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VOLUMETRIC-PLANNING DECISION OF BUILDINGS OF SPIRITUAL EDUCATIONAL COMPLEXES

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In the modern world, the issue of finding mechanisms for interaction between different religions, increasing the level of tolerance and tolerance towards representatives of other cultures is becoming increasingly relevant and necessary. In this regard, the issue of forming modern spiritual educational complexes is extremely relevant. The purpose of this study is to develop recommendations regarding the design of spiritual and educational complexes for representatives of various religions of the world. As a result of the study, scientific principles for designing a spiritual and educational complex for representatives of various religions to obtain various levels of education were formulated: from primary to higher spiritual education. The use of developed and proposed scientific principles for the design of modern spiritual complexes will contribute to the formation of a modern Spiritual Educational Complexes.

Keywords: Multiculturalism, Polyreligious Space, Tolerance, Spiritual Educational Complex, Spiritual Educational Institution.

1. Introduction. A significant number of conflicts in the world occur due to a clash of various interests: religious, territorial, economic, etc. In this context, we can recall the capture of Byzantium by the Ottoman Turks (by Mehmed II) in 1453 and the transformation of the main Christian shrine - the Church of Hagia Sophia - into a mosque; the capture in 1480 by the Ottoman Empire (Suleiman the Magnificent) of the territory part of modern Greece (the Rhodes island) that prompted part of the Christian population to leave the island; The Hotin War of 1620-1621 of the Ottoman Empire against the Polish-Lithuanian Commonwealth, etc. Also, a large number of conflicts broke out in the XX century: the Palestinian-Israeli conflict, which began in 1948 and continues today; the invasion to Tibet by Chinese troops in 1949; the conflict between India and Pakistan; conflict in the 1990s in the Balkans; multiple armed conflicts between colonies and colonialists: the Algerian war in the 1950s for the independence of Algeria from France; Indochina War against the French colonial administration in 1945-1954; the national liberation movement in India, which began in the 1920s with a massive campaign against the British colonial government, etc.

Considering the presence of a significant number of conflicts, acts of vandalism on the basis of religious intolerance, the issue of finding mechanisms for the civilized interaction between different cultures and religions in the modern world becomes extremely urgent. This goal of the study coincides with the goal of the United Nations - to save future generations from the scourge of international conflicts and wars. The training and education of tolerant and highly educated spiritual leaders in a polyreligious and multicultural environment can contribute to reducing the number of interreligious and interethnic conflicts because most conflicts arise precisely because of intolerance in society. An institution that trains such leaders can be a spiritual educational complex since when representatives of different religions study together (in one complex) this contributes to tolerant perception of representatives of other religions and cultures. It is necessary to form these complexes as educational campuses of permanent year-round stay. Such a system of education and upbringing, which has deep historical roots (universities in Oxford, Cambridge, Sorbonne, etc.), will make it possible to form and train highly educated, tolerant, comprehensively developed individuals, which, in addition to the educational system, should also be facilitated by the general environment and atmosphere in the institution. That is why the search for scientific and methodological foundations for the formation of multicultural, polyreligious spiritual educational complexes and the corresponding harmonious environment is a rather urgent issue today.

The subject of the research is the fundamentals of the architectural and planning organization of polyreligious spiritual educational complexes. The objective of the study is to develop principles; architectural, typological and conceptual foundations for the formation of these complexes, as well as

recommendations regarding their design, taking into account national, religious, and confessional characteristics.

The scientific hypothesis of the study is that these days, under conditions of permanent outbreaks of conflicts for various reasons, it becomes necessary to form new progressive, universal types of polyreligious spiritual educational institutions - enlarged complexes with an appropriate environment for the training and development of representatives of different religions. The implementation of the idea of building polyreligious multicultural complexes will contribute to the formation of a tolerant society, which is the basis for maintaining peace and security.

The basis for the hypothesis put forward can be the historical experience of the construction and general use of religious buildings by representatives of different religions and confessions in different countries of the world. Jerusalem (Israel) is a common shrine for three religions: Christian, Jewish, and Muslim. It is called the city of the world, the city of three religions, as well as the city of combining various monuments of history, traditions, and cultures, where churches, synagogues, and mosques are located together. Historical examples of the places of worship for different religions and confessions

built close to each other can also be found in other countries. Thus, The Saint Petersburg Mosque (Russia) was erected in the very center of the city, not far from the Peter and Paul Fortress and the Orthodox Peter and Paul Cathedral. The synagogue in St. Petersburg is located near the Orthodox St. Nicholas Cathedral. Kyiv (Ukraine) also has examples of good neighborly relations between different religions. So, on Lukyanovskaya Street, near the Christian church, there is a mosque of the Religious Administration of Muslims of Ukraine.

Striking examples of national and religious tolerance can also be the Palace of Peace and Reconciliation in Astana (Kazakhstan) (see Fig.1); Lotus Temple in New Delhi (India) (see Fig. 2); Church of the Holy Sepulchre in Jerusalem (Israel) in which each confession has its own hours of prayer (see Fig. 3).

Scientists and architects from different countries of the world, such as the USA, Israel, Great Britain, France, India, Russia, Kazakhstan, Ukraine, are engaged in the issues of multiculturalism in architecture and culture. Much attention has also been paid to the study of this issue in Ukraine recently. The need to combine the efforts of architects, culturologists, theologians in solving the issue of reducing religious and interethnic conflicts with the help of architecture, art, culture is recognized.

Literature Review. The scientific and methodological basis for this study was scientific works: on philosophy – by G.V. Hegel [4], H.G. Gadamer [3]; on art and culture – by J.W. Goethe [5], W.W. Kandinsky [9]; on history and theory of architecture – by M.P. Vitruvius [29].

The study is directly based on scientific works of researchers devoted to the problems of the formation of educational institutions – Sybille Kramer [27, 28], Alan Ford [22], Lisa Gelfand, Eric Corey Freed [23]; P.A. Solobay [13]; the study of the architecture of theological educational institutions – O.I. Zhovkva [7], T.F. Zhukova [8], V.I. Proskuryakov, and R.Z. Stotsko [14]; problems of the sacred architecture development of various religions (Christian, Muslim, Jewish) – Chiat M.J. [20];



Fig. 1. Palace of Peace and Reconciliation, Astana, Kazakhstan, architect Norman Foster, 2006



Fig. 2. The Lotus Temple of all religions, New Delhi, India, architect Fariborz Sahba, 1978-1986

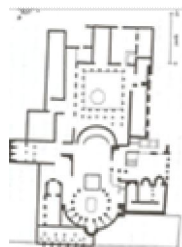
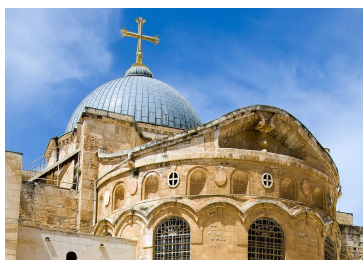


Fig. 3. The Church of the Holy Sepulchre in Jerusalem, Israel

Carey M. [18]; Heathcote E., Spens I. [24]; Kennedy Roger G. [25]; O.G. Boyko [1], K. R. Voznyak [2], E.O. Kotlyar [10], O.S. Sleptsov [12], O.V. Mere [11], N.Kh. Khalitov [16], G.V. Shevtsova [15] et al.

Up to this day, a number of works have been published on the issues of determining modern trends in the design of educational institutions of various levels, which can become the basis for the design of educational blocks of polyreligious spiritual educational complexes. So, Sibylle Kramer in books “Building to Educate: School Architecture & Design” and “Colleges & Universities - Educational Spaces” made an attempt to define trends and concepts in the architecture of modern educational buildings. Thus, attention is focused on the use of flexible and multifunctional premises, the organization of zones for individual work and communication, multimedia zones [27, 28]. In the book “Designing Schools: Space, Place and Pedagogy” edited by Kate Darian-Smith, Julie Willis current trends in the architecture of educational institutions are defined, taking into account innovations in the educational system and new digital technologies [21].

Doctoral research of P.A. Solobay “Typological foundations of higher educational complexes architecture formation”, which highlights the methodological and scientific principles of the formation of the architectural environment in higher educational institutions is of unconditional interest. The author also analyzes the problems of higher education, summarizes the significant experience in the design and reconstruction of educational institutions; the principles of formation of the functional structure of educational institutions are considered; the scientific principles of the formation of these objects are determined [13].

Also, a number of studies have been carried out recently on the issues of environmental friendliness of educational institutions. Alan Ford in his book “Designing the Sustainable School” considers the construction of modern ecological educational institutions (schools) of the XXI century, taking into account the minimization of their negative impact on the environment. The author outlines the ways to overcome the established stereotypes in the design of educational institutions and demonstrates the ways of introducing innovations that contribute to the improvement of architectural solutions of educational institutions [22]. The book by Lisa Gelfand, Eric Corey Freed called “Sustainable School Architecture: Design for Elementary and Secondary Schools” consists of research conducted by the authors on the design of educational institutions of the future [23].

However, it is worth mentioning that today in the world there is a lack of research devoted to the prospects for the formation of the architecture of theological educational institutions for various religions. In some of them, for example, in the monograph by R.Z. Stotsko and V.I. Proskuryakov “Architecture of theological educational institutions of the Ukrainian Greek Catholic Church”, the architectural and typological principles of the formation of the Greek Catholic Church religious educational institutions in Ukraine are considered. The authors systematized the experience of designing, building religious educational institutions of this denomination in Ukraine and Europe in the period from the X-XI century and until the beginning of the XXI century. The main types of spiritual educational institutions were identified, methodological recommendations regarding the design were developed [14]. In the monograph of O. Zhovkva “Architecture of Orthodox Spiritual Educational Institutions of Ukraine”, a comprehensive analysis of the architectural features of Orthodox religious educational institutions is carried out, the experience of design and construction of these objects is summarized. Also, functional planning schemes of Orthodox spiritual educational institutions of various types are proposed, features of the formation of a composition related to spatial planning and architectural solutions for modern Orthodox spiritual educational institutions are considered [7].

T.F. Zhukova in the study “Madrasah of Central Asia. Genesis, evolution, modern use” developed a typological characteristic of madrasahs buildings (Muslim spiritual educational institutions) in Central Asia, as well as defined the features of their architecture and functioning in modern conditions [8].

In Moya Carey’s book “The Illustrated History of Islamic Architecture” the most outstanding monuments of Islamic architecture of Muslim countries, as well as countries that fell under Muslim rule (Spain, India, North Africa), are considered. An architectural analysis of the main types of buildings: mosques, qibla, madrasah, caravanserais, etc. is carried out. The interpretation of the semantic and functional load of individual elements of public and religious Muslim buildings is given [18].

In N.Kh. Khalitov's dissertation "Muslim religious architecture of the Volga-Kama region from the IX to the beginning of the XX century" an attempt was made to reveal the features of the cult Islamic architecture on this territory, to determine the architectural and artistic patterns of its formation [21]. This information can be used in the design of the sacred core (mosque), as an integral part (sacred core) of a polyreligious spiritual educational complex [16].

The studies of O.G. Boyko and E.O. Kotlyar can become the basis in studying the issue of the regularities of constructing the architectural-spatial composition of the synagogue as a component of the polyreligious spiritual educational complex. In the dissertation of O.G. Boyko "Architecture of stone synagogues of the Right-Bank Ukraine of the XVI – XX centuries" based on the analysis of 370 preserved and lost synagogues, the principles and patterns of the formation of their town-planning, planning-spatial, constructive, volume-compositional, figurative and stylistic features in the context of European and local traditions were revealed [1]. The dissertation of E.O. Kotlyar "Synagogues of Ukraine in the second half of the XVI – the beginning of the XX century as a historical and cultural phenomenon" is devoted to the study of the historical and genetic problems of the structure and significance of Jewish sacral buildings, the study of the historical and typological features of Ukrainian synagogues, their classification. Also, E.O. Kotlyar identified the patterns of symbolism and stylistics of synagogues [10].

The book written by Edwin Heathcote, Iona Spens "Church Builders of the Twentieth Century" addresses the issues of change in sacred architecture and theology of the XX century and presents a wide range of modern places of worship. The authors analyze the main periods of architectural development dating from the late 1950s to the present day and illustrate them with projects of world-famous architects (Auguste Perret, Rudolph Schwartz, Otto Bartning, Antoni Gaudí, Frank Lloyd Wright, Le Corbusier, Tadao Ando, Philip Johnson, Mario Botta). Much attention is paid to the issue of tolerance and pluralism in the church architecture of the third millennium [24].

Also, there are a number of studies devoted to the analysis of the features of Christian religious buildings and complexes. Thus, Roger G. Kennedy in his book "Mission: The History and Architecture of the Missions of North America" analyzes the architectural features of missionary buildings in North America, which can be considered the result of a fusion of European and American cultural traditions [30]. In the book "Marilyn J. Chiat America's Religious Architecture: Sacred Places for Every Community" the sacred architecture of the USA for representatives of different religions is considered. The author provides an analysis and historical overview of religious architecture, which is a vivid illustration of the ethnic and religious diversity of America [20].

The research of L. Ya. Chen "Architecture of monasteries of the Order of St. Basil the Great in Ukraine and their place in the development of Ukrainian architecture of the XVII – XX centuries" is devoted to determining the patterns of the architecture of Catholic churches [17], as well as O.V. Merie's dissertation "The architecture of wooden Roman Catholic churches in Galicia in the second half of the XVII - first half of the XX century" [11].

In dissertation research of K. R. Voznyak "Architecture of the modern parish church: the example of St. Petersburg" [4] and G.V. Shevtsova "Genesis of the Ukrainian wooden church (origins, principles of architectural formation, world context)" [19] the functional features of an Orthodox church, Orthodox symbolism are considered, and an analysis of the basic architectural characteristics in the context of the development of world sacred architecture is conducted.

The above works can be the basis for the design of sacred and educational campuses of polyreligious spiritual educational complexes, however, complex studies devoted to identifying the features of the architecture of modern religious educational institutions for representatives of various religions are currently insufficient. The issues of developing conceptual and architectural-typological foundations for their design, taking into account religious and confessional characteristics, remain poorly studied.

2. Objectives. The relevance of the research topic for Ukraine is evidenced by the Law of Ukraine "On Amending Certain Laws of Ukraine Concerning the Establishment of Educational Institutions by Religious Organizations" adopted by the Supreme Council in 2016, according to which official religious organizations are allowed to establish higher, vocational, of general education, preschool, and extracurricular institutions. Granting the right to religious organizations, on equal terms with state executive bodies, to create secular educational institutions of various forms and levels of accreditation

and to be their owners is an important positive decision that will provide an opportunity for everyone to get an education in an appropriate religious environment.

The issue of creating a comfortable multicultural environment for learning and spiritual development has not yet been sufficiently covered in domestic and foreign science. That is why the search for scientific and methodological foundations for the formation of polyreligious spiritual educational complexes with a multicultural environment is very relevant and requires the solution of a number of problems (including methods of forming a polyreligious, multicultural, and multinational tolerant environment, achieving cultural unity, etc.). All this determines the relevance of this study for Ukraine and other countries of the world, where representatives of different religions and cultures live on the same territory.

3. Materials and Methods. The object of the research is multicultural, polyreligious spiritual educational complexes. In the course of the study, theoretical and empirical methods were used. The results of a questionnaire survey conducted among representatives of theological educational institutions and the clergy regarding the prospects of spiritual education were assessed empirically. With the help of theoretical methods (architectural and typological methods), comparative and functional analyses were carried out. Morphological and parametric analyses were also used. Conceptual foundations for the formation of the architectural environment of polyreligious spiritual educational complexes were determined on the basis of special methods - environmental and graphic-analytical ones. The use of the environmental approach method made it possible to determine a scientific hypothesis: modern religious educational institutions should be formed as enlarged complexes (towns) with an appropriate environment, which are characterized by a “flexible” planning structure with provision for the possibility of further transformation. The use of these methods made it possible to comprehensively approach the issue of the formation of modern spiritual educational complexes’ architecture.

More than 30 objects of theological educational institutions have been studied and analyzed using the method of field examination: The Patriarchal Cathedral and the residence of the Patriarch with auxiliary premises in Kyiv (see Fig. 4); Kyiv Theological Seminary (Ukraine) (see Fig. 5); The Kyiv House of Prayer and Islamic University (see Fig. 6); Theological Institute (yeshiva) in Kyiv (see Fig. 7); Zhovkva Synagogue (Ukraine); Selimiye Mosque and school (mekteb) in Istanbul; Suleymaniye Mosque, madrasah and school in Istanbul (see Fig. 8); St. Andrew's Church in Houston, USA (see Fig. 9), etc. An analysis of the network of religious educational institutions in Ukraine and other countries, an overview of the current state of design and operation of institutions, as well as the results of a questionnaire survey of their employees and representatives, the clergy indicate that today there is a demand for the improvement of functioning facilities and the search for new, modern and rational architectural and planning solutions. More than 20 sacred structures of various religions and confessions were also studied using the method of field survey: The Church of All Nations (see Fig. 10), The Church of the Holy Sepulchre in Jerusalem (Israel) (see Fig. 3); The Lotus Temple of all religions in New Delhi (India) (see Fig. 2); Bektashi temple in Vlore (Albania) (see Fig. 11); Hagia Sophia (see Fig. 12), Pammakaristos Church (see Fig. 13), Chora Church in Istanbul (Turkey) (see Fig. 14).

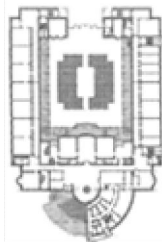


Fig. 4. The Patriarchal Cathedral and the residence of the Patriarch with auxiliary premises, Kyiv

Fig. 5. Theological Seminary, Kyiv

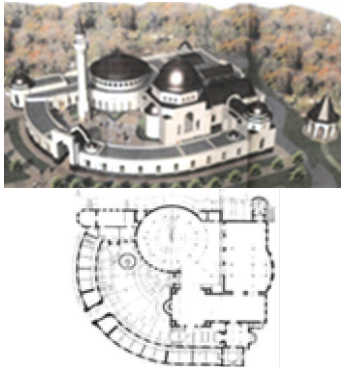


Fig. 6. House of Prayer and Islamic University, Kyiv



Fig. 7. Theological Institute (yeshiva), Kyiv



Fig. 8. Suleymaniye Mosque, madrasah and school, Istanbul



Fig. 9. St. Andrew's Church, USA, Houston



Fig. 10. The Church of All Nations, Jerusalem, Israel, architect Antonio Barluzzi, 1922-1924



Fig. 11. Bektashi temple in Vlore (Albania)

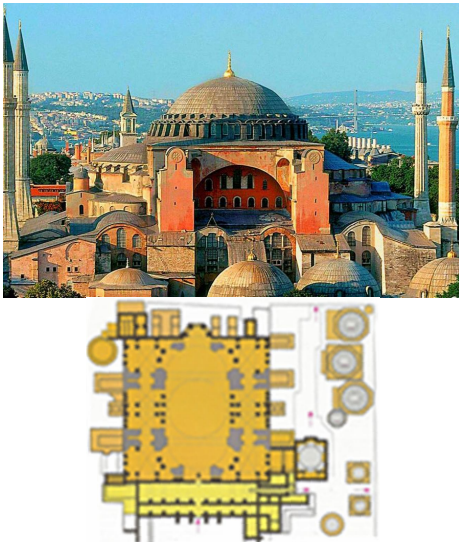


Fig. 12. Hagia Sophia, Istanbul, Turkey

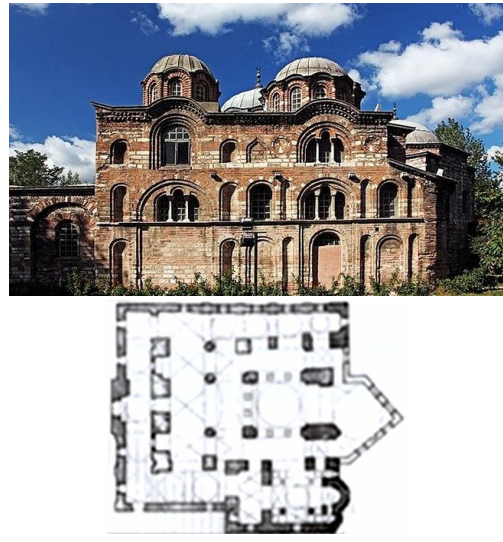


Fig. 13. Pammakaristos Church, Istanbul, Turkey

An example of the use of a Christian church as a mosque can be the Hagia Sophia in Istanbul (formerly Constantinople, Byzantine Empire) (see Fig. 12). In the XV century under the attack of the Ottoman Turks, Byzantium fell and the Hagia Sophia temple in 1453 was converted into a mosque by adding minarets, removing the iconostasis, etc.

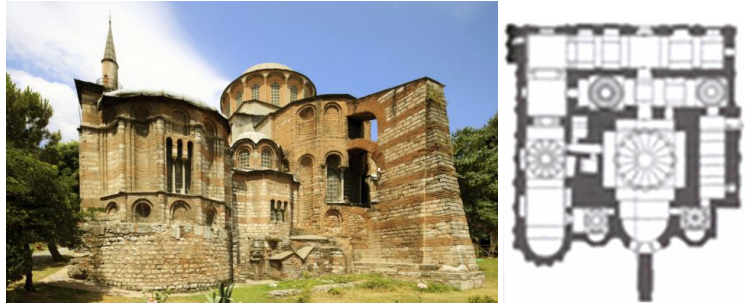


Fig. 14. Chora Church, Istanbul, Turkey

Pammakaristos Church in Istanbul (see Fig. 13), built in the XII century, in 1592 it was also transformed by Sultan Murad III into the mosque “Fethiye Camii” (Victory Mosque). Chora Church in Istanbul (see Fig. 14), built in 1077-1081, after the capture of the city by the Turks, in 1500 it was adapted as a mosque, etc.

The Church of the Holy Sepulchre in Jerusalem (Israel) (see Fig. 3) today can be an example of the joint use of a religious building by various Christian denominations. The Church of All Nations, Jerusalem (Israel) (see Fig. 10) was built in 1924 with financial support from 12 Catholic countries of the world. The church belongs to Catholics, but other Christian denominations can also conduct their services here.

In the Lotus Temple of all religions in New Delhi, India (see Fig. 2), which was built in 1986, representatives of all religions of the world can pray. The temple has a nine-sided plan and is a 40-meter hall for 2500 people. Chicago Bahá'í Temple, USA (see Fig. 15), built in 1953, is a domed building with a prayer hall 42 meters high and symbols of all world religions. Representatives of various religions and confessions can also conduct services there.



Fig. 15. Bahá'í House of Worship, Chicago, USA, architect Jean-Baptiste Louis Bourgeois



Fig. 16. General layout of the Polyreligious spiritual educational complex for the city of Kyiv (Ukraine)

An example of religious tolerance can be the Palace of Peace and Reconciliation in Astana, Kazakhstan (see Fig. 1), which is a pyramidal building with a hall for 1300 seats. This object is not a religious building, but rather a symbol of religious tolerance, which is so necessary in the modern world.

As a result of the field survey, it was concluded that it is possible to share the sacred structure by representatives of different religions and confessions, and therefore it was concluded that it is possible to organize joint training of representatives of different religions in a single spiritual educational complex, which will contribute to the tuition of tolerance among students.

The adaptation of religious buildings for the needs of representatives of different religions and confessions can be partially explained by the similarity of their functional planning structure. So, a Christian temple is formed by a sacred part (altar), a place for prayer, an entrance part (porch). An

example of Orthodox Church building can be a Byzantine cross-domed temple in the shape of a cube with a hemispherical dome.

The internal structure of Jewish religious buildings is also based on the structure of the temple, which reproduces the structure of the tabernacle (fenced rectangular space for prayer). That is why Jewish places of worship are usually cubic. At the entrance to the cult building, there is also an entrance lobby (analogue of the porch), a prayer hall, and a sacred part.

An integral part of the mosque is the dome and the minaret; the planning structure of the mosque also has a tripartite structure (sacred zone, prayer hall, courtyard-narthex). By analogy with Christianity, the rectangular base of the mosque symbolizes the earth, and the hemispherical dome symbolizes the sky.

Thus, it can be assumed that the spatial model of a cubic religious building with a hemispherical dome may be acceptable for Christianity, Judaism, and Islam.

In the course of the research, special attention was paid to the method of experimental and exploratory design, aimed at developing principles and recommendations for the design of polyreligious spiritual educational complexes.

At the moment in Ukraine, there are no examples of educational institutions for joint training of representatives of different religions. The issue of designing these objects today remains poorly studied in the scientific field and design practice. In this regard, using the method of experimental design, a functional planning model of a multicultural, polyreligious spiritual educational complex was developed (Fig. 19).

The idea of organizing a polyreligious sacred educational environment using the developed principles is laid down in the author's project of a polyreligious spiritual educational complex for Kyiv, where the design solution provides for the possibility of training representatives of three world religions: Christian, Muslim, Jewish. This idea arose since Ukraine is a polyreligious state, and representatives of different religions live on its territory. The complex, the concept of which was



Fig. 17. Main facade of the Polyreligious spiritual educational complex for the city of Kyiv (Ukraine)

presented during the experimental design, is a developed volumetric-spatial structure (see Fig. 17, 18, 19). The purpose of this design solution was to create a system that effectively works to achieve the main goal of a modern educational institution - the transfer of knowledge, spiritual improvement, as well

as the activation of intellectual, spiritual, and creative resources of students.

In this project, the block-pavilion method of the architectural and planning organization is used: it provides for the transfer of educational, sacral, residential, refectory, sports functions to separately located blocks, which contributes to the optimization

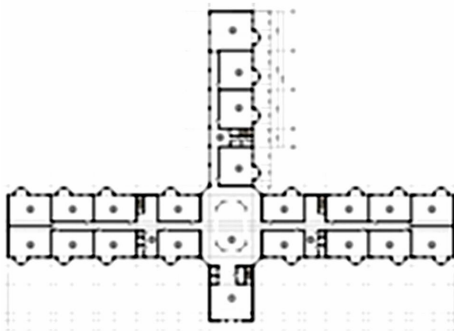


Fig. 18. Plan of the 2nd floor of the Polyreligious spiritual educational complex for the city of Kyiv (Ukraine)

of the functional and planning organization of the complex. The complex can be an example of a large educational institution. According to the design solution, there are three types of educational institutions on the territory of the complex (higher - academies, secondary - seminaries, as well as primary - Sunday schools), which provide a full cycle of spiritual education for representatives of different religions. The projected spiritual educational complex can be called a spiritual educational campus, which is a union of independent spiritual educational institutions for representatives of different religions, located on the same territory, functioning independently of each other, but having

elements of cooperation based on common functional blocks, spaces and premises: recreational, communication, cultural and educational, refectory, sports, leisure, for pre-educational and missionary work, etc. The idea of designing religious educational institutions as modern complexes, embedded in the design solution, is to organize and operate religious educational institutions for representatives of various religions, as well as to create a harmonious environment for learning and living.

The complex includes an educational building consisting of three blocks; sacred blocks for representatives of different religions with premises for Sunday schools, a rehabilitation and sports block, a refectory block, an administrative and educational block, and residential blocks for students, teachers, and guests of the institution. The blocks, grouped together, form patios, have a direct connection with the entrance area and the main street.

Training blocks are formed from classrooms for teaching and training specialists of various levels; rooms for teachers and departments. The functional longevity of the training block will provide flexibility in its planning organization (see Fig. 19).

In the structure of the polyreligious complex, there are three autonomous sacred blocks for carrying out liturgical practices by representatives of different religions (for Christians, Muslims, and Jews). The sacred block consists of: a group of main premises (prayer area, sacred space, entrance area) and a group of auxiliary premises (for Sunday school work, storage of utensils, church vestments).

The administrative and educational block of the complex is formed by library premises; publishing center with printing house; a group of rooms and halls for organizing meetings and discussions, a group of entertainment rooms, exhibition halls; training and production workshops (icon painting, gold embroidery, for the manufacture of products from wood, metal, etc.); offices for the management and administration of the complex; a group of medical facilities. This block also includes groups of premises for missionary and volunteer activities; psychological support.

The refectory block consists of a group of the refectory (dining rooms), auxiliary (rooms for cooking, ritual baking), and utility rooms (storage rooms).

Residential blocks form living quarters and utility rooms for students and teachers, as well as a group of xenial rooms (for guests of the complex). Premises for teachers and guests of the institution are located autonomously (on separate floors). A feature of this complex is also the presence of a separate block for the residence of male students and a separate block for the residence of female students, as well as the presence of cottage-type housing.

When designing the complex, a number of developed scientific principles of the architectural and planning organization of multicultural, polyreligious spiritual educational complexes were used, namely: the trinity of functional space, the campus organization of the spiritual educational complex, the principle of multifunctionality and technicality, the creation of a religiously tolerant environment (tolerance), the relationship of the complex with nature (environmental friendliness), religious canonicity of shaping.

The use of the proposed scientific principles will contribute to the creation of design solutions for educational complexes with a harmonious and comfortable environment.

So, in the design solution of the polyreligious spiritual educational complex in Kyiv, the principle of “trinity of the space of the main premises” was incorporated. The principle is that the premises of religious educational institutions should consist of three mandatory zones: the main (depending on the

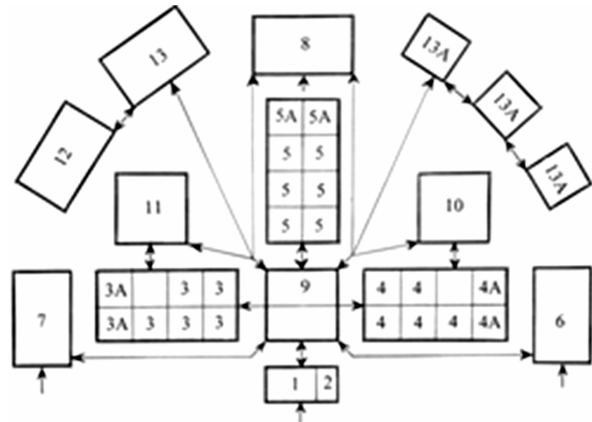


Fig. 19. Functional planning model of a polyreligious spiritual educational complex. Legend: 1 entrance hall; 2 wardrobe; 3 seminary and academy classrooms for Christians; 3A Christian Sunday School classrooms; 4 classrooms for Muslims; 4A Muslim Sunday School classrooms; 5 classrooms for Jews; 5A Jewish Sunday School classrooms; 6 sacred block for Christians; 7 sacred block for Jews; 8 sacred block for Muslims; 9 multifunctional unit for sharing; 10 sports block; 11 refectory; 12 administrative-leisure-educational block; 13 dormitory-xenial; 13A cottage-type dormitory

purpose of the premises), sacred and auxiliary. Design practice has shown that the most optimal form of classrooms is rectangular with a longitudinal outer wall (dimensions in the axes 3×6 m, 6×9 m). In rooms with such proportions, it is also easy to organize all the necessary zones, including the sacred one. Computer labs, an innovation zone (or I-zone), are designed to improve skills in working with technology, generating ideas, communicating, exchanging ideas between representatives of different religions and cultures, and also contain a sacred zone. I-zone is a special space in the planning composition of the educational complex that promotes creative activity. The principle of the trinity also extended to the functional planning organization of the main blocks of the complex (administrative, refectory, sports), in which a sacred zone must be present.

In this design solution, “campus” means a set of premises with which students and teachers directly or indirectly interact in the process of educational activities. The “campus” system of the spiritual educational complex is based on the concept of “unity of space” for students, which combines in one compartment (“campus”) all the premises necessary for organizing comprehensive learning. The project provides for a “campus” for students in Christian theological educational institutions, “campuses” for students in Muslim and Jewish spiritual educational institutions, as well as “campuses” for communication and sharing of time by students (representatives of various religions). The educational section “campus” for students is formed from classrooms (universal and specialized classrooms), laboratories, workshops, universal rooms, leisure facilities, recreation, and sanitary facilities. It is proposed to intensify the use of mobile technologies and Wi-Fi networks on campuses, which will allow for remote lessons, lectures, and webinars. Due to the fact that gadgets are actively used in the educational process, in this project an attempt was made to change the approaches to the formation of the educational space. So, the module of the study space is a workplace that is comfortable from an ergonomic point of view. Therefore, standard desks are proposed to be replaced by more mobile chairs with folding tables. Due to the possibility of organizing several screens for broadcasting educational material, as well as thanks to the installation of interactive whiteboards, there is no need to focus the attention of students on one point (a standard school board), which makes it possible to organize the arrangement of workplaces not according to the usual linear scheme, but more flexibly – radially or segmentally around several screens, and highlight a sacred zone in the study space.

The creation of multifunctional spaces and large rooms with the possibility of their further transformation (division into smaller parts using mobile devices) can be considered as the progressive and economically expedient direction in the design of educational buildings and complexes. The organization of multifunctional spaces, allowing for further transformations, capable of “tuning” to certain types of activities, is a very important aspect in the design of these objects. Thus, the longevity of spiritual educational complexes can be ensured by the use of the principle of “functionality and technicality”, with the help of which it is possible to ensure their universality.

The principle of creating a religiously tolerant environment (polyreligious, multicultural) is based on the concept of multiculturalism, the peaceful coexistence of various communities, and the functioning of institutions for representatives of different religions and confessions in the same area. This principle is also put forward in the context of the ecumenist (unification) movement founded by the Greek Catholic Church, according to which the ultimate goal of the ecumenist movement is to return to the primary unity of Christianity. The principle of “religious tolerance” lies in the possibility of organizing the work of theological educational institutions of different religions on the same territory: for example, in the educational block of the complex, there are spaces and zones for the joint spending of time by representatives of different religions, which will facilitate the establishment of contacts for interfaith dialogue between representatives of different confessions and cultures.

It should be noted that the architectural and spatial solution of the educational complex is actively integrated into the natural environment, which is achieved using the following techniques: visual communication between rooms and courtyards, a recreational area. The courtyards, which can be accessed through the sliding doors of the recreation halls of the educational complex, in addition to the main function (recreation), can also become a place for communication, various events. Also, the complex provides exits to the operated roofs - terraces, as well as the organization of winter gardens in the central space for general use.

In the residential area, where, according to the project documentation, there are residential blocks and cottages for students, teachers, guests of the institution, there are exits to the recreational coastal

zone of the Dnieper River. Each cottage also has an individual green area for relaxation. The location of the complex in a picturesque area, not far from the river, green spaces will allow in the summer (non-academic) period to use it as a health-improving and recreational complex for the needs of students and staff. The recreation area of the educational complex is formed from sites for active and passive (quiet) rest. Quiet recreation areas are organized near the green space, a very important area for the educational complex, since, according to doctors, daily contacts with nature contribute to the development of creativity, promote the activation of mental activity, the formation of positive thinking, harmonious spiritual and physical development.

The principle of “Religious canonicity of forming and harmony” means the use of forms that do not contradict the canons of a particular religion in the design of sacred blocks of spiritual educational complexes; using the synthesis of arts and national traditions in the overall architectural solution of the complex.

The canonicity of each art form, including architecture, means its relation to religious dogmas. The modern practice of building sacred spaces and spiritual educational complexes should be developed on the basis of the knowledge and understanding of religious traditions and dogma, the essence of religious buildings by the architects. The canonicity of the forms of spiritual educational complexes lies in the correct organization of the sacred core (religious building) in the structure of the complex. So, the temple, according to the teachings of the Christian, Muslim, and Jewish religions, has a divine origin associated with worship. The forms of temples in the listed religions are filled with religious meaning, symbols and therefore cannot be independently, unreasonably changed. So, for example, the majestic image of a sacred building is successfully embodied through single-domed cubic volumes (Byzantine type of temple) for Muslims and Christians, a cubic image of a tabernacle temple for Jews. The canonicity and churchism of sacred structures are achieved by means of architectural composition, through shaping (the use of a cubic volume symbolizing the earth and a hemispherical vault - a symbol of the sky). Canonicity should also be present in the functional planning structure of sacral buildings (three-part division into entrance, central prayer, and sacred (altar) zones), as well as in its internal structure, external decoration.

When designing religious educational institutions, it is also important to remember that the study space, as a rule, is quite typified. Therefore, the actual question is what kinds of art are appropriate to use to enhance the architectural solution of the spiritual educational complex and create a comfortable and aesthetic space? Of course, the best option is a symbiosis of many types of art (painting, sculpture), the use of colors and even music, which will best reveal the architectural image of the object. An architect, like an artist, must use the language of plastic and color images (metaphors). Music also inspires to the creation of highly artistic works. Here it is appropriate to recall the statement of the German art theorist Friedrich Wilhelm Joseph Schelling that architecture is frozen music. Comparisons of architecture with music can also be found in literature, for example in the French writer Germaine de Stael [6], in the German poet Johann Wolfgang Goethe’s “Sayings in Prose”, where he states that “architecture is frozen music” [5], etc.

Color is of great importance in architecture. The above-mentioned Johann Wolfgang Goethe, as well as the artist W. Kandinsky, paid much attention to studying the influence of color on a person, as well as to the determining associations arising as a result of contemplation [11]. When designing these objects, it should be remembered that representatives of different religions have their own priority color combinations and rhythmic variations, ornamental motives, systems of symbols, signs, and allegories. Therefore, in the formation of modern spiritual educational complexes, it is necessary to take into account not only modern trends but also pay attention to national and religious traditions and color.

Thus, the canonicity and strengthening of the architectural and artistic expressiveness of the architecture of spiritual educational complexes will be facilitated by the creative understanding of religious and cultural traditions, dogmas of a particular confession.

4. Results. The study of international experience in the design of religious buildings for representatives of various confessions and religions, as well as religious educational institutions, made it possible to propose a project of a polyreligious spiritual educational complex using scientific principles. In particular, the principle of forming a religiously tolerant environment by creating an educational institution with autonomous educational premises for representatives of different religions,

as well as premises for joint spending of their free time, multicultural spaces, without violating the specifics of the educational process for representatives of different religions.

In the course of the study, the principles of the architectural and planning organization of multicultural polyreligious spiritual educational complexes were developed, as well as the main activities that contribute to the creation of comfortable polyreligious educational complexes, including the enlargement of institutions, the combinatorial nature of functional blocks, the transformative structure, the organization of the full life cycle of students.

Undoubtedly, the highest quality spiritual education today can be obtained in large educational institutions that have the opportunity to conduct comprehensive training, provide all the necessary levels of spiritual education. Thus, enlargement and concentration (i.e. functioning in one educational complex of institutions of various levels) will improve the quality of education, help to organize the educational process more rationally, provide students of higher educational institutions with the opportunity to practice in Sunday schools, etc. The enlargement may result in the creation of polyreligious, multicultural spiritual educational complexes - qualitatively new functional planning structures that accumulate different levels of spiritual education for different religions.

Regarding the combinatorial nature of the functional blocks of polyreligious spiritual educational institutions, it should be noted that design based on the block structure is most typical for multifunctional buildings, like polyreligious spiritual educational complexes. These complexes mainly consist of 5 or 6 blocks. The essence of the proposed method is to develop a unified nomenclature of block buildings (educational, administrative, refectory, sports, cultural and educational, residential) with the ability, by blocking them (for example, educational, residential blocks), to create various options for planning schemes: linear, angular, radial, cross, with free placement of blocks, etc. Each block building is universal in its architectural and planning solution, which makes it possible to organize in the dimensions of one block (for example, an educational one) homogeneous planning structures close in function like classrooms and workshops, discussion clubs, rhetoric halls, conference rooms, forums, etc. Combinability makes it very easy to expand the educational institutions of the complex, if necessary, to modernize the complex in accordance with modern requirements.

The use of the transformative structure of the spiritual educational complex (individual blocks) in the design solution made it possible, if necessary, to transform audiences for 100-200 listeners with the help of constructive transformer elements, dynamic partitions, hanging screens into self-contained rooms. By transforming the interior space, you can also combine classes, turning them, if necessary, into a single learning space. The result of the flexibility of the planning structure of the multicultural polyreligious spiritual educational complex is the use of progressive constructive solutions.

The organization of the full cycle of life of students, provided by the design decision, as well as adding more functions, made it possible to increase the efficiency of the polyreligious spiritual educational complex, create comfortable conditions for the education of students in a religious environment; became the first step towards creating a spiritual educational complex with the most comfortable conditions of stay. A characteristic feature is its complexity in the formation of a religious environment for acquiring knowledge, personal development, and spiritual growth. So, this multicultural, polyreligious spiritual educational complex will provide representatives of various religions studying in this complex, not only with conditions for comprehensive education and living, but also communication, meaningful leisure, spiritual and physical development.

The study concluded that the use of the developed scientific principles in the design of modern multicultural polyreligious spiritual educational complexes will contribute to the creation of more comfortable, morally timeless institutions; will allow us to get an architectural solution that does not contradict religious canons, to achieve the unity of art and architecture, create a comfortable environment for learning and the formation of highly spiritual, well-educated, highly moral, tolerant personalities.

5. Discussion. In this research, an assumption was made about the possibility of joint education in spiritual educational complexes of representatives of different religions. To date, little attention has been paid to this issue in world science. Thus, a significant number of studies have been carried out on the design of sacred structures for representatives of various religions, which consider the features of the architecture of these objects, their symbolism. Among them: studies by M. Carey dedicated to the architecture of Islamic sacred buildings [18]; Marilyn J. Chiat's study dedicated to Christian and Jewish sacred architecture [22], research by E.O. Kotlyar on the architecture and symbolism of the

Jewish sacral buildings in Ukraine [10]. A number of general studies have also been carried out on the architecture of educational institutions of various levels: Sybille Kramer [27, 28]; Alan Ford [22]; Lisa Gelfand, Eric Corey Freed [23]; P.A. Solobay [13]. In these works, a general analysis of the architectural solutions of secular educational institutions is mainly carried out; a forecast is made regarding the prospects for their development in the modern world. Educational institutions for the training of future clergy and religious leaders are considered in the work of such scientists as R. Z. Stotsko, O.I. Zhovkva, T.F. Zhukova. Thus, the research on the architectural and planning solutions of Christian spiritual educational institutions was carried out by R. Z. Stotsko and O.I. Zhovkva [7], O.I. Zhovkva studied Muslim higher religious educational institutions as well. These days there is no comprehensive research on promising types of religious educational institutions for representatives of various religions (Christians, Muslims, and Jews) or promising directions for the development of their functional planning structure and architectural solutions.

Considering the above, this study proposed promising directions for the development of the architecture of multicultural polyreligious spiritual educational complexes for representatives of various religions. One of them is the creation of common communication spaces as well as autonomous training rooms for students; also functionally undefined spaces using easily transformable partitions, which makes it possible, if necessary, to change the layout of individual blocks and buildings of the complex. An attempt was also made to prove that joint education in the spiritual educational complex of representatives of different religions will further contribute to a decrease in the level of religious intolerance, confrontations based on religion.

6. Conclusion. In this study we propose the architectural concept of a polyreligious multicultural spiritual educational complex as a new universal enlarged educational institution for representatives of various religions (Christian, Muslim, Jewish). Also, we suggest scientific principles, the application of which in the design process will allow obtaining canonical, harmonious, rational architectural and planning and volumetric-spatial solutions of spiritual educational complexes, taking into account the canons, modern requirements for the educational process, as well as ongoing innovative and technical changes.

The scientific contribution consists in the proposed concept of a polyreligious multicultural spiritual educational complex, where all levels of education (primary, secondary, higher) and all the functions necessary for healthy learning and development are presented in a comprehensive manner, because in our time different religions cannot be isolated from each other, in connection with which it is necessary to prepare the ground for further cooperation and interaction between different cultures and religions. That is why representatives of different religions should be trained in a multicultural polyreligious spiritual complex. Such a complex can be a training campus, a city-planning building. Spiritual educational institutions for representatives of different religions, functioning autonomously on the same territory of the complex, still have spaces for joint use: leisure, educational, missionary, refectory, sports; which, in turn, contribute to the establishment of interfaith dialogue and the training of tolerant and highly educated specialists.

As a result of the study, the main scientific principles of the architectural and planning organization of spiritual educational complexes were identified and formulated, namely: the campus organization of the spiritual educational complex, the trinity of functional space, the principle of multifunctionality and technicality, the creation of a religiously tolerant environment, the relationship of the complex with nature, the religious canonicity of formation. The basic principle of “religious canonicity of form-making” provides for the use of canonical (such that do not contradict the canons of a particular religion) architectural forms in the design of both the sacred core of the spiritual educational complex and other functional blocks. An equally important principle of the “trinity of functional space” determines the need for the formation of premises in educational institutions from three closely related zones. The application of the principles outlined in the article in the process of designing spiritual educational complexes for representatives of various religions will make it possible to achieve canonical, functionally logical, up-to-date solutions, and will also help reduce religious intolerance in modern society. The foregoing confirms the hypothesis put forward in this article that today, in conditions of permanent outbreaks of religious and inter-ethnic conflicts, there is a need to form new progressive, universal types of spiritual educational institutions - enlarged multicultural, polyreligious complexes with corresponding functions and environment.

As a result of the study, the optimal functional composition of polyreligious spiritual educational complexes in the context of the need to form a harmonious environment for the upbringing of a tolerant, highly spiritual, and well-educated person was determined.

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Жовква О.І.

ОБ'ЄМНО-ПЛАНУВАЛЬНІ РІШЕННЯ СПОРУД ДУХОВНО-ОСВІТНІХ КОМПЛЕКСІВ

Анотація. У сучасному світі все більшої актуальності набуває питання пошуку механізмів взаємодії між різними культурами, світоглядами та релігіями, пошуку шляхів підвищення рівня толерантності суспільства. Зміцнення міжкультурних і міжрелігійних зв'язків сьогодні допоможе уникнути багатьох конфліктів у майбутньому. У зв'язку з цим надзвичайно актуальним є питання формування сучасних духовно-освітніх комплексів із комфортним полікультурним середовищем для підготовки толерантних, високоосвічених громадянських і релігійних діячів. Метою даного дослідження є розробка раціональних об'ємно – планувальних рішень та рекомендацій щодо проектування сучасних духовно-освітніх комплексів для представників різних релігій світу. Також актуальним є питання пошуків виразних, сучасних архітектурних рішень даних комплексів, архітектура яких, у той же час, не протирічила б певним канонам. Для проведення дослідження були використані теоретичні та емпіричні методи (метод порівняльного аналізу, натурне обстеження функціонуючих вітчизняних та закордонних духовних навчальних закладів, графоаналітичний метод за допомогою якого було розроблено кілька оптимальних сучасних об'ємно – планувальних моделей тощо). У результаті дослідження сформульовано наукові засади та рекомендації щодо проектування сучасного духовно-освітнього комплексу для представників різних релігій для здобуття різних рівнів освіти: від початкової до вищої. Проведено функціонально-планувальний та об'ємно - просторовий аналіз сучасного духовного комплексу та запропоновано необхідний оптимальний склад приміщень для забезпечення всебічної освіти, а також інтелектуального та духовного розвитку. Використання розроблених та запропонованих наукових засад для проектування сучасних духовних комплексів сприятиме формуванню гармонійного полікультурного середовища у навчальних закладах, а також підвищенню релігійної толерантності в суспільстві, досягненню культурно-релігійної єдності, зниженню рівня проявів нетерпимості та агресії.

Ключові слова: мультикультуралізм, полірелігійний простір, толерантність, духовно-освітній комплекс, духовно-освітній заклад.

Zhovkva O.I.

VOLUMETRIC-PLANNING DECISION OF BUILDINGS OF SPIRITUAL EDUCATIONAL COMPLEXES

In the modern world, the issue of finding mechanisms for interaction between different religions, increasing the level of tolerance and tolerance towards representatives of other cultures is becoming increasingly relevant and necessary. Strengthening intercultural and interreligious ties will help avoid many conflicts. In this regard, the issue of forming modern spiritual educational complexes with a comfortable multicultural environment for the preparation of tolerant, highly educated public and religious figures is extremely relevant. The purpose of this study is to develop rational volume-planning solutions and recommendations for the design of modern spiritual and educational complexes for representatives of various religions of the world. Also relevant is the search for expressive, modern architectural solutions for these complexes, the architecture of which, at the same time, would not contradict certain canons. Theoretical and empirical methods were used to conduct the research (the method of comparative analysis, field survey of functioning domestic and foreign spiritual educational institutions, grapho-analytical method, which was used to develop several optimal modern volume-planning models, etc.). As a result of the study, scientific principles and recommendations were formulated for the design of a modern spiritual and educational complex for representatives of different religions to obtain different levels of education: from primary to higher education. A functional-planning and volume-spatial analysis of the modern spiritual complex was carried out and the necessary optimal composition of premises was proposed to ensure comprehensive education, as well as intellectual and spiritual development. The use of developed and proposed scientific principles for the design of modern spiritual complexes will contribute to the formation of a harmonious multicultural environment, as well as increasing religious tolerance in society, achieving cultural and religious unity, reducing the level of aggression and intolerance.

Keywords: Multiculturalism, Polyreligious Space, Tolerance, Spiritual Educational Complex, Spiritual Educational Institution.

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Розглядається питання формування об'ємно-планувальних рішень споруд духовно-освітніх комплексів, як мультикультурних архітектурних комплексів.
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The question of the formation of volume-planning solutions for buildings of spiritual and educational complexes, as multicultural architectural complexes, is considered.

Fig. 19. Ref. 30.

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