

PROJECT
OF A
SCHOOL AND CHURCH BUILDING
FOR THE
ARMENIAN PROTESTANT COMMUNITY
OF BEIRUT

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PROJECT

of a

SCHOOL AND CHURCH BUILDING

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ARMENIAN PROTESTANT COMMUNITY OF BEIRUT

by

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§ 1:- INTRODUCTION

The Armenian Protestant Community of Beirut, Lebanon, owns a land in the quarter Zoukak-el-Diat, designated on the Municipality plan as " Parcelle N° 100, Section 1, Feuille 1 ". The corresponding cadastral plan is reproduced on Plate N° 1.

On the lot is an old one-storey building used now as a High School for Boys and Girls, the plan of which is on the same plate N° 1, according to measurements taken in relation with this work.

Besides this High School the Community has an Elementary School, occupying now another building; and it has no Church, the Memorial Hall having been used so far at this end.

Thus the Armenian Protestant Community has decided to erect a new building on the Zoukak-el-Diat lot, which would include the Elementary and High Schools with a Church Auditorium; and a Committee in charge of studying the problem has been created.

A few members of this Committee suggested to build a new storey on top of the existing one, while others admitted the possibility of an entirely new building which would answer more suitably the growing needs of the Community.

Therefore, the first problem of the architect in charge of studying the case, would be to decide which one of the two suggestions is practicable. And to do that he should consider the planning of the existing building in view of its convenient use as a school building, and also its structural possibilities in view of the addi-

tion of new storeys.

Then, in case an entirely new building is preferable, he should work out the proper plans to adopt.

Thus stated, the problem is evidently a very interesting subject for a Thesis work, presenting a variety of practical difficulties, especially as to space organization, owing to the very limited size of the land and the unusually intricate form of its boundary lines.

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§ 2:- GENERAL REQUIREMENTS

Before one can decide anything as to the general line of action to adopt, it is necessary to have a definite idea of what is required from the new or remodelled building.

At this end, Dr. D. A. Berberian, professor at the American University of Beirut, and member of the Committee mentioned above, has been consulted, and the following data obtained.

A) SCHOOL :-

- 1) Elementary School :- 6 Class rooms with an average of 25 students per class. A 7th class room is desirable for future use in case it is possible.
- 2) High School :- 6 class rooms with an average of 20 students per class. One laboratory room, one library room (which would be a

stack room rather than a reading room.) - Principal's Room, Teachers' Room, Janitor's Room, a Hall for Student activities and toilets for boys , toilets for Girls.

B):- Church :- A Church Auditorium with a minimum sitting capacity of 300 persons.

§ 3:- STUDY OF EXISTING BUILDING

1) PLANNING:- The first impression of anybody who visits the building used now as a High School is that it has not been designed as a school. The rooms are too small for the number of students they are used for, and they are not properly lighted and ventilated. The general impression is very depressing.

Any remodelling is practically impossible unless the greatest portion of the building is removed, and that is due mostly to the central 5.28 by 10.90 hall. If we admit the possibility of going on using this floor as a High School, we must build a similar storey on top of it for the Elementary School, and doing that wouldn't really pay. Now when one comes to think of the Church Auditorium, the problem becomes so to speak more impossible. The general shape of the building doesn't allow to have a large rectangular space, as the Auditorium must be.

2) STRUCTURAL VALUE :- The building is made of 25cm sandstone masonry bearing walls. It is very old and weak, and we cannot have any valuable information as to the strength of its foundations.

Thus before remodeling and adding new storeys, it should be properly reinforced, especially with strong columns at the corners, with corresponding footings.

3) CONCLUSION:- The remodeling of the existing building is not desirable because the reinforcement needed will form a high percentage of the total cost, and the remodeled structure won't justify the expense. Besides, the requirements obtained from Dr. Berberian necessitate more rooms than we have now. The last point is that by only remodeling the building as it is now we cannot have a Church Auditorium.

The conclusion we derive from all these considerations is naturally that we must think of a completely new building.

§ 4:- GENERAL DESIGN SCHEME

The size of the lot doesn't permit to have the two school departments on the same floor. So we have decided to have the Elementary School on the ground floor, the High School on the first floor, and the Auditorium on the second floor. The basement will include the toilets, the janitor's room, and the Student Hall.

§ 5:- TOPOGRAPHY

The lot is fairly level, only with a drop of two meters along the straight line AB shown on the "Plan of Existing Building" (Plate N° 1) The region coloured in dark orange being lower by two meters than the light yellow region.

The topography is quite helpful in the construction of the Basement, the portion of basement coming on the lower level necessitating very little excavation, especially for the toilets which are only 2.10m high.

§ 6:- SCHOOL PLANNING

A) CLASS-ROOMS :- In deciding upon the size of a class-room, the average American practice is to allow 15 sq. ft. per pupil, which makes nearly 1.35 sq. m. Some architects are even thinking that 14 sq. ft. are enough.

but this is done in modern schools, where the architect has sufficient space to make such an allowance.

Unfortunately this is not the case for us, since the space is very limited, and we must be satisfied with less than that. Another justification is that the desks they are using now in the High School are small in size, and it is not probable that they will change them.

As in any school department the higher classes have always less students than the lower classes, it has been thought advisable to have class-rooms of different sizes. The largest one, as shown on the ground and first floor plans is 5.7 by 6.4 m, providing thus an area of 36.5 sq. meters. The average number of students being 25 for the Elementary School, and taking for the largest class a maximum of 30 students, the floor area per student is around 1.2 sq. meters, which seems satisfactory.

The smallest class-room has 4.8 by 6.0 meters, with an area of 29 sq. meters and with the same allowance per student it is enough for 22 pupils. 22 may be considered as a good minimum for an average of 25 and a maximum of 30. Besides this room is single on each floor, and it may be used for the smallest class.

The class-rooms have therefore enough space for the number of students they are planned for.

Between these two limits the class-rooms have been designed in view of having a good arrangement of the whole floor.

Comparison of ground and first floor plans shows that the first floor has two class-rooms larger than the corresponding rooms on the ground floor, owing to the existence on the latter floor of stairways leading to the basement where the toilets are installed. As the Elementary School classes are usually more numerous than the High School classes, we may use the first floor for the Elementary department, and the ground floor for the High School department. But since the ground floor rooms are large enough for the Elementary classes, it is better to use that floor for the Elementary School. Besides one of the large rooms of the first floor will necessarily be used as a Laboratory room.

Four out of six class-rooms have northern lighting, which is the ideal, the sun light coming in this direction being diffused.

The windows, at least four in number are so arranged in all class-rooms that the students will never have to face them, avoiding thus glares.

The colour treatment of ceiling and walls should be paid due

attention. Quoting from J.J. Donevan - School Architecture- " The ceiling and wall surfaces are secondary sources of light, receiving and reflecting light, and therefore should be as light as is artistically permissible, white, or tint of a light cream order, with flat or mat finish, as glossy surface gives glare. The lower part of the side walls, below the chair back height, is of less importance and for appearance it may be desirable to have a shade of some darker neutral color, as finger marks and other disfigurements are not then so noticeable."

The class will be saved from many interruptions if there is a small visualization, clear glass pane in the class-room door. Such provision will allow the principal of the school, or even visitors to observe the class without distracting the attention of the pupils.

Hangers are provided in the main corridor, so that the pupils may discard their wraps before entering the class-room, and put them on after leaving it.

B) STUDENT HALL :- A 7.6 by 10.6 hall for student activities is provided in the basement, with a 2.2 by 7.6m stage. Its sitting capacity is around 150 persons. This hall is much larger than the one of the now existing building, which is only 5.38 by 10.90m, and which was enough for the High School. It is assumed of course that High School and Elementary School will not use it at a time.

On the side opposite to the stage there are provided four good size windows as shown on the basement plan (Plate N° 2), and on the Main Elevation (Plate N° 3).

On the other end of the hall are two wide and shallow (30cm) windows, as shown on the plan of the basement and on section A-A, both on plate N° 2.

The ventilation of the Hall is therefore good. As to the light they can use electric light in case sun light is not enough, as it may happen during winter time.

Next to the Hall, and with an opening on it, we have a store room, which may be used for chairs. The existence of this room gives us another opportunity. The chairs of the Hall may be put in the store room, and the Hall used as a Gymnasium.

Before entering the Hall two toilet rooms are installed.

C) TOILETS :- Properly separated toilets for boys and girls are installed in the basement. 180 cm stairways lead to them from the ground floor. Their number is more than enough for the total number of students in the school which is less than 250.

D) OTHER ROOMS :-

a) Principal's Room :- Close to the main entrance to the building is the Principal's room, which is 3.6 by 6.0 m. It would be of course desirable to have it less oblong, but the main consideration in designing it has been the general shape of the building. The floor area, which is 21.6 sq. meters, is plenty. For proper light and ventilation it has three 120 by 180 cm windows.

b) Waiting room :- Opposite to the Principal's room is the waiting room, 3.6 by 4.8 m. The general arrangement of the plan makes it impossible to have for this room more than one usual size

window. But this has been thought to be enough for no body is going to spend there all his time, as it is the case for the class-rooms or the Principal's room.

c) Janiter's Room :- It is located in the basement, and has four windows. The clear height of the ceiling is 4.0 meters, unlike the toilets, on the same floor which are only 2.1 m high. Thus its floor level is around two meters lower than the floor level of the toilets, and the portion of staircase serving to cross this difference of level is lighted by a window giving on the room itself, as it is shown on the basement plan (Plate N° 2).

d) Library Stack Room :- The library they have now is 3.0 by 5.0 m. In our plan, the room of the first floor which is above the waiting room of the ground floor, shall be used as the Library Stack Room. Its dimensions are 3.6 and 4.8 m.

e) Teachers' Room :- This is the room above the Principal's.

f) Laboratory :- The largest room of the first floor, 5.0 by 7.6 m. is the laboratory. It would be wasteful, in designing this room to follow the ordinary specifications for the laboratories, because the equipment they have is close to nothing. The room they are using now as a laboratory is 3.57 by 4.70 m. And it is more than enough. Besides, the laboratory, which is only for physics and a little of chemistry, will be used only by the class which takes those courses, in the High School. If, in case of future expansion, the room is not enough, for an average of 30 students at most, the class may be divided into two groups as it is usually done.

D) STAIRCASE :- Leading to the upper storeys, and down to the Hall, is the main staircase, 160cm wide, with ramps. Their number is calculated for a 17 cm rise per step, with a horizontal width of 30 cm.

E) PLAYGROUND :- A study of the ground floor plan which is also a location plan, on Plate N° 2, will show that owing to the very limited size of the land, there is not enough playground. However a conversation on the subject with Dr. Berberian convinced me of the admissibility of the plan. The doctor said that in case there is not enough space within the limits of the lot to be used by the children as a playground, they could go out to the open space in front of the entrance to the campus, as shown on the cadastral plan on plate 3se.

§ 7 :- CHURCH AUDITORIUM

In designing the Church Auditorium the main idea to be constantly kept in mind is that an Evangelical church is not a place for ritual service as a Catholic church, but a room adapted for perfect hearing and seeing. The general lay out of the auditorium is a direct consequence of this principle.

A room of that kind must not be long and narrow as usually the mediaeval churches are, Notre-Dame of Paris having a length more than three times its width.

Also it shouldn't ^{be} very high and elaborately vaulted, as the

above mentioned churches are, because in such a place good acoustics is practically impossible.

Nor this room can be cut up into numerous subdivisions as aisles, transepts and deep chancels, with a plan complicated by rows of piers and columns.

These items show us that we shouldn't blindly follow the Gothic type of a church, because our needs and those of the gothic architect are utterly different.

The aim of the gothic architect was to erect a building the purpose of which was to be sumptuous, mystic and highly dramatic. When we remember that the priest was speaking in latin, and that most of the people of France or England were not familiar with that language, we see that perfect hearing was not a primary condition to be met. The atmosphere of worship was created by the ritual hymns sung by the choir, the ununderstandable but most dramatic latin of the priest echoed by the high ribbed vaults which added mysticism to the hymns and to the organ, with the semi-obscurity of the place lighted only through the long and narrow ogival windows throwing in the church the multicolor light of the painted glasses, the pale and ascetic portraits of the saints on those glasses, and the gothic style statues.

But when we want to build an Evangelical Church, our aim is the antithesis of the gothic aim. We must conform ourselves to the practical and exigent needs of our time, and to the character of

the building we want to erect.

In a Protestant church the Pastor is speaking a language every body in the church can understand. He wants every body to follow his idea. There is nothing sumptuous or dramatic about his speech or his ways. He is just explaining something, it's like a lecture in a class-room. So everybody must see him, and, which is more important, hear him perfectly.

To meet such conditions, the Auditorium must be a very simple rectangular room, having only two parts: a chancel for the pulpit and the choir, and the congregational space.

The length of such a room should not exceed one and a half times its width, and this is the main idea we have followed in proportioning the congregational space or nave, which is 17.2 by 12.8. Of course we have had also to conform ourselves to the plan of the lower storeys.

The height of the Auditorium should not exceed two-thirds of the width, and we have chosen six meters on both sides, but, as there is a roof truss, the ceiling is higher at the middle, (see section C-C through auditorium on plate N° 3).

As to the Chancel its ceiling is domical as shown on sections B-B and C-C, the higher point of the dome being 5 meters higher than the level of the chancel, which is at its turn three steps higher than the nave, or about a ^{half} meter.

Besides these considerations there is another one not less important: that's symmetry. The auditorium is symmetrical about

an imaginary longitudinal axis, the door being the only exception, because it is slightly shifted from that axis, owing to the arrangement of the staircase, which in its turn is necessitated by the form of the lot.

AISLES :- As shown on the second floor plan, there is 1.6 m. wide central aisle, leading across the length of the auditorium to the chancel. Such an aisle is indispensable for marriage and funeral services, and for efficient circulation. Besides this main aisle two minor aisles are provided on both sides.

FLOOR :- The floor is flat. And for this we must remember that " a good auditorium is not designed on the principle of a theater, where every seat must be sufficiently elevated to command a view of a wide proscenium where actors move in a pictorial setting. The attention of a congregation is centered on one point, the pulpit, which is elevated. In a theater the spectator must be able to see into the depths of the stage, which is flat; in a church the chancel is shallow and the deeper part of it elevated." (G.E.Merrill: Building for Religious Education.)

LIGHTING :- This is a point to be carefully studied in an Evangelical Church. The Auditorium should be "properly lighted." "People do not like now that twilight gloom which used to be called a dim and religious light." (Building for Religious Education.)

With this idea in mind three large windows have been provided on both sides of the auditorium.

At night the auditorium shall be lighted with large fixtures

nung from the ceiling, each of them being made up of a large number of small lights, rather than one or two large ones.

The light thus provided should be enough for reading in all the pews. On the other hand too much light has also to be avoided, glares being very uncomfortable.

CHANCEL :- The chancel is a wide and shallow recess symmetrical with respect to the axis of symmetry of the auditorium, and at the end opposite to the entry. Three steps of 17 cm each raise it by about 50 cm above the level of the nave.

On the first plane of the chancel comes the pulpit, then the choir, and at the very bottom is the organ. Behind, as shown on the auditorium plan, is the Pastor's study and an office.

APPROACHES :- The church we are designing is a comparatively small one. According to the American practice, churches having less than 500 seats do not need galleries.

After the stairs, one has just to cross a small vestibule to enter the auditorium.

INTERIOR DECORATION OF THE CHURCH AUDITORIUM

The aim of our church auditorium is to provide a quiet and unaffected setting for christian teaching. It should be therefore a very simple room. In designing its interior our purpose should be nobility and serenity in the proportions, purity in the lines, restraint and good taste in the decoration. Quoting again from

"Building for Religious Education" : " There should be nothing that can force itself upon our attention either by its dramatic qualities or by its cleverness."

That is why we have adopted a very simple interior, with straight lines cutting each other at right angles, with a simple unornamented arch over the chancel.

For the roofing is used a cambered truss partly shown, which is thought to add a simple, restful and somewhat rustic impression to the whole. Section C-C, shown on plate N° 3 gives an idea of what the interior of the church will look like.

The auditorium thus designed is thought to be unaffected and sincere, formal as its purpose is, but hospitable. Nothing is stranger to its purpose, and this is thought to be very architectural, since " architecture is a medium of expression, rather than a more or less arbitrary set of decorations ".

§ 8 :- FACADE DESIGN

One of the main difficulties in solving our problem has been to find a façade which would properly express the purposes of our building as a whole : school and church.

If we had to design only a school, our first impulse would be to adopt a modernistic style, with wide and high windows, a simple geometric exterior, with a plastered façade.

But this style would not suit the church, and we couldn't

possibly use two sharply contrasting styles in the same building.

We have thus been brought to think of having a gradual and logical change of style from down upwards.

Rectangular windows wouldn't be very expressive for the auditorium, so it was natural to think of arched windows. To put a difference with the arched windows of the first floor, we have adopted narrow panes for the auditorium - 60 cm wide each - and large windows of 120 cm for the first floor.

Rectangular windows would do for the ground floor.

A gradual change of style is thus obtained.

The number of windows for the school floors was fairly obvious from the general arrangement of the plan. Most of these rooms have windows only on one side. We couldn't possibly use less than three windows for every class-room. The spacing of windows was then determined. The net opening of all of them is 120 cm, and the spacing between them is 80 cm. I should like them to be more spaced, but to do that one has either to reduce their size and have for instance 100 cm instead of 120, or to reduce their number. As stated above, it was impossible to reduce their number. As to the size the local practice is to make the width of windows a multiple of 60 cm, and besides that narrower windows would look blind.

The shape and size of the first two storeys was therefore determined without much trouble. Those of the auditorium have been much more difficult to design.

After several free hand drawings studying the possible windows

to be used for the upper floor, and reproducing every time the general block of the building, it has been found that a more efficient method to use was to draw that block once for all, and then draw on narrow slips of paper all the possible types of windows individually, and pin these small drawings on the main block, to find thus the best type of window with the more suitable spacing between them.

The result of this method has been the main elevation shown on plate N° 3. The façade as it is has been found simple and expressive. Many combinations have been tried, some of them with small gables, in the gothic manner, fixed in the main truss, but none of them has given an admissibly harmonious façade, the difference of style between the floors being striking more than expressive.

§ 9 :- WORKMANSHIP

AND MATERIALS OF CONSTRUCTION

The building shall be a reinforced concrete frame structure.

The interior walls are made of 10 cm thick concrete blocks, with cement plaster and whitewash.

The exterior are made of 25 cm thick yellow sandstone rusticated blocks.

As a contrast, the arches over the windows - flat or curved according to the floor - are made of polished white " nahati " sandstone.

The woodwork should be made of nice "katrani" wood, especially the framework and the wainscoat in the Auditorium.

The general design of the framework mouldings for the Auditorium is given on section C-C, plate N° 3.

§ 10 :- DRAWINGS

Drawings, presented in a special pasteboard, include:

- A) Plate N° 1 :- Cadastral plan of the lot and plan of existing building.
- B) Plate N° 2 :- Plans and sections of floors.
- C) Plate N° 3 :- Main Elevation and section C-C for interior decoration of Auditorium.
- D) Plate N° 4 :- Outside Perspective.



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Rahé Sarhiorian

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