NIOSH Lifting Equation Job Analysis

How-to guide: what the workbook does, how to use it and what every number means. mfgcalcs.com

NIOSH Lifting Equation Job Analysis

Assess every two-handed lifting task with the revised NIOSH lifting equation from the CCOHS tables: recommended weight limit, load against it and what limits it.

For: EHS managers, ergonomists, safety coordinators and engineers assessing manual lifting tasks.

Version 1.0.0 · updated 25 November 2026

Quick start

1. On Setup, type your site name, choose kg and cm or lb and inches, and list your areas. Leave the CCOHS tables as published.
2. On Lifting Tasks, add one row per lift: the load, horizontal reach, starting hand height, vertical travel and twist angle, as measured.
3. Choose the time between lifts, the lifting time, standing or stooping, and the grip, from the dropdowns.
4. Read the RWL, the load as a share of it and the multiplier that limits the lift most; change that factor first.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Your site, the units you measure in, your areas, and the CCOHS multiplier tables the workbook reads.
Lifting Tasks	One row per two-handed lifting task: measurements, CCOHS multipliers, the RWL and the load against it.
Dashboard	Which lifting tasks are over the recommended weight limit, by how much, and which factor to change first.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.
About MFG Calcs	Everything MFG Calcs offers, free: calculators, templates, tariff tools, data and the Calkee AI helper.

What each number means

Quantity	How it is calculated	Units
Converted measurements	With lb and inches: load x 0.45359237 = kg; distances x 2.54 = cm (exact).	kg, cm

Quantity	How it is calculated	Units
HM, VM, DM, AM	Read from the CCOHS tables on a straight line between rows, ends held; VM and DM are 0 over 175 cm; HM over 60 cm and AM over 90 degrees are beyond the tables (not rated).	-
FM	The CCOHS frequency table at the time between lifts, for the posture and lifting time; a dash in the table is no factor (not rated).	-
CM	The CCOHS coupling table at the grip, for the posture.	-
RWL	23 kg x HM x VM x DM x AM x FM x CM; shown in kg and in the unit you measure in.	kg, lb
Share of RWL and above RWL	Load / RWL; load - RWL, not below zero.	%, kg or lb
Limited most by	The multiplier with the lowest value (the first, in the order of the equation, when two are equal).	-
Status	Over the RWL when the load is above it, Within the RWL otherwise, Not rated when a factor is beyond the tables.	-

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Brookhale Foods, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

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Which lifting tasks are over the recommended weight limit, by how much, and which factor to change first.

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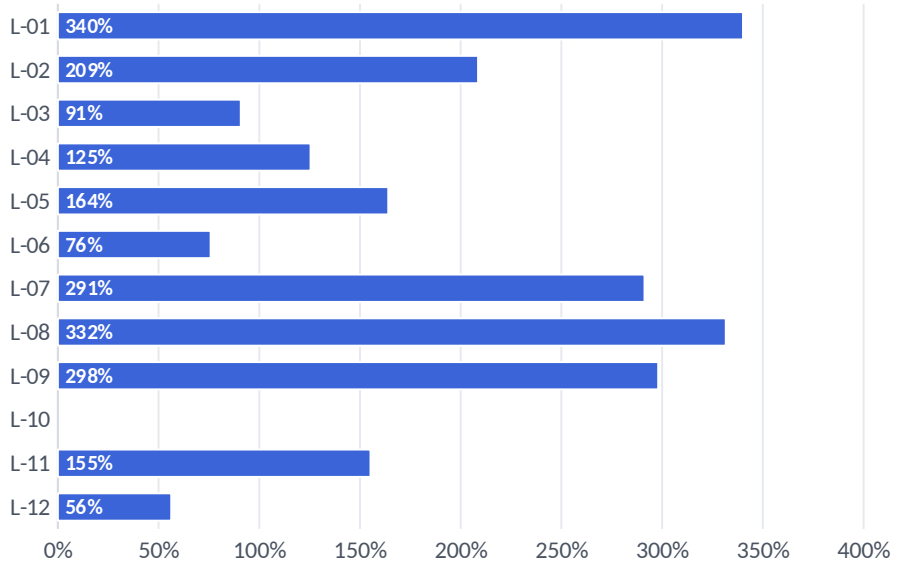
Brookhale Foods (example): 12 lifting tasks, assessed by EHS coordinator. RWL from the CCOHS tables for the revised NIOSH lifting equation.

LIFTING TASKS	OVER THE RWL	HIGHEST SHARE OF THE RWL	NOT RATED
12	**8**	**340%**	**1**
Rows on Lifting Tasks	Load above the recommended limit	Target 100%	Beyond the CCOHS tables
		Above target	

Load as a share of the RWL, by task



What limits the lifts

