Pro Index | Journal of Integrity in Ecosystems and Environment

Volume: 1 Issue: 4 Year: 2023
ISSN: XXXX-XXXX | http://journals.proindex.uz

CRACK RESISTANCE OF ENCENTRALLY COMPRESSED REINFORCED CONCRETE ELEMENTS IN NATURAL CONDITIONS OF THE REPUBLIC OF UZBEKISTAN

Associate Professor **Akhmedov Islombek**

prof. **B. Rizaev**

senior teacher **I Umarov**

teacher **B. Sharopov**

Namangan Engineering and Construction Institute, Islam Karimov Avenue, 12,

Namangan, Uzbekistan, 160103

Abstract:

This article is devoted to the theoretical and experimental study of the crack resistance of eccentrically compressed reinforced concrete elements in dry, hot climates. Methods for conducting experimental research have been developed and the nature of the increase in the deformative properties of heavy concrete under dry, hot climate conditions has been studied. Based on the research conducted, it has been established that in conditions of a dry, hot climate, the deformative properties of concrete change due to the action of temperature and humidity, which must be taken into account in the calculations.

Key words: reliability, operating condition coefficients, moment of crack formation, strength, deformability, crack resistance, solar radiation, shrinkage, cracking, temperature-shrinkage deformation, rigidity, crack opening, eccentric compression, short-term loading.

Introduction. Further development of capital construction in the Republic of Uzbekistan involves increasing the volume of production and use of prefabricated and partially monolithic reinforced concrete. The climatic conditions of the Republic of Uzbekistan are distinctly continental.

In summer, the air temperature can exceed +400 C, while the relative humidity drops to 10-15% and below. In such climatic conditions, from direct exposure to solar radiation, the surface of reinforced concrete and concrete structures heats up to 70-800 C. In this case, significant shrinkage deformations of concrete appear, leading to the formation and opening of cracks on the surface of reinforced concrete and concrete structures.

Fluctuations in temperature and air humidity during the day and season of the year (summer and winter) adversely affect the formation of the structure of concrete. Intensive dehydration of concrete at elevated temperatures and low relative humidity leads to a decrease in its strength and elastic modulus. A large daily temperature difference causes an uneven distribution of temperature stresses across concrete sections. Design and construction of reinforced concrete structures for a dry, hot climate without taking into account deformations, forces caused by changes in elevated temperature and low humidity leads to early formation of cracks in concrete, their excessive opening, as well as large deformations of the structure.

The need to take into account the impact of a dry, hot climate on reinforced concrete structures is noted in the works of many researchers. In the studies of A.F. Milovanova, A.V. Nifontova, E.A. Mazo /1,2/ notes that exposure to elevated temperature causes early formation of cracks and also reduces the rigidity of bending reinforced concrete elements.

Experimental studies have shown that the operation of reinforced concrete structures in dry, hot climates leads to an additional increase in the opening width of normal and inclined cracks. The opening width of cracks in bending reinforced concrete elements in a dry, hot climate turned out to be 1.2 times greater than under normal conditions. Experience in operating ribbed roofing slabs in dry, hot climates shows that structures unprotected from solar radiation have early cracking.

The calculated deflections of the coatings, determined according to the standards, were less than the experimental ones from 20 to 40% /6/.

With an increase in the temperature of the element and a decrease in the humidity of the outside air, the curvature and width of crack opening increases, and the rigidity of reinforced concrete beams decreases /3/.

The purpose of the research: to study compressive and tensile strength, temperature and humidity deformations and establish their influence on the formation and opening of cracks in eccentrically compressed reinforced concrete elements. working in dry, hot climates

Calculation of reinforced concrete elements for the formation of cracks for forces caused by the influence of temperature is recommended when the temperature of the concrete along the height of the element between the cross-section faces differs by more than 300 C in elements of statically indeterminate structures and by more than 500 C in elements of statically determinate structures. Such temperatures are unlikely in dry, hot climates.

Therefore, the calculation of temperature deformations of reinforced concrete elements in dry, hot climates can be carried out as for concrete elements.

Object and subject of research: The object of this scientific research is the strength and deformation characteristics of eccentrically compressed reinforced concrete elements made of heavy concrete under the influence of force factors and the unfavorable influences of dry, hot climate conditions

To study the operation of eccentrically compressed reinforced concrete elements, experimental columns of rectangular cross-section measuring 16*30 cm, which had consoles, were made.

All columns had symmetrical reinforcement of 4 rods with a diameter of 14 mm of class A-III. To measure concrete deformations, pins with a diameter of 6 mm and a length of 50 mm were installed on a base of 250 mm along the height of the elements. The samples were produced in three series. Samples of the first series were exposed to direct solar radiation to determine the temperature change across the cross section of the element. To determine the effect of direct solar radiation, one part of the experimental columns was installed at the test site. Some of the samples of the second series were protected from direct solar radiation. These samples were in workshop conditions. Another part of the samples was exposed to direct solar radiation in the open air

All columns of series 2 were in the workshop and on the test site in an unloaded state for 40-41 days in order to determine the temperature-shrinkage deformations of reinforced concrete columns. The columns were tested at the age of 40 days with a short-term eccentrically compressed force. Series III columns were loaded with a long-term load of 0.8 and 0.5 Np, were exposed to the open air for 1 year, and then were destroyed by a short-term load in order to determine the effect of direct solar radiation on the strength and crack resistance of the columns.

In order to establish the influence of directed solar radiation on the heating of concrete, the columns were positioned so that in some columns the tensile zone, in other columns the compressed zone and the side surface would be exposed to its greatest impact.

The columns were tested with two eccentricities of axial force application to determine how the eccentricity of load application affects the performance of the column in a dry, hot climate. One eccentricity is close to the core eccentricity e= 0.5y and the other eccentricity e= y, where y is the distance from the neutral axis to the most compressed face. During the tests, the appearance and opening of cracks was monitored. The width of the cracks was measured with an MBP-2 microscope.

Results: In unloaded columns exposed to solar radiation for 12 months, no cracks appeared. During short-term loading of these columns, cracks formed at a load of 52.9 - 53.6 kN. This moment of crack formation was less than for columns under constant conditions by an average of 19%.

In columns subjected to long-term loading under a load of N = 0.8 for 12 months under solar radiation and under constant conditions, cracks did not appear. Under short-term loading, the moment of crack formation was 55.6 kN, which is 6% less than for unloaded columns at the age of 12 months. Comparing the moments of crack formation, it can be stated that for columns exposed to solar radiation this figure is 22% less than in columns under constant conditions.

Under the influence of a long-term load of 0.8, the first cracks appeared on the heated surface after 56 days from the start of observation (with the onset of the maximum temperature in July) in the column exposed to solar radiation and after 71 days, cracks appeared in the compressed column exposed to solar radiation edge.

When determining shrinkage stresses in a column, the scale factor is taken into account; in addition, in columns, in addition to shrinkage deformations, tensile stresses arise in concrete due to the difference in the coefficient of thermal expansion of concrete and thermal deformation of concrete

This causes additional tensile deformation of the concrete, which contributes to the early appearance of cracks.

Calculation of a reinforced concrete element for the formation of cracks normal to its longitudinal axis due to the simultaneous influence of load, temperature and shrinkage of concrete in hot climates is carried out according to SNiP 2.03.01-96. effort taken M_{crc} equal

$$N_{crc}^{T_2} \cdot (e_0 - Z) = M_{crc}^{T_2} \leq (R_{bt,ser} \cdot \gamma_{tt} - \sigma_{cs}) \cdot W_{pl} \qquad (1)$$

$R_{bt,ser}$ - tensile strength based on experimental data

W_{pl} - elastic-plastic moment of resistance of a reinforced concrete section along a tensile zone, assuming that there is no longitudinal force.

γ_{tt}- coefficient of concrete tensile operating conditions.

Values $R_{bt,ser}$ and E_b for concrete were taken based on experimental data, taking into account the coefficients γ_tt and βb depending on the storage conditions and hardening of concrete.

References:

1. Abdunazarov, A. S. (2022). AVTOMOBILLAR XARAKATIDAN HOSIL BO ‘LGAN TEBRANISHLARNI KO ‘P JINSLI GRUNTLARDA TARQALISH JARAYONIGA OID TADQIQOTLAR TAHLILI. *Scienceweb academic papers collection*.
2. Abdunazarov, A. (2022). AVTOMOBILLAR HARAKATIDAN HOSIL BO’LADIGAN TEBRANISHLARNI BINOGA TA’SIRINI ANIQLASH VA KAMAYTIRISH

CHORALARINI TAKOMILLASHTIRISH BO'YICHA TAHLILLAR. *Science and innovation*, *1*(A5), 372-375.

3. Abdunazarov, A., & Soliev, N. (2020). STUDY OF THE PERFORMANCE OF FRAMELESS CONSTRUCTION STRUCTURES UNDER THE INFLUENCE OF VERTICAL STRESSES OF ULTRA-SUBMERGED THE LYOSS SOILS. *Студенческий вестник*, *28*(126 часть 3), 39.
4. ANIQLASH VA KAMAYTIRISH CHORALARINI TAKOMILLASHTIRISH. *Science and innovation*, *1*(A5), 380-384.
5. Arifjanov, A., Akmalov, S., Akhmedov, I., & Atakulov, D. (2019, December). Evaluation of deformation procedure in waterbed of rivers. In *IOP Conference Series: Earth and Environmental Science* (Vol. 403, No. 1, p. 012155). IOP Publishing.
6. Ахмедов, И. Г., Ортиқов, И. А., & Умаров, И. И. (2021). Дарё ўзанидаги деформацион жараёнлаарни баҳолашда инновацион технологиялар [Innovative technologies in the assessment of deformation processes in the riverbed]. *Фарғона политехника институти илмий-техника журнали.–Фарғона*, *25*(1), 139-142.
7. Abduraimova, D., Rakhmonov, R., Akhmedov, I., Xoshimov, S., & Eshmatova, B. (2022, June). Efficiency of use of resource-saving technology in reducing irrigation erosion. In *AIP Conference Proceedings* (Vol. 2432, No. 1). AIP Publishing.
8. Арифжанов, А. М., Самиев, Л. Н., Абдураимова, Д. А., & Ахмедов, И. Г. (2013). Ирригационное значение речных наносов. *Актуальные проблемы гуманитарных и естественных наук*, (6), 357-360.
9. Tadjiboyev, S., Qurbonov, X., Akhmedov, I., Voxidova, U., Babajanov, F., Tursunova, E., & Xodjakulova, D. (2022, June). Selection of electric motors power for lifting a flat survey in hydraulic structures. In *AIP Conference Proceedings* (Vol. 2432, No. 1). AIP Publishing.
10. Akhmedov, I., Khamidov, A., Kholmirzayev, S., Umarov, I., Dedakhanov, F., & Hakimov, S. (2022). ASSESSMENT OF THE EFFECT OF SEDIBLES FROM SOKHSOY RIVER TO KOKAND HYDROELECTRIC STATION. *Science and innovation*, *1*(A8), 1086-1092.
11. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Umarov, I., Dedakhanov, F., & Hakimov, S. (2022). USE OF SULFUR CONCRETE IN REINFORCED CONCRETE STRUCTURES. *Science and innovation*, *1*(A8), 985-990.
12. Arifjanov, A. (2021). Innovative technologies in the assessment of accumulation and erosion processes in the channels. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *12*(4), 110-114.
13. Нуриддинов, А. О., Ахмедов, И., & Хамидов, А. И. (2022). АВТОМОБИЛ ЙЎЛЛАРИНИ ҚУРИЛИШИДА ИННОВАЦИЯЛАР. *Academic research in educational sciences*, *3*(TSTU Conference 1), 211-215.
14. Хамидов, А. И., Ахмедов, И. Г., Мухитдинов, М. Б., & Кузибаев, Ш. (2022). Применение теплоизоляционного композиционного гипса для энергоэффективного строительства.
15. Хамидов, А. И., Ахмедов, И., & Кузибаев, Ш. (2020). ТЕПЛОИЗОЛЯЦИОННЫЕ МАТЕРИАЛЫ НА ОСНОВЕ ГИПСА И ОТХОДОВ СЕЛЬСКОГО ХОЗЯЙСТВА.
16. Fathulloev, A. M., Eshev, S. S., Samiev, L. N., Ahmedov, I. G., Jumaboyev, X., & Arifjanov, S. (2019). Boglanmagan gruntlardan tashkil topgan uzanlarda yuvilmaslik tezliklarini aniklash [To the determination of non-effective speed in the beds containing from unconnected soils]. *Journal "Irrigatsiya va melioratsiya". Tashkent*, 27-32.

17. Axmedov, I., Muxitdinov, M., Umarov, I., & Ibragimova, Z. (2020). Assessment of the effect of sedibles from sokhsoy river to kokand hydroelectric power station. *InterConf*.
18. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Хакимов, С., & Умаров, И. (2022). ВЛИЯНИЯ ТЕМПЕРАТУРНО-ВЛАЖНОСТНОГО РЕЖИМА НА ВОДОПОГЛОЩЕНИЕ ЛЕГКИХ БЕТОНОВ НА ПОРЫСТЫХ ЗАПОЛНИТЕЛЯХ. *Journal of new century innovations*, *19*(8), 192-201.
19. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Хакимов, С., & Умаров, И. (2022). ЖАҲОНДА КИЧИК ГЭСЛАРНИ РИВОЖЛАНТИРИШНИНГ ҲОЗИРГИ ЗАМОН АНЪАНАЛАРИ. *Journal of new century innovations*, *19*(8), 110-119.
20. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Умаров, И., & Хакимов, С. (2022). ПЕРСПЕКТИВЫ РАЗВИТИЯ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ В УЗБЕКИСТАНЕ. *Journal of new century innovations*, *19*(6), 60-70.
21. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Умаров, И., & Хакимов, С. (2022). ҚУРУҚ ИССИҚ ИҚЛИМЛИ ШАРОИТЛАРДА ҚУРИЛГАН ВА ФОЙДАЛАНАЁТИЛГАН БЕТОНЛИ ВА ТЕМИР БЕТОН КОНСТРУКЦИЯЛАРНИ ҲОЛАТИ. *Journal of new century innovations*, *19*(7), 180-190.
22. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Умаров, И., & Хакимов, С. (2022). ДЕФОРМАТИВНОСТЬ ЖЕЛЕЗОБЕТОННЫХ КОЛОНН ИЗ ТЯЖЕЛОГО БЕТОНА В УСЛОВИЯХ СУХОГО ЖАРКОГО КЛИМАТА. *Journal of new century innovations*, *19*(6), 171-182.
23. Bakhodir, R., Islombek, A., Adhamjon, K., Sattor, K., Isroiljon, U., & Sodikjon, K. (2022). CALCULATION OF DEFORMATION CHANGES OF CENTRALLY COMPRESSED REINFORCED CONCRETE COLUMNS IN DRY HOT CLIMATIC CONDITIONS. *Journal of new century innovations*, *19*(6), 162-170.
24. Хамидов, А., Ахмедов, И., Холмирзаев, С., Ризаев, Б., Умаров, И., & Хакимов, С. (2022). ИССЛЕДОВАНИЕ СВОЙСТВ БЕТОНОВ НА ОСНОВЕ НЕГОРЮЧИХ ЩЕЛОЧНЫХ ВЯЖУЩИХ КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 123-134.
25. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Умаров, И., & Хакимов, С. (2022). АНАЛИЗ ВЛИЯНИЯ СУХОГО ЖАРКОГО КЛИМАТА НА РАБОТУ ЖЕЛЕЗОБЕТОННЫХ ЭЛЕМЕНТОВ. *Journal of new century innovations*, *19*(6), 39-48.
26. Bahodir, R., Islombek, A., Adhamjon, H., Sattor, K., Isroiljon, U., & Sodiqjon, H. (2022). INFLUENCE OF AGGRESSIVE MEDIA ON THE DURABILITY OF LIGHTWEIGHT CONCRETE. *Journal of new century innovations*, *19*(6), 318-327.
27. Arifjanov, A., Atakulov, D., Akhmedov, I., & Hoshimov, A. (2022, December). Modern technologies in the study of processes in channels. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1112, No. 1, p. 012137). IOP Publishing.
28. Arifjanov, A., Akmalov, S., Akhmedov, I., & Atakulov, D. Evaluation of deformation procedure in waterbed of rivers.(2019) IOP Conference Series: Earth and Environmental Science, 403 (1). *DOI: https://doi. org/10.1088/1755-1315/403/1/012155*.
29. G'ulomjonovich, A. I., Abdurahmonovich, O. I., & Isoqjon o'g'li, U. I. (2021). EFFECTS OF WATER FLOW ON THE EROSION PROCESSES IN THE CHANNEL OF GIS TECHNOLOGY. *Journal of Advanced Scientific Research (ISSN: 0976-9595)*, *1*(1).
30. Eshev, S. S., Fatxullaev, A. M., Samiev, L. N., Axmedov, I. G., Jumaboev, X., & Arifjanov, S. (2019). Determination of leaching rates in unconnected soils. *Irrigation and reclamation, Tashkent*, 27-30.

31. Fatkhulloev, A. M., Samiev, L. N., Axmedov, I. G., & Jumaboev, X. (2019). To the determination of non-effective speed in the beds containing from unconnected soils. *Journal of Irrigation and Melioration, Tashkent*, *1*(15), 27-32.
32. Arifjanov, A. Sh. Akmalov, I. Akhmedov, and D. Atakulov.“. In *Evaluation of deformation procedure in waterbed of rivers.” In IOP Conference Series: Earth and Environmental Science* (Vol. 403, No. 1, p. 012155).
33. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Феруза, Қ., & Умаров, И. (2022). МОДИФИКАЦИЯЛАНГАН СЕРОБЕТОННИНГ ФИЗИК-МЕХАНИК ХОССАЛАРИНИ ТАДҚИҚ ҚИЛИШ. *Journal of new century innovations*, *19*(6), 240-247.
34. Умаров, И. И. Ў., & Атакулов, Д. Э. Ў. (2022). Дарё ўзандаги деформацион жараёнларни баҳолашда инновацион технологиялар. *Механика и технология*, (Спецвыпуск 1), 219-225.
35. Eshev, S. S., Fatxullaev, A. M., Samiev, L. N., Axmedov, I. G., Jumaboev, X., & Arifjanov, S. (2019). Irrigation and reclamation. *Journal.*, *1*(15), 27-30.
36. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Жалолов, З., & Умаров, И. (2022). ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ҲУДУДИДА МОНОЛИТ ТЕМИР БЕТОН КОНСТРУКЦИЯЛАРИНИ ЎРНИ. *Journal of new century innovations*, *19*(6), 265-276.
37. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Фаррух, Д., & Умаров, И. (2022). ҚУРИЛИШ ТАЪЛИМ ЙЎНАЛИШЛАРИ УЧУН КАДРЛАР ТАЙЁРЛАШДА ФАН, ТАЪЛИМ ВА ИШЛАБ ЧИҚАРИШ ИНТЕГРАЦИЯСИНИНГ РОЛИ. *Journal of new century innovations*, *19*(6), 256-264.
38. Ризаев, Б., Аҳмедов, И., Адҳамжон, Ҳ., Холмирзаев, С., Жалолов, З., & Умаров, И. (2022). ЗАМОНАВИЙ ҚУРИЛИШ МАТЕРИАЛЛАРИ ФАНИНИ ЎҚИТИШДАГИ ИЛҒОР ТАЪЛИМ МЕТОДЛАРИ. *Journal of new century innovations*, *19*(7), 135-146.
39. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Жалолов, З., & Умаров, И. (2022). БИНОЛАРНИНГ ТЕМИР БЕТОН КОНСТРУКЦИЯЛАРИНИ ИШОНЧЛИЛИК НАЗАРИЯСИ АСОСИДА ҲИСОБЛАШ. *Journal of new century innovations*, *19*(6), 287-297.
40. Bahodir, R., Islombek, A., Adhamjon, K., Sattor, K., Farrux, D., & Isroiljon, U. (2022). EFFECTIVENESS OF USING ELEMENTS OF NANOTECHNOLOGY IN CONSTRUCTION MATERIALS SCIENCE. *Journal of new century innovations*, *19*(8), 163-172.
41. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Жалолов, З., & Умаров, И. (2022). БИНО ВА ИНШООТЛАР ЗИЛЗИЛАБАРДОШЛИГИНИНГ НАЗАРИЙ АСОСЛАРИ. *Journal of new century innovations*, *19*(8), 120-130.
42. Bahodir, R., Islombek, A., Adhamjon, K., Sattor, K., Feruza, Q., & Isroiljon, U. (2022). NEW INNOVATIVE IDEAS IN THE FIELD OF PRODUCTION OF REINFORCED CONCRETE STRUCTURES. *Journal of new century innovations*, *19*(8), 153-162.
43. Bahodir, R., Islombek, A., Adhamjon, K., Sattor, K., Zayniddin, J., & Isroiljon, U. (2022). INFLUENCE OF THE TEMPERATURE AND HUMIDITY REGIME ON THE WATER ABSORPTION OF LIGHT-WEIGHT CONCRETE ON POROUS AGGREGATES. *Journal of new century innovations*, *19*(8), 143-152.
44. Bahodir, R., Islombek, A., Adhamjon, K., Sattor, K., Zayniddin, J., & Isroiljon, U. (2022). CALCULATION OF ENERGY CHARACTERISTICS OF SOLAR HEATING SYSTEM. *Journal of new century innovations*, *19*(8), 56-65.

45. Ризаев, Б., Ахмедов, И., Холмирзаев, С., Хамидов, А., Кодирова, Ф., & Умаров, И. (2022). ОБЩИЕ СВЕДЕНИЯ О ПРИРОДНОМ КЛИМАТЕ РАЙОНОВ С СУХИМ ЖАРКИМ КЛИМАТОМ. *Journal of new century innovations*, *19*(6), 298-306.
46. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Жалалов, З., & Умаров, И. (2022). РАСЧЕТ НА ВХОДНЫЕ И ФОРМАЛЬНЫЕ ДЕФОРМАЦИИ БЕТОНА В ЕСТЕСТВЕННЫХ УСЛОВИЯХ СУХОГО ЖАРКОГО КЛИМАТА. *Journal of new century innovations*, *19*(6), 183-193.
47. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Фаррух, Д., & Умаров, И. (2022). ОБЩИЕ СВЕДЕНИЯ О ВЕТРЕ И ПЫЛИ В ЖАРКОМ СУХОМ КЛИМАТЕ. *Journal of new century innovations*, *19*(6), 307-317.
48. Ахмедов, И., Ризаев, Б., Адҳамжон, Ҳ., Холмирзаев, С., Феруза, Қ., & Умаров, И. (2022). ТУРАР-ЖОЙ БИНОЛАРИ ҚУРИЛИШИДА МОНОЛИТ ТЕМИР БЕТОНДАН ФОЙДАЛАНИШ САМАРАДОРЛИГИ. *Journal of new century innovations*, *19*(6), 215-223.
49. Ahmedov, I., Bahodir, R., Adhamjon, H., Sattor, K., Feruza, Q., & Isroiljan, U. (2022). DISTRIBUTION OF TEMPERATURE AND HUMIDITY IN CONCRETE OVER THE CROSS SECTION OF COLUMNS IN A DRY HOT CLIMATE. *Journal of new century innovations*, *19*(7), 123-134.
50. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Феруза, Қ., & Умаров, И. (2022). СОВРЕМЕННЫЕ ТРАДИЦИИ РАЗВИТИЯ МАЛОЙ ГИДРОЭНЕРГЕТИКИ В МИРЕ. *Journal of new century innovations*, *19*(8), 90-99.
51. Bahodir, R., Islombek, A., Adhamjon, K., Sattor, K., Zayniddin, J., & Isroiljon, U. (2022). MODERN TRADITIONS OF THE DEVELOPMENT OF SMALL HYDROPOWER IN THE WORLD. *Journal of new century innovations*, *19*(8), 100-109.
52. Bahodir, R., Islombek, A., Adxamjon, X., Sattor, X., Feruza, Q., & Isroiljon, U. (2022). TEMIR-BETON KONSTRUKTSIYALAR ISHLAB CHIQARISH SOHASIDAGI YANGI INNOVATSION G'OYALAR. *Journal of new century innovations*, *19*(7), 158-167.
53. Bahodir, R., Islombek, A., Adhamjon, H., Sattor, K., Isroiljon, U., & Farruh, D. (2022). CONDITION OF CONCRETE AND REINFORCED CONCRETE STRUCTURES BUILT AND USED IN A DRY HOT CLIMATE. *Journal of new century innovations*, *19*(7), 147-157.
54. Холмирзаев, С., Ахмедов, И., Ризаев, Б., Хамидов, А., Кодирова, Ф., & Умаров, И. (2022). ИССЛЕДОВАНИЕ ФИЗИКО-МЕХАНИЧЕСКИХ СВОЙСТВ МОДИФИЦИРОВАННОГО СЕРОБЕТОНА КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 154-161.
55. Хамидов, А., Ахмедов, И., Холмирзаев, С., Ризаев, Б., Умаров, И., & Фаррух, Д. (2022). АНАЛИЗ СПОСОБОВ ПЕРЕРАБОТКИ СЫРЬЯ SERA И ПОЛУЧЕНИЯ СЕРОБЕТОНА КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 93-102.
56. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Феруза, Қ., & Умаров, И. (2022). ИССЛЕДОВАНИЕ ЗОЛОШЛАКОВЫХ СМЕСИ ДЛЯ ПРОИЗВОДСТВА СТРОИТЕЛЬНЫХ МАТЕРИАЛОВ КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 103-112.
57. Хамидов, А., Ахмедов, И., Ризаев, Б., Холмирзаев, С., Жалалов, З., Умаров, И., & Шаропов, Б. (2022). ТЕПЛОИЗОЛЯЦИОННЫЕ МАТЕРИАЛЫ НА ОСНОВЕ ГИПСА И СЕЛЬСКОХОЗЯЙСТВЕННЫХ ОТХОДОВ. КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 135-144.

58. Ахмедов, И., Хамидов, А., Холмирзаев, С., Ризаев, Б., Умаров, И., & Фаррух, Д. (2022). ОЦЕНКА ВЛИЯНИЯ СЕДИБЛЕИ РЕКИ СОХСОЙ НА КОКАНДСКУЮ ГЭС. *Journal of new century innovations*, *19*(6), 145-153.
59. Холмирзаев, С., Ахмедов, И., Хамидов, А., Кодирова, Ф., Умаров, И., & Фаррух, Д. (2022). РАСЧЕТ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ ЗДАНИЙ НА ОСНОВЕ ТЕОРИИ НАДЕЖНОСТИ. *Journal of new century innovations*, *19*(6), 29-38.
60. Хамидов, А., Ахмедов, И., Ризаев, Б., Холмирзаев, С., Жалалов, З., & Умаров, И. (2022). ҚУРУҚ ИССИҚ ИҚЛИМЛИ ҲУДУДЛАРНИНГ ТАБИИЙ ИҚЛИМИ ҲАҚИДА УМУМИЙ МАЪЛУМОТ. *Journal of new century innovations*, *19*(6), 194-203.
61. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Фаррух, Д., & Умаров, И. (2022). БИНОЛАРНИ ИСИТИШДА ҚУЁШ ЭНЕРГИЯСИДАН ФОЙДАЛАНИБ ЭНЕРГИЯ САМАРАДОРЛИКНИ ОШИРИШ ТАДБИРЛАРИ. *Journal of new century innovations*, *19*(8), 78-89.
62. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Фаррух, Д., & Умаров, И. (2022). ҚУЁШЛИ ИСИТИШ ТИЗИМИНИНГ ЭНЕРГЕТИК ХАРАКТЕРИСТИКАЛАРИ ХИСОБИ. *Journal of new century innovations*, *19*(8), 25-36.
63. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Умаров, И., & Фаррух, Д. (2022). ЭФФЕКТИВНОСТЬ ИСПОЛЬЗОВАНИЯ МОНОЛИТНОГО ЖЕЛЕЗОБЕТОНА ПРИ СТРОИТЕЛЬСТВЕ ЖИЛЫЕ ДОМА. *Journal of new century innovations*, *19*(6), 71-80.
64. Bahodir, R., Islombek, A., Sattor, X., Adxamjon, X., Feruza, Q., & Isroiljon, U. (2022). QURILISH MATERIALSHUNOSLIGIDA NANOTEXNOLOGIYA ELEMENTLARIDAN FOYDALANISH SAMARADORLIGI. *Journal of new century innovations*, *19*(7), 168-179.
65. Холмирзаев, С., Ахмедов, И., Хамидов, А., Ризаев, Б., Жалалов, З., & Умаров, И. (2022). ПРИМЕНЕНИЕ МОНОЛИТНЫХ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ НА ТЕРРИТОРИИ РЕСПУБЛИКИ УЗБЕКИСТАН КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 81-92.
66. Холмирзаев, С., Ахмедов, И., Ризаев, Б., Хамидов, А., Фаррух, Д., & Умаров, И. (2022). ПРИМЕНЕНИЕ СЕРОБЕТОНА В ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 3-11.
67. Умаров, И. И. Ў. (2022). Тоғ олди дарёлар ўзанидаги жараёнларни баҳолашда табиий дала тадқиқотлари таҳлили. *Строительство и образование*, (2), 109-113.
68. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Yusupov, S., Umarov, I., & Hakimov, S. (2022). ANALYSIS OF THE EFFECT OF DRY HOT CLIMATE ON THE WORK OF REINFORCED CONCRETE ELEMENTS. *Science and innovation*, *1*(A8), 1033-1039.
69. Akhmedov, I., Khamidov, A., Kholmirzayev, S., Yusupov, S., & Umarov, I. (2022). Improving river sediment distribution calculation in mountain rivers. *Science and innovation*, *1*(A8), 1014-1019.
70. Khamidov, A., Akhmedov, I., Kholmirzayev, S., Jalalov, Z., Yusupov, S., & Umarov, I. (2022). EFFECTIVENESS OF MODERN METHODS OF TESTING BUILDING STRUCTURES. *Science and innovation*, *1*(A8), 1046-1051.
71. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Jalalov, Z., Yusupov, S., & Umarov, I. (2022). THE ROLE OF THE INTEGRATION OF SCIENCE, EDUCATION AND PRODUCTION IN THE TRAINING OF PERSONNEL FOR CONSTRUCTION EDUCATIONAL AREAS. *Science and innovation*, *1*(A8), 1040-1045.

72. Хамидов, А. И., Ахмедов, И., Юсупов, Ш., & Кузибаев, Ш. (2021). Использование теплоизоляционного композиционного гипса в энергоэффективном строительстве.
73. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Юсупов, Ш., & Умаров, И. (2022). СЕРА ХОМ АШЁСИНИ ҚАЙТА ИШЛАШ ВА СЕРОБЕТОН ТАЙЁРЛАШ УСУЛЛАРИНИНГ ТАҲЛИЛИ. *Journal of new century innovations*, *19*(6), 248-255.
74. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Юсупов, Ш., & Умаров, И. (2022). ТЕМИР БЕТОН ЭЛЕМЕНТЛАРНИНГ ДАРЗБАРДОШЛИГИГА МАРКАЗИЙ ОСИЁ ИҚЛИМИНИНГ ТАЪСИРИ. *Journal of new century innovations*, *19*(6), 232-239.
75. Холмирзаев, С., Аҳмедов, И., Адҳамжон, Ҳ., Ризаев, Б., Юсупов, Ш., & Умаров, И. (2022). ТУРАР-ЖОЙ БИНОЛАРИ ҚУРИЛИШИДА МОНОЛИТ ТЕМИР БЕТОНДАН ФОЙДАЛАНИШ САМАРАДОРЛИГИ. *Journal of new century innovations*, *19*(6), 277-286.
76. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Юсупов, Ш., & Умаров, И. (2022). МЕРЫ ПО ПОВЫШЕНИЮ ЭНЕРГОЭФФЕКТИВНОСТИ ИСПОЛЬЗОВАНИЯ СОЛНЕЧНОЙ ЭНЕРГИИ В ОТОПЛЕНИИ ЗДАНИЙ. *Journal of new century innovations*, *19*(8), 66-77.
77. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Юсупов, Ш., & Умаров, И. (2022). ҚУЁШ ЭНЕРГИЯСИДАН ФОЙДАЛАНИБ БИНОЛАРНИ ЭНЕРГИЯ САМАРАДОРЛИГИНИ ОШИРИШ ТАДБИРЛАРИ ХАКИДА. *Journal of new century innovations*, *19*(8), 173-186.
78. Ahmedov, I., Bahodir, R., Adhamjon, H., Sattor, K., Shavkat, Y., & Isroiljan, U. (2022). PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETE UNDER CONDITIONS OF DRY HOT CLIMATE. *Journal of new century innovations*, *19*(8), 131-142.
79. Холмирзаев, С., Ахмедов, И., Ризаев, Б., Юсупов, Ш., Умаров, И., & Фаррух, Д. (2022). РОЛЬ ИНТЕГРАЦИИ НАУКИ, ОБРАЗОВАНИЯ И РАЗВИТИЯ В ПОДГОТОВКЕ КАДРОВ ДЛЯ СТРОИТЕЛЬСТВА. *Journal of new century innovations*, *19*(6), 12-19.
80. Хамидов, А., Ахмедов, И., Холмирзаев, С., Ризаев, Б., Юсупов, Ш., & Умаров, И. (2022). ЭФФЕКТИВНОСТЬ СОВРЕМЕННЫХ МЕТОДОВ ИСПЫТАНИЙ СТРОИТЕЛЬНЫХ КОНСТРУКЦИЙ. *Journal of new century innovations*, *19*(6), 57-59.
81. Холмирзаев, С., Ахмедов, И., Ризаев, Б., Хамидов, А., & Юсупов, Ш. (2022). РОЛЬ ИНТЕГРАЦИИ НАУКИ, ОБРАЗОВАНИЯ И ПРОИЗВОДСТВА В ПОДГОТОВКЕ КАДРОВ ДЛЯ СТРОИТЕЛЬНЫХ ОБРАЗОВАТЕЛЬНЫХ НАПРАВЛЕНИЙ. *Journal of new century innovations*, *19*(6), 49-57.
82. Ахмедов, И., Ризаев, Б., Хамидов, А., Холмирзаев, С., Юсупов, Ш., & Умаров, И. (2022). ПРИМЕНЕНИЕ ТЕПЛОИЗОЛЯЦИОННОГО КОМПОЗИТА ГИПСОВОГО ДЛЯ ЭНЕРГОЭФФЕКТИВНОГО СТРОИТЕЛЬСТВА КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 113-122.
83. Ахмедов, И., Хамидов, А., Холмирзаев, С., Юсупов, Ш., Кодирова, Ф., & Умаров, И. (2022). СОВЕРШЕНСТВОВАНИЕ РАСЧЕТА РАСПРЕДЕЛЕНИЯ НАСАДОВ В ГОРНЫХ РЕКАХ. *Journal of new century innovations*, *19*(6), 20-28.
84. Sattor, X., Islombek, A., Adhamjon, H., Bahodir, R., Shavkat, Y., & Isroiljon, U. (2022). TEMIR-BETON KONSTRUKSIYALARIDA SERABETONDAN FOYDALANISH. *Journal of new century innovations*, *19*(6), 224-231.

85. Ризаев, Б., Ахмедов, И., Хамидов, А., Холмирзаев, С., Юсупов, Ш., & Умаров, И. (2022). РАСЧЕТ ЭНЕРГЕТИЧЕСКИХ ХАРАКТЕРИСТИК СИСТЕМЫ СОЛНЕЧНОГО ОТОПЛЕНИЯ. *Journal of new century innovations*, *19*(8), 45-55.
86. Bahodir, R., Islombek, A., Sattor, X., Adxamjon, X., Feruza, Q., & Isroiljon, U. (2022). QURILISH MATERIALSHUNOSLIGIDA NANOTEXNOLOGIYA ELEMENTLARIDAN FOYDALANISH SAMARADORLIGI. *Journal of new century innovations*, *19*(7), 168-179.
87. Холмирзаев, С., Ахмедов, И., Хамидов, А., Ризаев, Б., Жалалов, З., & Умаров, И. (2022). ПРИМЕНЕНИЕ МОНОЛИТНЫХ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ НА ТЕРРИТОРИИ РЕСПУБЛИКИ УЗБЕКИСТАН КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 81-92.
88. Холмирзаев, С., Ахмедов, И., Ризаев, Б., Хамидов, А., Фаррух, Д., & Умаров, И. (2022). ПРИМЕНЕНИЕ СЕРОБЕТОНА В ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЯХ. *Journal of new century innovations*, *19*(6), 3-11.
89. Умаров, И. И. Ў. (2022). Тоғ олди дарёлар ўзанидаги жараёнларни баҳолашда табиий дала тадқиқотлари таҳлили. *Строительство и образование*, (2), 109-113.
90. I.G‘.Axmedov, & I.I.Umarov. (2023). STUDY OF THE PROPERTIES OF CONCRETE BASED ON ALKALINE BINDERS . *Journal of New Century Innovations*, *43*(1), 51–64.
91. I.G‘.Axmedov, & I.I.Umarov. (2023). THE USE OF SULFUR CONCRETE IN REINFORCED CONCRETE STRUCTURES . *Journal of New Century Innovations*, *43*(1), 65–75.
92. I.G’.Axmedov, I.I.Umarov, & .D. Nuritdinov. (2023). SUPERPLASTIFIKATOR QO’SHILGAN GIPSOBETONNING FIZIK- MEXANIK XOSSALARI . *Journal of New Century Innovations*, *43*(1), 76–86.
93. I.G‘.Axmedov, I.I.Umarov, & J.D. Nuritdinov. (2023). INCREASING THE RESISTANCE OF TEMPERATURE EFFECTS OF SULFUR-BASED CONCRETES . *Journal of New Century Innovations*, *43*(1), 87–96.
94. Мурадов Хамидулла Хабибуллаевич. (2023). МАҲАЛЛИЙ ХОМ-АШЁ ЛОГОН БЕНТОНИТ ГИЛИНИНГ ФИЛЬТРАЦИЯ КОЭФФИЦИЕНТИНИ АНИҚЛАШ . *Journal of New Century Innovations*, *43*(1), 97–106.
95. Мурадов Хамидулла Хабибуллаевич. (2023). ФАРҒОНА ВИЛОЯТИ ЛОГОН БЕНТОНИТ ГИЛИНИНГ ХУСУСИЯТЛАРИ БЎЙИЧА ФОЙДАЛАНИШ САМАРАДОРЛИГИ . *Journal of New Century Innovations*, *43*(1), 107–118.
96. Raxmatillayev Yosunbek Ne’matilla o’g’li. (2023). TURAR JOY BINOLARIDA QO’LLANILADIGAN ISSIQLIK TA’MINOTI TIZMLARINING HOZIRGI KUNDAGI TAHLILI . *Journal of New Century Innovations*, *43*(1), 119–128.
97. Rakhmatilllayev Yosunbek Ne’matilla o’g’li. (2023). ANALYSIS OF GROUNDWATER SOFTENING METHODS . *Journal of New Century Innovations*, *43*(1), 129–139.
98. И.Ғ.Ахмедов, И.И.Умаров, & Ф.А. Дадаханов. (2023). ВЫБОР ЭФФЕКТИВНЫХ МЕТОДОВ И ОБОРУДОВАНИЯ ДЛЯ СУШКИ СЫПУЧИХ СТРОИТЕЛЬНЫХ МАТЕРИАЛОВ . *Journal of New Century Innovations*, *43*(1), 140–152.
99. И.Ғ.Ахмедов, И.И.Умаров, & Ф.А. Дадаханов. (2023). ПРИНЦИПЫ ВЫБОРА ГАЗООЧИСТНОГО ОБОРУДОВАНИЯ . *Journal of New Century Innovations*, *43*(1), 153–165.

100. М.Б.Мухитдинов. (2023). ТЎЛДИРУВЧИЛАРНИНГ КОМПОЗИТ ПОЛИМЕР ҚОПЛАМАЛАРНИНГ ЕЙИЛИШБАРДОШЛИГИ ВА АДГЕЗИОН ХОССАЛАРИГА ТАЪСИРИ . *Journal of New Century Innovations*, *43*(1), 180–191.
101. Б.Х Шаропов, & Ё.Н.Рахматиллаев. (2023). ҚУЁШЛИ ИСИТИШ ТИЗИМИНИНГ ЭНЕРГЕТИК ХАРАКТЕРИСТИКАЛАРИ ХИСОБИ . *Journal of New Century Innovations*, *43*(1), 192–204.
102. Мухитдинов Музаффар Бахтиёрович. (2023). ҚУРИЛИШ МАТЕРИАЛЛАРИ ВА БУЮМЛАРИ ФАНИНИ ЯНГИ ПЕДАГОГИК ТЕХНОЛОГИЯЛАР АСОСИДА ЎҚИТИШ . *Journal of New Century Innovations*, *43*(1), 166–179.
103. Sharopov Begyor Xolmatjon o’g’li, & Raxmatillayev Yosunbek Ne’matilla o’g’li. (2023). ISSIQLIK IZOLYATSIYA MATERIALLARINI FIZIK XOSSALARINI ANIQLASH . *Journal of New Century Innovations*, *43*(1), 205–218.
104. I.G’. .Axmedov, I.I. Umarov, & B.X.Sharopov. (2023). XORIJ VA RESPUBLIKAMIZ BINOLARIDA ENERGIYADAN SAMARALI FOYDALANISH USULLARINING TAHLILI. *Journal of New Century Innovations*, *43*(1), 219–229.
105. А. Хамидов, И. Ахмедов, & Б.Х.Шаропов. (2023). ИССЛЕДОВАНИЯ ЗОЛО-ШЛАКОВЫХ СМЕСЕЙ ДЛЯ ПРОИЗВОДСТВА СТРОИТЕЛЬНЫХ МАТЕРИАЛОВ . *Journal of New Century Innovations*, *43*(1), 230–241.
106. I.G’. .Axmedov, I.I. Umarov, & B.X.Sharopov. (2023). JAMOAT BINOLARINI ISITISHDA QUYOSH ENERGIYASIDAN FOYDALANISHNING SAMARADORLIGI . *Journal of New Century Innovations*, *43*(1), 242–254.
107. Ахмедов И, Умаров И, & Нуритдинов Ж. (2023). ЁҒОЧ МАТЕРИАЛЛАРИНИ ЁНҒИНБАРДОШЛИК ДАРАЖАСИНИ АНТИПИРЕНЛАР ЁРДАМИДА ОШИРИШ . *Journal of New Century Innovations*, *43*(1), 255–268.
108. I.G‘.Ahmedov, & I.I.Umarov. (2023). THE USE OF SLAG MIXTURES FOR THE MANUFACTURE OF BUILDING MATERIALS . *Journal of New Century Innovations*, *43*(1), 269–280.
109. I.G‘.Ahmedov, & I.I.Umarov. (2023). INSULATION COMPOSITE PLASTER FOR ENERGY-SAVING CONSTRUCTION . *Journal of New Century Innovations*, *43*(1), 281–293.
110. Shamsitdinovich, R. B., & Bakhtiyorovich, M. M. (2023). Air Temperature and Humidity in Experimental Testingof Building Materials Used in the Climate of the Republic of Uzbekistan. *Web of Synergy: International Interdisciplinary Research Journal*, *2*(4), 591-598.
111. Ризаев, Б. Ш., & Мухитдинов, М. Б. (2023). ИЗУЧЕНИЕ ВЛИЯНИЯ КЛИМАТИЧЕСКИХ УСЛОВИЙ НАШЕЙ РЕСПУБЛИКИ НА РАБОТУ ЖЕЛЕЗОБЕТОННЫХ ЭЛЕМЕНТОВ. *Scientific Impulse*, *1*(9), 186-195.
112. Хакимов, С. (2022). ТОННЕЛЛАР ҚАЗИШНИНГ САМАРАЛИ УСУЛЛАРИ ВА УЛАРНИ КАМЧИЛИКЛАРИ. *Journal of Advanced Research and Stability*, *2*(9), 219-222.
113. Хакимов, С. (2023). ПОВТОРНОЕ ИСПОЛЬЗОВАНИЕ ВОДЫ В АВТОМОЙКАХ ПУТИ МАРШРУТИЗАЦИИ. *TECНика*, (1 (10)), 1-5.
114. Хакимов, С. (2022). АКТИВ ВА ПАССИВ СЕЙСМИК УСУЛЛАРИ ҲАМДА УЛАРНИНГ АСОСИЙ ВАЗИФАЛАРИ. *Journal of Integrated Education and Research*, *1*(2), 30-36.

115. Khamidov, A. I., & Khakimov, S. (2023). Study of the Properties of Concrete Based on Non-Fired Alkaline Binders. *European Journal of Geography, Regional Planning and Development*, *1*(1), 33-39.

116. Khamidov, A., & Khakimov, S. (2023). MOISTURE LOSS FROM FRESHLY LAID CONCRETE DEPENDING ON THE TEMPERATURE AND HUMIDITY OF THE ENVIRONMENT. *Science and innovation*, *2*(A4), 274-279.

117. Khakimov, S. R. (2023). The Influence of Temperature on the Surrounding Environment and Process Hardening of Concrete. *Excellencia: International Multi-disciplinary Journal of Education (2994-9521)*, *1*(6), 314-321.

118. Ахмедов, И., Умаров, И., & Шаропов, Б. (2023). ПУТИ ИСПОЛЬЗОВАНИЯ СОВРЕМЕННЫХ МЕТОДОВ ПРЕПОДАВАНИЯ СТРОИТЕЛЬНЫХ НАУК СТУДЕНТАМ И СОВЕРШЕНСТВОВАНИЯ ИХ МЫШЛЕНИЯ. *Journal of Research in Innovative Teaching and Inclusive Learning*, *1*(4), 143-153.

119. Мухитдинов, М. Б. (2023). ВЛИЯНИЯ СОДЕРЖАНИЯ РАЗЛИЧНЫХ НАПОЛНИТЕЛЕЙ НА ИЗНОСОСТОЙКОСТЬ КОМПОЗИЦИОННЫХ ПОЛИМЕРНЫХ МАТЕРИАЛОВ. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 40-54.

120. Ризаев, Б. Ш., Ахмедов, И. Ғ., Умаров, И. И., & Абдуназаров, А. (2023). РЕСПУБЛИКАМИЗ ХУДУДИГА ХОС БЎЛГАН ИҚЛИМ ШАРОИТИДАГИ ҲАРОРАТЛИ-НАМЛИК МУҲИТИНИНГ БЕТОННИНГ МУСТАҲКАМЛИК ВА ДЕФОРМАЦИЯ ХОССАЛАРИГА ТАЪСИРИ. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 27-39.

121. Umarov, I. I., & Dadakhanov, F. A. (2023). THE ROLE OF FREE RADICALS IN INITIATING AND CONTROLLING POLYMERIZATION. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 55-66.

122. Uamrov, I. I., Rakhmatillayev, Y. N., & Sharopov, B. X. (2023). PRACTICE-ORIENTED TRAINING OF HIGH QUALIFICATION PERSONNEL IN THE FIELD OF CONSTRUCTION. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 15-26.

123. G'ulomjonovich, A. I., Isoqjon o'g'li, U. I., & Davlatali o'g'li, N. J. (2023). INCREASING THE RESISTANCE OF SULFUR-BASED CONCRETES TO TEMPERATURE EFFECTS. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 67-78.

124. Khakimov, S., & Khamidov, A. (2023). MODERN CONSTRUCTION OF THERMAL MATERIAL STORAGE. *Journal of Sustainability in Integrated Policy and Practice*, *1*(3), 1-5.

125. Rasuljon o'gli, K. S. (2023). Methods Of Professional Training Of Students In The Vocational Education System. *Journal of Innovation in Education and Social Research*, *1*(4), 1-6.

126. Rasuljon o'g'li, K. S., & Zayniddin, J. (2023). Using Local Raw Wool as a Thermal Insulation Material for Wall Construction. *Journal of Integrity in Ecosystems and Environment*, *1*(4), 79-85.

127. Мухитдинов М.Б. РАЗРАБОТКА ОПТИМАЛЬНЫХ СОСТАВОВ КОМПОЗИЦИОННЫХ ПОЛИМЕРНЫХ МАТЕРИАЛОВ ДЛЯ ПОКРЫТИЯ РАБОЧЕЙ ПОВЕРХНОСТИ ФОРМ В ПРОИЗВОДСТВЕЖЕЛЕЗОБЕТОННЫХ ИЗДЕЛИЙ // Universum: технические науки : электрон. научн. журн. 2023. 12(117)