

Mechanical engineers

Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.

Cognitive and mental requirements

The qualifications that workers need to use judgment, make decisions, interact with others, and adapt to changes in jobs.

In 2023, work was controlled by people for 21.7 percent of mechanical engineers, and work was self-paced for 74.7 percent.

Table 1. Percentage of mechanical engineers with cognitive and mental requirements, 2023

Requirement	Yes	No
Pace: Pause control	98.9	1.1
Interaction with general public	68.1	31.9
Working around crowds	<0.5	>99.5
Telework	26.0	74.0
Work review: Supervising others	8.8	91.2
Work review: Presence of supervisor	75.7	24.3

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

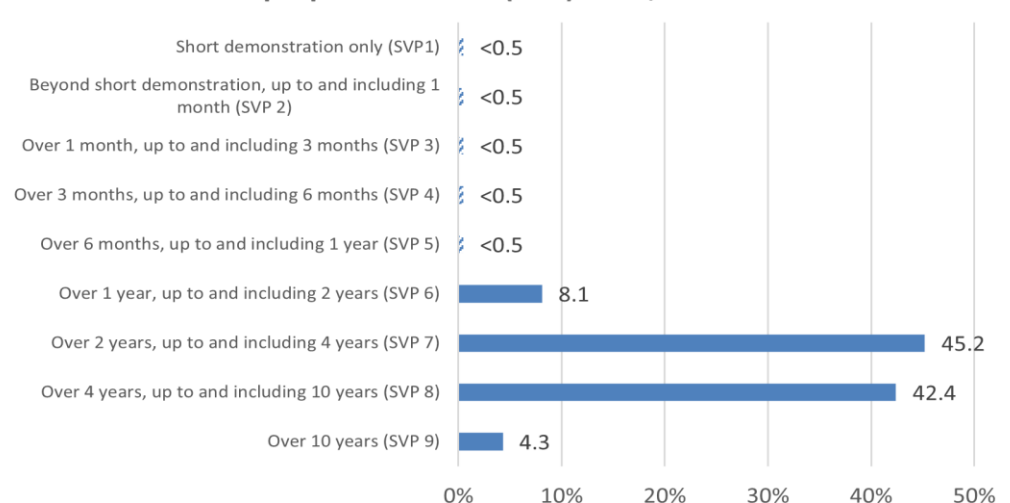
Education, training, and experience requirements

The minimum level of formal education required, credentials necessary, on-the-job training, and prior work experience necessary for average performance in jobs.

In 2023, credentials were required for 19.6 percent of mechanical engineers. Prior work experience was required for 54.7 percent and on-the-job training was required for 78.3 percent.

A bachelor's degree was required for 96.3 percent of mechanical engineers.

Chart 1. Percentage of mechanical engineers by specific preparation time (SVP) level, 2023



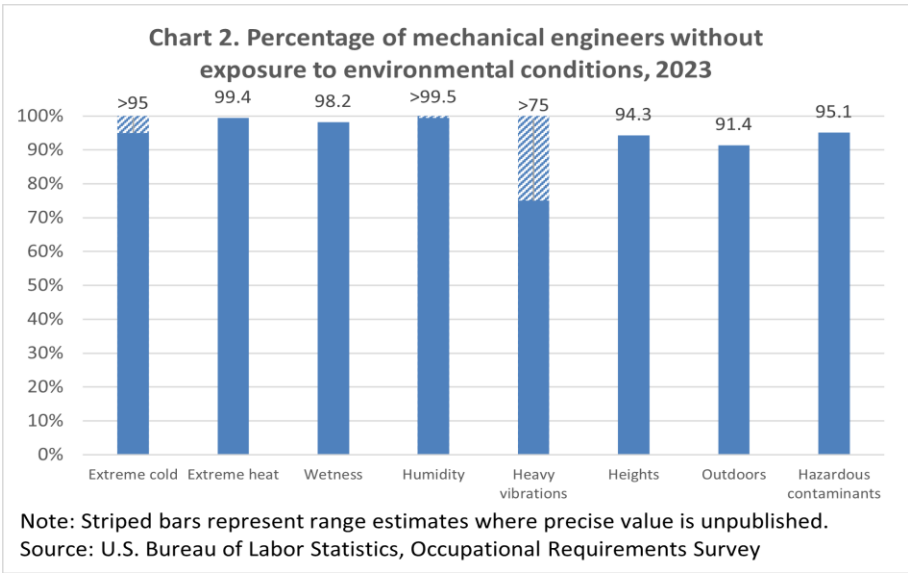
Note: Striped bars represent range estimates where precise value is unpublished.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey

Environmental conditions

The various tangible or concrete hazards or difficulties that are in the vicinity of where jobs' critical tasks are performed.

In 2023, greater than 95 percent of mechanical engineers were not exposed to extreme cold, and 99.4 percent were not exposed to extreme heat. Wetness was not present for 98.2 percent, greater than 75 percent were not exposed to heavy vibrations, and 91.4 percent were not exposed to the outdoors.

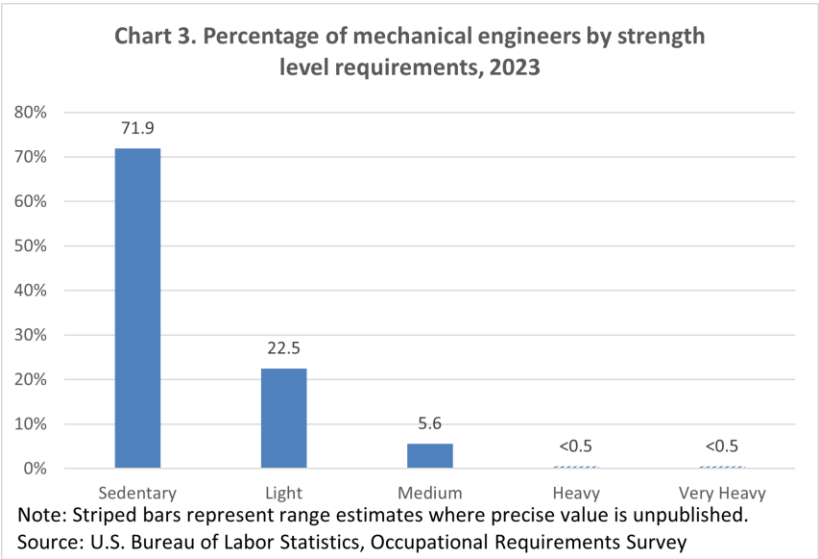


Physical demands

Refer to the physical activities required to perform tasks in jobs. The presence and, in some cases, duration of these activities are published.

In 2023, keyboarding was required for greater than 99.5 percent of mechanical engineers and was not required for less than 0.5 percent. For less than 0.5 percent of workers, keyboarding was seldom performed, for 23.7 percent keyboarding occurred occasionally, 75.9 percent frequently, and for less than 0.5 percent keyboarding occurred constantly.

Performing work in low postures was required for 14.6 percent of mechanical engineers and was not required for 85.4 percent.



The choice to sit or stand when performing critical tasks was available to 96.4 percent of mechanical engineers. On average, workers spent 80.5 percent of the workday sitting and 19.5 percent of the workday standing.

Table 2. Percentage of mechanical engineers with physical demands, 2023

Requirement	Yes	No
Choice of sitting or standing	96.4	3.6
Driving	18.9	81.1
Climbing structure-related ramps or stairs	33.8	66.2

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey