

Building Science Institute, Ltd. Co. Procedure E-2023 Data Collection

Activity

Definition

Work measurement is the application of techniques designed to establish the time for a qualified worker to carry out a specific job at a defined level of performance.

The result is called Standard Time.

Objectives

1. Compare the performance times of alternative methods
2. Enable preparation of realistic work schedules
3. Arrive at realistic & fair incentive program
4. Analyze activities performed to do a job with the view to eliminate or reduce unnecessary activities
5. Minimize human effort
6. Assist in the organization of workforce by daily comparison of actual time with that of Standard Time

Time Studies

Define Goals & Boundaries

1. Specify goals of the study
 - a. Increase speed of production
 - b. Remove wasteful actions
2. Select the process that is the core focus of study

Select Observer

1. Must have relevant training & experience
2. Must have a safe & comfortable vantage point for observation

Choose Equipment

1. Avoid the Hawthorne Effect (workers put in more effort when they know they're observed)
2. CCTV
3. GoPro
4. Remote monitoring through screen share

Select Sample Size

1. 95% confidence interval, 5% margin of error
2. Balance selected workers
 - a. Well-trained
 - b. Output is not at extreme low or high productivity

Choose Appropriate Time Frame

1. Take measurements across multiple production cycles
2. Choose time period that represents general workflow
3. Avoid peak seasons of demand

Work Sampling

1. 95% confidence interval, 5% margin of error
2. Balance selected workers
 - a. Well-trained
 - b. Output is not at extreme low or high productivity
3. Use benchmark for comparison
4. Pre-Determined Motion System
 - a. Measure how quickly people perform specific manual tasks in a particular environment
5. Analytical Estimation
 - a. Analyzes process in terms of basic components to estimate "normal time" based on Standard Time benchmarks
6. Synthesis
 - a. Uses previous time studies to build Standard Times

- b. Provides information about how long it takes to complete different tasks
- 7. Historical Data
 - a. Measures past productivity to determine impact on current work outcomes

Work Measurement Process

Decompose job into component tasks

1. Measure the elapsed time on component tasks through one of the techniques
2. Evaluate the queue time
3. Evaluate the physical & mental factors that drive fatigue
4. Identify the number of times each task occurs in the job & multiply the work content by its frequency, then add those times together
5. Add contingency allowances to time based on percentages

How to Job Shadow

Definition

A job shadow is when the observer follows the practitioner as they go about their typical workday, and makes notes of their observations.

Objective

The objective of job shadowing is to find out more about the nuances of the practitioner's work.

Techniques

1. Research the company, industry, and position in advance
 - a. Familiarize yourself with key terminology in the industry
 - b. Familiarize yourself with the company's products, services, mission, goals
2. Prepare a quick introduction to share with the person you will shadow
 - a. Provide them a quick overview of your experience, skills, and education
 - b. Explain the purpose of the job shadow event
3. Prepare a list of questions in advance
 - a. Identify the tasks involved in the job/process
 - b. Ask about the experience they have when they perform specific tasks
 - c. Ask them why they perform specific tasks a certain way
4. Be ready early
 - a. Make sure your tech works
5. Stick with them, but out of their way
 - a. Do not interfere with their job
 - b. Ask questions immediately after they perform the task
6. Tell them "Thank you!"

Process

Data extraction from databases

1. HouseRater
2. ENERGY STAR® Builder
3. ACCA Quality Contractor
4. Advanced Energy Credentialed HVAC Contractors
5. AHRI Directory
6. ENERGY STAR Products
7. DOE Compliance Certification Management System
8. ICC Evaluation Service

How To Do Surveillance Assessment

Definition

A surveillance assessment is a review of an organization's systems through documentation, direct observation, and interviews.

Objective

The purpose of a surveillance assessment is to identify areas for improvement in the overall system, while a job shadow is to identify areas for improvement in a specific process or procedure.

Techniques

1. Outline which set of processes you are there to observe
2. Ask them to explain to you how they perform the process steps
3. Ask them for up-to-date records that document they perform the task correctly
4. Ask them for a copy of their procedure manual for the process to compare actual process against benchmark process steps
5. Identify if they know how to correct issues if something goes wrong
6. Check to see if documents are controlled and kept up to date

Approved by the Building Science Institute, Ltd. Co. Quality Council on May 22, 2023.

Approve: Kevin Burk, Erik Straite, Brian Christensen, Amber Wood

Reject: None

Not Voting: Wes Davis, Brett Dillon (Chair)

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