Spectrum Journal of Innovation, Reforms and Development
Volume 10, Dec., 2022 | ISSN (E): 2751-1731
Website: www.sjird.journalspark.org

HOT CLIMATE ON THE PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETE

Rizayev Bakhodir, Islombek Akhmedov, Yusupov Shavkat, Isroiljon Umarov, Aleksandr Kazadayev, Farruh Dedaxanov
Namangan engineering-construction institute, Islom Karimov avenue, 12, Namangan, Uzbekistan, 160103

Annotation:
Compressive and tensile strength. The hardening of concrete in a dry hot climate leads to a change in its strength compared to a similar characteristic obtained for concrete hardening under normal temperature and humidity conditions. These changes are mainly related to the physico-chemical processes occurring in the hardening concrete during which determines the regularity of the manifestation of strength characteristics. The combined variable effect of temperature, solar radiation and low relative humidity leads to a change in strength.

Keywords: cement concrete pavements, Portland cement, strength, quality destruction, reconstruction.

At the same time, the marked changes depend on the age of the concrete. To establish the nature of the change in the strength of concrete over time, the test results of samples hardening in the open air under the influence of solar radiation and protected from solar radiation in the workshop after 7 days of wet storage of concrete in wet sawdust were analyzed. The samples were made in July, when the air temperature was 35 and humidity was 20%.

Table 1 presents the results of experimental studies showing the kinetics of changes in the strength and deformation characteristics of concrete over time under short-term loading..

Comparative analysis of the data given in Table..1 , shows that at the age of 28 days, concrete hardened in the open air under solar radiation detects a shortage of cubic and prismatic strength in the range of 5-10% relative to concrete hardened in the workshop and protected from solar radiation.

The decrease in the values of these indicators is most likely due to destructive processes occurring in concrete during its hardening in natural conditions of a dry hot climate..

At an early age of concrete in a dry hot climate at elevated temperatures, there is a more intensive increase in the strength of concrete than under normal conditions. During the year, the increase in strength during outdoor storage under the influence of solar radiation reached 8%, in the workshop 11% of the strength of concrete in 28 days (Table 1).

At the same time, from the data in the table, it is also possible to notice the absence of a significant increase in the strength of concrete in the most recent periods of hardening in natural conditions of a dry hot climate.

Table .1

Hardening conditions	Age of concrete / day/	R МПа / %	R_b МПа / %	K_{BC}	R_{bt} МПа / %	E МПа / %	$\varepsilon_{bc} \times 10^{-5}$
Under the influence of solar radiation	28	16.6 / 100	14.4 / 100	0.86	1.8 / 100	20400 / 100	125 / 100
	60	17.5 / 106	14.9 / 103	0.85	1.70 / 0.94	20600 / 100.9	128 / 102
	180	17.8 / 106	15.1 / 104	0.84	1.78 / 0.98	21000 / 102	133 / 100
	360	18.0 / 108	15.3 / 106	0.85	1.81 / 100	24600 / 100	136 / 108
In the shadows In the shop t= 25…35℃ w= 65…70℃	28	19.8 / 100	17.5 / 100	0.88	2.03 / 100	24600 / 100	118 / 100
	60	20.9 / 105	18.1 / 105	0.86	2.2 / 108	25200 / 102	120 / 101
	180	21.4 / 108	18.8 / 107	0.87	2.3 / 113	26000 / 105	123 / 104
	360	22.1 / 123	19.0 / 108	0.86	2.5 / 123	26400 / 107	126 / 106

The growth of the prismatic strength of concrete under the influence of solar radiation was less intense than the growth of the prismatic strength of concrete in the workshop and amounted, respectively, to 6% per year. The prismatic strength of concrete during a year in a dry hot climate under the influence of solar radiation increased to a lesser extent than the cubic strength. Of practical interest are the results of determining the prismatic strength coefficient of the Kvs. So, for example, according to SNiP 2.03.01-96, the Kvs value is assumed to be the same for light and heavy concrete and should be at least 0.72.

The obtained data of the prismatic strength coefficients of the Kvs presented in Table 1 indicate some influence of the hardening conditions. A decrease in the average value of the Kvs to 8% was found during concrete hardening under the influence of solar radiation.

As follows from Fig 1 experimental data on the prismatic strength coefficient of samples in natural conditions of dry hot climate do not coincide with the experimental points for concrete under normal conditions.

The tensile strength of concrete exposed to solar radiation is less than the tensile strength of concrete in the workshop. This can be explained by an increase in air temperature and a decrease in its relative humidity. The tensile strength at the age of 28 and 360 days when stored outdoors under the influence of solar radiation, respectively, is 12% and 14% lower than the tensile strength of concrete in the workshop. A significant difference between the tensile strength of concrete hardened in a dry hot climate and under normal conditions is the result of stresses from temperature and humidity gradients leading to stress in concrete. The change in

the strength of concrete in a dry hot climate is the result of the influence of cyclical daily and seasonal changes in temperature and humidity of the environment.

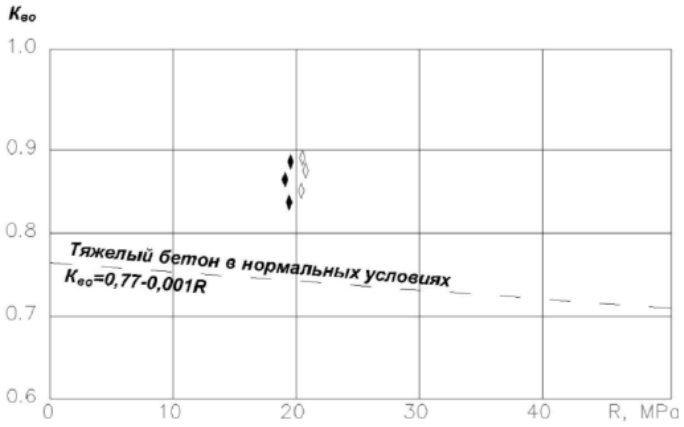

Fig 1. The coefficient of prismatic strength of concrete in a dry hot climate.

◆ --- under solar radiation.

◇ --- in a dry hot climate in the workshop;

If the increase in the strength of concrete over time under normal hardening conditions is of a continuous increasing nature, then this is not observed here due to the influence of the external environment, which gives some features to the physical and chemical processes taking place in the structure of concrete. In a dry, hot climate, in addition to the temperature, low relative humidity of the air acts on concrete. This causes a change in the hygrometric state of the concrete. Under the influence of solar radiation, the strength changes to a greater extent than for concrete protected from direct sunlight.

IMG.2 shows the experimental values of the compressive strength of concrete under the influence of solar radiation /3/ and in the workshop /4/ The regularity of the increase in the strength of heavy concrete under normal conditions according to the logarithmic dependence is immediately shown,

$$R_\tau = R_{2\text{в}} \cdot \frac{lg\tau}{lg2\text{в}} \qquad (1)$$

Where R_τ – is the strength of concrete aged τ .

$R_{2\text{в}}$ – concrete strength at the age of 28 days. τ – age of concrete, day.

The assessment of the increase in the strength of concrete according to formula (1) was derived based on the analysis of extensive experimental material obtained for concretes of various strengths hardening under normal conditions.

The experimental data obtained in the work /73/ in relation to concrete hardening under normal conditions also correspond to the established theoretical regularity of (1).

However, in a dry, hot climate, the compressive strength is less than under normal conditions. The greater the influence of a dry hot climate on concrete, the more the values of concrete strength differ compared to normal storage.

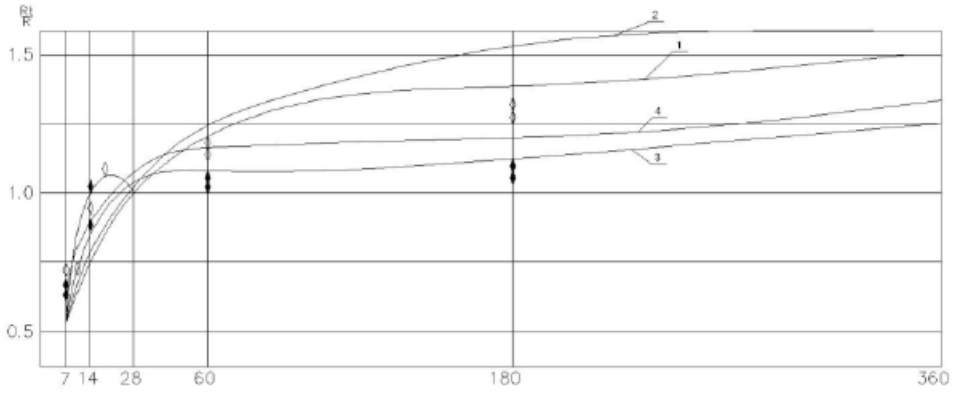

Fig 2. The nature of the change in the strength of concrete over time during hardening under normal conditions and in a dry hot climate.
1 and 2 – logarithmic dependence for concrete with a strength of 20 and 15 MPa under normal conditions;
3- under the influence of solar radiation (dark dots);
4- in a dry, hot climate in the workshop (light points)
The strength of concrete also depends on the time of year of manufacture.
Thus, in natural conditions, the strength of concrete is significantly influenced by the season of its preparation, the degree of completion of the hydration process and the hygrometric state of concrete at the time of application of the load.

REFERENCES

1. Akhmedov, I., Khamidov, A., Shavkat, Y., Jalalov, Z., Umarov, I., & Kazadayev, A. (2022). RESEARCH OF ASH-SLAG MIXTURES FOR PRODUCTION OF CONSTRUCTION MATERIALS. Spectrum Journal of Innovation, Reforms and Development, 10, 85-91.
2. Akhmedov, I., Khamidov, A., Shavkat, Y., Umarov, I., & Kazadayev, A. (2022). DISTRIBUTION OF SEDIMENTS IN THE MOUNTAIN RIVER BED. Spectrum Journal of Innovation, Reforms and Development, 10, 101-106.
3. Khamidov, A., Akhmedov, I., Shavkat, Y., Jalalov, Z., Umarov, I., Xakimov, S., & Aleksandr, K. (2022). APPLICATION OF HEAT-INSULATING COMPOSITE GYPSUM FOR ENERGY-EFFICIENT CONSTRUCTION. Spectrum Journal of Innovation, Reforms and Development, 10, 77-84.
4. 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.

5. 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.
6. Kholmirzayev, S., Akhmedov, I., Yusupov, S., Umarov, I., Akhmedov, A., & Kazadayev, A. (2022). THE ROLE OF INTEGRATION OF SCIENCE, EDUCATION AND DEVELOPMENT IN STAFF PREPARATION FOR CONSTRUCTION. Science and innovation, 1(B8), 2237-2241.
7. 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.
8. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Akhmedov, A., Dedakhanov, F., & Muydinova, N. (2022). CALCULATION OF REINFORCED CONCRETE STRUCTURES OF BUILDINGS BASED ON THE THEORY OF RELIABILITY. Science and innovation, 1(A8), 1027-1032.
9. 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.
10. 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.
11. 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.
12. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Umarov, I., Axmedov, A., & Abdunazarov, A. (2022). PROSPECTS FOR THE DEVELOPMENT OF REINFORCED CONCRETE STRUCTURES IN UZBEKISTAN. Science and innovation, 1(A8), 1052-1057.
13. Xamidov, A., Kholmirzayev, S., Rizayev, B., Umarov, I., Dadaxanov, F., & Muhtoraliyeva, M. (2022). THE EFFECTIVENESS OF THE USE OF MONOLITHIC REINFORCED CONCRETE IN THE CONSTRUCTION OF RESIDENTIAL BUILDINGS. Science and innovation, 1(A8), 991-996.
14. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Jalalov, Z., Yusupov, S., & Akhmedov, A. (2022). THE USE OF MONOLITHIC REINFORCED CONCRETE STRUCTURES ON THE TERRITORY OF THE REPUBLIC OF UZBEKISTAN. Science and innovation, 1(A8), 997-1003.
15. Kholmirzayev, S., Akhmedov, I., Khamidov, A., Umarov, I., Dedakhanov, F., & Kazadayev, A. (2022). ANALYSIS OF METHODS FOR PROCESSING SERA RAW MATERIALS AND MAKING SEROBETON. Science and innovation, 1(A8), 1004-1008.
16. Kholmirzayev, S., Akhmedov, I., Rizayev, B., Akhmedov, A., Dedakhanov, F., & Khakimov, S. (2022). RESEARCH OF THE PHYSICAL AND MECHANICAL

PROPERTIES OF MODIFIED SEROBETON. Science and innovation, 1(A8), 1009-1013.
17. Khamidov, A., Akhmedov, I., Kholmirzayev, S., Qodirova, F., Nomonova, S., & Kazadayev, A. (2022). RESEARCH OF ASH-SLAG MIXTURES FOR THE PRODUCTION OF BUILDING MATERIALS. Science and innovation, 1(A8), 1020-1026.
18. Adhamjon, K., Islombek, A., Sattor, K., Shavkat, Y., Aleksandir, K., & Begyor, S. (2022). APPLICATION OF HEAT-INSULATING COMPOSITE GYPSUM FOR ENERGY EFFICIENT CONSTRUCTIO. Science and Innovation, 1(8), 1058-1064.
19. Khamidov, A., Akhmedov, I., Kholmirzayev, S., Qodirova, F., Nomonova, S., Sharopov, B., & Kazadayev, A. (2022). INVESTIGATION OF THE PROPERTIES OF CONCRETE BASED ON NON-FIRING ALKALINE BINDERS. Science and innovation, 1(A8), 1065-1073.
20. Khamidov, A., Akhmedov, I., Rizayev, B., Kholmirzayev, S., Jalalov, Z., Kazadayev, A., & Sharopov, B. (2022). THERMAL INSULATION MATERIALS BASED ON GYPSUM AND AGRICULTURAL WASTE. Science and innovation, 1(A8), 1074-1080.
21. Khamidov, A., Akhmedov, I., Kholmirzayev, S., Qodirova, F., Nomonova, S., Sharopov, B., & Kazadayev, A. (2022). INVESTIGATION OF THE PROPERTIES OF CONCRETE BASED ON NON-FIRING ALKALINE BINDERS. Science and innovation, 1(A8), 1065-1073.
22. Абдуназаров, А., Хакимов, С., Умаров, И., Мухторалиева, М., Дедаханов, Ф., & Шаропов, Б. (2022). МЕРОПРИЯТИЯ ПО ПОВЫШЕНИЮ ЭНЕРГОЭФФЕКТИВНОСТИ СОВРЕМЕННЫХ И РЕКОНСТРУИРУЕМЫХ ЗДАНИЙ. Journal of new century innovations, 18(1), 130-134.
23. Hakimov, S., Sharopov, B., Umarov, I., Muxtoraliyeva, M., Dadaxanov, F., & Abdunazarov, A. (2022). URILISH MATERIALLARI SANOATIDA INNOVATSION MATERIALLAR ISHLAB CHIQARISHNING ISTIQBOLLI TOMONLARI. Journal of new century innovations, 18(1), 149-156.
24. Sharopov, B., Hakimov, S., Umarov, I., Muxtoraliyeva, M., Dadaxanov, F., & Abdunazarov, A. (2022). QUYOSH ENERGIYASIDAN FOYDALANIB TURAR JOY BINOLARI QURISHNING ISTIQBOLI TOMONLARI. Journal of new century innovations, 18(1), 135-141.
25. Kazadayev, A., Sharopov, B., Hakimov, S., Umarov, I., Muxtoraliyeva, M., Dadaxanov, F., & Abdunazarov, A. (2022). MAMLAKATIMIZDA NEMIS TA'LIM TIZIMINI JORIY QILISHNING SAMARADORLIGI TAHLILI. Journal of new century innovations, 18(1), 124-129.
26. Sodiqjon, K., Begyor, S., Aleksandr, K., Farrukh, D., Mukhtasar, M., & Akbarjon, A. (2022). PROSPECTIVE ASPECTS OF USING SOLAR ENERGY. Journal of new century innovations, 18(1), 142-148.
27. Mukhtasar, M., Begyor, S., Aleksandr, K., Farrukh, D., Isroil, U., Sodiqjon, K., & Akbarjon, A. (2022). ANALYSIS OF THE EFFECTIVENESS OF THE

DEVELOPMENT OF THE GERMAN EDUCATION SYSTEM IN OUR COUNTRY. Journal of new century innovations, 18(1), 168-173.
28. Dadakhanov, F., Sharopov, B., Umarov, I., Mukhtoraliyeva, M., Hakimov, S., Abdunazarov, A., & Kazadayev, A. (2022). PROSPECTS OF INNOVATIVE MATERIALS PRODUCTION IN THE BUILDING MATERIALS INDUSTRY. Journal of new century innovations, 18(1), 162-167.
29. Begyor, S., Isroil, U., Aleksandr, K., Farrukh, D., Mukhtasar, M., Sodiqjon, K., & Akbarjon, A. (2022). MEASURES TO IMPROVE THE ENERGY EFFICIENCY OF MODERN AND RECONSTRUCTED BUILDINGS. Journal of new century innovations, 18(1), 157-161.
30. Fathulloev A.M., Eshev S.S., Samiev L.N., Ahmedov I.G'., Jumaboyev X., Arifjanov S. 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. – 2019. – С. 27-32.
31. Arifjanov A., Akmalov Sh., Akhmedov I., Atakulov D. Evaluation of deformation procedure in waterbed of rivers //IOP Conference Series: Earth and Environmental Science. – IOP Publishing, 2019. – Т. 403. – №. 1. – С. 012155.
32. Arifjanov A., Samiyev L., Akhmedov I., Atakulov D. Innovative Technologies In The Assessment Of Accumulation And Erosion Processes In The Channels //Turkish Journal of Computer and Mathematics Education (TURCOMAT). – 2021. – Т. 12. – №. 4. – Pp. 110-114.
33. 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).
34. Axmedov, I., Muxitdinov, M., Umarov, I., & Ibragimova, Z. (2020). Assessment of the effect of sedibles from sokhsoy river to kokand hydroelectric power station. InterConf.
35. Arifjanov, A. M., & Ibragimova, Z. (2020). Analysis Of Natural Field Research In The Assessment Of Processes In The Foothills. The American Journal of Applied sciences, 2(09), 293-298.
36. Арифжанов А.М., Самиев, Л.Н., Абдураимова, Д.А., Ахмедов, И.Г. Ирригационное значение речных наносов [Irrigation value of river sediments] //Актуальные проблемы гуманитарных и естественных наук. – 2013. – №. 6.
37. Ахмедов И.Ғ., Ортиқов И.А., Умаров И.И. 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. – 2021. – Т.25, №.1. – С. 139-142.
38. Tadjiboyev S., Qurbonov X., Akhmedov I., Voxidova U., Babajanov F., Tursunova E., Xodjakulova D. Selection of Electric Motors Power for Lifting a Flat Survey in Hydraulic Structures // AIP Conference Proceedings 2432, 030114 (2022); https://doi.org/10.1063/5.0089643

39. Abduraimova D., Rakhmonov R., Akhmedov I., Xoshimov S., Eshmatova B. Efficiency of use of resource-saving technology in reducing irrigation erosion // AIP Conference Proceedings 2432, 040001 (2022); https://doi.org/10.1063/5.0089645
40. Холмирзаев С. А., Комилова Н. Х. Влияние сухого жаркого климата на ширину раскрытия трещин внецентренно-сжатых железобетонных элементов //Приволжский научный вестник. – 2015. – №. 4-1 (44).
41. Холмирзаев С. А. Температурные изменения в керамзитобетонных колоннах в условиях сухого жаркого климата //Журнал «Бетон и железобетон. – 2001. – №. 2.
42. Хамидов А. И. и др. Использование теплоизоляционного композиционного гипса в энергоэффективном строительстве. – 2021.
43. Хамидов А. И., Нуманова С. Э., Жураев Д. П. У. Прочность бетона на основе безобжиговых щёлочных вяжущих, твердеющего в условиях сухого и жаркого климата //Символ науки. – 2016. – №. 1-2. – С. 107-109.
44. Нуманова С. Э. Хамидов Адхамжон Иномжонович //ISSN 2410-700X. – С. 107.
45. Хамидов, А. И., Ахмедов, И., & Кузибаев, Ш. (2020). ТЕПЛОИЗОЛЯЦИОННЫЕ МАТЕРИАЛЫ НА ОСНОВЕ ГИПСА И ОТХОДОВ СЕЛЬСКОГО ХОЗЯЙСТВА.
46. Хамидов А. И. Использование теплоизоляционных материалов для крыш в энергоэффективном строительстве //Научно–технический журнал ФерПИ. Спец. – №. 2018.
47. Хамидов А. И., Мухитдинов М. Б., Юсупов Ш. Р. Физико-механические свойства бетона на основе безобжиговых щелочных вяжущих, твердеющих в условиях сухого и жаркого климата. – 2020.
48. Нуриддинов, А. О., Ахмедов, И., & Хамидов, А. И. (2022). АВТОМОБИЛ ЙЎЛЛАРИНИ ҚУРИЛИШИДА ИННОВАЦИЯЛАР. Academic research in educational sciences, 3(TSTU Conference 1), 211-215.
49. Нуманова С.Э. Хамидов Адхамжон Иномжонович //ISSN 2410-700X. – С. 107.
50. Ризаев Б.Ш. Прочность, деформативность и трещиностойкость внецентренно-сжатых железобетонных элементов в условиях сухого жаркого климата. – 1993.
51. Yuvmitov A., Hakimov S. R. Influence of seismic isolation on the stress-strain state of buildings //Acta of Turin Polytechnic University in Tashkent. – 2021. – Т. 11. – №. 1. – С. 71-79.
52. Ювмитов А., Хакимов С. Исследование влияния сейсмоизоляции на динамические характеристики ЗДАНИЯ //Acta of Turin Polytechnic University in Tashkent. – 2020. – Т. 10. – №. 2. – С. 14.
53. Abdunazarov A., Soliev N. tudy of the performance of frameless construction structures under the influence of vertical stresses of ultra-submerged the lyoss soils //Студенческий вестник. – 2020. – Т. 28. – №. 126 часть 3. – С. 39.
54. Хошимов С. Н. У., Казадаев А. М. УСТАНОВКА ДООЧИСТКИ СТОЧНЫХ ВОД ОТ НЕФТЕПРОДУКТОВ //Вестник Науки и Творчества. – 2017. – №. 3 (15). – С. 147-150.
55. Ювмитов А. С., Казадаев А. М. ИССЛЕДОВАНИЕ РАСПРОСТРАНЕННЫХ ОШИБОК, ДОПУСКАЕМЫХ В ПРОЦЕССЕ СТРОИТЕЛСТВА ЗДАНИЙ И

СООРУЖЕНИЙ, МЕРЫ ПО ИХ НЕДОПУЩЕНИЮ И УЛУЧШЕНИЮ КАЧЕСТВА СТРОИТЕЛЬСТВА //Central Asian Research Journal for Interdisciplinary Studies (CARJIS). – 2022. – №. Special issue. – С. 140-145.
56. Казадаев А. М., Обидинова Г.Ш., РОЛЬ МАЛОГО БИЗНЕСА И ЧАСТНОГО ПРЕДПРИНИМАТЕЛЬСТВА В РЕСПУБЛИКЕ УЗБЕКИСТАН // Теория и практика современной науки. – 2017. – №. 5 (23). – С. 1005-1008.
57. Umarov, S. A. (2021). Development of deformations in the reinforcement of beams with composite reinforcement. Asian Journal of Multidimensional Research, 10(9), 511-517.
58. Умаров, Ш. А. (2021). Исследование Деформационного Состояния Композиционных Арматурных Балок. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 1(6), 60-64.
59. Davlyatov, S. M., & Kimsanov, B. I. U. (2021). Prospects For Application Of Non-Metal Composite Valves As Working Without Stress In Compressed Elements. The American Journal of Interdisciplinary Innovations Research, 3(09), 16-23.
60. Умаров, Ш. А., Мирзабабаева, С. М., & Абобакирова, З. А. (2021). Бетон Тўсинларда Шиша Толали Арматураларни Қўллаш Орқали Мустаҳкамлик Ва Бузилиш Ҳолатлари Аниқлаш. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 1(6), 56-5