The Haworth Ergonomic Design Process

Ergonomics Summary

HAWORTH

A Space That's Well-Informed

Ergonomics and human factors refer to the design implications for systems, organizations, jobs, machines, tools, and consumer products, based on the knowledge of human abilities and limitations, with the goal of safe, efficient, and comfortable human use.

At Haworth, we prefer a systems perspective, or macroergonomics, to address specific issues such as workstation design and analysis (microergonomics). By monitoring scientific journals, trade publications, books, ergonomic standards, regulations and legislation, and other sources, we can apply the latest information from a broad range of disciplines. Haworth incorporates learning from human anthropology, physiology, psychology, sociology, government and industry standards, and organizational and corporate literature into the design and evaluation of office environments, work technologies, and social systems.

In addition to keeping abreast of developments in ergonomics and related disciplines, Haworth conducts original research to evaluate human performance, existing and future products, and work tools. We also survey customer groups to determine their present and anticipated needs.

This depth of knowledge is captured in research reports, white papers, and publications, to inform product design, development, evaluation, and marketing. To aid our customers, dealers, and internal teams, we make this information readily available.

Ergonomist Involvement in Product Design

Typically, the Haworth Senior Corporate Ergonomist provides input at four stages of product development:

1. Needs assessment and concept development
2. Prototype design and evaluation, including usability testing of mock-ups
3. Alpha and beta testing of final product designs
4. Long-term follow-up research

Identification of ergonomics strengths and weaknesses from each of these stages is applied to new products in an iterative process, with the goals of improving the quality, safety, usability, and comfort.

Guidelines and Standards

To ensure that we meet or exceed the highest criteria for worker health and safety, we continually compare current and future products to the most recent national and international standards. Haworth draws anthropometric data from a variety of international sources, specific populations, and the following:

- CAESAR — Summary Statistics for the Adult Population of the United States of America
- Natick/TR-89/044 — Anthropometric Survey of U.S. Army Personnel, Accession#: AD-A225 094
- NHANES — National Health and Nutrition Survey

In addition, we consider specific North American ergonomics guidelines and standards from sources, including:

- ANSI/HFES 100-2007 — Human Factors Engineering of Computer Workstations
- BIFMA G1-2002 — Ergonomics Guideline for VDT Furniture Used in Office Work Spaces
- CAN/CGSB-44.227-2008 — Free-Standing Office Desk Products and Components
- CAN/CGSB-44.229-2008 — Interconnecting Panel Systems and Supported Components
- CAN/CGSB-44.232-2008 — Task Chairs for Office Environments
- CSA Z412-2000 — Guideline on Office Ergonomics

These guidelines and standards include dimensions and adjustment ranges to allow office furniture to accommodate the fifth-percentile female through the 95th-percentile male. Although sizes vary by database, the fifth-percentile female is approximately 60 inches and 100 pounds, and the 95th-percentile male is approximately 74 inches and 250 pounds. What's more, to ensure that products are designed with accessibility in mind, the Americans with Disabilities Act and Section 508 are considered as products are developed.

Haworth has also formed a research partnership with the Human Performance Institute at Western Michigan University to complete ergonomics research. Key findings from research performed through this partnership were utilized by the Zody project team to develop the asymmetrical lumbar, and additional research is being applied in ongoing projects.

Together, our ergonomic knowledge, research, and resources assist in the design of key product innovations that help achieve optimum comfort and sustain users' overall well-being through product design.