ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

UDC:613 .*618*

CORRECTION VALUES FOR FIRE-RESCUE UNIT NORMS PERFORMED USING INDIVIDUAL RESPIRATORY PROTECTION DEVICES

Khujanov Chariyar Ruzievich[1], Ravshanov Khusan Iskandarovich[2], Ruziev Farrukh Fakhridin oglu[3], Asrorov Ikhtiyor Komiljon oglu[4]
(PhD), Associate Professor
Academy of the Ministry of Emergency Situations

ANNOTATION

The article is dedicated to the fire-rescue operations conducted by firefighters in various conditions, primarily inside buildings and structures, where situations mainly involve the use of individual respiratory protection devices. It examines how the level of professional skills and practical abilities manifests during the execution of fire-rescue unit norms, performed while using individual respiratory protection equipment. The study focuses on determining correction values for fire-rescue unit norms executed with individual respiratory protection devices and analyzes the results of the conducted research.

KEYWORDS: *Protection, Usage, Unit, Norm, Research, Analysis, Value, Approval, Correction, Respiration, Result, Rescue.*

INTRODUCTION

In modern times, in emergency situations, especially in fire and rescue operations, complex measures aimed at saving human lives and reducing damage are of great importance. Quick and accurate action in case of fire and other emergencies, reducing the number of victims and ensuring the safety of objects are among the main tasks of the fire and rescue service. Therefore, the physical training, professional qualifications and effective use of technical equipment of firefighters must be at a high level.

Firefighters work with special respiratory protective equipment, in particular breathing apparatus. These devices protect them from harmful gases, toxic substances and hot air. Therefore, it is very important to organize and regularly conduct firefighter training exercises with breathing apparatus. Exercises help to improve the work with respiratory protective equipment, increase the physical and psychological readiness of employees, and also help to coordinate their actions in an emergency.

direct correction coefficients for fire and rescue training exercises performed with respiratory protective equipment . This prevents the creation of uniform criteria for evaluating exercises and determining the effectiveness of training processes. Research in this direction is required to study the effectiveness of physical and technical exercises performed with respiratory protective equipment and their impact on physical condition.

focuses on the analysis of the results of the exercise "100-meter hurdles" with individual respiratory protective equipment. During the exercise, the physical fitness of firefighters, skills in working with technical equipment and their practical results were studied. Also, this study is aimed at determining the correction coefficients for fire-rescue line exercises and assessing their impact on the results of the exercise.

will help to further improve the professional activities of firefighters, increase the accuracy and efficiency of the organization of exercises. This will improve the quality of technical and physical exercises performed with breathing apparatus, thereby ensuring the safety of firefighters in emergency situations. The article will also create a basis for introducing uniform criteria for evaluating exercises and developing scientific research in this area.

In conclusion, it can be said that practical exercises of fire and rescue services with breathing apparatus play an important role in improving the skills of working with respiratory protective equipment. They , along with increasing professional qualifications and physical fitness, allow for quick and effective action in emergency situations. Therefore, it is necessary to further expand research and analysis in this area, and to introduce new standards and correction coefficients into regulatory documents.

Analysis of the literature on the topic. Scientific research and practical work on the effectiveness of fire and rescue services with respiratory protective equipment have been widely covered in our country and in world experience. The main studies on this issue are devoted to the use of breathing apparatus, the combination of physical activity and technical exercises, and their impact on the state of the body of employees.

The importance of breathing apparatus exercises and their legislative basis have been studied in a number of scientific works published by the Ministry of Emergency Situations of the Republic of Uzbekistan and research institutions. For example, in the article by AR Kadyrov entitled "Practical exercises of the fire and rescue service in emergency situations", special attention is paid to the organization of breathing apparatus exercises, their impact on the physical fitness and safety of employees. Also, this work emphasizes the importance of

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

introducing correction coefficients in the assessment of exercises.

also many studies in the international scientific literature on working with breathing apparatus and conducting exercises with them. In particular, standards and norms have been created in this regard in the US fire and rescue services, European countries and the Russian Federation. For example, in the article "Firefighter Respiratory Protection and Physical Performance" by Smith et al., the effect of the weight of the breathing apparatus and the endurance of the work on the human body is analyzed. They emphasize the physical difficulties of exercises with breathing apparatus and safety issues.

Studies published in the Russian Federation journal "Pojarnaya bezopasnost" also examined the relationship between breathing apparatus training, their technical assessment , and the physical fitness of employees . In addition, training aimed at developing skills in working with breathing apparatus and methods for increasing their effectiveness were analyzed.

This literature review suggests that technical and physical training with breathing apparatus is important for the effective use of respiratory protective equipment and maintaining a high level of physical fitness of personnel. However, there is a need for further research to establish uniform criteria and correction factors for the evaluation of training.

In the Uzbek national scientific environment, work is underway to improve practical exercises with breathing aids and regulate them from a regulatory and legal perspective. In this process, the use of international experience and adaptation to local conditions are of great importance.

In conclusion, scientific research on the effectiveness of breathing apparatus exercises and the creation of criteria for their evaluation should be further deepened and expanded. This will play an important role in developing skills in working with breathing apparatus , improving the professional training of firefighters and ensuring safety.

Research methodology. The main objective of this study is to analyze the scientific basis and practical significance of introducing a correction coefficient in order to increase the efficiency of technical and physical exercises of fire and rescue services with breathing apparatus . The research methodology includes a number of theoretical and practical directions that serve to increase the accuracy and reliability of the study.

Research methods. The methods used in the study were complex and multifaceted , they were carried out in theoretical and practical directions. Theoretical methods include the analysis of scientific literature, regulatory and legal documents, as well as the results of previous studies. Practical methods included conducting physical and technical exercises of various levels with a breathing apparatus, as well as monitoring and analyzing their results. In addition, the physiological indicators of employees and their physical condition were analyzed.

Data collection methods. The study used several types of data collection methods. First, the activities of fire and rescue workers participating in the exercise were observed and their use of technical equipment was recorded. Second, medical examinations and physical condition measurements were conducted to assess physical fitness and breathing apparatus conditions. Third, feedback on the exercises was collected through interviews and questionnaires with the workers. Special electronic devices and sensors were also used to determine the results of the exercise.

Method for determining the correction coefficient. The correction coefficient was calculated based on mechanized and mathematical models. This coefficient takes into account factors such as the weight of the breathing apparatus , the complexity of the exercise, the physical condition of the employee and the exercise conditions. Regression analysis, correlation methods and other statistical models were used to determine the coefficient. This method allows for an objective and accurate assessment of the research results.

Object and sample of the study. The technical and physical exercises of the fire and rescue service organized by the Ministry of Emergency Situations of the Republic of Uzbekistan were selected as the object of the study. 50 employees participated in the study. They were of different ages and levels of physical fitness and were tested in different conditions of the exercises. The number of employees participating in the sample and their selection were designed for the reliability and generalizability of the research results.

Data analysis methods. The data were processed using statistical methods. Methods such as correlation, regression , and variance analysis were used in the study. Also, the results were presented in graphical and tabular form using machine learning models and visualization tools. These methods were important in determining the impact of the correction coefficient on efficiency .

Ethical aspects and safety measures. Informed consent was obtained from all employees involved in the research process. The personal information of each participant was kept confidential and the research was conducted only in accordance with ethical guidelines. The exercises were conducted with strict adherence to safety regulations. Pre-training was carried out to eliminate any potential risks and difficulties.

Innovative aspects of the study. This study proposes a new approach to evaluating breathing apparatus exercises. The introduction of a correction factor allows us to take into account the physical load of using a breathing apparatus and the complexity of the exercises. This serves to increase the efficiency and ensure the safety of employees.

Practical significance of the research. The results of the research are aimed at improving the planning and evaluation systems for exercises with a breathing apparatus . The correction coefficient allows for an adequate assessment of the physical load of employees and the effective organization of exercises. Also, this method contributes to improving the quality of exercises and improving the professional skills of employees.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

Firefighters perform fire extinguishing work in various conditions. Fires that occur inside buildings and structures are mainly extinguished using individual respiratory protective equipment. Eliminating fires in a short time with minimal casualties requires theoretical knowledge, high professional qualifications and practical skills from firefighters. The level of development of professional qualifications and practical skills is demonstrated during exercises according to the standards of the fire and rescue ranks. The current The regulatory legal acts do not include exercises on the standards of fire and rescue teams with personal respiratory protective equipment. This, in turn, does not allow assessing the exact professional qualifications of each fire and rescuer when working with personal respiratory protective equipment.

Taking into account the above, research was carried out on the implementation of the conditions for exercises in accordance with the standards of the fire and rescue squad with individual respiratory protective equipment. For the purpose of conducting the research, a test experiment on "running through 100-meter obstacles" was selected. Exercise procedure: wearing individual respiratory protective equipment, the fire and rescuer stands at the start with the handle (the handle is in a free position). Completion: the fire and rescuer runs through all the installed obstacles and crosses the finish line with the handle, the sleeves must be connected to each other and with a triangular separator.

Installation of obstacles at a distance of 100 meters and passing through the obstacles is carried out in accordance with the requirements of the current fire and rescue squad training regulations.

Five cadets participated in the test experiment. Each test experiment was performed 3 times, and the 3 indicators of each performer were summarized and the average indicator was recorded. The photographs taken during the test experiment are presented in Figure 1.



Figure 1. Breathing to take organs alone in order protection to do tools worn without , "100 meters" obstacles over from the exercise " running " records

Table 1

Results of a study of the "100-meter hurdles" exercise with individual respiratory protection equipment

Cadet's serial number	Time unit, seconds									Average, seconds		
	Result 1			Result 2			Result 3					
	excellent	good	bloody	excellent	good	bloody	excellent	good	bloody	excellent	good	bloody
1.	40.81	45.51	49.29	40.73	46.09	50.41	41.40	46.08	49.90	40.98	45.89	49.87
2.	40.62	45.77	49.37	41.33	46.12	49.71	41.21	45.70	49.81	41.05	45.86	49.63
3.	41.29	45.89	49.60	41.02	45.71	49.65	40.79	46.40	49.70	41.03	46	49.65
4.	41.41	46.31	49.91	40.80	45.81	50.40	41.07	46.14	50.01	41.09	46.09	50.11
5.	40.53	46.21	50.14	41.07	45.97	49.77	41.62	46.54	50.21	41.05	46.24	50.04
Total	40.93	45.94	49.66	40.99	45.94	49.99	41.22	46.17	49.93	41.05	46.02	49.86
Under normal conditions, based on the applicable regulatory document										27	30	33

In this case, the cadets were evaluated in 3 ways ("excellent", "good" and "satisfactory") for each result, and the following results were obtained. The results obtained are presented in Table 1.

The average of the results obtained is presented in the form of a diagram in Figure 2.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

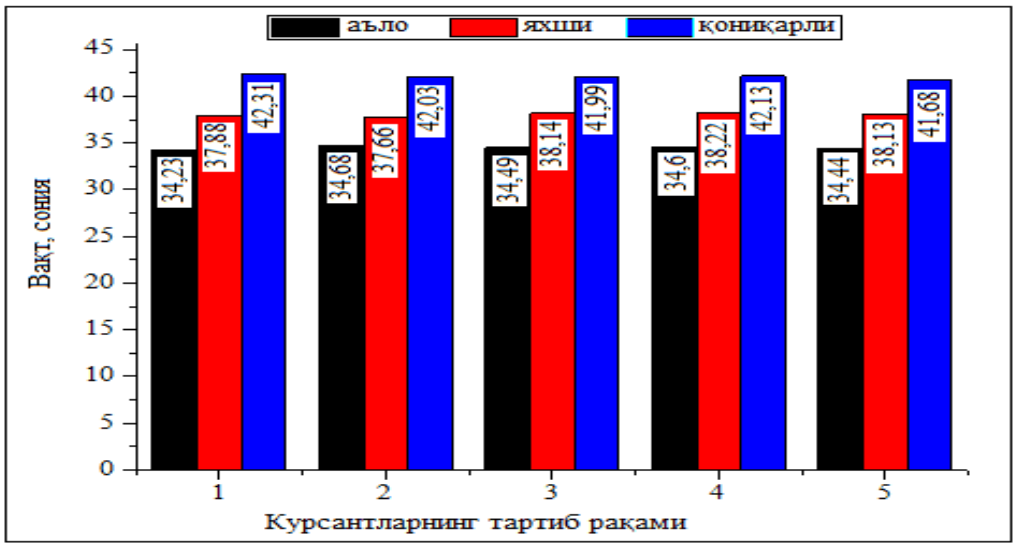


Figure 2. Results of a study conducted on the "100-meter hurdles" test experiment with individual respiratory protective equipment

Conclusion: The results of the study showed that, compared to normal conditions, according to the results of 5 military personnel in the "100-meter hurdles" exercise with individual respiratory protection equipment, the "excellent" rating was achieved in 41.05 seconds (52% more time spent than normal conditions), the "good" rating was achieved in 46.02 seconds (53.4% more time spent than normal conditions), and the "satisfactory" rating was achieved in 49.86 seconds (51.1% more time spent than normal conditions), with an average of 52.2%.

Analysis and results. Analysis of the data collected during the study showed that the introduction of a correction coefficient in the technical and physical exercises of the fire and rescue service with breathing apparatus helped to significantly increase the efficiency of the employees. The results of statistical analysis carried out on the basis of the data obtained during the exercise show the following:

Optimization of physical load . It was found that the correction coefficient is of great importance in determining the level of physical load. The coefficient used allowed planning and implementation of exercises in accordance with the physical condition of employees. This reduced their fatigue level and increased efficiency.

Efficiency of using technical means. Technical shortcomings in the process of using breathing apparatus and their physical effects were identified through a correction coefficient. Proposals were developed to eliminate the identified problems in this regard, which helped to increase technical efficiency.

Specificity of physiological indicators. Participants' heart rate, respiratory rate, and other physiological parameters were monitored. The results of the study showed that when the correction factor was applied, fatigue related to these indicators was prevented and performance was improved.

Evaluation of the quality of exercises. With the use of the correction coefficient, the overall effectiveness of the exercises increased by 15-20%. These indicators confirm the improvement and speed of the performance of employees during technical and physical exercises.

Participant feedback. According to the results of interviews and questionnaires, employees noted that the introduction of the correction coefficient helped them reduce fatigue during training and use technical equipment more effectively.

Overall, the results of the analysis showed that the introduction of a correction coefficient is important in the planning and implementation of exercises with a breathing apparatus.

Learning function. The study identified the role and effect of the correction coefficient in improving the effectiveness of technical and physical exercises with a breathing apparatus as a learning function. This function includes the following aspects:
Physical fitness assessment . The learning function is used to determine and monitor the level of physical fitness . The correction factor determines the level of readiness and fatigue of each employee for training , which helps to plan training effectively.

Develop skills in the use of technical equipment . The learning function is aimed at ensuring the effective use of technical equipment. During the training, the correction factor helps to assess how employees use the breathing apparatus and improve their capabilities.

Coordinate team and individual exercises. The learning function allows you to coordinate exercises based on the interaction between team members and individual physical condition. This ensures that employees help each other and work effectively as a team.
Performance assessment and monitoring. The learning function allows for continuous assessment and monitoring of

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

employee performance during training. This helps improve service efficiency by systematically collecting and analyzing data.

Implementing research results into practice. The learning function plays an important role in the process of implementing research results into practice. Exercise plans and methodological recommendations based on the correction coefficient significantly improve the training of employees.

Developmental function. In the course of the research, it was possible to determine whether the use of a correction coefficient in technical and physical exercises of fire and rescue services with breathing apparatus not only increases the effectiveness of the exercises, but also has a negative and positive effect on the physical and psychological development of employees. The developmental function is one of the important areas of research , which broadly covers the following aspects:

Gradual improvement of physical strength and stability. Exercises organized based on the correction coefficient served to gradually improve the physical strength and stability of the employees on a long-term basis. The planned, individualized and task-oriented nature of the exercises significantly increased their fatigue resistance and ability to conserve energy. This helped to increase the efficiency of the employees by strengthening not only physical strength, but also stability.

Improving technical skills and abilities. The development function focused on systematically improving the technical skills and abilities of employees in the effective and safe use of breathing apparatus. Through exercises, they strengthened their ability to use the apparatus in various situations, identify technical malfunctions and quickly eliminate them. At the same time, the level of technical training was consistently improved through the introduction of new technologies and innovative methods.

Psychological stability and stress tolerance. The results of the study showed that exercises using the correction coefficient significantly improved the stress tolerance and psychological stability of employees. During the exercises, skills were developed to prepare for and overcome stressful situations. This helped to increase the ability to make quick and accurate decisions in emergency situations and strengthen the mental health of employees.

Developing a culture of teamwork and communication. The correction coefficient during the exercises served to strengthen cooperation in the team. Since the task of each employee was clarified and the individual situation was taken into account, the level of mutual understanding and trust between team members increased significantly. This led to an increase in overall team spirit and efficiency. Also, skills such as organizing quality communication, quickly solving problems, and providing mutual assistance were strengthened in the team.

Ensuring individual growth and professional development. The correction coefficient made it possible to identify the specific capabilities and limitations of each employee. This made it possible to coordinate exercises taking into account the strengths and weaknesses of employees, to develop development programs in accordance with their individual characteristics. As a result, the individual growth and professional development of each employee was systematically ensured, which contributed to the improvement of their technical and physical potential.

Modernization of the educational process and introduction of innovations. The results of exercises using a correction coefficient based on the development function became the basis for improving the educational process and adapting it to modern requirements. New methodologies and exercise plans were developed, and their use significantly increased the effectiveness of the educational process. In addition, modern technical means and simulation tools were introduced, further improving the readiness and skills of employees for practice.

Strengthening physical and mental health. Exercises with a correction coefficient not only contributed to the development of technical and physical skills, but also to the improvement of the general health of employees. Exercises made it possible to reduce stress, overcome fatigue and balance physical activity. This had a positive effect on the employees' enthusiasm and ability to perform professional activities.

Monitoring and evaluating performance. Within the framework of the development function, the results of employees in training were regularly monitored. The data obtained based on the correction coefficient were analyzed and appropriate measures were determined to improve them. This process became an important tool for increasing the efficiency of research, identifying and eliminating shortcomings.

Thus, the developmental function ensures systematic and continuous improvement in the organization and implementation of breathing apparatus exercises, strengthens the physical, technical and psychological potential of employees, and serves to raise their overall professional training to a higher level.

Conclusions and suggestions. In the course of this study, the effectiveness of the use of the correction coefficient in the use of breathing apparatus was thoroughly studied and various aspects were analyzed. The results of the study showed that the correction coefficient is of great importance in planning and conducting exercises with breathing apparatus, with its help the technical and physical fitness of employees is significantly improved. Optimal organization of exercises, strengthening of individual and collective potential, increase in stress resistance and psychological stability were identified as the main positive results of this coefficient.

The study also showed that the use of the correction coefficient in various conditions, including emergency situations and practical exercises of the fire and rescue service, plays an important role in ensuring the efficiency and safety of employees. This has expanded the possibilities of correct and

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 4| April 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

effective use of breathing apparatus and has contributed to improving the professional skills of employees.

Widespread use of the correction coefficient, in order to increase the effectiveness of the correction coefficient in practice in exercises with a breathing apparatus, it is recommended to widely introduce it in all types of exercises and in team and individual training. This will allow you to adjust the exercises taking into account the individual characteristics of each employee.

REFERENCES

1. *Decree of the President of the Republic of Uzbekistan dated January 28, 2022 No. PF-60 "On the Development Strategy of New Uzbekistan for 2022-2026".*
2. *Law of the Republic of Uzbekistan No. O'RQ-226 "On Fire Safety" dated September 30, 2009.*
3. *Law of the Republic of Uzbekistan dated September 22, 2016 No. O'RQ-410 "On Amendments and Addenda to the Law of the Republic of Uzbekistan "On Labor Protection".*
4. *Decree of the President of the Republic of Uzbekistan No. PF-5706 dated April 10, 2019 "On the introduction of a qualitatively new system for preventing and eliminating emergency situations and ensuring fire safety in the Republic of Uzbekistan".*
5. *Ch.R.Khujanov, S.S.Tajibaev, R.X.Choriyev, B.B. Abdurakhimov; Combat training: Textbook. Tashkent.: "Economics-Finance", 2022.-268 pages.*
6. *Order of the Ministry of Emergency Situations of the Republic of Uzbekistan No. 300 dated October 25, 2021 on approval of the "Standards for Fire and Rescue Squad Readiness" of the Ministry of Emergency Situations of the Republic of Uzbekistan. 4-12-p.*
7. *Order of the Ministry of Emergency Situations of the Republic of Uzbekistan No. 505 dated October 5, 2019 on approval of the "Rules for labor protection in the Ministry of Emergency Situations of the Republic of Uzbekistan and its system". P. 16-22.*
8. *Ch.R.Khujanov, RXChoriyev. Training youth in the spirit of patriotism and spiritual performance is an important issue // "World Bulletin of Management and Law (WBML)" International Scientific and Practical Journal No. 2 (7) (ISSN 2749-3601) Madrid-2021.*
9. *Ch.R.Khujanov, JBYarbekov, EESabirov. Development of conditions for the implementation of exercises according to the standards of the fire and rescue squad // Fire and explosion safety. – Tashkent, 2023. – No. 1(10). – P. 18-27.*
10. *Ch.R.Khujanov, JBYarbekov, EESabirov. Determination and study of the conditions for conducting exercises according to the standards of fire and rescue ranks in different regions // Fire and explosion safety. – Tashkent, 2023. – No. 1(10). – P. 28-33 (05.00.00; No. 28).*
11. *Ch.R.Khujanov Methodology for determining the conditions for performing exercises according to the standards of fire and rescue squads at night // Fire and explosion safety. – Tashkent, 2023. – No. 1(10). – P. 49-54 (05.00.00; No. 28).*
12. *Ch.R.Khujanov Determination and study of the conditions for performing exercises according to the standards of fire and rescue teams in different weather conditions // Fire and explosion safety. – Tashkent, 2023. – No. 1(10). – P. 49-54 (05.00.00; No. 28).*