



---

# ERGONOMIC WORKING ENVIRONMENT TO IMPROVE WORKFORCE HEALTH

By

**Gempur Santoso**

Ergonomics and Occupational Health Safety, Industrial Engineering, Faculty of Engineering, Maarif Hasyim Latif  
Sidoarjo University

Email: [gempur\\_santoso@dosen.umaha.ac.id](mailto:gempur_santoso@dosen.umaha.ac.id)

---

## Article Info

### Article history:

Received Feb 27, 2026  
Revised Mar 06, 2026  
Accepted Mar 30, 2026

---

### Keywords:

Work Environment,  
Ergonomics, Health, Labor

---

## ABSTRACT

In work that can produce good work productivity, the work environment must be arranged that is ergonomic so that the workforce at work is always healthy. All data is taken from various opinions of ergonomists and research results, it is commonly referred to as a literature study. Then, the analysis is also carried out descriptively or presentation. Ambiguity: Based on the above discussion, it can be concluded as follows that the company's environment must be clean, namely an environment that does not deviate from the threshold value and the quality standard value. These values are the physical environment, chemical environment, and biological environment. In addition, it is also an environment related to psychology. Suggestion: It is recommended for companies that their company must be maintained so that it remains clean according to the threshold value and quality standards of a healthy and safe stand-up workforce

*This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.*



---

## Corresponding Author:

**Gempur Santoso**

Ergonomics and Occupational Health Safety, Industrial Engineering, Faculty of Engineering, Maarif Hasyim Latif  
Sidoarjo University

Email: [gempur\\_santoso@dosen.umaha.ac.id](mailto:gempur_santoso@dosen.umaha.ac.id)

---

## 1. INTRODUCTION

An unergonomic work environment has an impact on the health of the workforce. This must be avoidable, so that the workforce at work has optimal work productivity.

As stated by Sabrina Atikah Rahma et al (2025) that "an unergonomic environment can cause stress, health problems, and reduce employee performance". Even Ria Four Ladys Luman Tobing et al. (2025) said that "improving the quality of the work environment and implementing optimal work safety to support productivity".

Then Nia Widyanti Nasrul (2022) said that "the work environment has a great effect on the health of workers. Poor work environment design will be able to have a negative impact on workers' health, especially skeletal muscle disorders". Furthermore, Mochamad Saecullah et al (2022) also said that "the impact that arises as an achibat of a poor physical work environment on employee satisfaction is that work is not optimal, complaints and protests arise, and morale decreases". And, as Fatkhuri et al. (2024) say, "there is a positive and significant influence of the work environment on employee work productivity in the production department".

Therefore, in working that can produce good work productivity, the work environment must be arranged that is ergonomic so that the workforce at work is always healthy.

## 2. METHODOLOGY

In this writing, it is designed descriptively. All data is taken from various opinions of ergonomists and research results, it is commonly referred to as a literature study. Then, the analysis is also carried out descriptively or presentation. Subsequently, conclusions are drawn deductively.

### 3. RESULTS AND DISCUSSION

#### Ergonomic Workplace Environment and Healthy Workforce

The environment where ergonomics is related to the physical environment, the chemical environment, and the biological environment. All of them must be ergonomic, that is, all must be according to the threshold value or according to the allowed quality standard value. The physical environment consists of lighting, noise, dust, and others. As stated by Muhamad Raj Chandra (2019) that "lighting is enough to make workers feel comfortable to work. Then the noise factor can be said to not make workers feel comfortable and safe even though the threshold value in the category is appropriate because the work done by workers every day or it can be said that for a long period of time can cause hearing loss". Then Annisa Qisti Nurdinati et al. (2013) said that "temperature, noise, and lighting are found to be physical environmental factors that greatly affect occupational safety and health".

Then, chemical environmental ergonomics focuses on adjusting exposure to chemicals in the workplace. It is like smoke, gas, metal vapor, and fume with human physical capacity to prevent occupational diseases. As Novra Herlian Rojabiansyah et al. (2020) said that "there are dangers in the production and maintenance activity areas in the production area of the kedawoeng sugar factory which are physical hazards, chemical hazards, ergonomic hazards and psychological hazards". More specifically, Trimawai et al (2023) said that "chemical hazards (chemical hazards) in many ways, chemical hazards can be damaging to health and property". And, according to Kusmiati (2024) that "in manufacturing plants, the rich are exposed to hazardous work environments, such as exposure to toxic chemicals".

Furthermore, ergonomic biological environments are part of the discipline of ergonomics and occupational health that focuses on the interaction between workers and biological agents in their work environment. This goal is to prevent infectious diseases, infections, and health disorders caused by microorganisms or other living things in the workplace. As conveyed by Giovanni Elvina (2025) that "due to the lack of identification, control, and risk reduction in the hospital environment, biological agents (viruses, bacteria, fungi, parasites) are still found that can cause infectious diseases".

Based on the analysis and discussion above, an unclean environment is an environment that deviates from the threshold value and quality standard value. These values are the physical environment, chemical environment, and biological environment. That jam is an environmental juja related to psychology.

### 4. CONCLUSION

Based on the above discussion, it can be concluded as follows that the Company's environment must be clean, namely an environment that does not deviate from the threshold value and quality standard value. These values are the physical environment, chemical environment, and biological environment. In addition, it is also an environment related to psychology.

### ACKNOWLEDGEMENTS

It is recommended that the company is expected to maintain its company so that it remains clean according to the threshold value and quality standards of healthy and safe working people.

### REFERENCES

- Annisa Qisti Nurdinat, KRMT Haryo Santoso, 2013, **Evaluation of the physical environment to improve employee performance at PLTU unit 1 a unit 2 PT Indonesia powe UBT Semarang**, Industrial Engineering Study Program, Faculty of Engineering, Diponegoro University, Semarang.
- Fatkhuri, Sugeng Karyadi, Olfid Ishak, Nurdin Yusuf, Rulyensi Rasyid, 2024, **Environmental impact on kerha karywan productivity**, Management studies and entrepreneurship journal, Vol. 5 no. 2, P-ISSN 2715-7911, E-ISSN 2715-792X, STES Putera Bangsa, Tegal.
- Giovinna Elvina, Gerry Silaban, 2025, **Analysis of biological factors, electical factors with the application of K-3 standards in kindergarten Iip green utri hospital in Medan thu 2025**, Journal of social sciece resarc, vol 5 no4, E-ISSN 2807-4238, P-ISSN 2807-4246, University of North Sumatra, Medan.
- Kumiati, 2024, **Environmental ergonomics**, State University, Guruntalo.
- Mochaamad Saefullah, Basrowi, 2022, **The impact of the physical work environment on the performance and satisfaction of workers in the production sector**, Journal of Economic Development, Vol 15 no. 2 August, p-ISSN 2087-040X, E-ISSN 2721-7213, Postgraduate Master of Management, University of Bina Bangsa, Serang Banten.
- Muhamad Raj Chandra, 2019, **Ergonomic analysis of the physical working environment based on temperature, insulation and noise level of the PTPN VIII Dayeuhmanggung case study machine**, Proceedings of



- 
- Unimas national seminar students, olume 2, ISSN 2654-766X, Department of Agricultural Technology, Padjajaran University, Bandung.
- Nia Widyanti Nasrul, 2022, **Ergonomics for office workers**, Ministry of Health, Directorate General of Advanced Health, keslan.kemkes.go.id. Jakarta.
- Novra Herlin Rojabiansyah, Rusmiati, Pratiwi Hermiyanti, Winarko, Demes Nurmayanyi, 2020. **Potential physical, chemical, biological, egonomy, and psychological hazards in labor in sugar factory production areas**, Prociding national seminar on health, ISSN 2656-8624, Health Polytechnic of the Ministry of Health Surabaya, November 2020, Surabaya.
- Ria Four Lady Lumban Tobing, Suryati Eko Putro, Wahyu Rchana, 2025, **The influence of work environment and work safety on the performance of production employees at PT. Cahaya Murni Borneo Timur**, Journal of Management Science Publications, Volume 4 number 3, September, P-ISSN 2963-8712, E-ISSN 2963-766X, Uniersitas Teknologi , Surabaya.
- Sabrina Atikah Rahma, Susy Budi Astuti, 2025, The Effect of Ergonomics in Engineering Offices on Employee Work Productivity, **The Influence of Ergonomics in Engineering Offices on Employee Work Productivity**, Journal of Interior Knowledge and Design, E-ISSN 2580-6521, P-ISSN 1978-0702, Interior Design Study Program, Indonesian Institute of the Arts, Yogyakarta.
- Trismawati, Dyan Haryo Muji Utomo, 2023, **Monogaf: the relevance of K-3 implementation, K-3 climate, K-3 culture, ergonomics and work environent on work performance**, Published by CV zenius publisher, ISBN 978-623-5264-455, Depok-Cirebon.