

**SUMMARIES of the publications (scientific papers) of
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(only publications for participation are included in the data
in the competition for "associate professor")**

A. Dissertation for award in educational and scientific degree "PhD":

1.1. Tsvetkov St., "Antiseismic provision of special reinforced concrete structures", VSU "Lyuben Karavelov" -Sofia, 2018

Abstract: *The studies are the number, parametric. Software products used are: Tower 7, SAP2000 and ANSYS. The cylindrical and the prismatic (with a rectangular cross section) reinforced concrete ground water tanks are analyzed according to various theories and documents for design. Are composed and further developed procedures for seismic analysis of the facilities. Conclusions from the decisions are shown. Analysed are the so-called "basic models" as well as those obtained by shaping. Shown are: proposals for seismic analysis by the procedures, related to the application of Eurocode 8-4 (spectral curves and stability); "quasi-seismic" checks and shell opening checks. In general, for all studied models, can observe maximum values of internal forces in the horizontal direction (tension forces), as well as the heights of hydrodynamic waves. Instructions for determining the load-bearing reinforcements are also given.*

C. Habilitation work - monograph

3.1. Tsvetkov St., (The) reinforced concrete structural shear walls - antiseismic "discs", Sofia, VSU 2020 ISBN: 978-954-331-115-6

Abstract: *This monograph is an end of the study, with scientific and scientifically applied nature, on the problems for designing of monolithic reinforced concrete walls, taking seismic impacts. In this study the author's goal is analysys of the special matters of constructions covered in a wide ranges and their details such as: kinds variety, ways of analysis and construction. In the book with commented horizontal reversive loads - wind and earthquake, and shown are the main differences between them. Briefly are shown some technological operations accompanying the construction of wall structures. A historical overview has been made concerning the stages of development of science and practice. The species diversity of structural elements is shown. Considered are with the help of theoretical information for the design of reinforced concrete walls and mixed structural systems, absorbing seismic impacts, in accordance with modern Design Standards - Eurocodes. Innovations in antiseismic design and construction are shown. The decision for a reinforced concrete washer is commented according to Ordinance № RD-02-20-2 / 2012 for the design of buildings and facilities in earthquake areas. Author's solutions are shown: by further development of some theories (and postulates) and original ones. Also shown are: fragments of: diploma projects developed under the guidance of the author, as well as scientific conference papers. The included solutions with specialized software are an additional segment throughout the book, needed today. Some of the world's most popular antiseismic systems are shown, through which the monolithic structures can be preserved during and after an earthquake. The materials can be used in the course and diploma design by students of VSU "Lyuben Karavelov", by students from other universities, as well as by: doctoral students, architects and civil engineers from practice.*

D. Published monograph, which is not presented as a major habilitation work

5.1. Tsvetkov St., Constructors for civil engineers - prefabricated one-storey buildings of reinforced concrete elements. VSU, S., 2019 ISBN: 978-954-331-103-3

Abstract: *This monograph is an end of analysis with scientific and applied nature for the problems for the design of prefabricated single-storey reinforced concrete buildings. The purpose of the development is in a wide range to cover the special matters of constructions of prefabricated elements, as well as at the theirs: details, connections and joints, such as: high diversity, the ways of analysis and construction. Basic theoretical data for the design of reinforced concrete structures, including the seismic impact, are considered. As elements in the building are commented: wall sandwich panels; roofing steel LT-sheets; prefabricated floor and roof panels (trough-shaped / ribbed, double T-panel and panel hollow); prefabricated roof beams; beams with reduced footing; the rafters of frame structures: full-wall beams and lattice beams (Virendel's beams and trusses), as well as the arches; shell and prismatic roof structures; crane beams; prefabricated columns without / with crane console or tuning forks, Virendel's columns and columns with complex (in plan) cross section; the foundation structures (single prefabricated cup-shaped foundations, foundations with high cups, machine foundations, monolithic strip foundations connecting foundation beams and sanded reinforced concrete floors). In the analyzes of building structures are considered: deformation joints and vertical strengthening links, as well as examples by hand and with specialized software of planar and spatial models. The impacts of: snow, wind, earthquake and crane equipment have been clarified. Innovations in antiseismic design are shown. The decision for frame construction, according to NPSSZR-2012 is commented. A commentary-reflection on the present and the future of elements is shown, in comparison with the recent past. Solutions are shown: by further developing some theories and original ones. Also shown are: fragments of diploma projects developed under the guidance of the author, analyzed projects from the visits and company catalogs with assortments. The materials can be used in the course and diploma design by students of VSU "Lyuben Karavelov", by students from other universities, as well as by: doctoral students, architects and civil engineers from practice. The included solutions with specialized software are an additional segment throughout the book, needed in our time. Ways to restore and strengthen building structures are shown, as well as some of the world's most popular antiseismic systems, through which prefabricated structures can be preserved during and after an earthquake.*

D. Scientific publication in editions that are referenced and indexed in world-famous databases with scientific information:

7.1. Tsvetkov St., Computer modeling of R.C. shear walls - comparative analyzes at different values of the reduction coefficient. Internal forces values, International Conference Computational Civil Engineering Empower the Digital Transition in the Construction World May 27th-29th 2021 (CCE 2021), Iasi, Romania

Abstract: *The report shows a continuation of analyzes of reinforced concrete shear walls solved by horizontal (seismic) forces. In certain places in the walls (in the height) the stiffnesses are reduced, thus comparing the obtained results between the groups of computational models. Solutions for wall and mixed structural systems are shown. The decisions were made with specialized Tower software based on work by the Finite Element Method. Interesting conclusions can be seen for the level between the rigid basement and the first floor. Decreases in bending moments and increases in shear forces are observed.*

*D. Scientific publication in unreferred journals with scientific review or
in edited collective volumes:*

8.1. Tsvetkov St., Determination of the load-bearing reinforcement in the end reinforced zones at reinforced concrete walls, XIII International Scientific Conference VSU'2013 June 6-7, Sofia, 2013, Volume II, pp. II-112-114 (ISSN: 1314-071X), ed. of V. Stoyanov, M. Khamova, D. Partov

***Abstract:** The report presents a block diagram for analysis-verification (of non-centric compression) of reinforced concrete structural walls (shear wall) with rectangular cross section, distinguishing the different groups of reinforcement (for extreme reinforced areas and stem). The presented procedure can be used as a basis for "input" data for design, being applied in project evaluation at a certain stage of the analysis.*

8.2. Tsvetkov St., Reporting the Earth Pressure Impact in Building Design, Scientific Journal "Mechanics, Transport, Communications" (MTC AJ), article № 1093, volume 12, issue 3/3, 2014. (ISSN 1312-3823), ch. ed. P. Kolev

***Abstract:** The report is a kind of analysis of information from existing sources on issues related to the reporting from earth pressure in the design of buildings. Earth pressure can be reported as an load impact or as an elastic basis. From the performed parametric studies (performed using Eurocode 8), generalized conclusions are given about the stress and strain states of reinforced concrete walls, which together with the foundation slab and the slab above the basement, form the so-called "Rigid basement" (closed contour), information about foundation slabs and structural shear walls. Buildings with different: structural systems, number of stories, ductility levels and conditions are calculated.*

8.3. Tsvetkov St., Tateva Sv., Design of reinforced concrete silos according to Eurocodes, VII International Scientific Conference "Architecture, Construction - Modernity" May 28 - 30, 2015 Varna, Bulgaria, pp. 304-313 (ISSN: 2367-7252), ch. . editor P. Pavlov

***Abstract:** The report presents fragments of the static-dynamic analyzes of a reinforced concrete single silo (the so-called "drying" facility – compartment) and a group of silos - "battery". The pressures from: filling, emptying and local loads, from the stored product (wheat), as well as the effects - loads of wind and earthquake, with the accompanying verifications, have been clarified. In the group of silos, possible cases of cell filling have been compiled, in compliance with technological requirements. The maximum values of the internal forces are established.*

8.4. Tsvetkov St., Stefanov D., Design of reinforced concrete water towers in accordance with NPSSZR-2012 (Ordinance) and Eurocodes, VII International Scientific Conference "Architecture, Construction - Modernity" 28 - 30 May 2015 Varna, Bulgaria, pp. 314-322 (ISSN: 2367-7252), ch. editor P. Pavlov

The report presents fragments of the analysis of a water tower, decided under the Ordinance on the design of buildings and facilities of 2012 and the Eurocodes, and a comparison is made. The analyzes were performed with added water masses and hydrodynamic components (impulsive and convective). The following inspections were performed for the structure, after the static-dynamic analyzes: determination of the wave height from sloshing of the liquid on the surface; verification of the effects of the second order; check of general stability (against overturning); verification of wind resonances; determining the stress below the base foundation plate and the subsidence. Determined are extreme water filling conditions to obtain maximum internal forces.

8.5. Hrishev L., Tsvetkov St., Nedelchev N., Calculations for early de-formwork of reinforced concrete slabs according to the requirements of Eurocode 2, VII International Scientific Conference "Architecture, Construction - Modernity" May 28 - 30, 2015 Varna, Bulgaria, p.364 -373 (ISSN: 2367-7252) ch. editor P. Pavlov

Abstract: *De-formwork of reinforced concrete slabs is allowed when the concrete requires the required percentage of the design strength or after eight to ten days. In order to shorten the deadlines for implementation and ensure better employment of the formwork systems, it is possible to proceed to stripping and at an earlier stage. For this purpose, although it is necessary to provide the slab, as corresponding to the calculations should be performed according to the requirements of BDS EN 1992. The report presents calculation procedures for ultimate limit states and serviceability limit states that need to be performed in case of early de-formwork. 3D- model of the building study has been prepared, corresponding to the characteristics of the materials and elements*

8.6. Tsvetkov St., Stoeva P., Parametric study of reinforced concrete water tanks, Scientific description "Mechanics, transport, communications" (MTC AJ), article № 1270, volume 13, issue 2, 2015, (ISSN 1312-3823 - print ISSN 2367-6620 - online), ch. ed. P. Kolev

Abstract: *In the report are presented detailed data from the analysis of reinforced concrete water tanks, with the shapes of a cylinder and a rectangle - in plan. The ones requirements for acceptance of the geometry for the analysis of bodies with shapes and impacts on them, are as close as possible to actual - for the practice and conditions of the country. The values of earth pressure at rest are shown at different soil characteristics of a selected facility (cylindrical and prismatic with a rectangular cross section), with different levels earth in height; hydrodynamic wave heights at different reference accelerations (with variation of soil type and kind of earthquake response spectrum, as well as the direction of seismic impact). For above-ground cylindrical tank and underground tank with a rectangular cross-section, are analyses the moments and horizontal forces (maximal), in accordance with the procedure of Eurocode 8-4.*

8.7. Tsvetkov St., Nikolov K., Analysis of reinforced concrete electric poles, First scientific-applied conference with international participation "Restoration and strengthening of buildings and facilities" / VUSS2015 / November 5-6, 2015, ISSN: 2367-8224, Sofia, pp. 206-211

Abstract: *Subject of the report are the parametric analyzes of the prefabricated (assembly) poles, serving as a supporting structure of electrical conductors. Stages are given for determining the internal forces in reinforced concrete columns with cross section - ring (in accordance with the Eurocodes), for: different types of impacts, different combinations between them and different statical schemes. A methods for their design (for new construction) and prescriptions for their storage during operation are given.*

8.8. Tsvetkov St., Dimitrov D., Design of reinforced concrete cooling towers according to Eurocodes, XVII International Scientific Conference VFU'2017 - June 8-9, Sofia, 2017, Volume II, pp. 143-148 (ISSN: 1314-071X), ed. of V. Stoyanov, D. Partov

Abstract: *The report shows the results of static-dynamic analysis of the facility with shell structural construction - hyperboloid with support colonnade (part of the systems for circulating water supply of industrial enterprises - TPP, by cooling the production of circulating water from turbines), and functionally is clarified the work and a computational model has been compiled. The results of the static-dynamic analysis are shown and accepting reinforcements for individual structural elements of the tower.*

8.9. Mancheva-Velkova B., Tsvetkov St., Design of fruit storage facilities, X Jubilee International Scientific Conference "Design and construction of buildings and facilities" - "Theory and practice for a sustainable future", September 20-22, 2018, Varna, pp. 675-687 (ISSN: 2603-4255), ed. to: Y. Ivanov and V. Stoyanov

Abstract: *In the refrigerators with artificial cold (with maintenance of a certain temperature) the biological properties and the initial qualities of the products, which have a perishable character - fruits and vegetables. The main types of fruit storages are considered and studied: ordinary, cooling with fresh air; refrigerated fruit storages and refrigerated fruit storages with controlled air humidity and gas content. The facilities from Bulgaria are shown, with their possibilities and peculiarities. Within the Research Project at VSU "L. Karavelov" -Sofia, a site was visited and technologies for equipment and architectural and construction part are described.*

8.10. Tsvetkov St., Detailing of reinforced concrete columns with variable cross section, XVIII Jubilee International Scientific Conference on Construction and Architecture VSU'2018, (ISSN: 1314-071X), ed. of A. Handruleva and D. Partov (Article 4-8)

Abstract: *The report the study of transition areas ("connections" - in detail, type "adapter") for columns with variable geometry in height. A way to realize a problem-free connection between the reinforcing bars has been studied. Fragments of seismic analysis of the building (with beamless slabs) are shown. The column has inclined and vertical parts (along the height), and the cross section changes from square to circle, with different geometric dimensions. The analysis is for the horizontal component of the seismic impact in two perpendicular directions. The element has also been analyzed for a vertical component (vertical earthquake), according to Eurocode 8. Reinforcement drawings with details are shown.*

8.11. Tsvetkov St., Constructive study of the building of an Orthodox church, Annual University Scientific Conference, June 27-28, 2019 NVU Vasil Levski ISSN: 2367-7481 (edited by V. Madanski and team), pp. 1767-1776

Abstract: *The report is presents analysis the author for: the choice of structural system and design options in accordance with modern design standards, as well as build. Specialized software is used to prepare a computational model. Object of transmission of a temple building, showing the author's interpretation for seismic analysis of the structure. The results of static-dynamic analysis with certain values are shown. The obtained reinforcements bars in part of the structural elements are commented. Analytical solution of the model shows: results that are "acceptable" for the practice, as there are no large overspend of materials.*

8.12. Mancheva-Velkova B., **Tsvetkov St.**, Furniture enterprises- novelties in design, IX International Scientific Conference on Architecture and Construction ArCivE 2019 May 31 - June 2, 2019, Varna Free University "Chernorizets Hrabar", Varna (ISSN: 2535-0781) - Section I, Report № 1

Abstract: *The paper presents studies of furniture factories. Solutions from an architectural and constructive point of view are analyzed. Showing are usage technology (incl. using materials and machines). A comparison is made between different ways of construction: blocked, pavilion and architectural combination of two main parts of the building, including production and auxiliary premises, as well as complex public services. Commented are features of the design of project developed at VFU "L. Karavelov" and an object visited by a research project. The kinds using the possible constructive systems are summarized.*

8.13. Vlasarev D., **Tsvetkov St.**, Volume-planning and construction solutions of wine cellars on inclined terrains, IX International Scientific Conference on Architecture and Construction ArCivE 2019 31 May - 02 June 2019, Varna Free University "Chernorizets Hrabar", Varna (ISSN: 2535-0781) - section I, report № 6

Abstract: *The report examines the possibilities for functional and planning solutions of wine production buildings - production cellars in mountainous and semi-mountainous regions of Bulgaria. The solutions of the buildings on inclined terrains are also suitable from a technological and structural aspect. This leads not only to economical planning solutions, but also requires optimal possible structural solutions of the interfloor floor constructions and underground levels, as well as of the enclosing constructions. Projects with different structural systems are commented, depending on the architectural and technological solution.*

8.14. Vlasarev D., **Tsvetkov St.**, Multi-storey car parks and garages, IX International Scientific Conference on Architecture and Construction ArCivE 2019 May 31 - June 2, 2019, Varna Free University "Chernorizets Hrabar", Varna (ISSN: 2535-0781) section I, report № 7

Abstract: *The report considered of modern solutions of multi-storey garages in architectural and structural terms. Important information for the design of such facilities is presented, in terms of: constructive and planning schemes for volumetric solution, as well as requirements for the maintenance of installations. Various examples of structures from: prefabricated and monolithic reinforced concrete, steel and combined, with analysis of solutions and conclusions regarding the accepted characteristics are shown. The choice of the final version of a constructive system is a matter of technical-economic and architectural-constructive analysis. Schemes for possible localization of multi-storey car parks and garages in areas with social functions and researched projects are commented.*

8.15. Tsvetkov St., Design of steel arched coatings and realization of the connection "steel-concrete (reinforced concrete)" at the foundations, IX International Scientific Conference on Architecture and Construction ArCivE 2019 May 31 - June 2, 2019, Varna Free University "Chernorizets Hrabar ", Varna (ISSN: 2535-0781) - Section II, Report № 9

Abstract: *For the fast pace of construction and high level of technology, it is assumed more and more often in Bulgaria to design and build steel structures "hangar" type coatings (shell, with zero Gaussian curvature) - self-supporting arcuate with thin walls, stepping on reinforced concrete foundations or walls. The report presents information on the application and implementation of structures made of profiled sheet metal for the halls, used for: warehouses and production buildings, garages and hangars, etc. Advantages are shown, compared to "traditional" constructions filled with solid profiles, as well as are detailing with the stages of execution of foundations (of different sizes), as well as critical considerations regarding the choice of geometric dimensions for individual elements. Several solutions analyzed with software products and dimensional checks for cross sections are shown.*

8.16. Tsvetkov St., Bayraktarov S., Design of reinforced concrete bunkers, XIX International Scientific Conference on Construction and Architecture VSU'2019 October 17-19, 2019, Sofia, (ISSN: 1314-071X), Article 4.10

Abstract: *Shows a bunker structure - warehouse object of production part of the plant, in which is stored bulk product in large quantities. These are relatively low and heavy facilities that has a complex mode of operation. A hopper is considered, which is a 4-cell (2x2) "battery" for storing flour in a bakery. The walls are thick, covered with flat roof, the bottoms are shaped with pyramidal funnels for emptying. The superstructure is supported by a frame stepping on the foundation plate. The interest presents different methods for analysis and combinations of impacts - from different states and stages of loading. The solutions are divided into 3 groups, with data from them. The pressures created from storing products are specific and way of reinforcing the bottom and walls depend on them. The main fragments of static and seismic analyzes are shown, as well as drawings of architectural and structural parts of the project. The purpose of presenting report is to prove the suitability of reinforced concrete facilities for the food industry although construction costs and implementation time.*

8.17. Tsvetkov St., Grozev V., Design of a reinforced concrete lighthouse, XIX International Scientific Conference on Construction and Architecture VSU'2019 17-19 October 2019, Sofia, (ISSN: 1314-071X), article 4.11

Abstract: *Globally, headlighthouses have attractive and sentimental functions, but there are and that actually perform and fulfill their purpose. The report showing fragments of architectural and constructive parts of a lighthouse project located on the coast. The supporting structure consists of a combination of a truncated pyramid and a cylinder with variable geometry in height (truncated hollow cone), as the pyramidal part harden the conical. From the foundation both constructions begin simultaneously, ending the pyramidal part to a certain elevation and only the conical part (the main support for the structure of the headlight itself) remains and continues. The considered facility performs: metrological (in the pyramidal part), recreational (on the roof plate of the pyramidal part) and signal (from the top of the tower) functions. The results of static-dynamic analysis and the acceptance of load-bearing reinforcements are shown.*

8.18. Yanchev G., Tsvetkov St., A Decision Treating the Calculation of Effective (contributing) Widths and Reinforcements in Reinforced Concrete Beams, Annual University Scientific Conference, NVU Vasil Levski Veliko Tarnovo, May 28-29, 2020, ed. St. Evtimov and team, pp. 1759-1769 (electronic edition - ISSN: 2367-7481), report 189

Abstract: *The report examining a comparative analysis between Eurocode 2 - based solutions and the idea of the authors. The simple and continuous beams is calculated with different parameters (holes, distances between the beams and the strengths of concrete). It was found that with large differences in the two approaches, similar values is observed for the reinforcements. The purpose of the shown solutions is to be included the circumstances for existence to the respective real upper reinforcement (constructed in the form of amplifiers above the supports). The areas of the load-bearing reinforcements at different values of: loads, concrete classes and contributing widths are commented, for solutions in accordance with EC 2 and the proposed correction of the authors, at different calculation (effective) openings of the beams.*

8.19. Tsvetkov St., Delcheva M., Modeling and construction of a reinforced concrete water column, Scientific Journal "Mechanics, Transport, Communications" (MTC AJ), article № 1912, volume 18, issue 1, 2020 (ISSN 1312-3823 - print ISSN 2367-6620 - online), ch. ed. P. Kolev

Abstract: *The water column is a vertical cylindrical tank for water storage. The considered facility is performed by reinforced concrete. The construction is wall system. The volume in the facility is divided into: regulating and emergency stocks. In normal operation, only the upper part of the volume (so-called "regulating") is used, which has the height required for the implementation exert the free pressure in the water supply network. At the bottom is stored the so-called. "Emergency stock". In case of emergency operation of the water supply system, the pressure in the installation may be reduced. The interest in this facility is the additional hydrodynamic masses from the seismic action of the fluid. In addition to the impulsive and convective masses are the so-called dynamic (or masses taking into account the flexibility of the structure). Works with "transformed" (equivalent) loads from these masses. The main results for the load-bearing reinforcements and checks are presented through computer analyzes.*

8.20. Tsvetkov St., Nedelchev N., Modeling and construction of a reinforced concrete water tower, Scientific description "Mechanics, transport, communications" (MTC AJ), article № 1913, volume 18, issue 1, 2020 (ISSN 1312-3823 - print; ISSN 2367-6620 - online), ch. ed. P. Kolev

Abstract: *From an architectural point of view, the considered facility has an openwork supporting structure, showing a landscape through / behind it. From a constructive point of view, the lifting of masses in height creates large inertial forces during seismic impact. From the technological point of view of the structure is relatively difficult to implement, given the different structural elements from which it is fulfilled. On the circular foundation slab steps a spatial system of external columns: 8 number on the periphery (inclined in height and reaching the lower support ring of the tank) and 4 internal vertical column (passing through the inside of the cylindrical water tank). Between the four vertical columns on each level, floor areas are constructed, which are connected by beams connecting columns on a given level and beams connecting internal columns (i.e. connections between the individual columns). The water storage tank itself is a hollow cylinder, inside which are 4 columns with constructed lower and upper round capitals. The roof of the tank is a round plate with a supporting upper ring. On the roof plate are realized openings - vent and inspection. The communication service of the water tower is designed with steel stairs. At the level below the tank there is a "Dry pump room". Are considered analysis by specialized software. It is important to note that both the resulting reinforcements bars and the stress and strain checks are satisfied. All this is a prerequisite for a conclusion, that this type of structures are not to be neglected in construction and in the modern aspect can be actually performed functions against for crisis regimes of water in settlements.*

8.21. Tsvetkov St., Yanchev G., Internal forces in reinforced concrete shear walls with different stiffness - part One, XI International Scientific Conference "Design and construction of buildings and facilities" (DCB'2020), September 10-12, 2020, Varna ISSN: 2683-071X - online), pp. 292-300

Abstract: *To realize the idea in the report, are accepted the lengths of the walls (in plan) 3 and 6 m, heights for: 6 and 12 storey buildings. All analyzed models have the same: materials (concrete grade), widths and seismic forces. Used is specialized software for parametric solutions. The values of the internal forces are first compared between the models with a densely cross section at different stiffnesses. The same is done for models with openings (rectangular cross sections in plan, with one column, centrally located openings for doors and windows). Finally, the internal forces between two groups of structural elements are compared. Differences in the values to internal forces for this type of wall can be used for scientific and applied research.*

8.22. Tsvetkov St., Yanchev G., Internal forces in reinforced concrete shear walls with different stiffness - part Two, XI International Scientific Conference "Design and construction of buildings and facilities" (DCB'2020), September 10-12, 2020, Varna (ISSN: 2683-071X - online), pp. 301-311

Abstract: *To realize the idea in the report, are accepted the lengths of the walls (in plan) 3 and 6 m, heights for: 6 and 12 storey buildings. All analyzed models have the same: materials (concrete grade), widths and seismic forces. Used is specialized software for parametric solutions. Compared are internal forces for modeling of shear walls with central openings for doors and windows (regular, in one column) and asymmetric (regular, in one column). The values of the shear forces in the connecting beams is shown. Differences in the values to internal forces for this type of wall can be used for scientific and applied research.*

8.23. Tsvetkov St., Hydrotechnical facility - reinforced concrete bio-basin. Peculiarities in analysis and construction, XX International Scientific Conference on Construction and Architecture VSU'2020 October 15-17, 2020, Sofia, (ISSN: 1314-071X), Report 4-17, pp. 323-329

Abstract: *The paper presents an overview with an analysis of the functional purpose of the hydrotechnic facility, through a technological scheme of work. The bio-pool is a rectangular tank with a flat bottom and internal corridors. The emphasis is on static-dynamic analysis with hydrodynamic components (and basic combinations of loads) and determination of load-bearing reinforcements for the structural elements. The solutions include seismic analysis performed with specialized software for obtaining the internal forces.*

8.24. Tsvetkov St., Hydrotechnical facility - reinforced concrete radial precipitator. Peculiarities in analysis and construction., XX International Scientific Conference on Construction and Architecture VSU'2020 October 15-17, 2020, Sofia, (ISSN: 1314-071X), report 4-18, pp. 331-337

Abstract: *The paper presents an overview with an analysis of the functional purpose of the hydrotechnic facility, through technological sequence of processes when working. The radial precipitator is a cylindrical tank with a conical bottom. The emphasis is on static-dynamic analysis with hydrodynamic components (and basic combinations of loads) and determination of load-bearing reinforcements for the structural elements. The solutions include seismic analysis performed with specialized software for obtaining the internal forces.*