks of a janitor in an elementary school.

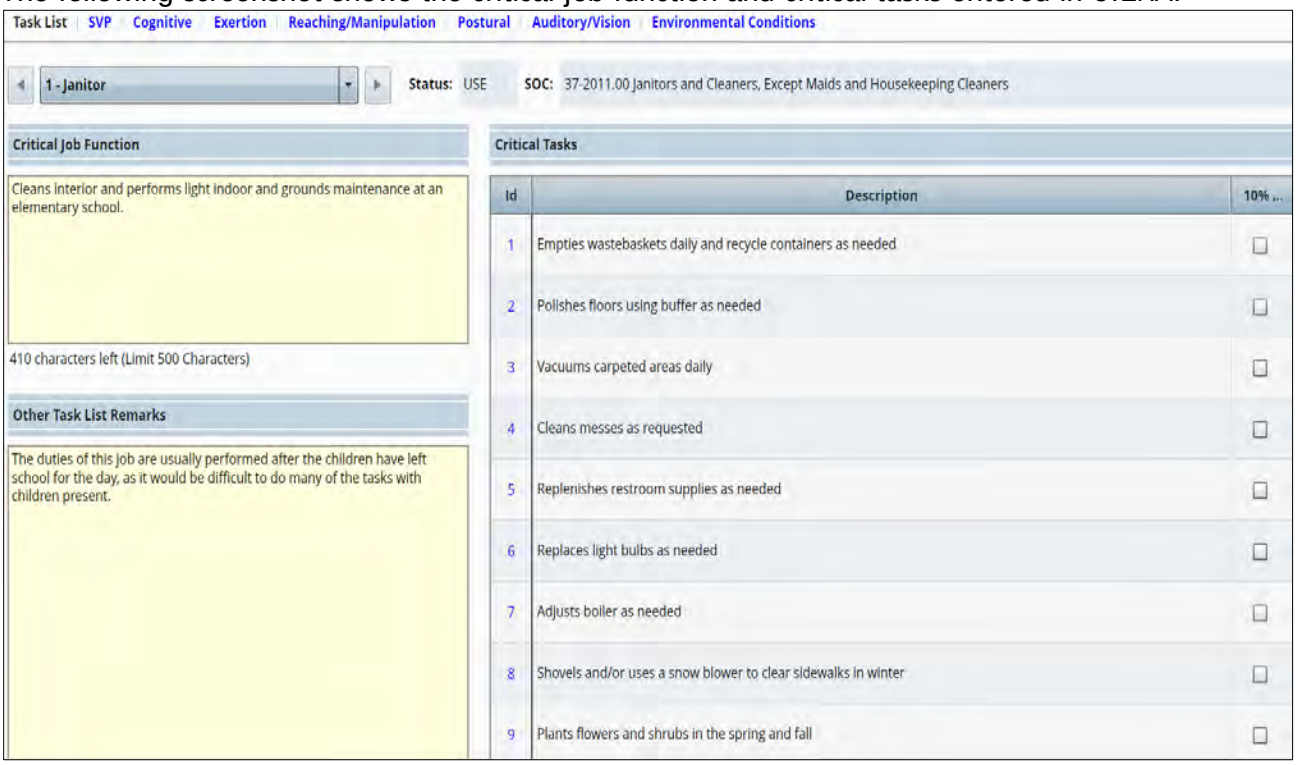
Respondent says: "The janitor cleans all of the classrooms and public spaces such as hallways, restrooms, and some outside areas. He reports to the Maintenance Supervisor. One of the biggest jobs is emptying the waste receptacles throughout the building. This includes emptying all of the classroom trash cans as well as the large cans in the hallways and cafeteria daily. Additionally, he has to empty recycle containers throughout the building as needed. He routinely uses a commercial vacuum to clean floors in classrooms and public areas, and waxes floors using a buffer as needed. Since the building is full of children, there are many spills requiring spot cleaning. He uses a small snow blower and/or a shovel to clear the entryway into the building, so the children may safely enter and exit the building. He also plants flowers and shrubs in spring and fall. He maintains and makes minor repairs to the boiler system as needed, and does other simple maintenance such as replacing light bulbs or restroom supplies. The

duties of this job are usually performed after the children have left school for the day, as it would be difficult to do many of the tasks with children present."

Table 4-2: Example – Janitor Task List

Example – Janitor Task List
Critical job function: Cleans interior and performs light indoor and grounds maintenance at an elementary school.
Task List: • Empties wastebaskets daily and recycle containers as needed • Polishes floors using buffer as needed • Vacuums carpeted areas daily • Cleans messes as requested • Replenishes restroom supplies as needed • Replaces light bulbs as needed • Adjusts boiler as needed • Shovels and/or uses a snow blower to clear sidewalks in winter • Plants flowers and shrubs in the spring and fall

The following screenshot shows the critical job function and critical tasks entered in CIERA.



4_04 Consistency between Task List and Element Coding

A job's task list clearly and concisely summarizes job duties. Element coding represents the movements and exposures experienced as a result of the worker performing these duties.

Cognitive, physical, and environmental coding must be documented with examples relating to and consistent with the task list. Include details that validate element coding, such as examples of items lifted/carried, examples of items pushed/pulled, presence of driving and vehicle type, and how environmental condition exposures meet thresholds.

The tasks documented on the task list should provide a picture of how the job is performed on a daily (or in some cases weekly, monthly, or annual) basis. Use the task list as a means of validating the reasonableness of individual element duration coding. Compare task lists, work schedules, and element duration coding to ensure the durations coded are collectively reasonable based on the length of the workday.

If the respondent indicates job demands are present that are not related to the critical tasks included in the task list, determine whether a task related to the critical job function(s) was missed. If yes, add it to the task list. If no, unless the duration meets the 10% threshold, the ORS elements related to the task should not be coded, as they do not meet the overall threshold for determining presence.

Unless a job's critical function(s) is to respond in emergency or unusual situations, exclude tasks resulting from such situations. There are situations in which tasks may be critical but occur infrequently. Critical tasks do not include tasks that occur because of unusual events, including emergency situations.

Proceeding When Respondent Answers are Incomplete

Use the task list as a reference to probe and confirm respondent answers. If the respondent can confirm that an element exists and the threshold is met, but is unable to provide associated duration, code the element as **Present, Duration Unknown (PDU)**. Only use **PDU** after exhausting all other methods to establish duration, including requesting to contact a different respondent.

If a respondent is unable to confirm that an element is present, code **Unknown (UNK)**.

ORS Task Lists and Element Coding Inconsistency Examples

Table 4-3: ORS Task Lists and Element Coding Inconsistency Examples

Example 1 – LAN Techs
Critical Job Function: Maintains company software and hardware for all employees.
Task List: • Assists company employees with technical problems by phone and in person • Configures new employee computers • Maintains company servers • Installs new software on employee computers • Runs software updates as needed
Possible Element Coding Inconsistency with Task List: Respondent indicates Extreme Heat is present for less than 2% of time because if the HVAC system happens to malfunction, at least one LAN Tech must stay in the server room until the system is repaired.
Resolution: Do not code for Extreme Heat. This exposure is not experienced by most of the workers in the job but rather is the result of a chance event, an unusual or emergency situation.

Example 2 – Preschool Instructor
Critical Job Function: Provides classroom instruction and recreational activities to preschool age children. **Critical Job Function:** Provides classroom instruction and recreational activities to preschool age children.
Task List: • Teaches lessons to children using toys and other learning tools • Monitors recess and playtime • Reports progress to parents • Develops lesson plans
Possible Element Coding Inconsistency with Task List: Respondent indicates that overhead reaching is present. All toys and learning tools are located on a high shelf so that the children cannot reach them. Even when standing, instructors must reach overhead to take these items off of the shelf to use during lessons and at playtime and then return them to the shelf upon completion.
Resolution: Code for overhead reaching. Coding is consistent with the task list, as it is done in support of teaching lessons and monitoring playtime.

Example 3 – Machine Operator
Critical Job Function: Responsible for all aspects of operation of injection molding machines. **Critical Job Function:** Responsible for all aspects of operation of injection molding machines.
Task List: • Operates injection molding machine • Performs machine set up and adjusts as necessary • Inspects final product • Resolves machinery issues.
Possible Element Coding Inconsistency with Task List: Respondent indicates that the machine operator climbs stairs that are a part of the machine to make adjustments on the top of the machine and when machinery malfunctions.
Resolution: Code for work-related climbing. Add documentation to explain this demand is part of critical tasks (performing machine adjustments and resolving machinery issues) which support the critical job function.

Example 4 – Dental Assistant
Critical Job Function: Provides assistance to the dentist during surgeries and other treatments
Task List: • Assists dentist performing dental treatments • Takes impressions of teeth • Performs x-rays • Explains treatment plan to patients
Possible Element Coding Inconsistency with Task List: Respondent indicates that the dental assistant cleans the dental office which takes about an hour per 8-hour day. Dental assistants also sometimes drive in order to drop off/pick up mail at the nearby post office when others in the office are unavailable.
Resolution: Include the cleaning duties on the critical task list and select the 10% task checkbox. While this task is not associated with the critical job function, the dental assistant spends more than 10% of work time performing this task. Exclude driving for ad hoc postal deliveries from the task list. Dropping off mail is not specific to the job – anyone in the establishment can do it and it doesn't take more than 10% of work time to perform it.

4_05 Job Demands When Traveling Is Involved

Some jobs require travel as part of the critical job function(s). Work-related travel outside of normal commuting may be local or long distance. Collect the presence and duration for physical demands associated with travel when it is a critical task. Include any time sitting or standing/walking if travel is part of the typical workday.

Include:

- Driving and traveling between locations where critical tasks are performed
- Lifting/carrying or pushing/pulling work-related displays, sales materials, or equipment

Exclude:

- Driving and travel and their associated demands that are part of a regular commute
- Lifting or pushing/pulling personal luggage
- Exposure Outdoors from travel unless the worker is performing critical tasks between the transportation mode and other work sites such as making deliveries

For more information on how to collect the physical demands associated with driving in ORS, see 7_10 Driving.

Table 4-4: Job Demands When Traveling Examples

	Job Demands When Traveling Examples	Include:	Exclude:
1	A college professor must drive between campuses during a regular workday.	• Work-related intra-day driving	• When a professor commutes to one campus on one day and teaches at a different campus on a different day (excluded because this driving is part of a normal commute)
2	Computer consultants travel by car and plane to client sites, carrying a laptop in a shoulder bag and wheeled personal luggage.	• Sitting while flying • Walking between airport and car, client sites and car, and around airport • Driving elements - sitting, gross manipulation, far visual acuity, peripheral vision, foot/leg controls • Lifting/carrying work laptop	• Pushing/pulling personal luggage (excluded because the worker can choose what to bring) • Outdoor exposure between client sites, car and airport (does not meet Outdoors condition of performing critical tasks outdoors)
3	Pharmaceutical sales reps drive to doctors' offices carrying sample cases.	• Driving elements - sitting, gross manipulation, far visual acuity, peripheral vision, foot/leg controls • Walking to and from the car while working • Lifting/carrying sample cases.	• Traveling to and returning from a work office or residence as part of a commute • Outdoor exposure between car and doctors' offices (does not meet Outdoors condition of performing critical tasks outdoors)

Chapter 5: Specific Vocational Preparation (SVP)

Specific Vocational Preparation (SVP) is the minimum amount of preparation time required by a typical worker to learn the techniques, acquire the information, and develop the aptitude needed for average performance in a specific job.

This chapter includes procedures for collecting of SVP elements:

- Collecting SVP
- Minimum Education
- Non-Degree Credentials
- Experience
- On the Job Training

5_01 Collecting SVP

SVP measures the **minimum** vocational preparation time needed for a job. Traditionally, SSA has used SVP as a proxy to quantify skill required by a job. SVP includes only vocationally relevant preparation time. Therefore, SVP excludes time spent completing **general education** requirements, non-vocationally relevant credentials, general experience, and probationary periods where workers aren't actively receiving on the job training. Exclude any establishment hiring requirements that do not relate to the job's critical tasks.

SVP consists of four components:

- Minimum Education
- Non-Degree Credentials
- Experience
- On the Job Training

The amount of vocational preparation time for each component is added to derive an overall SVP level.

Understanding SVP Levels

The following chart illustrates SVP levels and associated vocational preparation time:

Table 5-1: SVP Levels and Associated Vocational Preparation Time

SVP Level	Preparation Time
1	Short Demonstration Only (4 hours or less)
2	Anything beyond short demonstration up to and including 1 month
3	Over 1 month up to and including 3 months
4	Over 3 months up to and including 6 months
5	Over 6 months up to and including 1 year
6	Over 1 year up to and including 2 years
7	Over 2 years up to and including 4 years
8	Over 4 years up to and including 10 years
9	Over 10 years

Computing SVP Level

Enter the presence and amount of vocational preparation time required for each component. The overall SVP level is calculated in CIERA by summing the time entered for each of the four individual SVP components.

SVP coding reflects the lowest combination of education, experience, and training required by the establishment for average performance in a specific job. If a company provides a range of

time or several combinations of education, training, or experience, code the combination the establishment accepts that results in the lowest overall SVP.

When multiple combinations of education and experience will result in the *same* SVP level, code the combination the establishment accepts that requires the least formal education. However, when the establishment provides ranges of minimum qualifications as a result of grandfathered or foreign degree requirements, code the **current** minimum vocational preparation time required for applicants. If an establishment provides ranges of minimum qualifications based on the existence of alternative requirements used to fill jobs in unusual or extenuating circumstances, code the minimum vocational preparation time required in normal circumstances.

Ensure that the information coded and the resulting SVP level makes sense for the job. In the event the SVP level seems incorrect considering the critical job function(s) and skills required, ask follow-up questions to ensure accurate coding of SVP time components.

The following examples illustrate what is included and excluded from SVP and how overall SVP level is calculated.

Table 5-2: SVP Coding Examples

Bookkeeper SVP Coding Example 1 - Basic SVP

Job Description Requirements: Requires a minimum of 6 months experience in bookkeeping.

Additional Information Provided by Respondent:

- Verified accuracy of job description requirements
- Needs a high school diploma or GED
- Works with an assistant who demonstrates what to do for about 3 weeks
- 90 day probationary period

SVP Formula

SVP = Minimum Education + Non-Degree Credentials + Experience + On the Job Training

Coding and Time Counted as SVP

SVP Type	Code	Time Counted as SVP
Minimum Education	High School	0
Non-Degree Credentials	No, not required	0
Experience	6 months	6 months
On the Job Training	3 weeks	3 weeks
Total Preparation Time		**Over 6 months up to and including 1 year**

SVP Level and Explanation

SVP Level = 5

Probationary Periods are not counted as on the job training. Time spent completeing general education does not count toward SVP.

Bookkeeper SVP Coding Example 2 - Combinations Result in Different SVP

Job Description Requirements: Either a minimum of 6 months experience in bookkeeping or an Associate's degree.

Additional Information Provided by Respondent:

- Verified accuracy of job description requirements
- Needs a high school diploma or GED.
- Works with an assistant who demonstrates what to do for about 3 weeks.
- 90 day probationary period

SVP Formula

SVP = Minimum Education + Non-Degree Credentials + Experience + On the Job Training

SVP Level Comparison

Time counted as SVP:		**Time counted as SVP:**	
Min Education (High School):	0	Min Education (Associate's):	1 year
Non-Degree Credentials (none):	0	Non-Degree Credentials (none):	0
Experience:	6 months	Experience (none):	0
On the Job Training:	+ 3 weeks	On the Job Training:	+ 3 weeks
Total Preparation Time = Over 6 months up to and including 1 year		Total Preparation Time = Over 1 year up to and including 2 years	
SVP Level = 5		**SVP Level = 6**	

SVP Coding and Explanation

- Minimum Education: High School
- Non-Degree Credentials: No, not required
- Experience: 6 months
- On the Job Training: 3 weeks

SVP Level = 5

When either experience **or** education will meet requirements, code the one that results in the lowest SVP.

Note

Probationary periods are not counted as on the job training. Time spent completing general education portions of required degrees is also excluded.

Bookkeeper SVP Coding Example 3 - Combinations Result in Same SVP

Job Description Requirements: Either a minimum of 1 year experience in bookkeeping or an Associate's degree.

Additional Information Provided by Respondent:

- Verified accuracy of job description requirements
- Needs a high school diploma or GED.
- Works with an assistant who demonstrates what to do for about 3 weeks.
- 90 day probationary period

SVP Formula

SVP = Minimum Education + Non-Degree Credentials + Experience + On the Job Training

SVP Level Comparison

Time counted as SVP:		**Time counted as SVP:**	
Min Education (High School):	0	Min Education (Associates):	1 year
Non-Degree Credentials (none):	0	Non-Degree Credentials (none):	0
Experience:	1 year	Experience (none):	0
On the Job Training:	+ 3 weeks	On the Job Training:	+ 3 weeks
Total Preparation Time = Over 1 year up to and including 2 years		Total Preparation Time = Over 1 year up to and including 2 years	
SVP Level = 6		**SVP Level = 6**	

SVP Coding and Explanation

- Minimum Education: High School
- Non-Degree Credentials: No, not required
- Experience: 1 year
- On the Job Training: 3 weeks

SVP Level = 6

When multiple combinations of education and experience will result in the **same** SVP level, code the combination the establishment accepts that requires the least formal education.

Note

Probationary periods are not counted as on the job training. Time spent completing general education portions of required degrees is also excluded.

Collecting Concurrent SVP Time

Count overlapping time between SVP components once to avoid overstating the SVP requirements of the job.

Concurrent SVP often occurs whenever licenses, certifications, or other non-degree credentials needed for the job also require degrees or experience time as part of the credentialing requirement. Include all overlapping time required between non-degree credentials and other

SVP components in the applicable category: minimum education, experience, or on the job training. Code the presence of any required credential and select **Concurrent** for duration.

Table 5-3: Concurrent SVP Time Examples

	Concurrent SVP Time Examples	Code	Reason
1	A pharmacist is required to have a Doctor of Pharmacy degree, and must be licensed by the state they practice in. There is no additional preparation time for the license beyond the degree required.	Code **Professional** degree for Minimum Education. Code **Yes, required**, and **Concurrent** for Non-Degree Credentials/License.	Concurrent minimum education and license. The time required for the license is already reflected in Minimum Education.
2	A police detective must have a minimum of two years' prior experience as a police officer, along with required coursework and an exam. Required coursework is completed after becoming a police officer.	Code **2 years** for Experience. Code **Yes, required** and **Concurrent** for Non-Degree Credentials/Other.	Concurrent experience and coursework time not resulting in a degree or educational certificate. The time to complete coursework is reflected in Experience.
3	A project manager needs a minimum of five years prior experience in project management and a Project Management Professional (PMP) certification. Certification requires at least 3 years prior experience, 35 hours of training, and an exam.	Code **5 years** for Experience. Code **Yes, required** and **Concurrent** for Non-Degree Credentials/Certification.	Concurrent experience and certification. The time required for certification is already reflected in Experience.
4	A BLS field economist (FE) spends 6 months completing on-the-job training and completes one week of National Office collection training during that 6 months.	Code **6 months** for On the Job Training	Concurrent on the job training and classroom training post-hire. All time is coded as on the job training, as there is no separation of OJT types.

Using Unknown and Not Required

An SVP component that cannot be determined is different from an SVP component that is not required.

- Code **Not required** when an SVP component is not present or needed for the job.
- Code **Unknown** when an SVP component cannot be determined or is unavailable.

Coding **Not required** for an SVP component when presence or duration is unavailable may understate the actual SVP.

Do not code individual subcomponents of Non-Degree Credentials unless the presence of all subcomponents has been determined. When the presence of any subcomponent is unknown, code Non-Degree Credentials as **Unknown**.

Table 5-4: SVP Not Required vs. Unknown Examples

	Not Required vs. Unknown Examples	Code As:
1	Respondent confirms prior experience is preferred but not required.	Experience - **Not Required**
2	Respondent does not know if the job requires prior experience.	Experience – **Unknown**
3	Respondent does not know if the job requires any non-degree credentials, but can confirm one of the critical tasks is operating a passenger vehicle requiring a standard drivers' license.	Non-Degree Credentials – **Unknown**. Do not code presence of driver's license when other subcomponents of Non-Degree Credentials are unknown.

Note
If any of the four SVP components is coded as **Unknown**, the system cannot compute an overall SVP level and portions of SVP are imputed for estimation.

Coding a Non-Levelable Job

Non-levelable jobs are occupations where the skills are not necessarily obtained by education as they may be natural skills. Some non-levelable occupations are elected positions. It may be difficult to find formal training requirements for these jobs. See Fundamentals of NCS and ORS, 5_04 Non-Levelable Jobs found on the NCS-ORS Procedure Library for a complete list of non-levelable jobs.

If a job is non-levelable and it is not possible to collect an SVP component accurately, code the SVP component as **Unknown**.

Coding **0** or **Not required** will give the job an artificially low SVP level.

Table 5-5: Non-levelable Job Example

	Non-Levelable Job Example-Lead Actor in a Theatre Company-Preparation Required:	Code As:
1	None specified, but respondent states that they would not cast someone without some prior acting experience as the lead actor.	Experience **Unknown**
2	Four yr. drama degree. Five yrs. prior acting experience to be hired into company as an actor and 2 yrs. experience as an actor with the company to move up to lead actor.	**Bachelor's degree - 2 years**; **Experience - 7 years**

5_02 Minimum Education

Minimum Education measures the minimum level of formal coursework resulting in a degree required of a job, excluding general education.

Collecting Minimum Education

If an establishment requires a diploma or degree, regardless of academic discipline, collect:

- Type of degree required
- Vocationally relevant portion of time required for completion of degree

When coding minimum education, use the list of degrees and associated vocational time in the Minimum Education SVP Chart.

Table 5-6: Minimum Education SVP Chart*

Degree	Vocational Time Included	Reason
4 years of High School	None	All time is general education
4 years Vocational High School	2 of 4 years	2 years are general education
2 years Associate's Degree	1 of 2 years	1 year is general education
2 years Vocational Associate's	2 years	All time is vocational
4 year Bachelor's	2 of 4 years	2 years are general education
5-Year Bachelor's/Master's	3 of 5 years (2 as Bachelor's, 1 as Master's)	2 years are general education
Master's	All post-grad. years (usually 1-2 years) plus 2 years of Bachelor's	All post-grad. Time is vocational.
Professional	All post-grad. years (usually 2- 4 years) plus 2 years of Bachelor's	All post-grad. time is vocational
Doctorate	6 years (4 years post-grad plus 2 years of Bachelor's)	All post-grad. time is vocational

*Modified from *The Revised Handbook for Analyzing Jobs,* U.S. Department of Labor, Employment and Training Administration, 1991, Chapter 8.

Select the collected minimum education option from the degree dropdown in CIERA. Only one option may be selected. Once a degree is selected, CIERA will display the default amount of the vocationally relevant time required. Code all vocationally relevant education time required, even if the time is different than the default time provided. Exclude the portion of time for general education.

For example, a job requires a minimum of a Master's degree. Select Master's degree option from dropdown. CIERA defaults to **4.00 years** of vocationally relevant education time – all post-graduate time (two years) plus the vocationally relevant portion of Bachelor's (two years).

Coding When No Formal Degree Is Required

When no minimum degree is required, collect whether workers must read and write (in any language) to perform critical tasks. Do not assume the presence of reading and writing requirements. Always ask the respondent. For example, even when a job requires driving and a valid state driver's license, do not assume the job requires reading and writing because workers may have needed to take a written test to get their license.

When some college coursework not resulting in a formal degree is required, include any vocationally relevant time required under Other Non-Degree Credentials.

Coding Graduate Degrees

Graduate degrees are earned after completion of a Bachelor's degree and are generally distinguished by the levels of coursework and research involved. Classify graduate degrees into one of three categories:

- Master's
- Professional
- Doctorate

Ensure that jobs requiring a graduate degree include both the time required to earn the graduate degree program (generally 1-4 years) in addition to the vocationally relevant time needed to complete the Bachelor's degree (2 years).

Example
History professors require a Ph.D. in History. The minimum time required to complete a doctoral program is four years (three years of coursework and one year completing a dissertation). To enter the doctoral program, candidates must have completed undergraduate studies. Select Doctorate degree and enter **6 years** as the duration. This entry includes the four years required to complete the doctoral program plus two years for the undergraduate degree (Bachelor's).

Use the following information to distinguish between professional and doctorate degrees.

Professional degrees are graduate degrees required to work in a specific career/profession. Professional degrees do not require a Master's degree, and typically fall into three main fields (medical, law, and religion).

It is common for the title of the professional degree to include "Doctor," but they are awarded based on classwork and do not require a dissertation. When gathering education requirements remember that the phrase "doctor of" does not always indicate the presence of a Doctorate.

Examples of Professional degrees:

- Doctor of Dental Medicine (D.M.D.)
- Doctor of Medicine (M.D.)
- Doctor of Optometry (O.D.)
- Doctor of Jurisprudence or Juris Doctor (J.D.)
- Doctor of Psychology (Psy.D. or D. Psych)

Physicians typically must complete a residency. The time associated with a residency is not considered part of a physician's education, and is therefore included as a Non-Degree Credential. See Coding Duration for Non-Degree Credentials for more information.

Doctorate degrees are graduate degrees that are research-oriented and require a dissertation or similar independent research effort.

The Doctor of Philosophy (Ph.D.) and research doctorate are equivalent in title and focus almost exclusively on research or advanced studies.

Examples of Doctorate degrees:

- Doctor of Business Administration (D.B.A.)
- Doctor of Education (Ed.D.)
- Doctor of Philosophy (Ph.D.)
- Doctor of Social Work (D.S.W.)
- Doctor of Theology (Th.D.)

See Appendix 3 for additional examples of Professional and Doctorate degrees.

Table 5-7: Minimum Education Examples

	Minimum Education Examples	Action	Reason
1	An accountant at a manufacturing facility is required to have a 4-year Bachelor's degree in Accounting.	Select **Bachelor's** from degree options, **Years** and enter **2**.	This counts as 2 yrs. of time. Exclude 2 years of general education
2	A research biologist is required to have a PhD in the biological sciences. The respondent says that after a Bachelor's degree, a PhD typically requires 3 years of coursework and between 1 to 5 years to complete a dissertation. Average time to complete a dissertation is 3 years.	Select **Doctorate** from degree options, **Years**, and enter **6**.	2 years Bachelor's; 3 years Doctorate, plus 1 year for dissertation. Count only the minimum time required.

5_03 Non-Degree Credentials

Non-degree credentials include training time required as a condition of hire which often results in a certification, license, or educational certificate.

Certifications, licenses, and educational certificates are defined based on guidelines established by the Interagency Working Group on Expanded Measures of Enrollment and Attainment (GEMEnA). Use of these definitions allows for consistency within federal statistical data. Training time that does not result in a certification, license, or educational certificate (as defined for ORS) is captured in a separate category within non-degree credentials (Other).

Include:

- Certifications
- Licenses
- Educational Certificates
- Apprenticeships
- Vocational training
- Non-credit courses
- Credit courses that do not result in a degree

Exclude:

- Non-degree credentials that may be desirable but are not a job requirement.
- Non-degree credentials not associated with any critical job tasks and only a hiring criteria requirement.
- Non-degree credentials used as a background check requirement only with no vocationally relevant training or skills testing required.
- Certificates of attendance or participation for training that is not vocationally relevant.

Collecting Non-Degree Credentials

Capture the presence of any required non-degree credentials along with the minimum associated training or classroom time.

When training for a certification or license is provided after hire, first clarify that the certification/license is a requirement for the job that was selected.

Cadet vs. Firefighter Example
The respondent indicates a cadet receives training and, after credentialing, becomes a firefighter. If the selected job is the cadet, then a credential should not be coded, because it is not a condition of hire for the cadet job. However, if the firefighter job is selected, then a credential is coded because it is required as a condition of hire for the firefighter job.

Sometimes a company will hire workers for jobs that require non-degree credentials with the expectation the worker will obtain the credential as a condition of hire. When a non-degree

credential or non-degree related coursework is a condition of hire, code it under non-degree credentials, even when it can be completed post-hire.

Lawyer Example
Associate attorneys at a law firm must have successfully completed law school and received their J.D. Hiring is contingent upon successful completion of the bar examination and receiving a law license within 6 months of hire. Code the presence of a license, even though attorneys at this establishment may not have their license at the time of hire.

Do not code individual subcomponents of Non-Degree Credentials unless the presence of all subcomponents has been determined. When the presence of any subcomponent is unknown, code Non-Degree Credentials as **Unknown**. See Section 5_01 Using Unknown and Not Required.

Classifying Non-Degree Credentials

Classify non-degree credentials into one of four categories based on the purpose, issuing body, and duration - not by their title. There are four categories:

- Certification
- License
- Educational Certificate
- Other

The purpose of many non-degree credentials is to certify that workers have satisfactorily completed a set of occupationally specific qualifications, which may include education, training, and experience. Some credentials, such as apprenticeships, may be classified in different categories depending on the issuing body.

Occupation specific credentials mean that the credential only applies to a specific occupation (or small group of occupations). Occupation specific credentials may be the same for a broad occupation group (digits 4 and 5 of the SOC code), but would rarely cross major SOC groups.

Only non-degree credentials related to critical tasks are included in any credential category. If a credential is not in support of critical tasks, do not code it. Credentials that meet the definition of occupation specific are coded as certifications, licenses, or educational certificates. Credentials that are not occupation specific are coded **Other**.

Code the same non-degree credential in the same category, regardless of the occupation. For example, if a job requires a commercial driver's license (CDL) for critical tasks, classify a CDL as a **License**, whether the job is a heavy truck driver or a truck mechanic.

Certifications

A **certification** is a non-degree credential awarded by a non-governmental certification body (i.e., industry/professional association) based on an individual demonstrating through an examination process that he or she has acquired the designated knowledge, skills, and abilities

to perform a specific occupation. The examination can be either written, oral, or performance-based. A certification is a time-limited credential (i.e., expires if not renewed) that is renewed through a recertification process.

Certification Example
Personal financial advisors at an establishment are required to have a Certified Financial Planner (CFP) certification. CFP is a professional certification conferred by the Certified Financial Planner Board of Standards, Inc., a non-profit professional association.

Licenses

A **license** is a non-degree credential awarded by a government agency that conveys a legal authority to perform a specific occupation. Licenses are based on some combination of degree or certificate attainment, certifications, educational certificates, assessments (including state-administered exams), apprenticeship programs, or work experience. A license is time-limited (i.e., expires if not renewed) and must be renewed periodically.

Sometimes credentials will have titles using the word certificates but are actually issued by a government agency and therefore, should be coded under licenses. States may use the term certificate in place of license, particularly when the attainment of certification from a private association is a requirement for licensure. Code these as licenses. For example, teaching "certificates" are often issued by states' departments of education and would therefore be coded as a `License`. Another common example are Certified Public Accountant (CPA) licenses. Despite the word "certified", this time-limited credential is awarded by states and conveys a legal authority to provide accounting services.

Many states require casino workers to have special permits, often called "licenses" (e.g., gaming licenses, casino licenses, and key worker licenses). Exclude permits issued by states where the only requirement is payment of a fee and undergoing a background check. Background checks, while required in many situations, are not vocationally relevant and do not support a job's critical function and tasks. While states may call these permits licenses, only code them as licenses if they meet the ORS definition of a license.

Governments sometimes use private third-party organizations to handle training for and/or administration of licenses. In such cases, the government is still the official sanctioning body, and the third party is simply the intermediary. Code these as licenses.

License Example
Securities Broker must possess both a Series 7 and a Series 63 license issued by the Financial Industry Regulatory Authority, Inc. (FINRA). FINRA is not a government agency, but is authorized by Congress to issue Series licenses. The Series 7 (general securities representation) and Series 63 (securities agent) licenses are occupation specific and sanctioned by the government. Code both Series 7 and 63 as licenses.

Note
Commercial drivers' license (CDL) is a common license, with different classes and endorsements legally required to operate specific types of vehicles. CDLs are considered occupation-specific licenses. Exclude standard passenger vehicle licenses even when there is a class endorsement requirement from the License category since they are not occupation specific. See "Other" credentials for more information on coding standard passenger vehicle licenses.

Educational Certificates

An **educational certificate** is a non-degree credential awarded by an educational institution such as a community or on-line college, a 4-year college or university, or a trade school) based on completion of all requirements for a program of study, including coursework and test or other performance evaluations. Educational certificates are typically awarded for life (like a degree). Certificates of attendance or participation in a short-term training (e.g., one day) are not in-scope for educational certificates. Educational certificates can be awarded for a variety of clerical and service occupations in areas such as healthcare, business, legal, restaurant trades, and personal care, as well as some blue collar occupations.

Educational Certificate Examples

- An establishment requires its paralegals to have obtained paralegal certificates, most commonly from the nine month paralegal course at the local community college.
- A large city requires completion of their municipal police academy for all law enforcement officers.

Note
The credential earned upon completion of a protective service academy (e.g., police, fire, correctional academy) is classified as an educational certificate.

- If the establishment accepts multiple combinations of education, experience, or training for the job, code the combination that results in the minimum vocational preparation time, even if it does not include completion of an academy.
- If licenses or certifications are present in addition to the educational certificate, code the time for completion of the academy as an educational certificate and license or certification time `Concurrent`.
- If the time spent at a protective service academy overlaps experience requirements, then the time should be coded as experience and the educational certificate time should be coded `Concurrent`.

Other Non-Degree Credentials

Other non-degree credentials include any non-degree credential which may be relevant for a wide variety of jobs and occupations and may expire or be valid for life. This category includes time spent in vocationally relevant credit and non-credit courses, as well as training classes, that do not result in a degree, license, certification, or educational certificate.

Other non-degree credentials coding is only required if the credential:

- Is in support of the job's critical job function and critical tasks, and
- It changes the job's overall SVP level.

When the establishment requires some college coursework that doesn't result in degree as a condition of hire, code the presence and time associated with vocationally relevant coursework as **Other**. If the establishment doesn't specify that the college coursework must be in a vocationally relevant subject, consider this coursework as general education and do not code the presence or time associated with it.

Many credentials do not require any formal time, or the formal time required is concurrent with other required SVP components, such as minimum education or on the job training. When no formal time is required or time is concurrent with another SVP component, the SVP level remains the same so coding of the credential is not required.

Some credentials may require minimal additional time (a few hours) but will still not affect the overall SVP level. While not required, it is acceptable to continue coding any other non-degree credentials in support of critical tasks, even if they don't change the overall SVP level.

Some common types of credentials that are classified as other non-degree credentials but frequently do not change overall SVP are:

- CPR, Basic Life Support (BLS), and first aid certifications (only for occupations where these certifications support critical job function(s), such as emergency response and clinical healthcare working with patients). CPR, BLS, and/or first aid certifications are required as a part of many healthcare occupations' educational/training curriculums and should, therefore, often be coded **Concurrent**.
- Drivers' License for standard passenger vehicles where driving supports the critical tasks.
- Food service safety and sanitation certifications such as food handling permits.
- Forklift operator certifications (awarded and renewed by individual establishments and operated by a variety of occupations). While OSHA provides guidelines regarding forklift operations, each establishment certifies their workers based on the type of industrial truck used and the work environment.

Table 5-8: Credentials Summary Table

Credential	Duration	Awarded by	Nature	Examples
Certification	Time-limited	Non-governmental certification body	Occupation specific	Information technology certifications; project management professional certifications
License	Time-limited	Governmental licensing agency	Occupation specific	Cosmetology licenses, teacher's licenses
Educational Certificate	Lifetime	Educational Institution	Occupation specific	Digital arts certificate from online university, motorcycle mechanic's diploma from a community college

Credential	Duration	Awarded by	Nature	Examples
Other	Varies	Varies	Vocationally relevant but not specific to an occupation or specific to an establishment	College coursework (no degree), Forklift certifications, CPR certifications (only when in support of critical job function), Food safety certifications, Standard driver's licenses (only when in support of critical tasks)

Apprenticeships

Apprenticeships are multi-year formal training programs designed to develop individuals from no-skills to full proficiency in a skilled trade under the supervision of journey-level or master level craftsmen. It is a combination of on-the-job training and formal study such as classroom work and reading. Individuals must be accepted and registered as apprentices, which are often further separated into "years" based on the number of hours completed. Many states offer information about apprenticeship programs on their Department of Labor and Industry websites.

Classifying apprenticeships will vary by occupation, state or local regulations. The time spent in an apprenticeship is coded in the same category as the credential reached for the journeyman level.

- If the state or municipality issues licenses for apprenticeship training, classify the apprenticeship as a license.
- If an apprenticeship is registered under a trade agency or a union without additional regulation from a government agency, classify the apprenticeship as a certification.
- If an apprenticeship is company-specific and not part of any trade organization/union, and not transferrable to another business entity, classify the apprenticeship as an other non-degree credential.

Report the amount of training time associated with the level of apprenticeship selected, not the amount of training that will be received over the entire apprenticeship. For example, a second-year apprentice would have 1 year of training completed. The upcoming year of training is not to develop skills to be a second year apprentice, but to attain the next level of proficiency. Only journey-level craftsmen would have the full amount of time for attaining the journey certificate via apprenticeship and testing coded.

Coding Duration for Non-Degree Credentials

Collect only the time needed to earn the initial credential, not any ongoing education or development time to maintain the credential.

Do not include independent preparation time, time spent on optional exam prep classes, or time spent taking an exam when determining duration.

Consult government or certifying body websites or literature to confirm/verify/determine the length of time it takes to acquire a license or certification, if the respondent does not know or seems unsure. This is preferable to coding **Unknown**.

If the same credential-related training occurs in different configurations (i.e., hours, days, months, years), capture the training time in hours.

Note
Most physicians must complete a residency prior to obtaining state licensure and/or certification through specific medical associations. The time associated with a residency should be coded with the Non-Degree Credential required. If more than one Non-Degree Credential is required, code the time with the Non-Degree Credential that must be obtained first (e.g., if a certification is required to obtain a license, code the time as certification).

Concurrent Non-Degree Credential Time

Some occupations may require combinations of formal coursework and time-limited licenses or certifications. It is common for formal coursework to be a requirement for applying for a certification. And it is not uncommon for a state to require a professional certification as the requirement for a license.

When a job requires completion of a set of formal coursework, and a license/certification, code the presence of each in the appropriate element. Include the time in the category that must be completed first, and code **Concurrent** for the other category.

Concurrent License and Educational Certificate Example
Paramedics in Alabama must be licensed through the state. Requirements for licensure include successfully passing the National Registry of Emergency Medical Technicians (NREMT) paramedic exam. NREMT exam prerequisites include the completion of a formal paramedic training program culminating in an educational certificate or a vocational associate's degree (60 credits, 2 years to complete). The educational certificate involves 45 credits and takes 1.5 years to complete.

Code License and enter **Concurrent** and Educational Certificate and enter **1.5 years**.

Concurrent License and Degree Example
Teachers must be licensed by the state to teach. In addition to obtaining a passing score on a standardized test, a Bachelors degree that included hands-on student teaching time is a pre-requisite to obtaining a teaching license.

Code License and enter **`Concurrent`** and **`Bachelor's degree 2 years`**.

Concurrent vs. No Formal Time

There are situations where a non-degree credential(s) is required and the presence of it must be captured, but no training duration should be added. This occurs when:

- Required training time is already reflected in other SVP components such as minimum education, prior experience or even other credentials. Capture the presence of the credential and code **`Concurrent`** for duration.
- No formal training time is required. There is an application and/or test only. Individuals may study for the test on their own. Capture the presence of the credential and code **`No formal time`** for duration.

Coding Duration for Coursework Not Resulting in a Degree

When collecting coursework not resulting in a degree, include only vocationally relevant time. For required training which does not result in a degree but time is provided as course credits, use the following information to calculate duration.

- A semester unit is equivalent to one credit hour. Three credit hours equals one class and nine credit hours equals a full course load for one semester.
- A semester is one-half of an academic year and is equal to 15 weeks.

Apply this method carefully since it can overstate SVP time. Count all credits that are vocationally-relevant. Subtract any required credit hours which are time spent toward general education. Distinguish between classes that can be taken concurrently and those that must be taken consecutively to avoid overstatement.

Example
Bookkeepers must have a minimum of four classes in general accounting principles.

4 classes x 3 credit hours/class = 12 credit hours
12 credit hours /9 credit hours = 1.33 of a semester
1.33 x 15 weeks (1 semester) = 20 weeks

Ensure the overall SVP level accurately reflects the actual amount of time needed to initially obtain a non-degree credential, particularly when time is stated in hours or course credits. Avoid understating/overstating duration associated with non-degree credentials.

There may be constraints on the training that change the actual amount of time needed to obtain a non-degree credential. These constraints may be required prerequisites that prevent courses from being taken simultaneously, or limits on the amount of credits or training that can

be completed in a particular time period. The duration entered for credentials is standardized by the system using an 8/40/52 work schedule.

Example
A commercial pilot license requires 1500 hours of flight time. If 1500 hours is entered in CIERA, the system will calculate less than one year of time necessary to receive the license. This understates the length of time and related SVP, since FAA regulations restrict the amount of flight hours allowed in a year to 1200. These restrictions require a pilot's license to take more than one year of time to earn. In this situation, the training hours need to be divided by the maximum allowed hours per year to yield a realistic approximation of the calendar time required (i.e., 1500 hours/1200 hours allowed per year = 1.25 years coded under License).

Table 5-9: Non-Degree Credential Examples

	Non-Degree Credential Examples	Action
1	Journey-level welders must complete 3-months of classroom training, a 4-year apprenticeship, and pass a test to receive a state-issued journeyman certificate before working.	For apprenticeship and journeyman certification: Code `License - Yes` and `51 months` duration. State-issued, occupation specific.
2	Elementary teachers must have their teaching certification issued by the state. Time needed for certification is concurrent with Bachelor's degree. District also requires all teachers to have CPR certification (4 hour Red Cross training)	For teaching certification: Code `License - Yes` and `Concurrent`. State-issued, occupation specific. For CPR certification: Do not count. This certification is related to an unexpected emergency-response task for this occupation; not relevant to critical job function of a teacher.

	Non-Degree Credential Examples	Action
3	Certified medical assistants require a certification through AAMA. The certification requires completion of a medical assisting program with a certificate from an accredited school in medical assisting. Additionally, they are required to hold a state-issued x-ray license. Coursework takes 7 months to complete and includes training in x-ray equipment and prep for both state licensing exams.	For certificate from accredited school: Code **Educational Certificate - Yes** and **7 months**. Coursework results in certificate from accredited education provider, occupation specific, doesn't expire. For medical assisting certification: Code **Certification** and **Concurrent**. Occupation specific. Time toward medical assisting certification is concurrent with educational certificate. For the state issued x-ray license: Coding this credential is optional as it is an other non-degree credential and its inclusion would not change the overall SVP. If coding, select **Other -Yes** and **Concurrent**. The X-ray license is not occupation specific. Time toward x-ray license is concurrent with educational certificate.
4	Board certified dermatologists require a medical license issued from the state as well as board certification from the American Board of Dermatology. Can receive medical license after 1 year of residency and board certification after a minimum of 4 years of residency.	For medical license: Code **License – Yes** and **Concurrent**. State-issued, occupation specific. Time is concurrent with time spent toward certification. For board certification: Code **Certification - Yes** and **4 years**. Certification body, occupation specific.
5	Truck drivers at a shipping company must have commercial driver's licenses that do not require classroom training.	For CDL: Code **License - Yes** and **No formal time**. State-issued, occupation specific, legal authority to operate a commercial vehicle based on examination. No time is required; application or test only.
6	Pizza delivery drivers needs standard state-issued driver's license	For the standard driver's license: Coding this credential is optional as it is an other non-degree credential and its inclusion would not change the overall SVP. If coding, select **Other - Yes** – **No Formal Time**. Not occupation specific, but related legal authority to critical job function. Operate a commercial vehicle based on examination. No time is required; application or test only.

	Non-Degree Credential Examples	Action
7	Retail store workers handling food at a convenience store must complete 4 hours OJT and a 2-hour online food safety training course and pass an exam to be certified by the state in safe food handling practices.	For the food safety certification: Code **`Other - Yes`** and **`2 hours`**. Not occupation-specific, but related to critical job function. This time is included because it changes the overall SVP from 1 (up to and including 4 hours) to 2 (over 4 hours up to and including 1 month).
8	Kitchen staff at a family restaurant must shadow experienced staff for one week and have a food handler card (approximately two hour online course).	For food handler card: Coding this credential is optional as it is an other non-degree credential and its inclusion would not change the overall SVP (SVP 2 is over 4 hours up to and including 1 month). If coding, select **`Other - Yes`** and **`2 hours`**.
9	Bartenders take classes and get a certificate from bartending school. Their employer and the state do not require the certificate.	For the bartending school certificate: Code **`No, not required`**. Certification is not required.
10	Pastry chefs at a resort restaurant must possess a certificate of pastry arts and a food handler's safety permit. The pastry arts' certificate takes six months to obtain and the permit is exam only.	For the certificate of pastry arts: Code **`Educational Certificate - Yes`** – **`6 months`**. For the food handler's safety permit: Coding this credential is optional as it is an other non-degree credential and its inclusion would not change the overall SVP. If coding, select **`Other - Yes`** – **`No Formal Time`**. Not occupation specific, but related to critical job function. No time is required; application or test only.

	Non-Degree Credential Examples	Action
11	Patrol officer is required to attend a state-approved police academy. In this state, the policy academy takes 10 weeks. This state also requires that police officers be licensed, have a driver's license, and be CPR certified.	For policy academy: Code **Educational Certificate - Yes** - **10 weeks**. For license: Code **License - Concurrent**. For driver's license and CPR: Coding these credentials is optional as they are other non-degree credentials and their inclusion would not change the overall SVP. If coding, select **Other - No formal time**. CPR is included because patrol officers are emergency responders and the respondent has indicated CPR is in support of their critical job function.
12	Secretaries are required to have a typing certificate verifying they can type 45 words per minute.	For the typing certificate: Coding this credential is optional as it is an other non-degree credential and its inclusion would not change the overall SVP. If coding, select **Other – No formal time**. Not occupation specific, but related to the critical job function.
13	Paraprofessionals in schools, at a minimum, must get a passing score on the ParaPro assessment exam administered by ETS. Exam covers general knowledge only.	For ParaPro exam: Code credentials as **No, Not Required**. Exam content is not vocationally specific, ETS does not provide a certificate at the end of testing process, and ETS is not a training provider for the test.

	Non-Degree Credential Examples	Action
14	LPNs are required to have a certificate from an approved practical nursing program (one year) and one week OJT. The respondent does not mention a CPR requirement.	For CPR: Do not code other non-degree credentials. It is not necessary to search online to identify if a CPR requirement exists as it would not change the overall SVP (SVP 6 is more than 1 year up to and including 2 years so CPR time would have to be more than 51 weeks to impact overall SVP).
15	Estheticians are required to complete a 600 hour program and obtain a state license. Completion of the program and passage of a test is required to obtain a license.	For the esthetician program: Code **`Educational Certificate - Yes`** – **`600 hours`**. The program is specific formal training that does not expire. For license: Code **`License - Concurrent`**.
16	Dealers at a casino must complete a 6-week program that results in a lifetime certificate.	For the dealer program: Code **`Educational Certificate - Yes`** – **`6 weeks`**. The program is specific formal training that does not expire.
17	Dealers at a casino must obtain a certification that requires 3 weeks of training and renews annually.	For the dealer certification: **`Certification - Yes`** – **`3 weeks`**. The certification must be renewed.

5_04 Experience

Experience measures the minimum amount of prior relevant work activity.
Include:

- Skills acquired or used in a similar job
- Progressively responsible levels of work
- Broad, yet related, vocational capabilities

Exclude non-vocational experience requirements, such as attendance history or a general requirement of previous employment.

Collecting Experience

Capture the presence of any required vocationally relevant experience along with the minimum duration. If the respondent provides a range, document the range and code the least amount of time required.

If a company requires either education or experience, collect the option that involves the least time and code under the appropriate component. Do not code both minimum education and minimum experience unless the company requires that combination.

If there is an overlap of experience and non-degree credential requirements, code time under experience. Code the presence of a non-degree credential and select **Concurrent** for the duration. See 5_01 Collecting Concurrent SVP Time for examples of coding overlapping SVP time.

Table 5-10: Experience Examples

	Experience Examples	Action	Reason
1	An office requires that secretaries have at least one year of prior clerical experience.	Collect one year	Skills acquired at a similar job prior to being hired.
2	A police captain must have one-year of experience as a sergeant and one year of experience as a patrol officer.	Collect two years	Skills acquired through progressively responsible levels of work.
3	A fast food worker must have a history of good work attendance.	Do not collect	Non-vocational experience.
4	A cashier must have one year of general work experience to demonstrate reliability.	Do not collect	Non-vocational experience.

5_05 On the Job Training

On the Job Training (OJT) measures the minimum amount of training time occurring after a worker has been hired.

Include:

- Time workers take to learn basic job tasks while being actively taught by a supervisor or a more experienced worker
- On the job training with verbal and written instruction, demonstration and observation, hands-on practice, or imitation
- Vocationally relevant classes or training needed to do the job, including in-plant or internal company training
- Time spent shadowing

Exclude:

- Continuing education
- Time spent learning tasks that are beyond the basic requirements of the job
- Orientation on topics such as company policies, work place rules, or company benefits
- Time during the probationary period that does not overlap active training
- Coaching for job development

Collecting On the Job Training

Capture the presence of any required OJT along with the minimum associated training time.

Consider the skill level needed for the job when determining the amount of on the job training (OJT) time coded. Low skilled jobs are unlikely to require OJT time that is more than a month. Higher skilled jobs with significant prior experience are unlikely to need additional significant training after hire. It is unusual for a job to require more than a year of OJT. If a respondent indicates a year or more is required, this may represent probationary periods or coaching for long-term development rather than hands-on training to acquire basic job skills.

Tips for Collecting On the Job Training

Use terms familiar to the respondent. Ask about training new workers receive using terms such as “on-the-job-training”, “OJT”, “mentoring,” and “active shadowing.”

Collect a range. A respondent may provide a range for training based on variations between individual workers within the job. When the amount of training provided varies based on the

amount of education or experience of a new worker, document the accepted combinations and code the one that represents the least amount of time overall.

Example
Housekeepers at a hotel require between one hour and one day of on-the-job training, depending on prior experience. A new hire with no prior experience requires a minimum of eight hours of on-the-job training. A new hire with five years of experience may only require an hour of on-the-job training. For this occupation's SVP, code OJT time as **`8 hours`** and experience as **`No, not required`**, as it results in the minimum time required over all the SVP components.

Use an estimated SVP level **for the job to narrow the range.** Collect information on required education, credentials, and experience for the job, and identify two or three likely SVP levels for the job. Use these estimated SVP levels to help a respondent narrow the range provided for OJT.

Example
The respondent says there is no minimum education, credentials, or prior experience required for the housekeeping position. The overall SVP level for this position is likely either SVP 1 or SVP 2 depending on how much OJT time is coded. Any OJT time that exceeds 4 hours, will move the SVP level from 1 to 2. Determine if the minimum OJT required is 4 hours or less or more than 4 hours up to one month. Code the minimum time provided.

Do not use probationary periods as a proxy for OJT. Probationary periods are usually much longer than the amount of time that workers actively spend learning critical tasks needed for average performance. However, probationary periods may be used to help narrow the range for OJT.

Use thresholds to estimate OJT. If a respondent remains non-committal on an amount of time for OJT, attempt to collect an estimate using thresholds based on the amount of time most likely to change the overall SVP level.

To use thresholds as a fallback method, ask the following questions. Start at any point and go higher or lower based on your evaluation of the overall job:

- "Is OJT more than half a day?"
- "Is OJT more than a month?"
- "Is OJT more than 'X' months?"

Use the 'X' in the last question above for any number of months up to seven (7).

When OJT exceeds seven (7) months, the job has a minimum SVP level of five (5). At this point, begin measuring SVP levels in years and ask the respondent a final follow-up question:

- "Is OJT more than a year?"

Once OJT is greater than a year, it takes at least an additional year to affect SVP further. By asking this final question (if necessary), you will have covered all SVP levels that change with lower thresholds.

When using the fallback thresholds, add a .9 to any time the respondent provides.

Example
Respondent states OJT time would be less than a week. Code `0.9 weeks` in CIERA.

Table 5-11: Examples of Fallback Coding for OJT

If OJT is less than....	Code Duration
Half a day	`0.49 days`
One month	`0.9 months`
Two months	`1.9 months`
Three months	`2.9 months`
Four months	`3.9 months`
Five months	`4.9 months`
Six months	`5.9 months`
Seven months	`6.9 months`
One year	`0.9 years`

The fallback procedure is not intended to eliminate all missing OJT times. The respondent may not have the information and may not be able or willing to contact a supervisor or other knowledgeable source to clarify specific data. If, after employing these strategies, you still are not able to collect a reliable estimate, code OJT as `Unknown`.

Table 5-12: OJT Examples

	OJT Examples	Action	Reason
1	A meat cutter working an eight-hour shift five days per week is required to take a one-week food safety course during the first month of employment.	Code as `1 week`	This is a standard FT work schedule; Vocationally relevant training
2	A newly hired custodian working an 8/40/52 schedule shadows a lead worker for one day to learn how to operate a buffing/waxing machine and use chemicals.	Code as `1 day`	This is a standard FT work schedule; Vocationally relevant training
3	New restaurant servers working 36 hours per week receive OJT from experienced servers on a 3-hour lunch shift.	Code as `3 hours`	This is a non-standard work schedule, collect training time in hours; Vocationally relevant training
4	New teachers are assigned an experienced teacher as a mentor that provides guidance throughout the new teacher's first year.	Do not collect	Coaching for job development

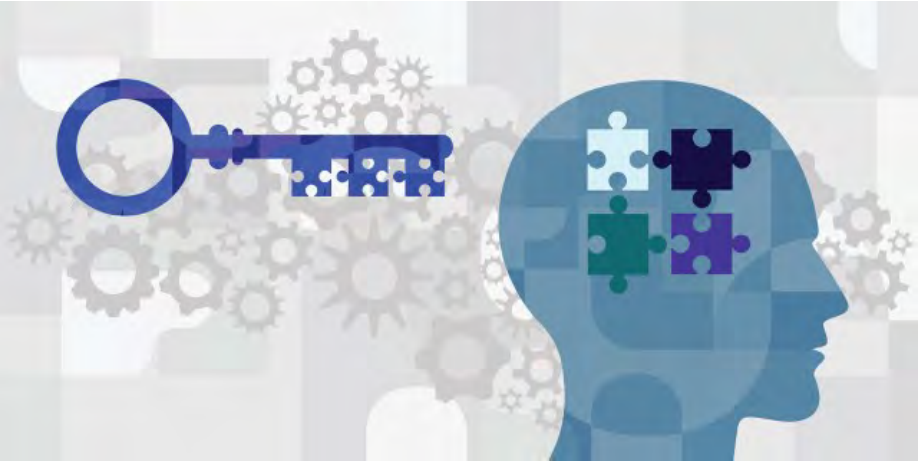
	OJT Examples	Action	Reason
5	New and experienced firefighters are required to do 3 hours of training per shift on an ongoing basis.	Do not collect	Continuing education

Chapter 6: Cognitive Elements

Cognitive elements measure selected mental abilities needed to perform critical tasks. Some key cognitive demands of occupations are the need to accept feedback through work review, adapt to changes in the pace of work, solve problems, and interact with others.

This chapter includes procedures for collection of the cognitive elements:

- Collecting Cognitive Elements
- Work Review: Frequency of Work Being Checked and Presence of Supervisor
- Pace: Control of Workload, Work Pace and Pause Control
- Personal Contacts: Verbal Interactions and People Skills
- Problem Solving
- Interaction with General Public/Crowds and Telework



6_01 Collecting Cognitive Elements

Determine the best response for each cognitive element by considering only those cognitive demands needed to perform the job's critical tasks. Cognitive demands may vary depending on critical tasks performed and fluctuating job expectations. For example, pace may vary dramatically during the day or over a period of days or months.

Table 6-1: Questions and Response Options for Cognitive Elements

Cognitive Element	Questions and Response Options
Work Review - Frequency of Work Being Checked	How frequently is work checked in this job by a supervisor or lead worker? • More than once per day • Once per day • Less than once per day, but at least once per week • Less often than weekly
Work Review – Presence of Supervisor	Are supervisors or lead workers generally present in the same physical work area as workers? • Yes • No
Control of Workload	What most controls the workload of this job? (Select one) • Machinery, equipment, or software • Numerical performance targets (company determined) • People (such as customers, supervisor, etc.) • Self-paced by worker • Other (specify)
Work Pace	How would you describe the pace of work for this job? Would you say that in a typical day or week ... • The pace is consistent, and generally fast • The pace is consistent, and generally slow • The pace varies
Pause Control	Can workers step away from their work area easily outside of scheduled breaks? • Yes • No
Personal Contacts-Verbal Interactions	How often does this job require verbal, work-related interactions? • Constantly, every few minutes • Not constantly, but more than once per hour • Not more than once per hour, but more than once per day • Once per day or less often

Cognitive Element	Questions and Response Options
Personal Contacts-People Skills	The next question is about "people skills." We define people skills as the ability to listen, communicate, and relate to others. In a job where basic people skills are required, workers often work alone, or usually are only expected to engage in simple, brief work-related communication and to treat others with respect. Does this job require basic or more than basic people skills? • Basic • More than basic
Problem Solving	The next question is about "problem solving" tasks that the worker does in his/her job. Think of "problem solving" as what happens when workers are faced with a new or difficult situation which requires them to think for a while about what to do next. **How often is the worker responsible for solving problems that take more than 5 minutes to think of a good solution?** • More than once per day • Once per day • Not every day, but at least once per week • Not every week, but at least once per month • Less often than monthly, including never
General Public	Are workers in this job required to work with the general public? • Yes • No
Crowds	Are workers in this job required to work around crowds in a way that restricts their movement? (We define a crowd as a situation in which a lot of unfamiliar people are present considering the space available, movement is restricted, and a certain level of disorganization is present.) • Yes • No
Telework	Are workers in this job permitted to work from home or telework? • Yes • No

Use the following guidance to accurately capture the cognitive demands of jobs:

- Code all cognitive demands based on critical tasks except for Telework which should be coded based on whether the job is allowed to telework and whether the critical job function can be performed remotely.
- Code the highest frequency experienced or required when performing critical tasks for these cognitive elements: Work Review-Frequency of Work Being Checked, Personal Contacts-Verbal Interactions, and Problem Solving. This captures the highest frequency of cognitive demands workers are expected to perform for critical tasks.
- Code the typical experience for Work Review-Presence of Supervisor and Control of Workload. This captures the average experience of these cognitive demands for critical tasks performed.

- Refer to element-specific coding guidance for the following cognitive demands: Work Pace, Pause Control, Personal Contacts-People Skills, Working with the General Public, and Working around Crowds.
- Consider how or if the cognitive demands relate to other ORS elements, including leveling, when making coding selections. For more information about the relationships between cognitive elements and leveling, see Fundamentals of NCS and ORS, 5_14 ORS and Leveling found on the NCS-ORS Procedure Library.
- There is no fixed relationship between responses for Control of Workload and Work Pace. Control of Workload measures who/what most determines the amount of work to be completed in a set period of time, while Work Pace measures the rate itself.
- Code elements based on an assessment of both the respondent's selection as well as the other information the respondent has provided about the job.

Note
All cognitive elements must include documentation and preferably examples to illustrate why coding choices were made if not evident from the task list. Simply documenting which cognitive option was chosen is insufficient.

Table 6-2: Cognitive Documentation Examples

	Cognitive Documentation Examples	Elements Coded
1	Receptionist works in a busy office with a steady stream of incoming phone calls to answer and visitors to sign in and out. Quiet periods are infrequent.	Control of Workload - **People** and Work Pace - **Consistent, and generally fast**
2	Chemist is assigned by the supervisor projects, experiments, and reports to complete within a broad period of time, however she may choose when to work on each.	Control of Workload - **Self-paced**
3	Janitor works throughout building alone during office hours. The supervisor is present in the building but usually stays in an office on a different floor.	Presence of Supervisor - **No**

6_02 Work Review: Frequency of Work Being Checked and Presence of Supervisor

Work Review addresses how often work is checked and whether workers have immediate access to a supervisor if necessary.

Work Review consists of two elements:

- Frequency of Work Being Checked
- Presence of Supervisor

Together these elements provide a measure of the amount of supervision received and insight into a job's proximity to the supervisor.

Frequency of Work Being Checked

Frequency of Work Being Checked answers the question: How frequently is work checked in this job by a supervisor or lead worker?

Use the following frequency categories:

- More than once per day
- Once per day
- Less than once per day, but at least once per week
- Less often than weekly

The intent of this element is to capture routine and more frequent inspections and assessments (e.g., hourly, daily, or weekly) by a supervisor or lead worker for the purpose of ensuring performance standards are being met rather than completion of infrequent (e.g., semi-annual or annual) performance reviews. This element measures how closely supervised the job is and provides the frequency work is actively monitored or reviewed.

Collecting Frequency of Work Being Checked

Collect the highest frequency of checks that a worker receives while performing critical tasks under normal circumstances. The frequency of work being checked can occur in person or remotely. Code the frequency the supervisor or lead worker checks the work, even if feedback is not always communicated to workers at the same frequency. If a job's work is never checked, select `Less often than weekly`.

Include routine inspections, assessments, and monitoring by a supervisor or lead worker intended to ensure performance standards are being met such as regularly soliciting feedback from customers or coworkers through direct contacts. Frequency of work checked and presence of supervisor are two related, but separate cognitive elements. Do not assume the presence of a supervisor or lead worker in the work area means that the supervisor/lead worker is actively checking workers' performance. However, when the supervisor or lead worker is present in the same area as the workers supervised in order to actively monitor and ensure the work is being

performed correctly, it is reasonable to expect a higher frequency of work being checked. Include machine checking when a supervisor or lead worker uses results to assess workers' performance, regardless of whether workers are aware of these checks. Code the frequency with which the machine metrics are checked by the supervisor.

Exclude:

- The highest frequency of checking the supervisor or lead worker would perform on a worker with known or suspected unsatisfactory performance.
- Routine checking by fellow or lower-level workers.
- Supervisor/lead worker checks occurring as the result of feedback initiated by customers, including ad hoc customer complaints (e.g., negative customer posts on social media)
- Supervisor/lead worker checks occurring as the result of feedback initiated by coworkers.
- Supervisor/lead worker passive or ad hoc observations due to being in the same area as workers.
- Machine checking that is used as a worker support or aid while completing work tasks, such as spell check and basic edits, and does not provide metrics used by a supervisor or lead worker to assess workers' performance.
- Automated recorders such as cameras that serve only as security measures.

Note
Meetings between workers and supervisors do not always involve checking of work. When meetings are meant to check, monitor, review and/or provide feedback on an employee's individual performance they should be included. When meetings are to exchange information to keep aware of current/upcoming issues or work priorities, they should not be included.

Table 6-3: Frequency of Work Being Checked Examples

Collect as	Frequency of Work Being Checked Examples
More than once per day	A data processor enters and validates policy information for a large insurance firm. Systems constantly monitor the number of errors and corrections made, speed of work and time away from the desk. Lead workers use this information to give feedback on the quality and quantity of work several times per day.

More than once per day	A machinist producing parts has finished work pulled twice per day for inspection by quality control staff. Results are recorded and reported to the supervisor.
More than once per day	A telemarketer makes outbound calls to generate and follow up on sales leads. Work is randomly monitored throughout each day to ensure adherence to law and policy. The telemarketer is told by the supervisor when performance does not meet expectations.
More than once per day	A fast food crew worker works beside a crew leader for the entire shift. The crew leader actively monitors the crew's customer interactions and work quality throughout the entire shift.
Once per day	A canvasser receives instruction and a new list of contacts at the beginning of the day. Results are evaluated at the end of each day and workers are provided feedback from the supervisor.
Once per day	A convenience store cashier counts the till at the end of every shift and must balance within $1 or the shift supervisor records an infraction.
Once per day	A construction worker hangs drywall in residential construction. The worker receives a review daily from the site manager and is told when performance does not meet expectations.
Less than once per day, but at least once per week	A junior sales representative sells color imaging equipment and manages customer prospect profiles. The supervisor ensures objectives are met and provides performance feedback weekly.
Less than once per day, but at least once per week	A pharmaceutical sales rep's regional manager comes to town once per week to ride along on calls. Staff are told when performance does not meet expectations.
Less than once per day, but at least once per week	A waiter sells food and drink at a busy restaurant. The manager and assistant manager monitor wait staff sales amounts and customer service on a weekly basis. Staff are told when performance does not meet expectations.
Less often than weekly	A factory plant director has full plant responsibilities. Work is only evaluated on efficiency and achievement of company objectives during annual performance reviews.
Less often than weekly	A senior sales representative is responsible for generating new accounts and growing the revenue stream for the establishment. Performance is reviewed quarterly with the supervisor based on new customer rates and overall dollar volume achieved.
Less often than weekly	A building cleaning worker removes trash from tenant cubicles and cleans common areas such as hallways and restrooms in a commercial office building. The supervisor performs biweekly inspections to ensure spaces were cleaned properly. The supervisor does provide more frequent checks, but only when a tenant complains.

Presence of Supervisor

Presence of Supervisor answers the question: Are supervisors or lead workers generally present in the same physical work area as workers?

- Yes

- No

The intent of this element is to capture the physical proximity of direct (first-line) supervisors or lead workers to workers in the job. The reason physical proximity is important is because direct supervisors or lead workers in the same physical vicinity can choose to monitor workers to ensure they stay on task and are generally available to provide immediate assistance when needed.

Collecting Presence of Supervisor

Collect the presence (yes/no) of a direct supervisor or lead worker in the same physical work area with workers supervised. The presence of a direct supervisor/lead worker must be in person. Do not consider the presence of a job's indirect or higher level (second- or third-line) supervisors, as they are not typically expected to provide direct support.

Include open-bay work areas, open-bay work areas with cubicles, offices that abut work areas, offices equipped with cameras that provide coverage of all nearby work areas.

Exclude supervisor offices that are on a different floor or in a different building, even if camera coverage is provided. While the supervisor or lead worker could monitor workers using a camera, they could not provide immediate in-person assistance. Likewise, if workers perform their work in different locations, the supervisor must be physically present for the majority of time on a typical work day to be considered as being in the same physical work area.

Table 6-4: Presence of Supervisor Examples

	Presence of Supervisor Examples	Code	Reason
1	A dishwasher works in the back kitchen of a busy restaurant. Either the restaurant manager or assistant manager is available to monitor and assist when needed.	Yes	Supervisor/lead worker physically present and available to intervene.
2	A machinist, producing parts in a production shop, is supervised by the production supervisor. The supervisor's office is located in the production shop area.	Yes	Supervisor/lead worker physically present and available to intervene.
3	Drafters work in a large office with the lead drafter in a nearby cubicle and engineering supervisor on a different floor.	Yes	Supervisor is not physically present in vicinity, but a lead worker is.
4	A pharmaceutical sales rep's regional manager comes to town once per week to ride along on calls, but mostly the sales rep works alone.	No	Supervisor/lead worker is not physically present the majority of the time.
5	A school bus driver operates a school bus. Both children and a bus monitor are also present. The supervisor is located at the bus garage and is available via walkie-talkie.	No	While the supervisor is available to assist, she is not physically present with the worker.

	Presence of Supervisor Examples	Code	Reason
6	A data processor enters and validates policy information for a large insurance firm. His supervisor works on a different floor and is available via email and telephone.	**No**	While the supervisor is available to assist, he is not physically present with the worker.

6_03 Pace: Control of Workload, Work Pace, and Pause Control

Pace refers to the cognitive speed needed to perform critical tasks.

This category consists of three elements related to pace:

- Control of Workload
- Work Pace
- Pause Control

These elements measure what/who determines the workload, the consistency and rate of the work, and whether workers have the ability to control when they can pause and take a brief break.

Control of Workload

Control of Workload answers the question: What most controls the workload of this job?

Select one of the following options:

- Machinery, equipment or software
- Numerical performance targets (company determined)
- People (such as customers, supervisor, etc.)
- Self-paced by worker
- Other (specify)

Workload is defined as the amount of work expected to be performed in a set amount of time. The intent of this element is to identify who or what most determines how much work a worker must perform on a daily or weekly basis. Control of workload measures the discretion workers have in handling their assignments and whether someone or something other than the workers themselves dictates the timing and order of task completion. This provides insight into the manner in which a worker must process new or incoming information, or to take action based on new information to handle the workload.

Collecting Control of Workload

Determine whether the amount of workload is set by technology, strict organizational rules, other people, or the worker. Narrowing the response down to a single factor can be challenging for a job since there is often more than one influencing factor. It is important to identify the factor that **most** controls the workload because this provides the best insight into the flexibility or predictability of the drivers requiring the workers to react to new information.

Apply the following criteria to choose **one** of the following options:

Table 6-5: Collecting Control of Workload

Workload controlled by:	Select when the following criteria apply:	Consider when:	Examples
Machinery, equipment, or software	• The worker must adapt to or keep up with the workload controlled by machinery, equipment used, or software, **and**, • The work is **pushed to the worker** by the machinery, equipment, or software such as an automated assembly line.	The amount of work completed is due to the speed of machinery, equipment, or software workers must use which **pushes them work**.	• Quality inspector sorts products on conveyor belt. • Machine tenders offload work from continuously operating machine. • Telemarketer makes outbound calls to generate sales. Calling software automatically dials the next number as soon as the prior call has ended.
Numerical performance targets (company determined)	• The workload is set by other sources within the organization, by clear output or performance targets, such as piece work and work quotas, **and** • The worker's performance is monitored closely at intervals, in some cases controlling pay levels, such as commissions and book hours, **and** • Performance targets are on an hourly, daily, or weekly basis. If the job has targets with longer completion windows than a week, select self-paced by worker.	Company policy dictates how much a job must accomplish **in a day or week** (and workers' pay may change because of it).	• Quality inspector checks certain number of widgets per hour each shift. • Outside salesperson receives commissions based on number of weekly items sold. • Mechanic is scheduled deadline and paid to perform repairs based on book hours, which also acts as a form of incentive pay. • Newspaper reporter has a 5pm daily column.

Workload controlled by:	Select when the following criteria apply:	Consider when:	Examples
People (such as customers, supervisor, etc.)	The workload is set externally by fluctuating demands of supervisors, coworkers, public, or flow of customers. Rush periods (if they exist) may be predictable or unpredictable.	The amount of work changes frequently based on other people's needs	• Security guard screens visitors entering secure building • Pharmacy techs receive electronic prescriptions requests directly from doctor's offices • Car wash attendant puts customer's car through machine and dries car off when it comes out • Executive assistant answers phones, schedules meetings, maintains calendar, makes travel arrangements, and answers correspondence as needed and requested by company president.
Self-paced by worker	The workload is mostly self-directed within general performance guidelines, allowing the worker significant discretion to vary timing of tasks within certain limits, rather than having control of workload set externally.	Workers can plan and spread their work out over longer periods of time (i.e., **greater than a week***)*	• Senior sales rep generates new accounts with quarterly sales targets based on new customer rates and overall dollar volume achieved. • Construction foreperson supervises workers, sets schedule, determines work priorities and assigns projects based on overall parameters set by project manager.

Workload controlled by:	Select when the following criteria apply:	Consider when:	Examples
Other (specify)	The workload is set by another external factor not listed above. Do not select `Other` when multiple factors are present. Enter a description of the factor when this option is selected.	An external factor not listed determines the amount of work (e.g., nature, animals, emergencies, etc.).	• Fish processor workload varies based on amount of fish caught by incoming ships. • Machinery maintenance mechanic repairs machinery when it malfunctions. • Firefighters respond to brush fires, structure fires, automobile accidents, and other hazardous situations.

Coding Self-Paced

First, determine whether workers have some control over the amount of work completed during the course of their day or week. Workers that are self-paced have the ability to prioritize work tasks or adjust the amount of time needed to complete them. Even when a job has deadlines and limits, as long as they are generally longer than a week, code `Self-paced`.

Managers, supervisors, and professionals are often self-paced due to the nature of their work. They often have the ability to determine and control how and when they complete their critical tasks within general performance guidelines even when they manage demands of their subordinates or report to others.

Self-paced control is not limited to supervisory, management and professional occupations. Code `Self-paced` for any job that has the latitude to vary the timing of their critical tasks rather than having the timing of their critical tasks dictated by other external factors.

Coding External Factors

When a job is not able to control the timing of when critical tasks are completed, determine which external factor most controls when the work must be performed: `Machinery, equipment, software`, `People`, `Numerical performance targets`, or `Other`.

Do not select `Other` when multiple factors control the workload. Determine which factor *most* controls the workload.

Different Factors May Apply for the Same Occupation

Control of workload may vary for the same occupation at different establishments based on the industry, size, and specific duties of jobs. Consider the following examples:

Table 6-6: Different Factors Related to Control of Workload

Factor	Assembler	Janitor	Veterinarian
Machinery, equipment, or software	Conveyor belt pushes units out to assembler who inserts a plastic piece. Conveyor dictates workload by delivering the product to be assembled.	Uncommon coding (works with machinery to complete tasks, but machinery does not determine how much work needs to be performed in a set period).	Uncommon coding (works with equipment to complete tasks equipment does not determine how much work needs to be performed in a set period).
Numerical performance targets	Works in a factory that requires completion of 50 units per hour per worker.	Cleans individual suites in office building. Required to follow strict schedule that dictates which office gets cleaned at which time, what to clean in each office each day, and the amount of time to be spent in each office.	Works for a branch of a corporate-owned animal hospital. Corporate requires vets to see 20 cases (animals) per day. Portion of pay is determined by a formula including number of cases seen and outcomes.
People	Works as member of a team responsible for assembling engines. Each team member is responsible for assembling one piece of the engine. Supervisors determine the number of engines to produce each day based on customer demands.	Schedule for performing cleaning tasks set by supervisor daily. Workload is set externally by fluctuating demands of supervisor.	Employed by practice consisting of one other vet (the owner). Provides medical care to small animals. Schedule is determined by number of pet owners scheduling appointments and procedures they request for their pets.

Factor	Assembler	Janitor	Veterinarian
Self-paced	Works for small company that pays based entirely on a piece rate. Company requires a minimum of 500 units assembled per quarter. Assemblers may choose how much and how fast they wish to work as long as they assemble the quarterly minimum.	Assigned a part of production facility to maintain. Can determine how/what to clean in assigned building area as long as areas are maintained within general guidelines. Allowed significant discretion to vary timing of tasks within certain limits, rather than having control of workload set externally.	Works at animal shelter providing vaccinations, preventative care, and spaying/neutering of cats and dogs. Care must be provided within a month of intake but otherwise vet determines what procedures to do when and the amount of time needed to do them.
Other	Uncommon coding	Uncommon coding	Regularly monitors the health of zoo's animals and provides treatment or preventative care as medically necessary. Workload most determined by medical needs of zoo animals. Zoo vet differs from other vets because people are not acting as a go-between to procure medical care for animals.

Work Pace

Work Pace answers the questions: How would you describe the pace of work for this job? Would you say that in a typical day or week?

- The pace is consistent, and generally fast? (i.e., little or no downtime)
- The pace is consistent, and generally slow? (i.e., periods of waiting and downtime)
- The pace varies? (i.e., changes between slow and fast pace)

The intent of this element is to identify the consistency of the work pace and the rate at which work is performed. Work pace specifically refers to the speed needed to perform critical tasks. Work pace can be the rate required of workers to complete repetitious tasks, or the rate at which workers are expected to respond to a variety of incoming tasks.

Consistent, and generally fast pace means the work is continuous and steady with little or no waiting or few periods of downtime. Workers maintaining this pace have few, if any, slack periods.

Consistent, and generally slow pace means the work is generally unhurried with periods of waiting and downtime. Workers maintaining this pace have few, if any, rush periods or large build ups of work.

Varies means the work pace changes throughout the work period with fluctuations on a daily, weekly, or seasonal basis. Capture only variation between slow and fast pace, do not code varies when the pace changes but would still fall within the same category.

Collecting Work Pace

First, determine whether the work pace is consistent or varies. Code **`varies`** when:

- The work pace changes multiple times throughout the work period, with fluctuations or rush periods (or large build-ups of work) and slow periods on a daily or weekly basis.
- The work pace is consistent on a daily or weekly basis, but varies seasonally (e.g., an accountant during tax season or human resources personnel during calendar year re-enrollment periods).

When the work pace is consistent, determine the rate (speed) that applies on a daily or weekly basis. Consistent, and generally fast pace includes steady or moderate rates of work with no waiting or few periods of downtime.

If pace builds up but then remains generally consistent for most of the work period, code this as consistent along with the general rate. For example, if a worker spends most of the day working at a fast pace with no waiting, but works at a slower pace at the beginning and end of the workday, code this as the pace is **`Consistent, and generally fast`**.

Work pace captures the steadiness of work and the presence or absence of downtime, from a mental processing perspective. Therefore, jobs that are typically performed from a seated position but have cognitive demands that require work to be completed at a steady pace with little or no downtime would be coded **`Consistent, and generally fast`**.

Do not confuse control of workload and work pace. Control of workload identifies the factor that most controls the amount of work expected to be performed in a set amount of time, while work pace relates to the **actual speed** (cognitive and/or physical) at which work is typically performed.

Table 6-7: Collecting Work Pace

Collect as	Work Pace Examples
Consistent, and generally fast	A building security guard at a large facility open to the general public screens both employees and visitors as they enter, and the stream of people is continual.
Consistent, and generally fast	Floor nurses at a hospital make rounds to monitor patients as well as respond to patient requests. When not monitoring patients, they must chart patients' progress and confer with other medical staff. The pace is steady and continuous with little downtime.
Consistent, and generally fast	Computer programmers create, test, and debug code for various software applications. They typically have a few on-going projects assigned and complete work at moderate pace.
Consistent, and generally fast	A customer service representative answers incoming calls from an automated queue. Calls are constant.
Consistent, and generally fast	Restaurant servers at a reservations-only fine dining restaurant are generally busy. If there are few reservations, they aren't scheduled to work.
Consistent, and generally slow	A front-desk security guard for a condominium watches over property or people. Large portions of time are spent waiting and monitoring from a stationary location.
Consistent, and generally slow	Occupational health nurse works on-site at a manufacturing facility and provides wellness classes and trainings about safe worker practices. Work is typically unhurried with periods of waiting and downtime.
Consistent, and generally slow	A lab technician monitors experiments and tests, assists in running equipment and endures long pauses while testing proceeds.
Consistent, and generally slow	Restaurant servers work the midnight shift at a small truck stop restaurant, which is open 24 hours.
Varies	A parking lot security guard takes payment and monitors parking lot for suspicious activities. Lot is busy during high peak commute hours and slow the remaining time.
Varies	School nurse provides first aid to students as well as providing mandated health screenings. The pace varies from hour to hour depending on the needs of the students.
Varies	LAN technician experiences fast and slow periods depending on help desk calls fielded or when updates and upgrades are deployed.
Varies	Cashiers at a large grocery store experience fast and slow periods depending on the volume of customers.
Varies	Restaurant servers at a large chain restaurant are generally busy during lunch and dinner hours and slower in between. They perform light cleaning and resupplying duties in between rush periods.

Pause Control

Pause control answers the question: Can workers step away from their work area easily outside of scheduled breaks?

- Yes
- No

The intent of this element is to capture jobs that have the flexibility to choose or control how and when they can take short, unscheduled breaks. When collecting for this element, consult the job's documented task list to determine whether any of the critical tasks assigned would preclude the ability to step away from the work area or to briefly stop working to attend to personal issues (e.g., make a personal phone call, gather one's thoughts when feeling overwhelmed, or go to the breakroom to get a beverage).

Collecting Pause Control

Collect the presence (yes/no) of a worker's ability, for a personal reason, to easily step away from work for short periods of time.

Code **Yes** when any of the following conditions are met:

- Workers typically have the flexibility to choose when to take short breaks throughout the day, outside of scheduled breaks such as lunch or morning/afternoon break periods.
- There is an overall time limit for breaks, but such breaks are allowed.

Code **No** when any of the following conditions are met:

- If the worker would need to find someone to cover his or her responsibilities.
- When breaks are usually allowed, but not during certain busy periods in the performance of a critical job task (for example, when work is exceedingly heavy, when a line of customers is building, etc.).
- Workers are required to be present at a workstation for a defined period of time.

Pause control can be present even when there are specific critical tasks that could make taking an unscheduled break difficult. If workers have the control and autonomy to take breaks when needed, then code **Yes** to pause control. Many professional jobs have the ability to control when the worker can step away. For example, even a trial lawyer in the middle of a court appearance can request a quick recess. Document when a professional job does not have the flexibility to easily step away.

Both pause control and sit/stand at will measure job flexibilities. While there are similarities between these elements, there is not a one-to-one relationship. It is possible for a worker to be able to easily take a break, but be unable to sit/stand at will and vice versa. When control of workload is coded self-paced, the job likely has pause control. However, if a job does not have a self-paced control of workload, it may still have pause control.

Table 6-8: Pause Control Examples

Collect as	Pause Control Examples
Yes	Office workers can pause and take a quick walk down the hall when they need a mental break. Even when they have group meetings with coworkers or clients, they have the ability to step away quickly, if needed.
Yes	A high school teacher teaches classes. In the middle of a lesson, the teacher can ask students to work quietly while she steps out into the hall for a few minutes when feeling overwhelmed.
Yes	Landscapers mow lawns, prune trees and plants, and weed flower beds. Landscapers may briefly step away from their duties to take medication or attend to other medical needs without notifying a supervisor.
Yes	An outside sales representative solicits business from clients via telephone, email, and in-person. Reps have the ability to schedule client appointments at their convenience. Even in the middle of a call or appointment, the rep has the ability to politely request to step away briefly.
No	A building security guard at a secure facility screens employees and visitors entering the facility; and walks standard patrols on a rotating basis with other guards. They are not able to leave their station without asking someone else to cover for them.
No	A kindergarten teacher must call to the principal's office to have another adult keep an eye on the students when he leaves the classroom.
No	Cashiers are able to take a break when there are no customers but cannot leave their station when there is a line.
No	A surgeon would not be able to step away easily while performing surgery.

6_04 Personal Contacts: Verbal Interactions and People Skills

Personal contacts measures how often workers must engage in verbal interactions with others and the kind of interpersonal skills required for critical tasks.

Personal Contacts consists of two elements:

- Verbal Interactions
- People Skills

Verbal Interactions

Verbal Interactions answers the question: How often does this job require verbal, work-related interactions?

Use the following frequency categories:

- Constantly, every few minutes
- Not constantly, but more than once per hour
- Not more than once per hour, but more than once per day
- Once per day or less often

The intent of this element is to measure how often workers *must begin* verbally interacting with others while performing critical tasks. This element serves as an indicator of whether occupations require workers to have tolerance for numerous live interactions, the possibility of isolation, or something in between. Verbal interaction includes the ability to participate in exchanges that may include both speaking and listening components: the ability to determine what to say in order to speak and the ability to listen in order to respond appropriately to others.

Collecting Verbal Interactions

Follow the guidance in the table below when coding work-related verbal interactions.

Table 6-9: Verbal Interactions Coding Guidance and Examples

Guidance	Example of Work-Related Verbal Interactions
Collect the maximum frequency of critical task-related verbal interactions.	Office clerks verbally interact with each other a few times per hour in the morning and work independently in the afternoon. Code **Not constantly, but more than once per hour**.
Exclude one time or unusual situations when determining the maximum.	A county medical examiner verbally interacts with coworkers a few times per day. The sheriff's department normally handles press conferences, however, the county medical examiner has participated to answer technical questions for a very high profile case. Participating in press conferences is not part of the standard duties. Code **Not more than once per hour, but more than once per day**.
Base coding decisions on how often the job is required to verbally interact overall. Do not attempt to parse out each verbal interaction with respondents.	Architects must interact with engineers, clients, and project managers. The respondent doesn't know how often architects have live interactions with each group. She says they need to make a few phone calls per day, but most exchanges happen via email. Code **Not more than once per hour, but more than once per day**.
If you are able to establish that the job would require new back-to-back verbal interactions every few minutes with different people, or different groups of people, the job should be coded Constantly, every few minutes.	Teachers have a 20 minute question-and-answer (Q&A) session at the end of each class period. Because teachers would already be coded **Constantly, every few minutes** for the Q&A session, it does not matter how many classes teachers have each day.

While the presence of speaking would signal the presence of verbal interactions, do not code the frequency of verbal interactions based on the duration a job speaks. An occurrence of verbal interactions is measured based on the initiation of a work-related, verbal interaction, not the number of exchanges back and forth within one conversation. For example, a project manager might spend several hours per day speaking during meetings and collaborating at length with colleagues, however, the frequency these verbal interactions start is not more than once per hour, but more than once per day.

Table 6-10: New Interactions and Examples

Count as New Interaction When:	Examples
A worker starts interacting with a different person or group of people.	• A new customer transaction • A new call • A new workplace meeting • A therapist begins a group counseling session. • A new class convenes.
A live interaction stops and the same person or group resumes the interaction later.	• A refreshment break in the middle of a single, long meeting • A worker hangs up from a work-related conversation to look up information over lunch and returns to the discussion after lunch. • Following the conclusion of math instruction, a teacher breaks to gather materials for the next subject and then resumes with language arts instruction. • A worker walks over to discuss an issue with a colleague, walks away to check on something, and returns later to resume interacting with the same colleague.
Separate one-on-one exchanges occur, even when in the vicinity of a group.	• A shift supervisor moves throughout a work area interacting with different crew members. • A lecturer answers separate individual questions throughout a class period.

Include live interactions occurring in person, or via telephone or videoconferencing.

Exclude:

- Passive listening with no interaction required, such as:
    - In person listening to announcements or instructions only,
    - Non-live interactions (e.g., recordings or videos on demand), or
    - Listening to conference calls during which no speaking is required.
- Non-verbal exchanges such as email.
- Optional social contacts that are not required for critical tasks.
- Unusual or one-time situations.

Note about group settings
Determining the beginning of a new interaction depends on the group setting:

- If it is a **collaborative group setting**, such as workplace meetings or group counseling, the exchanges between the worker and other group participants are not considered separate interactions.
- If it is a **non-collaborative (i.e., typically one-sided) group setting**, such as classrooms/presentations/lectures, guided tours, or press conferences, any questions and answers between the worker and the participants are considered separate one-on-one exchanges.

Table 6-11: Verbal Interactions Examples

Collect as	Verbal Interactions Examples
Constantly, every few minutes	A tollbooth worker tells drivers the tolls that are due, takes payment, and makes change for more than 500 drivers passing through the toll lanes during an eight-hour shift.
Constantly, every few minutes	A barista waits on an average of 20 customers per hour at a busy coffee shop.
Not constantly, but more than once per hour	Nail salon technicians generally assist one or two customers each hour.
Not constantly, but more than once per hour	Site leader will talk to someone: her crew, other skilled trades, and clients several times per hour, but not usually every few minutes.
Not constantly, but more than once per hour	A junior sales representative sells printing services and manages customer prospect profiles.
Not more than once per hour, but more than once per day	An insurance office assistant answers customers' questions from occasional calls and walk-in clients as well as supports coworkers' verbal requests.
Not more than once per hour, but more than once per day	A factory plant director has full plant responsibilities. Generally he has a few in-person meetings a week, takes some calls and face-to-face meetings throughout the day, but handles a lot of interaction through email and his executive assistant.
Not more than once per hour, but more than once per day	Construction laborers interact with skilled trade workers and site workers a few times per day.
Once per day or less often	Medical transcriptionist transcribes medical recordings. Receives/transmits files via email.
Once per day or less often	Research statistician attends weekly meetings but largely works independently on research projects.

People Skills

People skills are the ability to listen, communicate, and relate to others. It answers the question: Does this job require basic or more than basic people skills?

- Basic
- More than basic

In a job where basic people skills are required, workers often work alone, or usually are only expected to engage in simple, brief work-related communication and to treat others in a non-offensive manner.

People skills includes both verbal and written exchanges.

Collecting People Skills

Collect whether a job requires basic or more than basic people skills.

Basic people skills may include:

- Work consisting of mostly silent or solitary activity.
- Exchanges involving only simple greetings, exchanging of written or simple verbal information.
- Infrequent job-relevant conversations lasting 10 minutes or more.
- Regular meetings in which the worker is seldom expected to contribute.

A worker expected to engage in anything more than simple communication with others should be coded as more than basic people skills.

Critical tasks involving instructing, mentoring, or supervising others always require more than basic people skills. Likewise, regularly engaging in persuasion or negotiation for critical tasks is considered more than basic people skills.

Note about Service Jobs
Exclude the ability to remain calm with difficult customers if critical tasks performed otherwise meet the definition of basic people skills. The ability to remain calm with a difficult customer is not being measured by this element and does not affect basic/more than basic responses. Additionally, required upselling does not automatically raise a job to `More than basic` people skills. A job that is expected to routinely ask simple questions to try to increase purchases (e.g., “Would you like to get a large for one dollar extra?” may still be `Basic`).

Table 6-12: People Skills Examples

Collect as	People Skills Examples
Basic	A cashier who has to greet and check out customers would need only basic people skills since the work only involves exchanging simple greetings and verbal information. If an issue arises with a customer, the cashier is expected to remain calm and polite and contact a supervisor if the issue escalates.
Basic	Line cooks listen to supervisor/chef's instructions to prepare menu items.
Basic	Telemarketers follow a script and are instructed to transfer the call to their supervisor if problems arise.
Basic	Servers at a casual restaurant take customer orders. Servers may upsell based on a script asking questions such as, "Would you like a side salad with your meal?" or "Would you like dessert? We have delicious chocolate cake." Routine customer questions and complaints are calmly handled by the server. Difficult customer questions and complaints are referred to the manager.
Basic	Delivery drivers work alone and deliver packages to consumers. They may have routine exchanges and pleasantries with customers to have them sign for packages. Critical tasks consists of mostly solitary activity and only involves simple greetings and exchange of verbal information.
More than basic	A correctional officer who must control and give instructions and respond to unpredictable situations.
More than basic	Customer service representatives must answer and appropriately respond to resolve a variety of complaints and issues.
More than basic	Servers at a five star restaurant explain menu options, answer customer questions about preparation and ingredients, make menu recommendations, suggest menu modifications to meet customer dietary concerns when needed, take customer orders, and address customer complaints appropriately. Servers are expected to upsell menu items but are not given a specific script to follow.
More than basic	A lead electrical line technician who is responsible for overseeing an apprentice would have more than basic people skills since he/she instructs and gives directions to others.

6_05 Problem Solving

Problem Solving measures how often workers are faced with a new or difficult situation which requires them to think for a while about what to do next.

Problem Solving

Problem Solving answers the question: How often is the worker responsible for solving problems that take more than 5 minutes to think of a good solution?

Use the following frequency categories:

- More than once per day
- Once per day
- Not every day, but at least once per week
- Not every week, but at least once per month
- Less often than monthly, including never

The intent of problem solving is to measure the frequency workers are required to analyze issues and make decisions that have a moderate to significant level of difficulty (e.g., the full extent of issues may not be readily apparent and requires independent judgement and research or investigation). The defining characteristics of problem solving are that there is no obvious, immediate solution to a problem or issue, and the worker must identify and weigh alternatives to arrive at a solution. The five-minute time period is used as a method to exclude more routine or simple decision-making or resolve issues that have a limited or minimal level of difficulty (e.g., may involve selection of established alternatives according to common procedures).

Collecting Problem Solving

Collect the highest frequency of problem solving the job requires. Apply the five-minute threshold to the time it takes workers to think of an answer themselves, not the time it takes workers to find or get an answer from someone else or work through a standard protocol. If the frequency changes during the work schedule, code the most frequent level experienced and document the circumstances.

Include both individual and group (e.g., team) problem solving when the worker is responsible for the decision. Exclude group problem solving that consists only of brainstorming or in situations in which the worker has no accountability.

Exclude routine decisions and decisions requiring five or fewer minutes of thought from this element. Jobs where workers deal directly with the public (e.g., retail sales, restaurants, and help centers) are often viewed as requiring frequent problem solving because interactions with the public can be idiosyncratic, unpredictable, problematic, and emotional. However, if problems with the general public can be resolved in five minutes or less, or are raised to a supervisor, exclude the frequency of this type of problem solving.

Likewise, emergency responders and protective services workers are expected to make many different types of high-stakes decisions depending on the types of situations encountered.

However, unless the issues these workers encounter take more than five minutes to identify and weigh alternatives to determine how to proceed, they should not be counted toward the frequency of problem solving. Most protective service personnel are given extensive training to ensure they are able to identify solutions and respond quickly in various emergency situations. For this reason, it's unlikely the decisions they are making reach the five minute threshold at a high frequency. Higher levels of authority or more specialized work in protective services occupations may require a higher frequency of problem solving.

Table 6-13: Problem Solving Examples

Collect as	Problem Solving Examples
More than once per day	An internal medicine physician works as part of a care team and collaboratively decides the best treatment approach on a daily basis for multiple patients who have conflicting symptoms, multiple health issues, or rare medical conditions. The physician must weigh patients' unique medical histories, symptoms, and test results, as well as current medications and prior treatment plans before determining how to proceed.
More than once per day	The regional manager of several fast food stores analyzes rapidly changing sales and operations data and uses this data to make multiple daily decisions regarding individual store staffing levels, food offerings, and application of national promotions.
More than once per day	Software developers handle complex software needs and work to come up with solutions. They solve unique problems, such as writing and debugging innovative code and complex software, modifying guidelines or determining the next steps needed to satisfy requirements as part of their daily critical tasks.
More than once per day	A construction project manager computes multi-step bids, negotiates with 3rd party contractors, and responds to unique client requests as part of daily critical tasks.
Once per day	A nurse practitioner treats multiple patients daily. Most have routine conditions that are straightforward to diagnose. Approximately once per day, a patient displays unusual symptoms, and the nurse practitioner must consider the patient's complaints along with the findings of a physical examination and testing to make a diagnosis and decide a course of treatment.
Once per day	A fast food marketing analyst develops promotional campaigns and tests market strategies for new products. Development of a new idea requires careful consideration and research of a variety of analytics. The analyst typically encounters one new or difficult issue per day when researching and developing marketing strategies, testing possible promotional campaigns, and delivering detailed assessments to regional and national management.

Collect as	Problem Solving Examples
Once per day	Staff accountants reconcile the general ledger, create monthly financial statements, and oversee accounts payable and accounts receivable transactions. They also complete monthly sales tax and property tax returns. Around once per day, an unanticipated problem with the general ledger, taxes or other payable or receivable issue arises that the staff accountant must thoroughly assess before addressing.
Once per day	A plumber foreman directs crew, mentors apprentice plumbers, and reads blueprints to complete custom projects for large commercial clients. Usually once per day there is either a specification that needs a unique work-around depending on the project or a training/supervisory issue that must be resolved with the crew/apprentices.
Not every day, but at least once per week	Staff nurses lead other lower-skilled healthcare support workers and deal with patient needs. As part of patient care team, they monitor and assess patient's unique history, medical needs, drug interactions, and vital signs to provide patient care and determine whether to escalate care to attending physicians. Many patients are routine, but usually at least once per week, a patient with complex symptoms and needs must be assessed and treated.
Not every day, but at least once per week	A medical coder references medical records, including physician transcriptions to apply universal codes for use when filing insurance claims. At least once per week, the coder encounters an unusual diagnosis or treatment that does not neatly fit within conventional codes. The coder must research and consider precedent to determine the code that best represents the situation while optimizing reimbursement from insurance.
Not every day, but at least once per week	A fast food store manager supervises crew and resolves work place and customer service issues. Most issues are quickly and easily solved but once or twice per week, an issue between staff members or a customer service issue escalates and requires careful consideration to appropriately resolve.
Not every day, but at least once per week	A commercial plumber assesses building blueprints in conjunction with the customer needs to decide the best pipe layout. Project lengths vary but typically plumbers initiate a new job that would require initial assessment on a weekly basis.
Not every week, but at least once per month	A licensed practical nurse (LPN) in a nursing home is responsible for patients and directing other lesser-skilled nursing staff such as nursing aides. Most issues are routine, but a few times a month, a resident may develop multiple symptoms, requiring the LPN to determine how to proceed.
Not every week, but at least once per month	A municipal firefighter controls and extinguishes fires and responds to a variety of emergency situations. Firefighters are provided with extensive training and protocols in order to make calm, split-second decisions. At least monthly they encounter a situation where they must weigh and choose the most appropriate alternative out of several possible solutions.

Collect as	Problem Solving Examples
Not every week, but at least once per month	A payroll clerk handles routine payroll processing. A few times per month, they typically need to resolve why a report isn't working or determine why something didn't calculate or budget correctly.
Not every week, but at least once per month	A shift supervisor of fast food workers must resolve customer complaints and resolve scheduling/training issues as they arise. Problems in these areas that take more than five minutes to resolve usually only occur a few times per month.
Not every week, but at least once per month	A backhoe operator excavates, moves and grades earth. Most projects are routine and the operator follows customer specifications. A few times per month, they must determine a workaround because of impediments like location of underground pipes or wires.
Less often than monthly, including never	Nursing assistants provide basic patient care such as bathing, grooming, feeding, and moving patients under the direction of other nursing staff. They must document and report any problems to LPNs or RNs.
Less often than monthly, including never	Entry level customer service representatives (CSRs) follow scripts to deal with the most common problems customers want resolved. If they encounter an issue that deviates from the common issues, they are trained to escalate the issue to a higher level CSR.
Less often than monthly, including never	Fast food crew workers are trained to handle preparing a fixed menu of quick cook items as well as run the register. Any problems are referred to team leaders and shift supervisors who are always available to answer.
Less often than monthly, including never	Construction flaggers monitor and direct traffic. Critical tasks are simple and there are never any complex problems to resolve.

6_06 Interaction with General Public/Crowds and Telework

Interaction with the General Public/Crowds and Telework consists of three elements:

- Working with the General Public
- Working around Crowds
- Telework

Working with the General Public

Working with the General Public answers the question: Are workers in this job required to work with the general public?

- Yes
- No

Collecting Working with the General Public

Collect the presence (yes/no) of any critical tasks where working with the general public is required. If any critical task requires working with the general public, code **Yes**.

The intent of this element is to identify settings where workers must have contact (i.e., in person, via telephone, or by videoconferencing) with individuals other than coworkers (e.g., customers, clients, patients, or workers from other establishments).

Include working with:

- Individuals other than coworkers
- Individuals having a transient relationship with the organization (e.g., delivery driver, new customers or clients).
- Large numbers of people rotate in and out on a regular basis (e.g., students).
- In-person, telephone, and/or videoconferencing contacts.

Exclude:

- Working near or around the general public without the need to interact
- Indirect contacts such as email

Table 6-14: Working with the General Public Examples

Collect As	Working with the General Public Examples
Yes	Teachers work with students and must also meet with parents in person and on the telephone.
Yes	Customer service representatives handle complaints from customers via telephone.
Yes	Parts driver delivers items to various third party repair shops.
Yes	Human resources generalists work with other workers at all levels and departments of the establishment (coworkers). However, they also work with workers outside the establishment such as auditors and insurance brokers.
No	Production line welders work exclusively with other company employees on the production line. Any contacts with third parties are handled by the foreman or production manager.
No	School janitors receive all work requests from teachers and administrators. Any interactions with students are social in nature.
No	Lab workers testing blood samples report results via email or fax to doctors' offices.
No	Sous chefs work in a gourmet restaurant in the kitchen. The head chef deals with ordering supplies (third party vendors) and any customer issues with food orders.
No	Garbage collector collects and dumps refuse from curb-side containers into truck. No contacts with general public in order to perform critical tasks.

Working around Crowds

Working around Crowds answers the question: Are workers in this job required to work around crowds in a way that restricts their movement?

- Yes
- No

A **crowd** is a situation in which **all** of the following conditions must be met:

- Many unfamiliar people are present considering the space available, **and**
- Movement is restricted, **and**
- Any given arrangement of the crowd is temporary, **and**
- A certain level of disorganization is present, **and**
- Workers are not separated from unfamiliar people by counters, dividers or other objects.

The intent of this element is to capture the need for a job to work around large gatherings of unfamiliar people in locations like convention halls, public malls, large public beaches, airports or on airplanes, as well as mass entertainment venues like movie theatres, auditoriums, sporting events, night clubs, etc. Movement is mainly restricted by people, not objects. A certain level of disorganization is mainly present due to the temporary arrangement of people.

Collecting Working around Crowds

Collect the presence (**yes**/**no**) of any critical tasks performed that involve **working around** a crowd. If any critical task requires working around crowds as defined above, code **Yes** and document how all the above crowd conditions are met.

Exclude from this element situations where many unfamiliar people may be present but are organized via lines or separated from the worker by objects like counters, booths, dividers, etc.

Do not assume that jobs are working around crowds simply because they work in a setting where crowds may be present. The intent of this element is to capture workers who must perform their critical tasks around a crowd in a way that would restrict the workers' movement. For example, workers needing to move through crowded hallways to get to other locations where their critical tasks are actually performed does not meet the intent of this element.

The criteria used to define working around crowds and working with the general public are not the same. The general public is defined as individuals other than coworkers while crowds must be made up of unfamiliar people. In some cases, non-coworkers will be familiar so they would be counted as the general public but would not be counted for crowds. For example, students always count as the general public to school employees since they are not coworkers, however they may or may not be unfamiliar to school employees.

Table 6-15: Crowds Examples

	Crowds Examples	Code	Reason
1	Politicians greeting throngs of supporters at a rally.	**Yes**	Meets all conditions.
2	Security guards at a rock concert must patrol through crowds of people in both open areas and seated areas.	**Yes**	Meets all conditions.
3	Bussers in a busy restaurant with small aisles must clear and reset tables as customers come and go.	**Yes**	Meets all conditions.
4	Transit police monitor commuters and investigate suspicious behavior in packed subway cars during rush hour.	**Yes**	Meets all conditions.
5	RNs at a hospital provide care to patients in their rooms.	**No**	Doesn't meet disorganization or restricted movement condition. RNs are not performing critical tasks while moving between different patients' rooms through crowded hallways.
6	A transportation security screener must screen individuals as they come through security lines.	**No**	Doesn't meet disorganization condition.

	Crowds Examples	Code	Reason
7	Cashiers work with general public but usually remain behind counter and register.	**No**	Doesn't meet separation from unfamiliar people condition.
8	Bus drivers experience crowds of people, but remain separated from commuters in their driver's seat.	**No**	Doesn't meet restricted movement condition.
9	Call center workers in large call center work in small cubicles and have weekly stand-up team meetings in crowded conference room with their coworkers.	**No**	Doesn't meet unfamiliar people condition.

Telework

Telework answers the question: Are workers in this job permitted to work from home or telework?

- Yes
- No

The intent of this element is to identify jobs where workers have the flexibility to regularly perform their critical job function off premises of the employer in the privacy of the workers' homes for an agreed-upon portion of their work schedule. This flexibility impacts the need to have regular in-person contacts. It captures information about work location and arrangements, flexibility, work review, supervision, etc.

Collecting Telework

Collect the presence (**yes**/**no**) of workers who are able and permitted to telework while performing their critical job function.

Code telework as **Yes** when the critical job function can be performed at home, even if some critical tasks must be performed outside the worker's home. For example, a lawyer represents clients through email, telephone, in person, and in court. Even though appearances in court and in person meetings cannot take place while teleworking, email and telephone representation can.

Code telework as **No** if the critical job function must *always* be performed from some place other than the worker's home during the regular workday (even if some tasks could be performed from home outside of regular work hours), such as:

- An employer's worksite (e.g., public school teachers)
- Somewhere offsite (e.g., construction workers).

Exclude the presence of telework when it is only permitted after standard hours or allowed during emergencies. Similarly, code **No** when the establishment allows telework on an ad hoc basis, but does not routinely permit telework otherwise.

Table 6-16: Telework Examples

Collect as	Telework Examples
Yes	Call center employees work 100% remotely (all calls routed to their designated phone number).
Yes	LAN tech works from home two days per week assisting end-users remotely from work-issued laptop.
Yes	Traveling salespeople visit clients in-person. When not visiting customers, they are permitted to work off-site and connect with clients using email and telephone.
Yes	A cyber school teacher provides classes via videoconferencing and assists students remotely.
No	Public school teachers instruct students in the classroom.
No	Pizza delivery drivers must pick up pizzas and deliver them to customers.
No	Fast food crewmembers must work at restaurant.
No	Nursing assistants at senior care facility must work at facility during assigned shift.
No	Visiting nurses visit clients in their homes, but manage paperwork and make appointments from home.
No	Residence hall directors at a university live on campus. Although they technically work from home, they cannot perform their critical job function off-premises of the establishment.

Chapter 7: Physical Demands

Physical Demands are the physical activities workers perform to carry out critical tasks.

This chapter includes procedures for collecting the physical demands elements:

- Collecting Physical Demands
- Sitting vs. Standing/Walking
- Lifting/Carrying
- Pushing/Pulling
- Reaching
- Manipulation
- Keyboarding
- Low Postures: Stooping, Crouching, Kneeling, Crawling
- Climbing
- Driving
- Speaking/Hearing Requirements
- Vision

7_01 Collecting Physical Demands

Accurately capture the physical requirements expected of jobs by using knowledge of ORS-specific element definitions and procedures to assess the information provided by respondents. Use the following guidance to avoid overstating or understating the physical demands of jobs.

1. Determine the physical demands needed to perform the job's critical function(s) and critical tasks. Exclude accommodations and any physical demands associated with incidental tasks. See Overall Coding Threshold for All ORS Elements.

2. Collect duration for all elements except for Vision and Hearing. See Duration for details on coding duration. If workers do not experience a physical demand element while performing their critical tasks, code **Not Present**. Provide additional documentation when the presence or duration of a physical demand seems unusual for the occupation and cannot be concluded based only on the critical tasks listed.

3. Certain elements have unique collection guidelines:

   - Lifting/Carrying has unique collection guidelines. See 7_03 Collecting Lifting/Carrying.
   - Climbing Ramps/Stairs - Structure has unique collection guidelines. See 7_09 Collecting Climbing Ramps or Stairs.

4. Several ORS elements have higher thresholds associated with them and respondents may define them differently. Apply thresholds to Pushing/Pulling, Overhead Reaching, and Stooping.

5. Do not assume the presence of physical demands based on SVP, license, or other periodic recertification requirements. Code physical demands that the establishment specifies are required to perform critical tasks.

6. Exclude physical demands related to a worker's commute or clocking in or out.

7. Collect the presence of **One** or **Both** hand/arm (foot/leg) for the following physical demand data elements:

   - Pushing/Pulling – Hand/Arm and Foot/Leg
   - Manipulation – Gross, Fine, and Foot/Leg Controls
   - Reaching – At/Below Shoulder and Overhead

   If any of the critical tasks performed requires both hands/arms (feet/legs), code as **Both**.

   If all of the critical tasks performed can be completed using one hand/arm (foot/leg), code as **One**.

Keep tasks and maximum weight lifted in mind when coding manipulation/keyboarding/ reaching/etc. as one or both hands. If it seems like a task or weight amount would normally use two hands, then verify with the respondent if possible and code as such.

> **Example**
> While it may be possible to use one hand for some portions of driving, making tight turns to park or otherwise maneuver a vehicle normally requires both hands.

8. To avoid overstatement, do not count time spent Keyboarding, Crawling, or Climbing Ropes, Ladders, and Scaffolds in other physical demand elements.

> **Examples**
> - Code an Administrative Assistant typing on a computer as Keyboarding only, and do not include this time in Gross and Fine Manipulation.
> - Code time associated with ascending or descending ladders, ropes or scaffolds as Climbing Ropes, Ladders, or Scaffolds only and do not include this time in Pushing/Pulling, Gross Manipulation, and Reaching.

9. Any time spent during paid breaks should be coded based on the way workers experience demands when they are not on break.

> **Example**
> If workers generally stand for all their tasks, except for when they are on a paid break, 100% of the work schedule should be coded as Standing/Walking. Do not code the time workers spend on breaks as Sitting.

Concurrent Physical Demands

There are many situations where critical tasks performed include the presence of multiple physical demand elements **concurrently**. For these elements, the duration of time spent performing each element collectively can exceed the daily work hours.

Writing involves both:

- Gross Manipulation – **One** hand
- Fine Manipulation - **One** hand

Pushing a heavy cart while standing/walking includes:

- Pushing with hands/arms - **Both**
- Pushing with feet/legs - **Both**
- Gross manipulation - **Both**
- Standing/walking

Making a phone call may include:

- Gross Manipulation - **One** hand (holding the receiver with one hand)

- Fine Manipulation - **One** hand (dialing the phone with the other hand)
- Speaking
- Hearing – Telephone (listening to speech via telephone)

Some physical demand elements should not be coded concurrently for ORS.

Examples

- Sitting and Standing/Walking cannot be performed at the same time.
- Stooping, Crouching, Kneeling, Crawling, and Climbing cannot be performed at the same time, nor while workers are Sitting.

Review each physical demand element's section for more detailed information on element relationships.

7_02 Sitting vs. Standing/Walking

There are three components to this element:

- Sitting
- Standing/Walking
- Sitting/Standing at Will

Collecting Sitting vs. Standing/Walking

Sitting is present when any of the following conditions exists:

- Workers remain in a seated position. This includes active sitting. For example, bicyclists sit but push/pull with their feet/legs.
- Workers are lying down. This includes active lying down. For example, a mechanic lying on a dolly working underneath a vehicle is sitting.
- Workers may choose between sitting and standing for a given task. For example, office workers can choose a standing desk.

Standing/walking is present whenever workers are not sitting or lying down. Include time spent stooping, crawling, kneeling, crouching, or climbing.

A worker is always either sitting or standing/walking.

Table 7-1: Sitting vs. Standing/Walking Examples

Collect as	Sitting vs. Standing/Walking Examples
Sitting	An over-the-road truck driver drives a tractor- trailer.
Sitting	A police officer rides a bicycle to patrol traffic. (Active sitting).
Sitting	A landscaper mows a residential lawn with a seated mower.
Sitting	Design drafters can sit all day to do their work, but the company provides standing desks. Most drafters sit 50% of the day and stand 50% of the day. (All time counts as sitting.)
Sitting	A medical resident on call for a thirty-hour shift takes a strategic nap.
Sitting	A yoga instructor lies face down on their core while performing a reverse back bend also known as the bow pose. (Active lying down).
Standing/Walking	A pest control worker crawls in an attic to apply pesticides.
Standing/Walking	A landscaper stands on a zero-turn-mower to mow residential lawns.
Standing/Walking	Workers stand their entire shift except during paid breaks.

Coding Duration for Sitting vs. Standing/Walking

Collect the actual daily hours or percent of hours that workers spend sitting OR standing/walking. The total amount of time coded for sitting and standing/walking *must* add up to the full daily work schedule.

Sitting vs. standing/walking is based on an entire typical work day, not just on critical tasks. Coding for a typical work day generally reflects the normal exertion expected of a job. Ask the respondent to provide the duration workers spend sitting vs. standing/walking over an average work day. Probe and document if these durations seem unexpected or unusual given the task list and nature of the job. It is not necessary to adjust reasonable responses to reflect small amounts of incidental activity.

If a job spends a portion of the day sitting and the rest standing, but the respondent can only provide a range, use the mid-point of the range to calculate hours spent between Sitting and Standing/Walking.

Table 7-2: Sitting vs. Standing/Walking Duration Examples

Teller Example-Sitting vs. Standing/Walking Duration
Most tellers sit for 3 hours per day while working at the drive-thru window. The rest of the day, tellers are either standing at the counter, stooping from a standing position to access the under-counter safe, or walking to escort customers to safety deposit boxes. The daily work schedule is 8 hours.
Standing/Walking Duration Coding **Calculation for Stand/Walk:** Standing/Walking Hours = Total Hours – Sitting Hours 8 hours total – 3 hours sitting = 5 hours standing/walking

Sit/Stand/Walk	
Sitting	Stand/Walk
3.00 Hrs	5.00 Hrs

Reason: The total amount of time coded for sitting and standing/walking *must* add up to the full daily work schedule. Subtract time spent sitting from the total full daily work schedule to determine total time spent standing/walking.

Dental Hygienist Example-Sitting vs. Standing/Walking Duration
Dental hygienists sit while cleaning patients' teeth and entering information into the computer system. They must stand/walk between patients' rooms and to retrieve dental supplies. Respondent states dental hygienists spend 2-3 hours standing/walking and the rest of the time sitting. The daily work schedule is 8 hours.

Standing/Walking Duration Coding

Calculations:

Standing/Walking: **2.5 hours** per day (Midpoint of range of 2-3 hours)
Sitting: **5.5 hours** per day (Subtract hours spent standing/walking from daily total hours).
Total: Sitting for 5.5 hrs. + Standing for 2.5 hrs. = 8 hour work day.

Sit/Stand/Walk	
Sitting	Stand/Walk
5.50 Hrs	2.50 Hrs

Reason: If a job spends a portion of the day sitting and the rest standing, but the respondent can only provide a range, use the mid-point of the range to calculate hours spent between Sitting and Standing/Walking.

Grocery Store Cashier Example-Sitting vs. Standing/Walking Duration

Respondent states grocery store cashiers sit 80% and stand/walk for the other 20% of their shift. While it seems unusual for cashiers to sit the majority of the shift, respondent explains cashiers have stools at their registers and only stand/walk whenever they move customers' carts or walk around to scan large items.

Standing/Walking Duration Coding

Document the above in remarks.

Sit/Stand/Walk	
Sitting	Stand/Walk
80.00 %	20.00 %

Reason: Coding for a typical work day generally reflects the normal exertion expected of a job. Ask the respondent to provide the duration workers spend sitting vs. standing/walking over an average work day. Probe and document if these durations seem unexpected or unusual given the task list and nature of the job.

Office Workers Example-Sitting vs. Standing/Walking Duration

Respondent states office workers sit for the entire eight hour work day except whenever they stand/walk to use shared office equipment or occasionally meet with colleagues in their cubicles or conference space.

Standing/Walking Duration Coding

Code **100 %** sitting and **0%** standing/walking and document.

Sit/Stand/Walk	
Sitting	Stand/Walk
100.00 %	0.00 %

Reason: Coding for a typical work day generally reflects the normal exertion expected of a job. Ask the respondent to provide the duration workers spend sitting vs. standing/walking over an average work day. It is not necessary to adjust reasonable responses to reflect small amounts of incidental activity.

Sitting/Standing at Will

The ability to alternate between **Sitting/Standing at Will** is present when the following conditions exist:

- Workers typically have the flexibility to choose between sitting and standing throughout the day **and**
- There is no assigned time during the day to sit or stand **and**
- No external factors determine whether an employee must sit or stand.

Collect the presence (**yes**/**no**) of Sitting/Standing at Will.

This element captures jobs that have the ability to choose or control how and when they respond to external factors. When collecting for this element, consult the job's documented task list to determine whether any of the critical tasks assigned would prevent the ability to sit/stand at will.

The ability to sit/stand at will can be present even when there are specific critical tasks that require workers to be sitting or standing. If workers can determine/schedule when to perform that specific critical task, then they may still have the ability to sit/stand at will. Driving is an example of a task that is commonly performed while seated. If workers can control when the driving must be performed, then it is still possible for Sitting/Standing at Will to be present. Exclude time sitting or standing during incidental tasks or scheduled breaks from determining the ability to sit/stand at will.

When workers may choose between sitting and standing/walking, time is coded as sitting. Therefore, when time is coded as 100% sitting, sitting/standing at will may be coded either **Yes** or **No**. When time is coded as 100% standing, all work must be done from a standing position so sitting/standing at will must be coded **No**.

While there are similarities between sitting/standing at will and the cognitive element, pause control, there is not a one-to-one relationship. Sit/stand at will captures the flexibility to choose how or when during the day the work is physically performed, while pause control measures the latitude to take a brief break from the work when needed. It is possible for a worker to be able to easily take a break, but be unable to sit/stand at will and vice versa.

Table 7-3: Sitting/Standing At Will Examples

	Sitting/Standing At Will Examples	Code As	Reason
1	Traveling sales reps sit while driving and stand while visiting with clients.	At Will is **Yes**	Worker's choice
2	Software engineers use standing desks while working except for client meetings.	At Will is **Yes**	Worker's choice
3	A hospital billing supervisor usually works seated in the office, but may stand/walk out to main area to resolve client/customer service issues.	At Will is **Yes**	Worker's choice
4	An office clerk can choose when to file and typically stands while filing invoices.	At Will is **Yes**	Worker's choice
5	A pharmaceutical sales rep driving to clients can choose when to make trips and additional stops.	At Will is **Yes**	Worker's choice
6	An elementary teacher may sit or stand to instruct students and while performing duties related to monitoring them.	At Will is **Yes**	Worker's choice
7	A kindergarten teacher must escort students to the school entrance at designated dismissal times.	At Will is **No**	Worker does not choose
8	Delivery drivers generally have to meet a schedule or a predetermined route and must stand/walk at each stop to deliver items.	At Will is **No**	Worker does not choose
9	An over-the-road truck driver must meet a delivery schedule. He stops to refuel and for weigh stations.	At Will is **No**	Worker does not choose
10	An event parking lot attendant must stand when cars are entering the parking lot to accept payment and direct cars.	At Will is **No**	External factors
11	A security guard chooses to sit or stand, except when she walks to investigate suspicious situations.	At Will is **No**	External factors

7_03 Lifting/Carrying

Lifting is raising or lowering an object from one level to another. Lifting can include an upward pulling motion, which is not counted as Pulling with Hands/Arms.

Carrying is transporting an object, usually by holding it in the hands or arms, or wearing it on the body, usually around the waist or upper torso.

Lifting/Carrying is a measure of strength.

Collecting Lifting/Carrying

Collect the presence and duration of any lifting/carrying needed to carry out the job's critical tasks. Use the weight and duration chart below to collect the weight lifted/carried by duration level.

Table 7-4: Collecting Lifting/Carrying - Weight/Duration Table

Constant (2/3 or more)	Frequent (1/3 up to 2/3)	Occasional (2% up to 1/3)	Seldom (Up to 2%)
None	None	None	None
Negligible	Negligible	Negligible	Negligible
1 to 10 lbs.	1 to 10 lbs.	1 to 10 lbs.	1 to 10 lbs.
11 to 25 lbs.	11 to 25 lbs.	11 to 25 lbs.	11 to 25 lbs.
>25 lbs.	26 to 50 lbs.	26 to 50 lbs.	26 to 50 lbs.
	>50 lbs.	51 to 75 lbs.	51 to 75 lbs.
		76 to 100 lbs.	76 to 100 lbs.
		>100 lbs.	>100 lbs.

None

None means there is no weight lifted or carried.

Negligible

Negligible means the weight is so small that measurement is not meaningful. Negligible includes anything lifted or carried weighing less than one pound (e.g., a pen, a few sheets of paper).
Include:

- Time spent raising, lowering, or transporting objects
- Weight worn while standing that causes physical exertion

Exclude:

- Lifting/carrying workers may perform for incidental tasks
- Time workers spend simply holding/grasping objects, while not actively

raising/lowering/or otherwise transporting them
- Weight of items worn on the body that would not cause physical exertion such as cell phones, headsets, stethoscopes, hard hats, safety glasses, ear protection, etc.
- Any weight worn while sitting

Refining Lifting/Carrying

Consider the following questions when collecting lifting/carrying:

Table 7-5: Lift/Carry Questions to Consider

Questions	Explanation
What do workers in this job lift and carry?	Always document what workers are lifting or carrying. Ensure items lifted/carried relate to critical tasks performed.
Approximately how much do these items weigh?	Use the weight ranges listed in the weight and duration chart above as a guide (e.g., More than 10 pounds? More than 25 pounds?).
How often are they lifting and carrying these items?	Use the duration ranges listed in the weight and duration chart above as a guide (e.g., More than 1/3 of the time? Less than 2/3 of time?). Consider the duration of other critical tasks performed by the job and physical demand elements experienced. As the duration of lifting/carrying increases, the maximum weight lifted by workers should decrease (i.e., the longer something is lifted/carried, the greater the chance it weighs less).
What is the most weight ever lifted/carried by the job to perform the critical tasks?	It takes more strength to lift something for longer lengths of time, so the weight that workers lift for shorter durations (seldom or occasionally) is often heavier than that lifted for longer durations (frequently or constantly).
What do workers lift that weighs that amount (most weight ever)?	When the maximum weight lifted seems excessive given the critical tasks performed, ask: "What do workers lift that weighs that much?" If the item identified does not relate to critical tasks, ask for the next highest weight workers lift.

Questions	Explanation
Can workers reduce the weight lifted/carried?	If the item identified does relate to critical tasks performed, determine whether workers are permitted to adjust the weight lifted/carried to fall into a lower weight category for weights above 10 pounds at any duration while performing critical tasks. When the worker has the option, code the lower weight range and document accordingly. Consider the following when determining whether to probe further: • Not all occupations will have the choice to reduce the weight. **Example**: Delivery drivers cannot open packages and only lift the individual contents. • It may not be possible to reduce the weight and still meet performance expectations. **Example**: Restaurant bussers could take dishes and cutlery back to the kitchen one at a time (negligible weight, however, this would adversely impact their performance of critical tasks. In general, more physically demanding jobs are less likely to be able to modify the weight lifted and carried. And less physically demanding jobs, like office workers, are less likely to require heavy lifting/carrying at any duration.

Avoid Overstating Lifting/Carrying

Do not assume weights listed in job descriptions are the amount of weight the job normally carries/lifts to perform their critical tasks. Weights listed in job descriptions may be an arbitrarily determined maximum number of pounds included for workers' compensation and other insurance purposes.

Ensure lifting/carrying durations collected make sense considering the time spent performing other critical tasks that don't require active lifting/carrying (e.g., driving, keyboarding, writing, holding or grasping but not lifting/carrying objects). Also consider the workers may have downtime between critical tasks performed (e.g., between waiting on customers).

Use professional analysis and probing questions when a respondent states that **any** lifting/carrying, even of negligible weight, is required frequently or constantly. Keep in mind that the activity must occur for 2/3 or more of the day (e.g., 5 hours and 20 minutes in an 8 hour day) to be coded as constant. Consider the time spent performing other physical demands and whether the workday will allow for such a high duration.
Such a high rate of occurrence will typically occur:

- During repetitive production-type work.
- When workers wear physically exerting weight while standing/walking (tool belts, safety or other equipment).

Table 7-6: Lifting/Carrying Examples

	Lifting / Carrying Examples	Code as Lifting / Carrying?	Reason
1	Assembly line workers lift cans, jars, or bottles from cardboard boxes and place them on a conveyor.	Yes	Meets lifting definition
2	Construction workers wear tool belts to carry hammers, flat bars, screwdrivers and other hand tools while working on a construction site.	Yes	Meets carrying definition
3	Workers in a computer component factory repetitively lift 3 oz. circuit boards to quickly inspect and place them in a box all day.	Yes	Meets lifting definition
4	Cashiers exchange payment/receipts with customers.	Yes	Meets lifting definition
5	Salespeople in a department store lift customer purchases to scan tags and place in bags and then lift bags and hand them to customers.	Yes	Meets lifting definition
6	HR representatives hold a telephone receiver while speaking to employees.	No	Duration holding/ grasping receiver while speaking captured only as Gross Manipulation; Include time lifting up and placing down receiver as Lifting/Carrying.
7	Call center operators wear a headset while taking client calls.	No	Worn weight which doesn't cause exertion
8	Mall security guards wear gun belts and bulletproof vests while patrolling through the mall on foot their entire shift.	Yes	Include duration of worn items while standing/ walking
9	Police officers wear gun belts and bulletproof vests while driving during patrol.	No	Exclude duration of worn items while sitting

Coding Lifting / Carrying

Using the weight and duration chart, determine the maximum weight lifted ever and for each duration level. Round weight up to a whole number to determine the weight range.

1. Code the maximum weight lifted/carried ever and use this weight to select the appropriate range for the **`Up to 2%`** duration in CIERA.
2. The most weight lifted/carried ever will be the same as the most weight lifted **`Up to 2%`**, except in the case of negligible weight. When the maximum weight ever lifted is **`Negligible`**, code **`0`** (zero) for the Maximum Weight Lifted Ever entry and **`Negligible`** in the **`Up to 2%`** duration.

3. Code the most weight lifted/carried in the Occasional **2% up to 1/3** duration in CIERA. This weight will be the same or less than the amount collected for Seldom **Up to 2%** duration.
4. Code the most weight lifted/carried in the Frequent **1/3 up to 2/3** duration in CIERA. This weight will be the same or less than the amount collected for Occasional **2% up to 1/3** duration.
5. Code the most weight lifted/carried in the Constant **2/3 or more** duration in CIERA. This will be the same or less than the amount collected at the Frequent **1/3 up to 2/3** duration.

Document:

- Items lifted/carried.
- Any weight coded at the Constant **2/3 or more** duration, including negligible weight items.
- When lifting/carrying an object does not require hands.

Example
Workers wearing tool belts experience gross manipulation when lifting the belt and zero gross manipulation while carrying it. Collect the time spent wearing the tool belt while standing/walking toward the lifting/carrying element and document the presence/absence of gross manipulation.

Lifting/Carrying the Weight of a Person

Consider the following questions when a respondent indicates that a job must lift or carry the weight of another person:

Table 7-7: Questions to Consider When Lifting or Carrying the Weight of Another Person

Questions	Explanation	Example
Is lifting or carrying another person in support of critical tasks?	Sometimes workers, especially in emergency response jobs, may not be required to lift or carry people but may choose to do so to be helpful. If this lifting/carrying is not a requirement of the job, do not include it.	Police officer chooses to help paramedics move accident victims at the scene of a collision.
Do workers have the option to lift or carry a person with the help of a coworker?	If workers may team lift, count only the amount of weight that the respondent estimates one worker would have to lift or carry.	Two EMTs carry each stretcher moving a patient to an ambulance.
Are workers required to actually lift or carry a person or move the person in some way from one point to another?	When workers are responsible for moving someone but they do not have to fully lift or carry the person, count only the amount of weight that the respondent estimates the worker would have to actually lift or carry.	Patient transporters partially lift and partially push a patient from a hospital bed to a gurney.
Are assistive devices available to help with lifting?	If workers may use assistive devices to assist with lifting, count only the amount of weight that the respondent estimates the worker would have to actually lift or carry.	CNA uses a Hoyer lift to move a patient between a bed and a wheelchair.

Table 7-8: Lifting/Carrying Coding Examples

Example 1 – Landscaper
As part of a landscape crew, workers operate either weed trimmers or leaf blowers while performing detail trim and clean-up work. Workers lift/carry the 12-pound gas-powered lawn equipment the entire day. Three times per day, for 10 minutes, the workers must lift portable fuel tanks to refuel equipment. The portable fuel tanks hold several gallons of gas and weigh approximately 30 pounds. The workers do not need to lift or carry anything else. The work schedule is 8 hours/day.

Example 1 – Landscaper

Landscaper Coding

Lifting/Carrying (Max Weight Lifted...)				
Ever	2/3 or more	1/3 up to 2/3	2% up to 1/3	up to 2%
30 Lbs	11-25 lbs	11-25 lbs	26-50 lbs	26-50 lbs

Example 2 – Sales Representatives

Sales representatives, while visiting customers throughout a typical day, lift negligible weight items such as pens, paper, and cell phones. Sometimes representatives needs to lift cabinet samples, weighing six pounds each, to show potential clients design and color choices. The cumulative time spent lifting/carrying the cabinet samples as well as the negligible weight items is less than 1/3 of the day. Sales reps spend the remaining 2/3 of their day driving, speaking to clients, and writing/entering orders.

The sales reps also lift boxes of display materials while setting up a booth at the annual sales show. The boxes weigh 30 pounds each and the total time spent lifting these is 10 minutes. Besides the annual sales show, the sales reps don't lift anything more than 10 pounds. This is the most they ever have to lift.*

Sales Representatives Coding

Lifting/Carrying (Max Weight Lifted...)				
Ever	2/3 or more	1/3 up to 2/3	2% up to 1/3	up to 2%
6 Lbs	None	None	1 to 10 lbs	1 to 10 lbs

*Exclude the weight of boxes lifted for the annual sales show from lifting/carrying duration coding because the annual sales show is an incidental task.

7_04 Pushing/Pulling

Pushing is exerting force upon an object so that the object moves away from the origin of the force.

Pulling is exerting force upon an object so that the object moves toward the origin of the force.

Pushing/Pulling is a measure of strength, not dexterity. Force or exertion must meet a threshold for Pushing/Pulling to be present.

Force is an interaction that changes the motion of an object. Factors affecting the amount of force needed are:

- Weight of object(s) being pushed/pulled
- Friction, specifically pushing/pulling on a smooth vs. coarse surface
- Incline

Example
The amount of force required for a worker to push/pull a dolly with a weight on it across a flat surface or a 30-degree incline is (approximately*):

Weight	Flat Surface	Incline
25 lbs.	2 force pounds	11 force pounds
50 lbs.	6 force pounds	14 force pounds
100 lbs.	11 force pounds	18 force pounds

*The values in this chart are to illustrate the difference between weight and force pounds and the potential effect of an incline in the amount of force pounds required to push or pull an object. These values are unique to this specific example and should not be considered thresholds.

Collecting Pushing/Pulling

Include the presence and duration of pushing/pulling when critical tasks performed meet *one* of the following thresholds:

- A worker uses **ten force pounds** or more, or
- A worker uses any amount of force 2/3 or more of the day (constant or **production rate**).

A **production rate** includes a constant repetition of a negligible amount of force, requiring considerable strength at any weight.

Documentation, including examples of items pushed/pulled, must be provided to support the coding.

Table 7-10: Meeting Pushing/Pulling Thresholds Examples

	Meeting Pushing/Pulling Thresholds Examples	Meets the Threshold	Reason
1	Pulls down a garage door manually.	Yes	Meets the force threshold
2	Pulls open large drawers containing cadavers in the county morgue.	Yes	Meets the force threshold
3	Pushes a patient in a wheelchair.	Yes	Meets the force threshold
4	Pushes/pulls a chipper/shredder machine.	Yes	Meets the force threshold
5	Pushes/pulls a commercial floor waxing machine.	Yes	Meets the force threshold
6	Pushes a snow blower to clear sidewalks.	Yes	Meets the force threshold
7	Pushes 1 lb. widgets constantly along a manual assembly line.	Yes	Meets the production rate threshold
8	Pulls open an office desk drawer, occasionally.	No	Does not meet either threshold
9	Pushes an IV stand across a patient's room, occasionally.	No	Does not meet either threshold
10	Pushes open a typical household door, occasionally.	No	Does not meet either threshold

Coding Pushing/Pulling - Meeting Thresholds

Collect the presence and duration of pushing and pulling together.

- Code the duration of any pushing/pulling required for critical tasks equal to ten or more force-pounds. This meets the force threshold.
- Code the duration of any force-pounds required for critical tasks if the pushing/pulling occurs more than 2/3 of the day. This meets the production rate threshold.
- Code pushing/pulling as **`Not Present`** when pushing/pulling duration is less than 2/3 of the day and involves less than ten pounds of force. This does not meet either threshold for pushing/pulling.
- When pushing/pulling force amounts vary above and below the force threshold, code total duration experienced if the sum of all tasks involving pushing/pulling are present for more than 2/3 of the day. If total duration is less than 2/3 of the day, code only the duration for tasks requiring over ten pounds of force.
- Code **`Present Duration Unknown`** only when a critical task requires force clearly exceeding ten pounds and the duration is not known. Do not code **`Present Duration Unknown`** based solely on the knowledge a task requiring pushing/pulling may exist from a job description or other written source, unless verified by a respondent.

- If the force threshold cannot be determined, code **Unknown** unless it can be verified that duration exceeds 2/3 of the day (production rate threshold). Force is not a consideration above 2/3 of the day.

Types of Pushing/Pulling

Separate pushing and pulling based on the part of the body used. Collect as:

- **Hands/Arms**, when the upper body is used.
- **Feet/Legs**, when the lower body is used, and upper leg muscles are needed to create the force

Exclude feet only pushing/pulling, when the pushing is done primarily by feet from a seated position and upper leg muscles do not create the force. Feet only pushing/pulling is counted as Manipulation-Feet/Leg Controls.

Most pushing and pulling that occurs while walking uses arms and legs to apply force. Types of Pushing/Pulling using arms and legs include:

- Wheelchairs
- Commercial carpet cleaners
- Carts
- Walk-behind lawn mowers

Knowing a worker is standing is not sufficient to determine whether legs are the source of the force exerted. Consider the object pushed/pulled while standing and determine with the respondent whether the legs are included in creating force necessary to push/pull it by noting the following:

- When the workers are standing only so they are in the proper position (e.g., height) to do the pushing and pulling with the arms, Push/Pull with Legs is not present.
- When the workers are standing and using leg muscles to contribute to generate the forces needed to meet the 10 lbs. of force threshold, Push/Pull with Legs is present.

For each type of pushing and pulling, code whether the critical task performed requires one or both hands/arms (feet/legs). See 7_01 Coding One or Both for guidelines.

Notes

- If a task requires a worker to operate foot/leg controls, code duration in Manipulation-Foot/Leg Controls only. Do not include time spent operating foot/leg controls as Pushing/Pulling-Feet/Legs.
- Bicycling and swimming are activities which require considerable exertion and meet the force threshold for pushing/pulling. Include any time spent performing these activities in pushing/pulling duration as both feet/legs (and both hands/arms for swimming).
- Exclude pushing/pulling actions involved while workers ascend or descend ropes, ladders, or scaffolding, since the time spent pushing/pulling when performing this physical demand is included in the Climbing Ropes, Ladders, or Scaffolding element.

Table 7-11: Pushing/Pulling Types and One/Both Examples

	Pushing/Pulling Types and One/Both Examples	Collect Type and One/Both	Collect Duration
1	Technicians sit and push, with one hand, a heavy equipment cart on a carpeted surface. The total time pushing is 30 min. per day.	One hand/arm only. No legs, because the workers sit.	**2% up to 1/3**
2	Librarians walk behind and push heavy two-shelf cart full of books for 3 hours per day.	Hands/arms and feet/legs; both sides of the body for each.	**1/3 up to 2/3**
3	Swim instructors swim 4 hours out of an 8-hour day.	Hands/arms and feet/legs; both sides of the body for each.	**1/3 up to 2/3**
4	Textile workers stand at a commercial loom pushing/pulling with two hands to weave fabric for 7 hours of an 8-hour day.	Both hands/arms. A rare example of pushing/pulling from a non-seated position with hands/arms only.	**2/3 or more**
5	Police officers patrol on a bicycle for 1 hour of an 8-hour day.	Both feet/legs. A rare example of push/pull feet/legs; no hands/arms.	**2% up to 1/3**
6	Excavating machine operators use both arms and legs to operate controls and pedals (clutch) for 6 hours of an 8-hour shift.	Both hands/arms only. Operating foot pedals included as Manipulation-Foot/Leg Controls.	**2/3 or more** under Push/Pull – Hand/ Arms & under Manipulation

	Pushing/Pulling Types and One/Both Examples	Collect Type and One/Both	Collect Duration
7	Bus drivers operate gas/brake pedals for automatic transmission buses, driving for 1 hour and 45 minutes of 2 hour shift.	Manipulation-Foot/Leg Controls. Driving meeting the production rate threshold no longer included with Pushing/Pulling.	**2/3 or more** under Manipulation
8	Sewing machine operators push foot treadles when using an industrial sewing machine 80% of day.	Manipulation-Foot/Leg Controls. Operating foot pedals included as Manipulation-Foot/Leg Controls.	**2/3 or more** under Manipulation

7_05 Reaching

Reaching is extending the hand(s) and arm(s) in any direction, requiring the straightening and extending of the arm(s) and elbow(s) and the engagement of the shoulder(s).

There are two types of Reaching:

- Overhead Reaching
- At/Below the Shoulder Reaching

Overhead Reaching is extending the arm(s) with the hand higher than the head and one of the following two conditions exists:

- Condition 1: The worker bends the elbow, and the angle at the shoulder is about 90 degrees or more.
- Condition 2: The worker keeps the elbow extended, and the angle at the shoulder is about 120 degrees or more.

At/Below the Shoulder Reaching is any reaching which does not meet the threshold for Overhead.

Collecting Reaching

Collect the presence and duration of both types of reaching. For each type, code whether the task requires one or both hands/arms. See 7_01 Coding One or Both for guidelines.

Collect reaching when it meets all three of the following criteria:

- Meets the definition of reaching above
- Is in support of critical tasks
- Is required, not an employee choice

Collect the duration for the entire range of motion for reaching, not just the time at full extension. While workers can bend their arms at any time when reaching, do not collect an action as reaching if it does not actually require some extension of the arm and elbow and engagement of the shoulders. For example, operating a steering wheel of a standard vehicle does not meet the requirement of reaching, since the seat can be adjusted to avoid extension of the arm and engagement of the shoulders.

Include only the reaching necessary to perform the critical tasks of the job.

- If workers can stand as needed to avoid overhead reaching, collect task as at/below the shoulder reaching. Standing is the only means of avoiding overhead reaching that should be considered, (i.e., do not substitute another physical demand such as climbing a stepladder to avoid reaching).
- If workers have the ability to adjust themselves or easily reposition items to avoid at/below the shoulder reaching, do not include as reaching.

> Example
> Office workers position their telephones, keyboards, and paperwork anywhere on their desks and avoid reaching.

- If workers do not have the ability to easily reposition themselves due to the nature of critical tasks or physical setting of work environment, include the type and duration of reaching performed.

> Example
> Fast food cashiers must hand customers food items across the counter and through drive through windows. Even if they reposition themselves closer to counter or window, they can't avoid reaching.

Document examples of actions that require reaching to support coding selections.

Exclude reaching when it is already captured as part of another physical demand element:

- Crawling
- Climbing ladders, ropes, scaffolding: during ascending/descending of ladders, ropes, and scaffolds only
- Keyboarding: exclude reaching while typing or using mouse

Table 7-12: Reaching Examples

	Reaching Examples	Collect As:	Reason
1	Picking apples from the tops of mature trees.	Overhead	Meets the threshold
2	Spotting children on uneven bars.	Overhead	Meets the threshold
3	Hanging an IV bag on a stand.	Overhead	Meets the threshold
4	Opening and closing stage curtains with a rope and pulley.	Overhead	Meets the threshold
5	Pruning trees and shrubs.	Both types of Reaching	Meets the threshold for both types.
6	Attaching drywall to studs.	Both types of Reaching	Meets the threshold for both types.
7	Filing folders in overhead cabinets. Worker can stand to avoid reaching overhead.	At/Below Shoulder	Meets the threshold for At/Below Shoulder, do not count as Overhead
8	Checking a car's oil.	At/Below Shoulder	Meets the threshold
9	Reaching in bins for sandwich ingredients.	At/Below Shoulder	Meets the threshold
10	Loading a commercial dishwasher.	At/Below Shoulder	Meets the threshold
11	Reaching for the control to open a bus door.	At/Below Shoulder	Meets the threshold
12	Reaching across a desk for the handset to answer a telephone in cubicle.	Not Present	Workers' able to move phone closer to avoid reaching.

7_06 Manipulation

There are three types of Manipulation:

- Gross Manipulation
- Fine Manipulation
- Foot/Leg Controls

Gross Manipulation is seizing, holding, grasping, turning, or otherwise working with the hand(s).

Fine Manipulation is touching, picking, pinching, or otherwise working primarily with fingers rather than with the whole hand or arm, as in gross manipulation.

Foot/Leg Controls is the use of one or both feet or legs to move controls on machinery or equipment. Controls include, but are not limited to, pedals, buttons, levers, and cranks.

Collecting Manipulation

Collect the presence and duration of manipulation. For each type, code whether the task requires one or both hands or feet. See 7_01 Coding One or Both for guidelines.

Gross Manipulation

For gross manipulation, fingers are involved only to the extent that they are an extension of the hand to hold or operate an object or tool, such as a hammer.

Include gross manipulation involved with the following:

- Lifting/carrying involving the hands.
- Pushing/pulling involving use of hands.
- Reaching for something using hands.
- Driving involving hands (steering wheel, gear shifts, etc.)
- Writing

Exclude coding gross manipulation when it is already captured as part of another physical demand element:

- Gross manipulation involved in keyboarding or the use of a mouse
- Gross manipulation involved while climbing ladders, ropes, and scaffolds (during ascending/descending of ladders, ropes, and scaffolds only)
- Lifting/carrying that involves a part of the body other than hands

Fine Manipulation

Some tasks require simultaneous gross manipulation and fine manipulation, like writing. Code duration for tasks requiring simultaneous fine and gross manipulation in both elements.

Example
A worker grasps a tape roll with one hand and pinches the tape lead with the other.

Include fine manipulation involved with:

- Writing
- Pressing buttons on office equipment such as fax machines, printers, copiers
- Entering data using touchscreens, including the following types of electronic devices: tablet computers, touch screen mobile phones, touch screen point of sale devices, cash registers, including hybrid cash registers, portable scanners

Exclude fine manipulation when:

- Entering data on traditional keyboards or 10-Key pads. Include duration for these types of keyboards as keyboarding.

Foot/Leg Controls

The intent of foot/leg controls is to capture instances of pedals that control machinery or equipment, and commonly adjust speed, on/off status, and height through varied pressure or toggling. Operating such controls involves smaller, more precise foot movements and typically does not require the upper leg muscles to create force.

In contrast, pushing/pulling feet/legs captures demands requiring use of feet as extension of the force created by the upper leg muscles. For example, bicycle “pedals” act as levers extending the pushing/pulling force created by the upper leg muscles. Exclude any motion already captured as pushing/pulling feet/legs, like operating a bicycle, from foot/leg controls manipulation.

Table 7-13: Manipulation Examples

Collect as	Manipulation Examples
Gross	Handling a conventional phone receiver.
Gross	Holding lumber and handling tools when building cabinetry.
Gross	Lifting and moving packages.
Gross	Driving a delivery van using a steering wheel and shifting gears.
Gross	Using a pipe wrench.
Fine	Pushing buttons on a copy machine.
Fine	Counting coins and paper money.
Fine	Pinning and hand sewing garments.
Fine	Separating groups of documents with paper clips.
Fine	Inserting small parts on a production line.
Fine	Adjusting calibration equipment.
Fine	Sorting through bins of eyeglass screws.
Fine	Stringing small beads on a wire to make a bracelet.
Fine	Collecting tickets and handing out receipts.
Gross and Fine	Writing.
Gross and Fine	Playing a guitar.
Gross and Fine	Cutting with scissors.
Gross and Fine	Using a screwdriver.
Foot/Leg	Stepping on a lever to lower and raise salon chairs.
Foot/Leg	Pressing a floor button to raise a dental chair.
Foot/Leg	Pressing a gas pedal to drive a passenger vehicle.
Foot/Leg	Pressing a knee lever (an alternative to a conventional foot pedal) to operate a sewing machine.
Foot/Leg	Pressing pedals while playing a baby grand piano.

7_07 Keyboarding

Keyboarding is entering text or data into a computer or other machine by means of a keyboard, using a repetitive motion requiring the use of the whole hand.

Collecting Keyboarding

Collect the presence and duration of keyboarding using traditional keyboards.

Traditional Keyboard refers to a panel of keys used as the primary input device on a computer, typographic machine or 10-Key numeric keypad.

Include:

- All aspects of using a desktop computer, including a mouse
- Adding machines
- Calculators
- Laptops
- Stenographer's machines
- Typewriters

Collect durations for the use of *any other* keyboarding devices not listed above as Fine Manipulation. Examples of other keyboarding devices that should be coded as fine manipulation include tablets, smartphones, cash registers, and retail scanners.

Notes

- Do not include all time spent in front of a computer as keyboarding. Only include active typing or use of a mouse.
- Active typing includes having hands positioned over the keyboard for short intervals while waiting for a response to input. It excludes longer periods of waiting where hands can be at rest.
- Because only active typing/mouse usage is included, keyboarding for 2/3 or more of the time is unusual and requires documentation explaining the situation.
- Consider workers may have down time between critical tasks that involve keyboarding.
- Do not include keyboarding or the use of a mouse in the duration for gross or fine manipulation, or reaching.
- If a worker must use a computer monitor or a screen on another electronic device, then code Near Visual Acuity - **Yes** as a default.

Table 7-14: Keyboarding vs. Fine Manipulation Examples

	Keyboarding vs. Fine Manipulation Examples	Code As
1	Customer service reps enter information into an order system on a desktop computer.	Traditional keyboard
2	Accounting clerks use adding machines to settle accounts.	Traditional keyboard
3	A receptionist at a spa uses a typing motion on a touchscreen device to book services and send customized messages to clients.	Fine Manipulation
4	Bartenders enters drink orders into a touchscreen order-system	Fine Manipulation
5	Salespeople communicate with customers using a Blackberry.	Fine Manipulation
6	Cashiers at a retail store use registers with a hybrid keyboard that has 72 flat keys and a 10-key pad.	Fine Manipulation
7	Musicians play keyboards such as pianos and organs.	Fine Manipulation

7_08 Low Postures: Stooping, Crouching, Kneeling, and Crawling

There are four **low postures**:

- Stooping
- Crouching
- Kneeling
- Crawling

Workers may use these postures to lower or position themselves over something at or below knee level or get closer to the ground. A worker cannot stoop, crouch, kneel, or crawl at the same time.

Stooping is bending the body forward and down while bending the spine at the waist 45 degrees or more either over something below waist level or down towards an object on or near the ground. Stooping should be significant enough that when bending, if arms were extended toward the ground, workers' hands would be at or below the knees. Stooping must be performed while standing.

Crouching is bending the body downward and forward by bending the legs and spine.

Kneeling is bending the legs at the knees to come to rest on the knee or knees.

Crawling is moving about on hands and knees or hands and feet.

Collecting Low Postures

Determine whether any critical tasks require low postures. When critical tasks require low movements, collect the presence and duration of the total time spent getting low using stooping, crouching, kneeling, and crawling postures. The time spent in these postural positions is usually minimal. Be sure the duration provided corresponds to critical tasks.

If critical tasks require low postures, determine which postures workers use. For each posture type, select one of the following:

Table 7-15: Collecting Low Postures

Coding Postures Used	Coding Criteria:
`Yes-Required`	Code `Yes-Required` when *any* of the following dictates use of specific posture(s): • **The employer**. For example, delivery drivers are trained and expected to crouch, rather than stoop, when bending to retrieve packages. • **The nature of critical tasks performed.** For example, a tile installer must kneel while laying floor tile. • **The physical settings of the establishment or work environment**. For example, bakers stoop when placing trays into ovens below counter height.
`Yes-Worker's Choice`	Code `Yes - Worker's Choice` when none of the criteria from `Yes - Required` apply and workers may choose the posture they use. • If one posture is the most commonly used by workers, code `Yes - Worker's Choice` for only the most commonly used posture. • If there is no clear worker preference or the respondent does not know which posture is most commonly used, code `Yes - Worker's Choice` for all postures workers may use.
`No`	Code `No` when a posture is not required or generally used when getting low.
`Unknown`	Code `Unknown` if it is not possible to determine whether or not a posture is required or generally used.

The intent of these options is to capture the types of postures workers use when getting low is required and distinguish between jobs where workers **must use** specific posture(s) versus having **the flexibility to decide which** posture(s) to use.

Different tasks may require the use of the same posture(s). If use of a specific posture(s) is required for **any** task, code `Yes-Required` even if workers have the choice to use the same posture for most other tasks.

Notes

- Exclude stooping performed while workers are sitting.
- If workers can easily adjust or re-position themselves or objects higher in order to avoid low postures, do not collect the presence and duration of getting low for that task. Examples include storing items on a higher shelf, raising the dental chair, and adjusting a patient's bed upwards.

Table 7-16: Low Postures Examples

Collect as	Low Postures Examples
Stooping	A mechanic stoops over a car engine while making repairs.
Stooping	A janitor stoops while emptying small desk trashcans.
Stooping	A cafeteria worker stoops to retrieve kitchen equipment stored below counter level.
Crouching	A bricklayer crouches to spread mortar and position bricks on lower parts of walls.
Crouching	An HVAC repairperson crouches to inspect a malfunctioning air conditioner.
Crouching	A physical education teacher crouches to demonstrate the catcher position while playing softball.
Kneeling	A carpet installer kneels while pressing carpet firmly in place over tack strips, using hand tools.
Kneeling	An electrician kneels to connect wiring to fixtures located in cramped places.
Kneeling	A plumber kneels while installing piping for a radiant floor heating system.
Crawling	A concrete worker crawls while smoothing and finishing the surface of poured concrete sidewalks.
Crawling	An HVAC repairperson crawls through narrow spaces to reach all parts of a furnace
Crawling	An insulation installer crawls through a home's crawlspace.
Exclude	A teacher leans over to look at a student's paper. The teacher could be handed the paper by the student and read it standing upright.
Exclude	Clerical employees bend slightly at the waist while sitting to retrieve a document from the bottom drawer of their desks. Stooping must be done while standing.
Exclude	Accountant stoops to pick up a dropped item or to plug in a computer monitor. Both of these are incidental tasks and are excluded.
Exclude	Hairstylists slightly bend over customer while cutting hair. Stooping must meet the threshold of bending at a 45 degree angle or greater.
Exclude	Engineers keep reference materials and supplies in lower filing cabinet drawers in their work area. They can choose where to store these files.

Low Postures Coding Examples

Table 7-17: Low Postures Coding Examples

Example 1 – Pest Control Worker
Pest control workers spend up to 1/3 of their day performing tasks that require low movements. They use these movements to investigate and address pest infestations on ground areas. The company trains workers to crouch when placing traps in certain locations and kneel when placing traps in other locations and workers do both. Workers also must be able to crawl in order to access crawl spaces or under deck areas. When asked whether workers need to stoop, the respondent replies that they use portable sprayers with long nozzles and do not stoop.
Pest Control Worker Coding

Getting Low				
Duration	Stooping	Kneeling	Crouching	Crawling
2% up to 1/3	No	Yes, Required	Yes, Required	Yes, Required

Example 2 – Medical Office Secretary
A medical office secretary must use low postures when accessing patient medical records stored in central office filing cabinets. The secretary spends up to 2% of the day in low postures since most records are stored high enough to avoid getting low. The employer doesn't care how the secretary gets low and says they generally stoop or crouch. They do not kneel or crawl.
Medical Office Secretary Coding

Getting Low				
Duration	Stooping	Kneeling	Crouching	Crawling
Up to 2%	Yes, Worker Choice	No	Yes, Worker Choice	No

Example 3 – Delivery Drivers

Delivery drivers are required to crouch when lifting heavy packages. When scanning tags on these heavy packages placed on the dolly, they may choose how they get low and they typically crouch. Respondent is unsure how much time drivers spend using low postures. They typically don't use the other low postures.

Delivery Drivers Coding

Getting Low				
Duration	Stooping	Kneeling	Crouching	Crawling
Present, Duration Unknown	No	No	Yes, Required	No

7_09 Climbing

Climbing is the act of ascending or descending stairs, ramps, ladders, ropes or scaffolding and similar structures using feet, legs, hands, and/or arms.

There are two types of climbing:

- Climbing Ramps or Stairs
- Climbing Ladders, Ropes, or Scaffolds

Climbing Ramps or Stairs is present when a worker ascends or descends ramps or stairs primarily using feet and legs. A worker may use arms and hands for balance only, as in holding a stair railing.

Climbing Ladders, Ropes, or Scaffolds is present when a workers ascends or descends ladders, scaffolding, ropes, or poles, using feet/legs and hands/arms. A worker typically uses both upper body and lower body climbing ladders, ropes, or scaffolds.

Determining Climbing Type

If the type of climbing present does not directly correspond to either of the above elements, select the element that most closely resembles the action performed by the workers and document.

Categorize stools and ladders as follows:

Table 7-18: Climbing - Stool and Ladder Categories

Type	Description	Collect As
Single Step Stool	A small stool with one-step often used to reach a higher-level shelf or cabinet. A worker does not need to use the upper body.	Climbing ramps/stairs
Household Double Step Stool	A stool that folds out into two stair-like steps. Ascent is forward and up rather than vertical. A worker does not need to use the upper body.	Climbing ramps/stairs
Step Ladder	A ladder, typically between eight and twelve feet tall, with steps that fit most of the foot. Ascent is vertical rather than stair-like. A worker must use the upper and lower body.	Climbing ladders, ropes, or scaffolds
Traditional ladder	Ladders, including extension ladders, designed to reach the tops of structures, with rungs rather than steps. A worker must use both the upper and lower body.	Climbing ladders, ropes, or scaffolds

Collecting Climbing Ramps or Stairs

When Climbing Ramps or Stairs is present, determine if it is **work-related** or **structure-related**, and code accordingly.

Work-related: Performing critical tasks would require climbing regardless of the building structure. Work-related climbing includes climbing stairs/ramps on machinery and equipment, the use of step stools, or the use of mobile ramps.

Structure-related: Performing critical tasks would not require climbing if the workplace was one level. Structure-related climbing includes climbing stairs or ramps that are part of a building structure, including climbing steps to enter/exit residential structures as well as climbing full stair flights within both residential and public structures.

Structure-related climbing does not include the use of ADA-compliant ramps or climbing steps to enter and exit public buildings and non-residential structures. Federal law requires the availability of an ADA-compliant entrance at these structures; therefore, climbing steps to enter and exit public and non-residential buildings is voluntary. Assume all public and non-residential buildings have availability of alternate access, even when structures may be grandfathered from accessibility requirements. Further, climbing ADA-compliant ramps does not meet the physical exertion this element intends to capture for ramps/stairs.

A job may perform both work-related and structure-related climbing. Collect the presence and the duration of any work-related climbing. Collect the presence only of any structure-related climbing.

Notes

- **Public and non-residential structures**: Exclude climbing steps to enter and exit public buildings and non-residential structures from both work- and structure-related climbing.
- **Ramps**: Include only work-related ramps that are part of equipment or machinery or portable loading ramps. Do not include ADA-compliant ramps when coding this element.
- **Elevators**: When workers have unrestricted use of building elevators, code **No** for structure-related climbing. If elevators are present, but workers are expected to use stairs or are restricted from using building elevators, code **Yes** for structure-related climbing.
- **Loading docks**: Do not assume climbing is required whenever loading docks exist. Many loading docks may not require the physical exertion of climbing. Often, loading docks allow vehicles to be positioned so loading/unloading and transition to storage space is on the same level. If loading docks are ramps that are part of the building structure, code **Yes** for structure-related climbing.

Table 7-19: Climbing Ramps or Stairs Examples

	Climbing Ramps or Stairs Examples	Action	Type
1	A machine operator climbs stairs to access the machine platform.	Collect	Work-Related-include duration
2	Delivery drivers climb a mobile ramp to load and unload material from the back of a delivery truck.	Collect	Work-Related-include duration
3	Retail sales workers climb movable stairs to obtain merchandise from high shelves	Collect	Work-Related-include duration
4	Bus drivers climb steps into bus	Collect	Work-Related-include duration
5	Delivery drivers climb stairs while making residential deliveries	Collect	Structure-Related –include presence only
6	Visiting nursing aides climb stairs while visiting clients at their homes	Collect	Structure-Related –include presence only
7	An office manager must use stairs to access files and supplies located on another floor.	Collect	Structure-Related –include presence only
8	A teacher escorts children up and down stairs in a three-story building. Elevator use is restricted to medical use only.	Collect	Structure-Related –include presence only
9	Attorneys visiting courthouses	Do not collect	Public building –climbing stairs during entry/exit into structure is voluntary
10	Nursing assistants push patients up ADA-compliant ramps.	Do not collect	ADA-compliant ramps are excluded from both types of Climbing Ramps and Stairs
11	Pharmaceutical sales representatives visit doctors' offices and health clinics	Do not collect	Public buildings –climbing stairs during entry/exit into structure is voluntary
12	An apartment property manager ascends steep driveways while maintaining rental properties.	Do not collect	Steep driveways do not count as ramps or stairs.

Collecting Climbing Ladders, Ropes, or Scaffolds

If workers must climb something that requires the use of both the upper and lower body to climb, include it in this element. Collect the presence and the duration of climbing ladders, ropes, or scaffolds.

Note
Do not include the time spent ascending or descending ladders, ropes, or scaffolds in gross manipulation, pushing/pulling, and reaching durations. These physical demands are contained within the climbing element.

Table 7-20: Climbing Ladders, Ropes, Scaffolds Examples

	Climbing Ladders, Ropes, Scaffolds Examples
1	An electrician ascends poles to install or repair power lines.
2	A drywall installer climbs scaffolding to plaster a ceiling.
3	Heavy truck driver climbs a short ladder using arms and legs to enter the cab of a semi-truck.
4	Fitness instructor uses arms and legs to scale the rock wall at a gym.

7_10 Driving

Driving, a type of task, is the operation of a motorized passenger vehicle or other conveyance. Include operating passenger vehicles such as automobiles, vans, or light trucks, and other vehicles such as tractor trailers, buses, equipment (e.g. forklifts, golf carts, riding mowers), trains, boats or aircraft.

Collecting Driving

Collect the presence of driving only when it is confirmed that driving is performed in support of a critical task for the job. Include a description of **all** types of vehicles driven in the task list documentation.

Exclude non-motorized conveyances, such as riding an animal or bicycle.

Driving involves multiple physical demands:

- Far Visual Acuity: Far Visual Acuity is assumed when Driving is present.
- Peripheral Vision: Peripheral Vision is assumed when Driving is present.
- Gross Manipulation: Time spent driving will be the base duration for Gross Manipulation.

Driving may also include:

- Near Visual Acuity
- Credentials - License or Other (commercial or standard drivers' licenses)

Driving when operating a passenger vehicle with automatic transmission and power brakes also includes:

- Manipulation – Foot/Leg Controls Manipulation – Foot/Leg Controls – One
- Credentials – Other (standard drivers' licenses)

Driving when operating a passenger vehicle with automatic transmission and power brakes does not include:

- Pushing/Pulling - Feet/Legs: Operating the gas and brake pedals in this type of standard passenger vehicle does not meet the force threshold.
- Reaching: Operating a steering wheel does not meet the requirement of reaching. When driving a passenger vehicle, the steering wheel is close enough that the driver does not extend the arms enough to engage the shoulder.

Driving normally involves the use of both hands while operating a steering wheel. Document whenever a vehicle has unique controls that would not require both hands.
Except for the above guidance, do not assume the presence or duration of any physical demand based upon vehicle type. The use of cruise control should not be considered when determining duration/use of ORS elements. Large or specialized vehicles may have different controls, so always confirm expectations with the respondent and code based on the actual equipment. Many modern large trucks, buses, and equipment may require little physical exertion or no more than is needed for driving a passenger car.

For more information on how to collect job demands for occupations when traveling is involved, see Section 4_05.

7_11 Speaking and Hearing Requirements

Speaking is expressing or exchanging ideas by means of the spoken word to impart oral information to clients or the public and to convey detailed verbal instructions to other workers accurately, loudly or quickly.

Hearing Requirements account for the ability to hear, understand, and distinguish speech and/or other sounds.

Collecting Speaking

This element measures speaking as a critical task (e.g., television announcer) or speaking as a primary activity in support of a critical task (e.g., customer service). Not all speech is captured in this element.

Include:

- Any speaking (in support of critical tasks) with the public or clients (including simple, straightforward exchanges)
- Speaking with coworkers to provide detailed instructions or to coordinate or plan work

Consider these questions when determining the presence and amount of time workers spend speaking:

- Do the critical tasks performed require any speaking to accomplish them?
- Can critical tasks be completed independently without contact with others?
- When workers speak to others, why are they communicating? Are they expressing or exchanging ideas or giving detailed instructions to others?
- When speaking occurs, is clarity of speech important? In other words, must it be conveyed accurately, loudly, or quickly?

Tasks which involve making/working with things – objects, equipment, tools – are less likely to require speaking to accomplish critical tasks. Tasks that involve working with people, ideas, or providing services to others are likely to require speaking.

While there are some exceptions such as service workers dealing with the general public, in general, the less skilled a job is, the less likely workers will be required to speak to perform their critical tasks. In contrast, the more skilled a job is, the more likely workers will be required to speak to perform some of their critical tasks. Higher skilled jobs are more likely to express or exchange ideas and give detailed instructions to others.

Collect the duration workers are actually speaking. Do not include the time workers spend listening during a conversation. Do not assume a 50/50 split for speaking/listening. The job, critical tasks being performed, and the nature of the conversation can impact the amount of time spent speaking versus listening. Ask the respondent to estimate how much time is spent speaking versus listening.

Examples where speaking/listening may not be evenly split:

- Therapists may spend 80% of a conversation listening and 20% of the time speaking.
- Telemarketers may spend 80% of the conversation speaking and 20% of the time listening.

Coordinating with Coworkers

Any coordinating with coworkers which involves expressing and exchanging ideas and information including planning, explaining, resolving, as well as giving detailed instructions to others workers accurately should be included in the presence and duration of speaking. Do not limit speaking to only clients, general public, and supervisors.

Exclude from the presence and duration of speaking coordinating with coworkers when it involves basic exchanges where clarity of speech isn't necessary such as alerting other coworkers that tasks are complete, equipment/part has malfunctioned, or supplies are low.

Table 7-21: Speaking Examples and Duration Guidance

	Speaking Examples	Include duration	Reason
1	A TV news anchor reports news in a pleasant, well-controlled voice.	Yes	Expressing oral information accurately
2	A hospital nurse discusses cases on the current shift with other health care staff to exchange information about patients' care plans.	Yes	Expressing oral information accurately; conveying detailed instructions to other workers
3	A human resources manager explains benefits to a new employee	Yes	Expressing oral information accurately; conveying detailed instructions to other workers
4	A cashier asks customers whether they will pay with cash or credit	Yes	Expressing oral information to general public
5	A bartender asks for customer's drink orders	Yes	Expressing oral information to general public
6	An IT help desk technician provides instructions to end-user	Yes	Expressing oral information to other workers; conveying detailed instructions to other workers
7	Finish carpenters coordinate work and resolve issues with site foreman, other carpenters and skilled trades. They also give instructions to construction helpers.	Yes	Expressing oral information and conveying detailed instructions to other workers
8	A bartender talks to customers about their lives because it generates more tips	No	Exclude socializing
9	A human resources managers sends new employees benefits booklets via email	No	Exclude non-verbal communication
10	A sales representative listens to potential customer's questions	No	Exclude time spent listening from speaking
11	A team assembler indicates to another team member that the line stopped.	No	Exclude since machinery malfunction is incidental-chance occurrence

	Speaking Examples	Include duration	Reason
12	Housekeepers in a hotel speak to alert supervisors when there's an issue with room or if they need more supplies. They also may exchange basic greetings with hotel guests in hallways or when dropping off supplies like extra towels, linens, toiletries.	No	Exclude since speaking is not a primary component of critical tasks performed. Basic exchanges which don't meet criteria
13	Busser tells servers they finished clearing a table.	No	Exclude since speaking is not a primary component of critical tasks performed. Basic exchanges which don't meet criteria
14	Landscaping crew alert each other or crew leaders when they've finished their task or to ask "What's next?"	No	Exclude since speaking is not a primary component of critical tasks performed. Basic exchanges which don't meet criteria

Collecting Hearing Requirements

There are four types of hearing requirements:

- **In Person Speech:** Includes the ability to hear speech (spoken words) in person, both one on one and in group or conference settings. Includes the use of video conferencing equipment and software that mimics live interactions by employing participant video with sound.
- **Telephone:** Includes the ability to hear speech through a telephone. In addition to use of a traditional telephone, this includes using telephone headsets, speakerphones, and Voice over Internet Protocol (VOIP) using traditional handsets or through a computer. Also includes the ability to hear the telephone ringing.
- **Other Remote Speech:** Includes the ability to hear speech through other remote communication devices such as walkie-talkies, intercoms, public address systems, drive-through headsets, etc.
- **Other Sounds:** Includes the ability to hear other sounds outside of words/language that are related to critical tasks. Include hearing items such as machinery and equipment alarms and sounds, as well as animal or human sounds other than speech, etc.

Collect the presence of any types of hearing necessary to perform critical tasks. Include the ability to hear verbal instructions or information necessary to perform critical tasks. Exclude hearing for any conversation or sounds that are:

- Social in nature – between coworkers or with the public.
- Public announcements and public safety alarms, such as fire, tornado, weather, and other public safety alerts.
- Related to incidental tasks

Notes

- Speaking and hearing requirements measure different physical demands. While often related, it is possible for hearing to be present while speaking is not required to perform critical tasks (for example, workers must hear verbal instructions in person and via telephone, but do not need to speak more than basic exchanges to perform critical tasks).
- Include the presence of other sounds for jobs that operate or work in close proximity to equipment (e.g., forklifts) and must hear the warning sounds to accomplish their critical tasks or to avoid accidents while performing critical tasks.

Table 7-22: Hearing Requirements Examples

Collect As	Hearing Requirements Examples
In Person Speech	Cashiers listen to customers' requests.
In Person Speech	Guidance counselors listen to students' concerns.
In Person Speech	A hospital nurse, discharging patients, listens to questions about the instructions.
In Person Speech	A secretary takes minutes during a board meeting.
In Person Speech	A politician participates in a town hall style debate and responds to audience comments.
In Person Speech	A software developer confers with clients and coworkers throughout the country using Skype videoconferencing software.
Telephone	A dispatcher answers 911 calls using a telephone headset and sends help to the given location.
Telephone	A carpenter uses a cell phone to receive instructions from foreman while working at job site.
Telephone	A salesperson uses hands-free enabled mobile phone while calling clients in the car.
Other Remote Speech	A bus driver uses a walkie-talkie to communicate with her operator regarding the route status.
Other Remote Speech	Mechanics must hear requests/instructions through shop public address system.
Other Remote Speech	A fast food crew member uses a headset to hear customers' orders placed through the drive-thru speaker.
Other Sounds	A veterinary tech identifies problems by listening to sounds from animals under care.
Other Sounds	An RN must hear and respond to patient alarms. He must also listen through stethoscope for patients' vital signs.
Other Sounds	A machine operator listens for alarms to stop the machine and clear jams.
Other Sounds	A day care center worker listens for a crying baby.
Exclude	A teacher must be able to hear a tornado alarm to get children to safety.
Exclude	A teacher must be able to hear the bell signaling that it's time to change classes. Bell is a public announcement for everyone in the school.
Exclude	Workers must be able to hear and respond to a hurricane warning.
Exclude	Assemblers listen to small talk while working on production line.

7_12 Vision

There are three vision elements:

- Near Visual Acuity
- Far Visual Acuity
- Peripheral Vision

Near Visual Acuity is clarity of vision at approximately 20 inches or less, as when working with small objects or reading small print.

Far Visual Acuity is clarity of vision at a distance of 20 feet or more, involving the ability to distinguish features of a person or objects at a distance.

Peripheral Vision is what is seen above, below, to the left or right by the eye while staring straight ahead.

Collecting Vision

Collect the presence of each vision type when it is required to perform critical tasks.

Near and Far Visual Acuity

Many tasks require the ability to see, but may not require clarity of vision either close-up or far away.

Include the presence of near visual acuity and far visual acuity when a worker is required to see with clarity at the designated distances. Clarity involves the ability to see details of objects.

Do not include the presence of near visual acuity or far visual acuity when a worker is required to have vision but not clarity.

Notes

- Always code the presence of near visual acuity when the job uses a computer or a screen on another electronic device in support of a critical job function, regardless of distance.
- Always code the presence of far visual acuity when driving is performed as a critical task.
- Do not assume the presence of far visual acuity, especially in indoor environments, for tasks like general situational awareness (personal safety) or customer service.
- Exclude far visual acuity required for incidental tasks. For example, bank tellers would not need far visual acuity in the case of a robbery because this is a chance occurrence.
- Do not assume the presence of far or near visual acuity for the act of climbing ladders. Keep in mind jobs that climb ladders may have these vision requirements based on other critical tasks.

Peripheral Vision

Peripheral Vision includes the need to actively scan a broad area as part of critical tasks performed**.** The need to maintain focus and monitor a broad field of vision is not met when workers are only using peripheral vision to maintain general situational awareness while moving around the work environment. The need is also not met if workers can turn their heads or look around at any time while performing the critical task. While many workers are expected to maintain awareness of the overall work environment for a variety of reasons, few non-driving jobs are actually restricted by their tasks from turning their head if they need to see around them.

Notes

- Always code Peripheral Vision when driving is performed as a critical task.
- Do not assume the presence of peripheral vision for the act of climbing ladders. Keep in mind jobs that climb ladders may have this vision requirement based on other critical tasks.

Table 7-23: Vision Examples

Collect as	Vision Examples
Near Visual Acuity	A watch repair person must see small parts within the watch.
Near Visual Acuity	A payroll clerk enters information in HR software.
Near Visual Acuity	A technician must read small numbers printed on electronic parts such as circuit board components.
Far Visual Acuity	A park ranger observes a forest from a remote fire lookout station.
Far Visual Acuity	A delivery truck driver drives a truck in city traffic.
Far Visual Acuity	A surveyor must see distances to locate property lines.
Far Visual Acuity	Retail security guards need to identify features of people and objects at distances of more than 20 ft. as part of monitoring and security responsibilities.
Peripheral Vision	A soccer referee must actively scan a field containing multiple players while maintaining focus on the ball as well as other players moving elsewhere on the field.
Peripheral Vision	Heavy equipment operators must keep watch in all directions.
Peripheral Vision	Bus drivers operate school buses on public roadways.
Peripheral Vision	A security guard actively scans both the interior and exterior of a large retail store.
Peripheral Vision	Rough carpenters assemble multi-story structures at the earliest stages of construction. They must maneuver in high, exposed places across scaffolding and narrow beams and ledges. They must maintain focus on forward-facing tasks while simultaneously taking in their broader environment.
Exclude	Restaurant servers use peripheral vision while moving around with food items and hot beverages in tight spaces and aisles. While servers need to be aware of their surroundings, they do not need to actively scan a wide area, but can turn their head and focus in the direction they are moving.
Exclude	Cashiers use peripheral vision to identify potential shoplifters. Critical job function is assisting customers, not store security. Exclude the presence of peripheral vision for this task as it is not in support of the critical job function of retail cashiers.
Exclude	Retail sales workers must be able to see the store entrance from distances greater than 20 feet in order to know a customer has entered the premises. Exclude the presence of far visual acuity for this task as since clarity of vision is not required.

Chapter 8: Environmental Conditions

Environmental conditions are the surroundings and/or conditions experienced by workers as they perform critical tasks.

This chapter includes procedures for collecting the environmental conditions elements:

- Collecting Environmental Conditions
- Outdoors
- Extreme Cold
- Extreme Heat
- Wetness
- Humidity
- Heavy Vibration
- Hazardous Contaminants
- Proximity to Moving Mechanical Parts
- High, Exposed Places
- Noise Intensity Level

8_01 Collecting Environmental Conditions

Collect the duration of exposure for all environmental conditions, except Noise Intensity Level when:

- Workers experience the condition while carrying out critical tasks. See Overall Coding Threshold for All ORS Elements.
- Conditions meet any of the specified thresholds listed below.
- Devices installed or personal protective equipment (PPE) required by the employer only partially mitigates exposure.

Table 8-1: Thresholds for Environmental Conditions

Environmental Condition	Threshold
Outdoors	Critical tasks are performed outdoors Must be unprotected and exposed to elements
Extreme Cold (non-weather only)	40 degrees or below when exposed 2/3 or more of the time, or 32 degrees or below when exposed up to 2/3 of the time
Extreme Heat (non-weather only)	Above 90 degrees in a dry environment, or Above 85 degrees in a humid environment
Wetness (non-weather only)	Any contact with water or liquids and/or working in a wet area
Humidity (non-weather only)	Must be oppressive atmosphere
Heavy Vibration	Exposure to shaking or vibration that causes a strain on the body or extremities
Hazardous Contaminants	Exposure that negatively affects the respiratory system, eyes, skin, or other living tissue via inhalation, ingestion, or contact
Proximity to Moving Mechanical Parts	Must present a risk of bodily injury
High, Exposed Places	Must be exposed and at risk of falling five feet or more from workers center of gravity. Must be at risk of bodily injury from falling
Noise Intensity Level	None (must meet requirements in definition)

Do not code exposure based on **potential** risk during any random event. Ensure any environmental conditions provided meet the specific thresholds and workers actually **routinely experience** these conditions as a part of critical tasks performed. For example, several environmental conditions associated with more unpredictable or chance events may be provided for jobs where emergency response is a critical job function. Document whenever unexpected environmental conditions are coded to confirm they meet our definitions and thresholds and that the workers actually routinely experience exposure (i.e., they aren't just a condition that a worker could potentially encounter).

Collecting Mitigation

Mitigation occurs when the employer installs devices or requires the use of personal protective equipment (PPE) that fully or partially eliminates potentially hazardous conditions or exposures.

Personal Protective Equipment (PPE) is equipment used or worn to minimize exposure to serious workplace injuries and illnesses. Examples of PPE include items worn: gloves, boots, helmets, goggles, earplugs, respirators, and protective clothing such as lab coats. Examples of other PPE equipment used include laser shields and equipment guards that prevent injury, as well as equipment such as laboratory and industrial ventilation systems that remove fumes.

Measure exposure to conditions as workers experience them using personal protective equipment (PPE). Code the presence of PPE when workers are required, expected, and typically use it to mitigate exposure.

Document the use and type of PPE and how it mitigates. The presence of PPE for the following environmental conditions requires special coding in CIERA:

- Hazardous Contaminants
- Proximity to Moving Mechanical Parts
- High, Exposed Places
- Noise Intensity Level

If PPE use is voluntary, code environmental conditions as most workers experience them.

If an employer installs devices or requires personal protective equipment, collect the duration of exposure as it is actually experienced, and note the presence of PPE.

If, according to the respondent, personal protective equipment or devices eliminate exposure, document the use of PPE and code the occupation as fully mitigated.

Table 8-2: Mitigation and PPE Examples

	Mitigation and PPE Examples	Action
1	A ramp agent loads and unloads plane cargo on a tarmac with exposure to loud noise. The company requires the worker to wear noise-cancelling headsets.	Collect Noise Intensity Level as **Quiet** or **Moderate**, depending on the level of mitigation provided by PPE.
2	Workers wear fully enclosed protective suits while identifying and disposing of asbestos in buildings.	Collect time (or duration) exposed to Hazardous Contaminants as **Fully Mitigated** and **Yes** for PPE.
3	Employer provides ear plugs upon request, but most workers do not use them. The noise level in work environment is moderate without ear plugs.	Code as noise intensity as **Moderate** and use of PPE as **No**, since most workers do not use it.
4	Production workers operate equipment with protective laser guards in front of cutting blade. If an object crosses the laser guard, the blade stops cutting.	Collect time (or duration) exposed to Proximity to Moving Mechanical Parts as **Fully Mitigated** and **Yes** for PPE.

8_02 Outdoors

Outdoors is present when two conditions exist:

- **Condition 1**: Workers perform critical tasks outdoors
- **Condition 2**: Workers are unprotected and exposed to the elements.

Exclude outdoor exposure if the only exposure is related to traveling between job sites or commuting, unless the worker is performing critical tasks between the transportation mode and other site, such as making deliveries.

Note
A work site is considered protected when it has a roof and at least three sides.

Table 8-3: Outdoors Examples

	Outdoors Examples	Action	Reason
1	A teacher watches children while outdoors for recess.	Collect	Meets both conditions
2	A groundskeeper mows lawns and trims shrubs.	Collect	Meets both conditions
3	Servers wait on tables located outdoors under an awning but without sides.	Collect	Meets both conditions
4	Hospital transporters wheel patients to vehicles.	Collect	Meets both conditions
5	Mechanics working at a small garage, has to drive vehicle out of the garage/bay and into the parking lot, then either drive another car back into the bay or walk back.	Collect	Meets both conditions
6	A fast food crew member takes trash to a dumpster behind the restaurant throughout the day.	Collect	Meets both conditions
7	A pharmaceutical sales rep walks to and from the car with each client visit.	Do not collect	Doesn't meet condition 1, exposure related to traveling/commute only
8	An employee commutes to and from the workplace.	Do not collect	Doesn't meet condition 1, exposure related to traveling/commute
9	A miner works in an underground mine.	Do not collect	Doesn't meet condition 1 or 2
10	An archaeologist inspects artifacts in a three-sided tent at the dig site.	Do not collect	Doesn't meet condition 2

8_03 Extreme Cold

Extreme Cold is present when two conditions exist:

- **Condition 1**: Workers' exposure is related to critical tasks and not due to weather
- **Condition 2:**
  - Workers are exposed to 40 degrees F or colder temperatures for 2/3 or more of the workday, or
  - Workers are exposed to 32 degrees F or colder temperatures for less than 2/3 of the workday

Table 8-4: Extreme Cold Examples and Collection Guidance

	Extreme Cold Examples	Action	Reason
1	A meat cutter works in a 40 degree cooler to carve beef carcasses for more than 3/4 of the day.	Collect	Meets conditions
2	A freeze tunnel operator, wearing protective clothing, works for short periods in -34 degree F temperatures.	Collect	Meets conditions
3	A building maintenance worker shovels snow from sidewalks in 10-degree temperatures.	Collect as Outdoors	Weather-related
4	A mining machine operator drives a shuttle car to transport materials in an underground mine that is 58 degrees.	Do not collect	Does not meet the threshold
5	A forklift operator works in an unheated warehouse that is always below 40 degrees in the winter.	Do not collect	Weather-related
6	Restaurant wait staff enter walk-in freezer for supplies whenever cooks and food preparation workers are busy.	Do not collect	Incidental task for servers

8_04 Extreme Heat

Extreme Heat is present when two conditions exist:

- **Condition 1:** Workers' exposure is related to critical tasks and not due to weather
- **Condition 2:**
  - The atmosphere is dry with temperatures above 90 degrees F, or
  - The atmosphere is humid with temperatures above 85 degrees F. Humid means a high level of water vapor in the air.

The presence or absence of humidity affects the way that extreme heat is experienced.

Extreme Heat includes localized sources of heat that change atmospheric temperatures to levels that exceed the threshold.

Most jobs do not have outdoor exposure to hot, non-weather temperatures. When it is present, collect the duration of exposure and document.

Table 8-5: Extreme Heat Examples and Collection Guidance

	Extreme Heat Examples	Action	Reason
1	An asphalt machine operator spreads hot asphalt on streets and roads. The machine produces intense heat.	Collect and document	Meets conditions
2	A commercial laundry worker reaches into dryers. Dryers create humidity and raise temperatures above 85 degrees.	Collect	Meets conditions
3	A restaurant cook works close to a hot commercial stove and oven in a kitchen.	Collect	Meets conditions
4	An airline ramp agent loads and unloads baggage on a hot tarmac.	Collect as Outdoors	Weather-related
5	A salon worker is exposed to steam, hot wax, and hot towels while giving facials and waxings.	Do not collect	Does not meet the threshold
6	A warehouse worker moves freight and stock in a warehouse that is not climate controlled and is above 90 degrees.	Do not collect	Weather-related

8_05 Wetness

Wetness is present when the following two conditions exist:

- **Condition 1**: The worker has any contact with water or liquid, including contact resulting from working in a wet environment.
- **Condition 2**: The worker's exposure is related to critical tasks and not due to weather.

When critical tasks are completed in a wet environment, there is usually some contact with water or liquid. This contact should be included and duration should be coded based on the time it is actually experienced.

The use of gloves may or may not mitigate exposure to wetness. Document when workers use gloves to mitigate exposure to wetness.

Table 8-6: Wetness Examples and Collection Guidance

	Wetness Examples	Action	Reason
1	A dishwasher cleans pots, pans, and trays by hand.	Collect	Meets conditions
2	A cannery worker reaches under jets of water when feeding food products into a washing machine that preps the items for cooking and canning.	Collect	Meets conditions
3	A nurse washes hands between patients.	Collect	Meets conditions
4	A waiter wipes down tables with a wet rag and does not use a glove.	Collect	Meets conditions
5	A dog walker works in rainy weather.	Collect as Outdoors	Weather-related
6	A pharmaceutical sales rep walks from a physician's office to the car in snow.	Do not collect	Weather-related and not related to critical tasks

8_06 Humidity

Humidity is present when three conditions exist:

- **Condition 1**: Workers' exposure is related to critical tasks and not due to weather.
- **Condition 2**: Workers experience air containing a high amount of water or water vapor.
- **Condition 3**: The atmosphere is oppressive. An oppressive atmosphere must be very uncomfortable and could affect breathing.

Table 8-7: Humidity Examples and Collection Guidance

	Humidity Examples	Action	Reason
1	A garment presser uses a pressing machine that discharges steam to iron damp clothing.	Collect	Meets conditions
2	A gym attendant works in and around a sauna.	Collect	Meets conditions
3	A firefighter wearing protective gear experiences humidity while spraying water to contain fires.	Collect	Meets conditions
4	A bicycle police officer patrols pedestrian areas during humid, summer months.	Collect as Outdoors	Weather-related
5	A server retrieves orders from a restaurant kitchen where food preparation and dishwashing activities generate humidity. The kitchen has a commercial ventilation system.	Do not collect	Mitigated, not oppressive
6	A warehouse worker moves freight and stock in a warehouse that is not climate controlled and is above 90 degrees and humid in summer months.	Do not collect	Weather-related

8_07 Heavy Vibration

Heavy Vibration is present when two conditions exist:

- **Condition 1**: Exposure to a shaking object or surface causes a strain on the body or extremities.
- **Condition 2**: Vibration is heavy.

Office machines, hair clippers and other small hand tools do not meet the threshold.

Note
While heavy vibration exposure is often continuous, continuity is not a requirement. Include intermittent exposure in heavy vibration as long as it meets the two conditions.

Table 8-8: Heavy Vibration Examples and Collection Guidance

	Heavy Vibration Examples	Action	Reason
1	A jackhammer operator runs a compressed air, rock-drilling machine that forcefully vibrates.	Collect	Meets conditions
2	A printing press operator uses a cylinder type press that has continuous vibration while running.	Collect	Meets conditions
3	A bulldozer operator experiences intense vibration when the blade hits the ground and the bulldozer moves forward.	Collect	Meets conditions
4	A motorcycle mechanic test drives motorcycles to diagnose problems. Some models vibrate handlebars to the extent that hands and arms are considerably affected. Motorcycles also may vibrate heavily due to mechanical issues.	Collect	Meets conditions
5	A janitor operating a floor buffer in commercial buildings	Do not collect	Does not meet the threshold
6	A barber uses small clippers to trim hair along the neck.	Do not collect	Does not meet the threshold
7	A residential maintenance worker performs routine repairs with a handheld drill.	Do not collect	Does not meet the threshold
8	A teacher uses an electric pencil sharpener.	Do not collect	Does not meet the threshold

8_08 Hazardous Contaminants

Hazardous Contaminants are present when the following condition is met:

- Workers are exposed to substances that have a negative impact upon respiration, eyes, skin, or other living tissue. Exposure may be through inhalation, ingestion, or physical contact.

Collecting Hazardous Contaminants

The threshold of negative impact upon respiration, eyes, skin, or other living tissue based on known exposure must be met in order for this element to be coded present. A condition that workers "may" encounter is not included. Code the presence and duration to hazardous contaminants when exposure is likely even when the job is done properly.

Exposure needs to be present, but does not have to be produced by the worker. Workers may be exposed to contaminants produced by others in proximity.

Employers may have protective procedures in place when these hazards exist. Measure exposure to conditions as workers experience them using personal protective equipment (PPE). Collect the presence and the type of PPE used. If, according to the respondent, personal protective equipment or devices eliminate exposure, document the use of PPE and code the occupation as **`Fully Mitigated`**.

Potential Hazards and Exclusions

For a list of potential hazards, see List of Potential Hazards in Appendix 1. This list is not exhaustive, and respondents may not know or provide these chemical names as listed. The presence of a potential hazard isn't enough—the intensity needs to meet the hazardous contaminant threshold. Collect Material Safety Data Sheets from the employer, if available, and document the chemical(s) present.

Illegal narcotics such as heroin, fentanyl, and methamphetamines are not listed in Appendix 1 but in uncontrolled forms and environments can be highly toxic to skin and respiratory systems in very small amounts. They meet the threshold for hazardous contaminants. Collect the presence only when the respondent explicitly states workers experience exposure to one of these contaminants (for example, specialized narcotics units or first responders in areas where there are high levels of drug activity). Mitigation protocols and training may be more rigorous where exposure is expected, and should be taken into account when coding incidence and duration.

Exclude the following:

- Household cleaners do not present the level of negative impact needed to be considered hazardous. Household bleach used in small quantities does not meet the threshold. While chlorine and ammonia are listed as potential hazards, when diluted, they do not meet the level of contaminant captured for ORS.

- Isopropyl alcohol (rubbing alcohol) is also listed on hazardous contaminants list. However, alcohol swabs commonly used in health care settings do not present the level of negative impact needed to be considered hazardous.
- Biohazards such as blood and other bodily fluids are not considered hazardous contaminants.
- Radiation is not considered a hazardous contaminant.

Table 8-9: Hazardous Contaminants Examples and Collection Guidance

	Hazardous Contaminants Examples	Action	Reason
1	A natural gas company worker repairs leaks in gas lines. Although precautions are taken, even when the job is done properly, workers inhale toxic fumes that negatively impact breathing.	Collect, code duration, **Yes** to PPE	Meets conditions
2	An automotive mechanic breathes fumes from grease, oil, gas, and engine exhaust while working.	Collect	Meets conditions
3	A casino worker is exposed to heavy second hand smoke from tobacco that contains benzene, arsenic, carbon monoxide, chromium metal, lead, and nicotine	Collect	Meets conditions
4	A cosmetologist applies strong chemicals such as bleach, dye, and tint to color hair.	Collect	Meets conditions
5	A farm worker, stacking hay and grain with a pitchfork, inhales large amounts of dust.	Collect	Meets conditions
6	An equipment operator tends machines that clean semiconductor wafers using cleaning solutions made of sulfuric acid and hydrochloric acid. Operators are not required to wear protective clothing.	Collect	Meets conditions
7	A textile dye-machine operator works without protective clothing, tending equipment that mixes strong acids and anhydrous ammonia for use in bleaching and finishing carpets.	Collect	Meets conditions
8	A glassworker at a historical museum uses old-fashioned methods to apply acids to etch glass.	Collect	Meets conditions
9	A worker in a busy open-air tollbooth breathes auto exhaust all day.	Collect	Meets conditions
10	An industrial metal finishing worker, wearing a respirator, pours pigments, paint paste, and thinner into cans and stirs with a paddle.	Do not collect duration; Code as **Fully Mitigated**	Mitigated by PPE. Does not meet threshold
11	A glazier uses acid to etch glass. Rigid protocols are in place and PPE is used to protect all living tissue of workers.	Do not collect duration; Code as **Fully Mitigated**	Mitigated by PPE. Does not meet threshold
12	A veterinary technician uses fentanyl for surgery preparation. This controlled drug poses no risk to living tissue when properly stored, contained, and administered.	Do not collect	Does not meet the threshold

	Hazardous Contaminants Examples	Action	Reason
13	A tank truck driver drives trucks to deliver industrial application gases to customers.	Do not collect	Does not meet the threshold
14	A paint store clerk breathes fumes while mixing small amounts of latex, low-VOC paint in a retail store.	Do not collect	Does not meet the threshold
15	A teacher inhales chalk dust while using the blackboard.	Do not collect	Does not meet the threshold
16	A hotel housekeeper cleans rooms using common household cleaning agents, such as window cleaner, tile cleaner, and furniture polish.	Do not collect	Does not meet the threshold
17	Registered nurses must uses hand sanitizers and other disinfectants such as isopropyl alcohol swaps.	Do not collect	Does not meet the threshold
18	A lifeguard works in a chlorinated swimming pool.	Do not collect	Does not meet the threshold

8_09 Proximity to Moving Mechanical Parts

Moving mechanical parts refers to moving materials, mechanical parts, settings, or any moving objects that could cause bodily injury when used properly.

Proximity to Moving Mechanical Parts is present when one of the following conditions exists:

- **Condition 1**: Mechanical equipment operated by workers presents a risk of bodily injury when used properly.
- **Condition 2**: Machinery, equipment or any moving object near workers could cause bodily injury.

Collect the presence and the type of personal protective equipment (PPE) when the employer provides it. Measure the exposure as workers experience it with the use of required protective equipment. If required protective equipment (shields, machine guards, etc.) mitigates all exposure, code **`Fully Mitigated`**.

Exclude:

- Any vehicles (including automobiles, forklifts, etc.) being driven by or near workers as responsibility for their proper operation is on the driver.
- Non-motorized hand tools or equipment (e.g., scissors, knives, guns, screwdrivers, hammers, etc.)
- Risks associated with standard office equipment, such as shredders and copiers, also do not meet the threshold.

Note
Proximity to moving mechanical parts should only be coded when workers are at risk of injury by parts moving automatically on equipment that is being properly operated. For workers who drive or work around vehicles (e.g., automobiles, forklifts, etc.), moving mechanical parts should be:

- Included when workers must work on vehicles (e.g., mechanics) in a manner that exposes them to the moving parts inside the vehicle.
- Excluded when workers drive vehicles but are not exposed to the moving parts inside the vehicles they drive.
- Excluded when workers must work in an area where other workers are driving. While the workers in the area could get injured by a vehicle hitting them, such an injury would be due to improper operation of the vehicle and would not be resulting from the automatically moving parts in the interior of the vehicle.

Table 8-10: Proximity to Moving Mechanical Parts Examples

	Proximity to Moving Mechanical Parts Examples	Action	Reason
1	A deli worker operates a slicer to cut meats and cheeses. Even with required safety guards in place, injury is possible.	Collect	Meets conditions
2	A landscaper uses a chipper/shredder to mulch branches and tree debris.	Collect	Meets conditions
3	A worker who removes products from a machine or conveyor belt works close and could be injured while off-loading when machine is in motion.	Collect	Meets conditions
4	Mechanics working on running engines and moving vehicle parts while performing repairs.	Collect	Meets conditions
5	An accountant uses a crosscut shredder. Snagged clothing could cause injury.	Do not collect	Does not meet the threshold
6	A cafeteria cook operates industrial mixers, with impenetrable protective guards, to prepare food items for lunch.	Do not collect duration; Code as **Fully Mitigated**	Mitigated by PPE. Does not meet the threshold
7	Food preparation workers use chef knives to chop and dice food.	Do not collect	Does not meet the definition of mechanical equipment
8	A cashier in a grocery store works around a conveyor belt that moves grocery items.	Do not collect	Does not meet the threshold
9	A carpenter uses manual hammer and screwdriver.	Do not collect	Does not meet definition of mechanical equipment
10	A taxi driver operates a passenger vehicle through crowded city streets and rush hour traffic.	Do not collect	Does not meet threshold. While the vehicle itself is moving mechanical equipment, there are not moving parts or settings inside the vehicle to which workers are exposed while normally operating the vehicle.

8_10 High, Exposed Places

High, Exposed Places is present when two conditions exist:

- **Condition 1:**
  - Workers' center of gravity is at least five feet off the ground, or
  - Workers are at ground level and at risk of falling several feet below ground level.

- **Condition 2:**
  - Workers are exposed and at risk of bodily injury from falling.
  - There are no walls or railings surrounding workers to lessen the possibility of falling.

Collect the presence and type of personal protective equipment when the employer provides it. Safety harnesses or tethers do not remove the possibility of injury.

Table 8-11: High, Exposed Places Examples and Collection Guidance

	High, Exposed Places Examples	Action	Reason
1	A painter works from ladders or scaffolding.	Collect	Meets conditions
2	A lineperson repairs power lines, working from the bucket of a cherry picker or climbing the pole.	Collect	Meets conditions
3	A tree trimmer cuts branches using canopies and truck-mounted lifts.	Collect	Meets conditions
4	Loading-dock workers are exposed and at risk of falling five feet or more.	Collect	Meets conditions
5	A retail sales clerk uses a step stool to reach items on upper shelves.	Do not collect	Does not meet the height threshold
6	A construction superintendent performs site inspections at high-rise construction projects. Not all walls or railings are complete but the superintendent never walks near the edges.	Do not collect	Not exposed
7	A lifeguard, in a tower, is surrounded by a 5-foot railing.	Do not collect	Not exposed

8_11 Noise Intensity Level

Noise Intensity Level is the amount of noise that workers experience while working.

All work environments have a noise level. There are four levels:

Quiet • Private office • Mortuary • Golf course • Art museum	**Moderate** • Business office • Department store • Fast food restaurant • Grocery store
Loud • Can manufacturing department • Large earth moving equipment • Heavy traffic	**Very Loud** • Rock concert • Jackhammer work • Rocket engine testing area

Collect actual levels that workers experience while performing critical tasks. If noise levels vary within the work environment, collect the typical level. Do not automatically code the loudest level. Actual noise levels may not always match expectations (for example, a library with moderate noise, similar to a business office).

Collect the presence of personal protective equipment (hearing protection or noise dampening devices) any time workers use PPE to lessen noise exposure while performing critical tasks, even if PPE is not used all of the time. Measure the noise level as workers experience it with the use of required protective equipment. If workers use equipment that eliminates all noise exposure, collect exposure as quiet.

Table 8-12: Noise Intensity Level Examples and Coding Guidance

	Noise Intensity Level Examples	Code as:
1	An accountant works in a private office with minimal noise and few interruptions.	Quiet
2	A librarian works in a library that is quiet when no activities are taking place, but moderate during children's story hour, adult book club, and summer reading program. Activities occur more than half of each day.	Moderate
3	A stone quarry worker hears explosions and heavy machinery throughout the day. Even with required hearing protection, sounds are loud.	Loud
4	A landscaper uses chainsaws, chipper/shredders, and wet saws to cut pavers. The landscaper is not required to wear hearing protection.	Very Loud

Appendix 1

List of Potential Hazards

Air Contaminants

Acetaldehyde
Acetic acid
Acetic anhydride
Acetone
Acetonitrile
Acetylene
Acetylene dichloride;
Acetylene tetrabromide
A-Chloroacetophenone
Acridine, chrysene
Acrolein
Acrylamide
Acrylonitrile
Aldrin
Allyl alcohol
Allyl chloride
Allyl glycidyl ether
Allyl propyl disulfide
Alpha-Alumina
Alpha-Methyl styrene
Alpha-Naphthylamine
Aluminum Metal (as Al)
Ammonia
Ammonium sulfamate
Aniline and homologs
Anisidine
Anthracene, BaP
Antimony and compounds
ANTU (alpha)
Arsenic, inorganic
Arsenic, organic
Arsine
Asbestos
Azinphos-methyl
Barium sulfate
Barium, soluble
Benomyl
Benzene
Benzidine
Benzo(a)pyrene
Benzoyl peroxide
Benzyl chloride
Beryllium and
Beryllium compounds
Beta-Chloroprene
Beta-Naphthylamine
Beta-Propriolactone
Biphenyl; see Diphenyl
Bis(Chloromethyl)
Bismuth telluride
Boron oxide
Boron trifluoride
Bromine
Bromoform
Butadiene
Butanethiol
Butyl mercaptan
Butylamine
Butyl-m-cresol
Butyraldehyde (butanal)
Cadmium (as Cd)
Calcium Carbonate
Calcium hydroxide
Calcium oxide
Calcium silicate
Calcium sulfate
Camphor, synthetic
Carbaryl (Sevin)
Carbinol
Carbinol
Carbon black
Carbon dioxide
Carbon disulfide
Carbon monoxide
Carbon tetrachloride
Carbon tetrachloride
Cellosolve acetate
Cellulose
Ceramic fibers
Chlordane
Chlorinated camphene
Chlorinated diphenyl
Chlorine
Chlorine dioxide
Chlorine trifluoride
Chloroacetaldehyde
Chlorobenzene
Chlorobromomethane
Chlorodiphenyl
Chloroethane (DDT)
Chloroethylene
Chloroform
Chloromethyl methyl
Chlorophenoxyacetic
Chloropicrin
Chloropropane (DBCP)
Chromates (as CrO(3))
Chromic acid
Chromium (II) compounds
Chromium (III)
Chromium (VI) compounds
Chromium metal
Chrysene; see Coal tar
Clopidol
Coal dust
Coal tar pitch
Cobalt metal, dust
Coke oven emissions
Copper
Cotton dust (e)
Crag herbicide (Sesone)
Cresol, all isomers
Cristobalite
Crotonaldehyde
Crystalline silica
Cumene
Cyanides (as CN)
Cyclohexane
Cyclohexanol
Cyclohexanone

Cyclohexene
Cyclopentadiene
Decaborane
Demeton (Systox)
Diacetone alcohol
Diatomaceous earth
Diazomethane
Diborane
Dibutyl phosphate
Dibutyl phthalate
Dichlorodifluoromethane
Dichlorodiphenyltri-
Dichloroethyl ether
Dichloromethane; see
Dichloromonofluoro-
Dichlorotetrafluoro-
Dichlorvos (DDVP)
Dicyclopentadienyl iron
Dieldrin
Diethyl ether
Diethylamine
Difluorodibromomethane
Diglycidyl ether (DGE)
Dihydroxybenzene
Diisobutyl ketone
Diisopropylamine
Dimethoxymethane
Dimethyl acetamide
Dimethyl sulfate
Dimethyl-1,2-dibromo-2
Dimethylamine
Dimethylaminobenzene
Dimethylaniline
Dimethylbenzene
Dimethylformamide
Dimethylphthalate
Dinitrate
Dinitrobenzene
Dinitro-o-cresol
Dinitrotoluene
Dioxane
Diphenyl (Biphenyl)
Diphenylmethane
Dipropylene glycol
Di-sec octyl phthalate
Dust
Dusts and mists
Emery
Endrin
Epichlorohydrin
EPN
Ethanethiol
Ethanolamine
Ether (IGE)
Ethyl acetate
Ethyl acrylate
Ethyl alcohol (Ethanol)
Ethyl amyl ketone
Ethyl benzene
Ethyl bromide
Ethyl butyl ketone
Ethyl chloride
Ethyl ether
Ethyl formate
Ethyl mercaptan
Ethyl mercaptan
Ethyl silicate
Ethylamine
Ethylene chlorohydrin
Ethylene dibromide
Ethylene dichloride
Ethylene glycol
Ethylene glycol methyl
Ethylene oxide
Ethylenediamine
Ethyleneimine
Ethylidene chloride
Ferbam
Ferrovanadium dust
Flour dust (inhalable)
Fluorides (as F)
Fluorine
Fluoromethane
Fluorotrichloromethane
Formaldehyde
Formic acid
Fume (as Cu)
Fume (as V2O5)
Fume and insoluble
Furfural
Furfuryl alcohol
Glycerin (mist)
Glycidol
Glycol monoethyl ether
Grain dust (oat, wheat)
Graphite, natural
Graphite, synthetic
Guthion
Gypsum
Hafnium
Heptachlor
Heptane (n-Heptane)
Heptanone
Hexachloroethane
Hexachloronaphthalene
Hexamethylene diisocyanate
Hexone (Methyl)
Hydrazine
Hydrogen bromide
Hydrogen chloride
Hydrogen cyanide
Hydrogen fluoride
Hydrogen peroxide
Hydrogen selenide
Hydrogen sulfide
Hydroquinone
Iodine
Iron oxide fume
Isobutyl acetate
Isobutyl alcohol
Isobutyl ketone
Isocyanate (MDI)
Isomyl acetate
Isomyl alcohol
Isophorone
Isopropanol
Isopropyl acetate
Isopropyl alcohol
Isopropyl ether
Isopropyl glycidyl
Isopropylamine
Kaolin
Ketene
Lead inorganic (as Pb)
Limestone
Lindane
Lithium hydride
LPG (Liquified)
Magnesite
Magnesium oxide fume
Malathion
Maleic anhydride
Malononitrile
Manganese compounds

Manganese fume (as Mn)
Marble
Metalworking fluids aerosol
Mercaptan
Mercury (aryl)
Mercury (organo) alkyl
Mercury (vapor) (as Hg)
Mesityl oxide
Metal
Methane
Methanethiol
Methoxychlor
Methyl acetate
Methyl acetylene
Methyl acetylene
Methyl acrylate
Methyl alcohol
Methyl amyl alcohol
Methyl bromide
Methyl butyl ketone
Methyl cellosolve
Methyl cellosolve
Methyl chloride
Methyl chloroform
Methyl ether
Methyl ethyl ketone
Methyl formate
Methyl hydrazine
Methyl iodide
Methyl isoamyl ketone
Methyl isobutyl
Methyl isobutyl ketone;
Methyl isocyanate
Methyl mercaptan
Methyl methacrylate
Methyl n-amyl ketone
Methyl nitramine
Methyl propyl ketone
Methylal
Methylamine
Methylcyclohexane
Methylcyclohexanol
Methylene bisphenyl
Methylene chloride
Mica (respirable)
Mica; see Silicates
M-isomer
Mixture, vapor
MOCA 4, 4'-Methylenebis#2-chloroaniline#
Molybdenum (as Mo)
Monomethyl aniline
Monomethyl hydrazine
Morpholine
N-Amyl acetate
Naphtha (Coal tar)
Naphthalene
Naphthylthiourea
N-Butyl alcohol
N-Butyl glycidyl ether
N-butyl ketone
N-Butyl-acetate
N-Ethylmorpholine
N-Hexane
Nickel carbonyl (as Ni)
Nickel, metal
Nickel, soluble
Nicotine
Nitramine
Nitric acid
Nitric oxide
Nitrobenzene
Nitroethane
Nitrogen dioxide
Nitrogen trifluoride
Nitroglycerin
Nitromethane
Nitrotoluene
Nitrotrichloromethane
N-Nitrosodimethylamine
N-Propyl acetate
N-Propyl alcohol
N-Propyl nitrate
O-Chlorobenzylidene
Octachloronaphthalene
Octane
O-Dichlorobenzene
Oil mist, mineral
O-isomer
O-Methylcyclohexanone
Osmium tetroxide
O-Toluidine
Oxalic acid
Oxide dust
Oxides (as Sn)
Oxyacetic acid
Oxygen difluoride
Ozone
Paraquat, respirable
p-Benzoquinone
p-Dichlorobenzene
Pentaborane
Pentachloride
Pentachloronaphthalene
Pentachlorophenol
Pentaerythritol
Pentane
Perchloroethylene
Perchloromethyl
Perchloryl fluoride
Petroleum distillates
Petroleum gas
Phenanthrene
Phenol
Phenyl ether, vapor
Phenyl ether-biphenyl
Phenyl glycidyl ether
Phenylethylene
Phenylhydrazine
Sodium hydroxide
Stoddard Solvent
Styrene
Tetrafluoroethylene
Tin, organic compounds
Titanium dioxide
Toluene
Toxaphene
Tremolite
Tributyl phosphate
Trichloroethylene
Trichloromethane
Trichloronaphthalene
Tridymite
Triethylamine
Trifluorobromomethane
Triorthocresyl
Triphenyl phosphate
Tripoli (as quartz)
Turpentine
Uranium (as U)
Vanadium
Vegetable oil mist
Vinyl benzene
Vinyl chloride

Vinyl cyanide
Vinyl toluene
Warfarin
Wood dust, all species except Western Red Cedar
Xylenes
Xylidine
Yttrium
Zinc chloride fume
Zinc oxide
Zinc oxide fume
Zinc stearate
Zirconium compounds

Toxic Substances

Benzene
Beryllium and beryllium compounds
Butyraldehyde (butanal)
Cadmium fume
Cadmium dust
Carbon disulfide
Carbon tetrachloride
Chromic acid and chromates
Ethylene dibromide
Ethylene dichloride
Fluoride as dust
Formaldehyde
Gasoline
Hydrogen fluoride
Hydrogen sulfide
Mercury
Methyl chloride
Methylene Chloride
MOCA 4,4'-Methylenebis#2-chloroaniline#
Organo (alkyl) mercury
Styrene
Sulfuric Acid
Tetrachloroethylene
Tetrahydrofuran
Toluene
Trichloroethylene

Mineral Dusts

Silica
Crystalline
Quartz
Cristobalite
Amorphous
Silicates
Mica
Soapstone
Talc
Tremolite
Asbestiform
Graphite
Coal Dust

Derived from OSHA Website

Appendix 2

Common Objects and Their Weights

Weight (lbs.)	Description
½	Upholstery hammer
1	Claw hammer
2	Framing hammer
4-7	Laptop computer
9	Gallon of milk
10	2” x 4” x 8’ Douglas Fir lumber
12	1 gallon of interior house paint (Glidden Brilliance Interior Flat)
16	2” x 6” x 8’ Douglas Fir lumber
17	Household gas grill propane tank (empty)
20	Sledge hammer
21	2” x 8” x 8’ Douglas Fir lumber
23	Mid-size passenger car tire (Ford Fusion; Michelin Pilot HX MXM4 P225/50R17)
24	40” LED television (Samsung 5000 Series TV with stand)
33	Household gas grill propane tank (full)
37	8” x 8” x 16” common cement block
39	Light truck tire (Ford F-150; Goodyear Wrangler SR-A P275/65R18)
45	8’ x 4’ x ½” Sheet of plywood
51	8’ x 4’ x ½” Sheet of drywall
52	12” x 8” x 16” common cement block
52	Case of copy paper (standard thickness)
60	5 gallons of interior house paint (Glidden Brilliance Interior Flat)
60	Standard bag of concrete mix
60	1/6 keg of beer
62	Pre-mixed all-purpose joint compound (5 gallons)
68	8’ x 4’ x 3/4” Sheet of plywood
72	60” Plasma television (Samsung 6500 Series Smart TV with stand)
80	Large bag of concrete mix

Appendix 3

List of Professional and Doctorate Degrees

Professional degrees may be awarded in the following 11 fields (not exhaustive):

Doctor of Chiropractic (D.C. or D.C.M.)
Doctor of Dental Surgery (D.D.S.) or Doctor of Dental Medicine (D.M.D.)
Doctor of Jurisprudence or Juris Doctor (J.D.)
Doctor of Medicine (M.D.)
Doctor of Optometry (O.D.)
Doctor of Osteopathic Medicine/Osteopathy (D.O.)
Doctor of Pharmacy (Pharm.D.)
Doctor of Podiatric Medicine/Podiatry (D.P.M., D.P., or Pod.D.)
Master of Divinity (M.Div.), Master of Hebrew Letters (M.H.L.), or Rabbinical Ordination (Rav)
Doctor of Veterinary Medicine (D.V.M.)
Doctor of Psychology (Psy.D. or D.Psych)

Doctorate degrees may be awarded in the following 24 fields (not exhaustive):

Doctor of Arts (D.A.)
Doctor of Business Administration (D.B.A.)
Doctor of Church Music (D.C.M.)
Doctor of Canon Law (J.C.D./D.C.L.)
Doctor of Design (D.Des.)
Doctor of Education (Ed.D.)
Doctor of Engineering (D.Eng./D.E.Sc./D.E.S.)
Doctor of Fine Arts (D.F.A.)
Doctor of Hebrew Letters (D.H.L.)
Doctor of Industrial Technology (D.I.T.)
Doctor of Juridical Science (J.S.D./S.J.D.)
Doctor of Music (D.M.)
Doctor of Musical/Music Arts (D.M.A.)
Doctor of Music Education (D.M.E.)
Doctor of Modern Languages (D.M.L.)
Doctor of Nursing Science (D.N.Sc.)
Doctor of Philosophy (Ph.D.)
Doctor of Public Administration (D.P.A.)
Doctor of Physical Education (D.P.E.)
Doctor of Public Health (D.P.H.)
Doctor of Sacred Theology (S.T.D.)
Doctor of Science (D.Sc./Sc.D.)
Doctor of Social Work (D.S.W.)
Doctor of Theology (Th.D.)

List derived from Structure of the U.S. Education System: Research Doctorate Degrees.

Glossary

Accommodations
Are adjustments to tasks or the work environment that an employer makes, enabling a person with a disability to compete equally or perform critical tasks.

Associate's Degree
A post-secondary undergraduate academic degree (Associate of Arts or Associates of Science) awarded upon completion of a course of study usually lasting two years. One of the two years is vocational education and counted toward SVP and the other year is considered general education. This is in contrast with vocational associate's degrees in which both years are vocational in nature and are included in SVP.

At/Below the Shoulder Reaching
Reaching that is present but does not meet the threshold for Overhead Reaching.

At Will
Timing of performing an activity is dictated by the worker's discretion including the ability to choose or control how and when they respond to external factors.

Bachelor's Degree
A post-secondary undergraduate academic degree (Bachelor of Arts or Bachelor of Science) awarded upon completion of a course of study usually lasting four years. Two of the four years are vocational education and counted toward SVP and the other two years are considered general education.

Bachelor's/Master's Combined Degrees (5 year program)
A post-secondary degree program resulting in a combined undergraduate academic degree (Bachelor of Arts or Bachelor of Science) and graduate degree (Master's) awarded upon completion of a course of study usually lasting five years. Three of the five years are vocational education and counted toward SVP and the other two years are considered general education.

Carrying
Transporting an object, usually by holding it in the hands or arms, or wearing it on the body, usually around the waist or upper torso.

Certification
A non-degree credential awarded by a non-governmental certification body (i.e., industry/professional association) based on an individual demonstrating through an examination process that he or she has acquired the designated knowledge, skills and abilities to perform a specific occupation. The examination can be either written, oral, or performance-based. A certification is a time-limited credential (i.e., expires if not renewed) that is renewed through a recertification process.

CIERA
The Compensation Information Entry and Review Application is the data entry system for ORS.

Climbing Ladders/Ropes/Scaffolding
Ascending or descending ladders, scaffolding, ropes, poles and the like using feet and legs and hands and arms.

Climbing Ramps/Stairs
Ascending or descending ramps and/or stairs using primarily feet and legs. Hands and arms may be used for balance (i.e., to hold a railing).

Constant
2/3 or more of the time.

Consistent, and generally fast pace
Work pace that is continuous and steady with little or no waiting or few periods of downtime.

Consistent, and generally slow pace
Work pace that is generally unhurried with periods of waiting and downtime.

Control of Workload
A cognitive element under Pace which identifies the determining factor (technology, strict organizational rules, other people, the worker, other external factor) that drives the rate at which a worker must process new or incoming information, or to take physical action based on new information.

Crawling
Moving about on hands and knees or hands and feet.

Credit-Hour
A semester unit is equivalent to one credit hour. Three credit hours equals one class and nine credit hours equals a full course load for one semester.

Critical Job Function
The main purpose of the job. Consists of critical tasks that are integral to the job. The job would not exist without the critical job function(s), which is the primary pay factor for the job.

Critical Tasks
Activities workers must perform to carry out their critical job function(s). A task is considered critical when it is a primary and required component of the critical job function(s) and/or when a job spends more than 10% of work day or work week performing it.

Crouching
Bending the body downward and forward by bending the legs and spine.

Crowd
A situation in which all of the following conditions must be met: many unfamiliar people are present considering the space available, movement is restricted, any given arrangement of the crowd is temporary, a certain level of disorganization is present, and workers are not separated from the people by counters, dividers or other objects.

Dictionary of Occupational Titles (DOT)
An occupational classification system developed by the U.S. Department of Labor's Employment and Training Administration (ETA) used by the Social Security Administration (SSA) in their disability programs.

Doctorate Degree
A graduate degree that is research-oriented and requires a dissertation or similar independent research effort. The Doctor of Philosophy (Ph.D.) and research doctorate are equivalent in title. All time toward a Doctorate degree is vocationally relevant (usually four years) and is included as SVP time in addition to the vocationally relevant time needed to complete a Bachelor's degree (two years).

Driving
Driving is the operation of a motorized passenger vehicle or other conveyance. Includes passenger vehicles such as automobiles, vans, or light trucks, and other vehicles such as tractor trailers, buses, equipment (e.g. forklifts, golf carts, riding mowers), trains, boats or aircraft.

Duration
Measures the total time a worker performs critical tasks using certain physical demands or is exposed to an environmental condition.

Duration Scale
A scale measuring the duration of an activity being performed or exposure to an environmental condition. Scale: Seldom (up to 2%), Occasional (2% up to 1/3 of the time), Frequent (1/3 up to 2/3 of the time), and Constant (2/3 or more).

Educational Certificate
A credential awarded by an educational institution (such as a community or on-line college, a 4-year college or university, or a trade school) based on completion of all requirements for a program of study, including coursework and test or other performance evaluations. Educational certificates are typically awarded for life (like a degree). Certificates of attendance or participation in a short-term training (e.g., 1 day) are not in-scope for educational certificates.

Exertion
The physical effort that a worker uses to complete a task.

Experience
Measures the minimum amount of prior relevant work activity.

Extreme Cold
40 degrees or below when exposure is constant (2/3 or more of the work day) and 32 degrees or below when exposure is frequent or less (less than 2/3 of the work day). Include only non-weather, critical task related exposure.

Extreme Heat
Above 85 degrees with humidity and above 90 degrees in a dry atmosphere. Include only non-weather, critical task related exposure.

Far Visual Acuity
Clarity of vision at a distance of 20 feet or more, including the ability to distinguish features of a person or objects at a distance.

Fine Manipulation
Touching, picking, pinching, or otherwise working primarily with fingers rather than the whole hand or arm, as in gross manipulation.

Foot/Leg Controls
The use of one or both feet or legs to move controls on machinery or equipment. Controls include, but are not limited to, pedals, buttons, levers, and cranks.

Force
An interaction that changes the motion of an object.

Frequency of Work Being Checked
A cognitive element which measures the frequency work is checked by either a supervisor or a lead worker to ensure that performance standards are being met.

Frequent
From 1/3 up to 2/3 of the time.

General Education
Time spent completing coursework that is not vocationally specific. General education time is not included in SVP.

Gross Manipulation
Seizing, holding, grasping, turning or otherwise working with hand(s). Fingers are involved only to the extent that they are an extension of the hand to hold or operate an object or tool, such as a hammer.

Hazardous Contaminants
Exposure to substances that have a negative impact upon respiration, eyes, skin, or other living tissue through inhalation, ingestion or physical contact.

Hearing Requirements
Account for the ability to hear, understand, and distinguish speech and/or other sounds.

Hearing-In Person Speech
Includes the ability to hear speech (spoken words) in person, both one on one and in group or conference settings.

Hearing-Other Sounds
Includes the ability to hear other sounds outside of words/language that are related to critical tasks. Include hearing items such as machinery and equipment alarms and sounds, as well as animal or human sounds other than speech, etc.

Hearing-Other Remote Speech
Includes the ability to hear speech through other remote communication devices such as walkie-talkies, intercoms, public address systems, drive-through headsets, etc.

Hearing-Telephone
Includes the ability to hear speech through a telephone. Also includes the ability to hear the telephone ringing.

Heavy Vibration
Exposure to a shaking object or surface causing a strain on the body or extremities.

High, Exposed Places
Exposure to possible bodily injury from falling due to workers' center of gravity being at least five feet off the ground or being at ground level and at risk of falling several feet below ground level, with no walls or railings surrounding workers to lessen the possibility of falling.

High School Diploma (GED)
A diploma signifying satisfactory completion of secondary general education. No time towards high school or GED is included in SVP because all time is considered general education.

High School Vocational
A diploma signifying satisfactory completion of secondary general education with a concentration in career subjects and/or technical instruction plus applicable mathematics and science requirements, usually acquired in vocational technical school. Half of the time spent in a high school vocational education classes are included in SVP because half of the time is considered general education and the other half is considered vocationally relevant. A high school student spending six months at vo-tech would count for three months of SVP.

Humidity
Exposure to air that contains a high amount of water or water vapor in which the atmosphere is oppressive. Include only non-weather, critical task related exposure.

Incidental Tasks
Are excluded from ORS collection. The task does not support the job's critical function(s) and is not a primary or required component of the job's critical function(s).

Interaction with Public/Crowds
A category of cognitive demands which consists of three elements: Working with the General Public, Working around Crowds, and Telework.

Job
Represents all workers in an establishment with the same or similar tasks such that they may be analyzed collectively. In ORS, a sampled quote represents a job.

Job Demands
The knowledge, cognitive abilities, and physical actions required to perform critical tasks, as well as environmental conditions experienced while completing critical job tasks.

Keyboarding
Entering text or data into a computer or other machine by means of a keyboard, using a repetitive motion requiring the use of the whole hand.

Kneeling
Bending the legs at the knees to come to rest on the knee or knees.

License
A credential awarded by a government agency that conveys a legal authority to perform a specific occupation. Licenses are based on some combination of degree or certificate attainment, certifications, educational certificates, assessments (including state-administered exams), apprenticeship programs, or work experience. A license is time-limited (i.e., expires if not renewed) and must be renewed periodically.

Lifting
Raising or lowering an object from one level to another. This includes upward pulling.

Low Postures
Includes four postures - stooping, crouching, kneeling, or crawling – which workers may use to lower or position themselves over something at or below knee level or get closer to the ground.

Master's Degree
A graduate degree awarded upon completion of a course of study usually lasting one to two years following a Bachelor's degree. All time toward a Master's degree is vocationally relevant and is included as SVP time in addition to the vocationally relevant time needed to complete a Bachelor's degree (two years).

Minimum Education
Measures the minimum level of formal coursework resulting in a degree required of a job, excluding general education.

Mitigation
When the employer installs devices or requires the use of personal protective equipment (PPE) that fully or partially eliminates potentially hazardous conditions or exposures.

Near Visual Acuity
Clarity of vision at approximately 20 inches or less as when working with small objects or reading small print, including use of computers.

Negligible Weight
So small an amount that measurement is not meaningful (e.g., a pen, a few sheets of paper). Includes anything lifted or carried weighing less than one pound.

Noise Intensity Level
The amount of noise that workers experience while working.

Non-Degree Credentials
An SVP component that includes training time required as a condition of hire which often results in a certification, license, or educational certificate. Defined based on guidelines established by the Intra-agency Working Group on Expanded Measures of Enrollment and Attainment (GEMEnA).

Observable Behaviors
Actions that can be watched such as typing, driving, standing, lifting, reaching, etc.

Occasional
From 2% up to 1/3 of the time.

Occupation
A broad term representing a defined set of responsibilities, skills, and tasks common across establishments rather than specific to an individual company.

Occupation Specific Credentials
Credentials such as licenses, certifications, and educational certificates which only apply to a specific occupation (or small group of occupations). Occupation specific credentials may be the same for a broad occupation group (digits 4 and 5 of the SOC code), but would rarely cross major SOC groups.

On the Job Training (OJT)
Measures the minimum amount of training time occurring after a worker has been hired.

Oppressive (Humidity)
Atmosphere must be very uncomfortable and could affect breathing.

Other Non-Degree Credential
Non-degree credentials which may be relevant for a wide variety of jobs and occupations and may expire or be valid for life.

Outdoors
Unprotected exposure to weather-related atmospheric conditions such as heat, cold, rain, snow, or wind.

Overhead Reaching
Extending the arm(s) with the hand higher than the head and either the worker bends the elbow with the shoulder at an angle of 90 degrees or more, or the worker keeps the elbow extended, and the angle at the shoulder is about 120 degrees or more.

Pace
A category of cognitive demands consisting of three elements-Control of Workload, Work Pace, and Pause Control- and which refers to the cognitive speed needed to perform critical tasks.

Pause control
A cognitive element under Pace which identifies whether the worker has the ability to easily step away from their work area for short, unscheduled breaks as needed.

People skills
A cognitive element under Personal Contacts that includes the ability to listen, communicate, and relate to others.

Peripheral Vision
What is seen above, below, to the left or right by the eye while staring straight ahead.

Personal contacts
A category of cognitive demands consisting of two elements – Work Related Interactions and People Skills- that measures how often workers must engage in verbal interactions with others and the kind of interpersonal skills required for critical tasks.

Personal Protective Equipment (PPE)
Equipment used or worn to minimize exposure to serious workplace injuries and illnesses.

Presence of Supervisor
A cognitive element under Work Review which determines whether or not a supervisor/lead worker is generally present in the same physical area as workers being supervised.

Problem solving
A cognitive element that measures how often workers are faced with a new or difficult situation which requires them to think awhile about what to do next.

Production Rate
Constant repetition of pushing/pulling with a negligible amount of force requiring considerable strength at any weight.

Professional Degree
A graduate degree that is required to work in a specific career/profession. Professional degrees do not require a Master's degree, and typically fall into three main fields (medical, law, and religion). All time toward a Professional degree is vocationally relevant (usually two to four years) and is included as SVP time in addition to the vocationally relevant time needed to complete a Bachelor's degree (two years).

Proximity to Moving Mechanical Parts
Operation of or proximity to any moving materials, mechanical parts, settings, or any moving objects that could cause bodily harm when used properly.

Pulling
Exerting force upon an object so that the object moves toward the origin of the force.

Pushing
Exerting force upon an object so that the object moves away from the origin of the force.

Reaching
Extending the hand(s) and arm(s) in any direction, requiring the straightening and extending of the arm(s) and elbow(s) and the engagement of the shoulder(s).

Revised Handbook for Analyzing Jobs (RHAJ)
A guiding document for writing occupational descriptions created by the U.S. Department of Labor's ETA used in developing the 1991 revision of the Dictionary of Occupational Titles.

Seldom
Up to 2% of the time.

Semester
Is one-half of an academic year and is equal to 15 weeks.

Semester Unit
Is equivalent to one credit hour. Three credit hours equals one class and nine credit hours equals a full course load for one semester.

Semi-skilled Work
Work that requires some skill but does not require complex duties. Generally SVP of 3 or 4.

Sitting
A worker is either active or inactive in a seated position or lying down. Active sitting may involve pushing or pulling with feet/legs. A worker that is not standing/walking, must be sitting.

Sitting/Standing at Will
Workers typically have the flexibility to choose between sitting and standing throughout the day, there is no assigned time during the day to sit or stand, and no external factors determine whether an employee must sit or stand.

Skill Level
Work classification that divides occupations into unskilled, semi-skilled, or skilled work.

Skilled Work
Work requiring high levels of judgment and adaptability; setting of realistic goals or independent planning; understanding, carrying out, and remembering of complex instructions; and often encompasses abstract ideas and problem solving. Generally SVP of 5 or greater.

Speaking
Expressing or exchanging ideas by means of the spoken word to impart oral information to clients or the public and to convey detailed verbal instructions to other workers accurately, loudly, or quickly.

Specific Vocational Preparation (SVP)
The minimum amount of preparation time required by a typical worker to learn the techniques, acquire the information, and develop the facility needed for average performance in a specific job.

Standing/Walking
Whenever workers are not sitting or lying down.

Stooping
Bending the body forward and down while bending the spine at the waist 45 degrees or more either over something below waist level or down towards an object on or near the ground. Stooping should be significant enough that when bending, if arms were extended toward the ground, workers' hands would be at or below the knees. Stooping must be performed by standing. Exclude stooping performed while workers are sitting.

Strength
The capacity for exertion or endurance.

Structure-related Climbing Ramps or Stairs
Performing critical tasks would not require climbing if the workplace was one level. Structure-related climbing includes climbing stairs or ramps that are part of a building structure, including climbing steps to enter/exit residential structures as well as climbing full stair flights.

Task
A distinct activity assigned to, or performed by workers, who are carrying out job duties that result in a specific outcome.

Task List
Reflect and record the detailed activities workers perform to accomplish the critical job function. A task list connects the critical job function with ORS element coding.

Telework
A cognitive element that identifies jobs that allow workers the flexibility to perform their critical job function from the worker's home.

Threshold
A magnitude or intensity that must be met or exceeded for a certain demand to be considered for ORS collection.

Traditional Keyboard
A panel of keys used as the primary input device on a computer, typographic machine or 10-Key numeric keypad. Includes stenographer's machines, typewriters, laptops, all aspects of using a desktop computer, including a mouse, adding machines, and calculators.

Unobservable Behaviors
Actions which cannot be watched such as learning and applying knowledge, perception, problem solving, etc.

Unskilled Work
Work that requires little or no judgment for simple duties that can be learned on the job in a short time period. Generally SVP of 1 or 2.

Varies
Work pace that changes throughout the work period with fluctuations on a daily, weekly, or seasonal basis. Includes only the variation between slow and fast pace. Does not include when the pace changes but would still fall within the same category.

Verbal Interactions
A cognitive element under Personal Contacts which measures how often workers must verbally interact with others for critical tasks.

Vocational Associate's Degree
A post-secondary degree awarded after completion of a two-year technical or vocational program which often results in an Associate of Applied Science degree. All time toward a vocational associate's degree is vocationally relevant and is included as SVP time. This contrasts with a regular associate's degree where usually only one of the two years of time is vocational education, therefore, only one year counts towards SVP.

Walking
Moving about on foot.

Wetness
Any contact with water or liquid, including working in a wet area. Include only non-weather, critical task related exposure.

Working around Crowds
A cognitive element that identifies settings in which the worker is required to work in a crowd in a way that restricts their movement.

Working with the General Public
A cognitive element that identifies jobs where workers must have contact (i.e. in person or via telephone) with individuals other than coworkers (e.g., general public or workers from other establishments).

Workload
The amount of work expected to be performed in a set amount of time.

Work Pace
A cognitive element under Pace which identifies both the consistency and the rate at which work occurs. Work pace specifically refers to the speed needed to perform critical tasks.

Work-Related Climbing Ramps or Stairs
Performing critical tasks would require climbing regardless of the building structure. Work-related climbing includes climbing stairs/ramps on machinery and equipment, the use of step stools, or the use of mobile ramps.

Work Review
A category of cognitive demands consisting of two elements - Frequency of Work Being Checked and Presence of Supervisor - which measure how often work is checked and whether workers have immediate access to a supervisor if necessary.

Worker

An employee who is assigned a specific set of tasks. The term worker is equivalent to the term position, historically used in the Dictionary of Occupational Titles and the Revised Handbook for Analyzing Jobs.