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WINNIPEG

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DEDICATION

TO MY BELOVED WIFE

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INTRODUCTION

With the XXth. Century, a stream of very diversified discoveries has flooded the world. Railroads, steamships, automotive vehicles of all kinds, the telephone, radio and greatest of all, the airplane, have not only changed our concept of distance but have brought continents within a few hours of one another. What was at its origin a slave to labor, machine, has become its mighty ally. Reinforced concrete along with a thousand and one new materials offer us a bright outlook for better buildings. Physics, Chemistry and related sciences advanced along with other fields of research and their contribution to this era of discoveries speak for themselves.

These developments, just barely enumerated, influenced all the arts in general and, especially architecture.

The root of all this progress is thinking; and, as a new way of thinking has led to these discoveries, so, in architecture the mind has reached new horizons.

It is, indeed, of highest importance here to know and understand the processes of thinking which brought about present principles in Architecture and to express these principles in simple words. In order to achieve this purpose, I shall call on a great master of modern art, specially with regard to its history, to tell us how and why the classical idea of form had to be replaced by the actual dynamic idea of function. Doctor Alexander Dorner expresses it as follows:

"The integration of the old polarities, form

and force of change, has also been the motive power behind MODERN ARCHITECTURE. The collapse of academic form-supremacy made for a hybrid condition, in which the subjective expressive form fought with mechanical function. Here, too, experience pressed toward integration, and integration meant a retreat of form before function, not only of the classical idea-form but also of subjective style form, whether in historical or new varieties. In the struggle between the autonomy of functionalism and that of form, the latter was bound to be the looser. Its static character had to be consumed by the greater powers of function. This process was urged on by the technical development of modern materials, where extended dead matter was transformed step by step into energy. In this intensified integration, function could no longer remain the old semi-static "materials mass movement in space" but had to become higher functionality in that sense of modern physics. It had to become a process of growth which could never be confined to any form, however transient. So, in modern Architecture, too, the very act of autonomous change became the essence of structure. Walls and furniture became self changing spaces interpenetrated, discarding, in abstract painting, space as the standard of reality; the dissolution of walls into glass eliminate the static opposition of inside and outside space and multiply the functions of space, exploding it as it were.

The building was no longer "beautiful" in terms of proportions, rhythm of design, for the truly revolutionnary energies of modern architecture must now be evaluated according to their life-improving force, just as on a more primitive level a super highway could no longer be judged in terms of form but has to be regarded as an energy which actively collaborates with the driving process and which becomes integrated with the energies of the driver and his vehicle. Here, too, we rise from the old polarities of form and function, of idea and matter, of spirit and body, into a dynamic realism of pure energies. In the individual building, as in city and all other planning, those energies active in modern technical production, in physical and spiritual communication effected two things at once; they

> hatterd space and at the same time created more space. In architecture, too, space and likewise extended matter ceased to represent absolute values and standards. There is yet another fact which may illustrate this complete change which spared none of the eternal "basic elements": Renaissance and Baroque could still devise an ideal ultimate city plan on the strength of an absolute intellectual structure. Today we have only relative plans, born in, and changing with, the interaction of local energies. (1)

The great American architect, Louis H. Sullivan has expressed in his writings and speeches the whole problem of form and function in so clear quoting him a fashion that such an analysis as this would not be complete without:

> Behind every form we see there is a vital something or other which we do not see, yet which makes itself visible to us in that very form. In other words, in a state of nature the form exists because of the function, and, this something behind the form is neither more or less than a manifestation of what you call the infinite creative spirit and what I call God. Just as every form contains its function and exists by virtue of it, so every function finds or is engaged in finding its form.
>
> I suppose that if we call a building a form, then there should be a function, a purpose, a reason for each building, a definite explanable relation, the form. The development of each building and the causes that bring it into that particular shape; and that the building to be good architecture must first of all, clearly correspond with its function, must be its image, as you may say. (2)

Since this work, is concerned with religious architecture, it is fitting that I refer to known religious critics in order to obtain a

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(1) Dorner, Alexander, The Way Beyond "Art"(New York, Wittenborn, Schultz Inc. 1947) p. 122.

(2) Sullivan, Louis H. Kindergarten Chats, (New York, Wittenborn, Schultz Inc. 1948) p. 46

complete picture. The Reverend Canon Arnauld C. d'Agnel, a prominent French religious critic of the thirties, is interested mostly in Catholic architecture and deals with principles inherent in such conceptions. A church, to be beautiful, and of its time, ought to fulfill not only the requirements of Modern architecture but, also those of the Catholic Church as prescribed by Canon law and the liturgy. A church then is not artistic and beautiful if its conception is not different from that of profane buildings. To express it more clearly, a church, built strictly on modern principles even if it is an artistic accomplishment, will not be a good modern church if it is not manifestly religious. In the same manner, a strictly liturgical church will be modern in as much as it has followed the modern exigencies. The deeper the understanding of religion with which a profound knowledge of artistic and structural principles is combined the more beautiful the church will be. (1)

Modern Architecture being thus clarified as to its growth and Principles, I shall now give the subdivisions of this thesis.

There will be two main sections, each independent of the other, and forming a whole in itself: Research and analysis.

The first section, as the title implies, deals with information obtained from the sending of a questionnaire to all important Canadian Parishes. All answers to a question will be grouped and conclusions expressed in the form of plates or ideas as the case may be. The purpose of this research was to establish present faults and errors in existing churches, and mainly to make suggestions as to the correction

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(1) Arnauld, d'Agnel, L'Art Religieux Moderne, (Grenoble, B. Arthaud ed. 1936) pp. 9, 10, 11.

of these errors and the improvement of churches in general. Another reason for such a research is to ascertain the position of the clergy with regard to modern architecture and new conceptions and additions. Even though this section deals with many practical points and details, it has been treated first, because it helps to clarify the second part and also in order to avoid unnecessary repetitions.

The second section of this work will be so planned as to gather all necessary information, both artistic and religious, which will lead to the discussion of functions; our main interest here. In order to achieve this goal, I shall study first the architectural problem as to form, plan and function through a number of analysed modern examples. This survey will show the evolution of modern Catholic architecture and will lead to a better understanding of the principles held by Dorner, Sullivan and Arnauld.

Further to complete this architectural analysis, this part will have a second subject; that of religious atmosphere. I shall try to put into words, the meaning and true understanding of religious atmosphere as applying to a Catholic Church.

The second part will consist of a compilation of rules, laws and principles as given by the Catholic Church through Her experts in such works as Canon Law, Liturgia and the Congregation of Sacred Rites.

With these data on hand, I shall then be able to enter more deeply into the problem, and clarify the main subject of this work, that of functions; what should be from the architect's point of view, the function of a Catholic church, that of circulation and worship. This study

will be the resultant of all previous observations and conclusions.

To complete this study I shall in the next section treat the question of decoration. The discussion will be on the general principles which rule the arts so affected, rather than on the principles involved in each craft and trade. Following this, a brief exposé of the new materials and techniques will conclude the thesis.

SECTION I

RESEARCH IN CANADIAN PARISHES

This first section, which constitutes a whole by itself, puts into light the Canadian Clergy's opinions as to improvements and changes to be brought to actual churches.

Besides the main problem of new design, a number of practical questions, dealing with important details, which have become a "must" in this century, have been asked. In order to follow the question-form of this section, each question, as written on the form, will constitute headings and will be preceded by the conventional sign; Q.--

As the original questionnaire did proceed from the details to the general, so in this section I shall proceed from the practical points to the more general question of design.

Its scope.-- There are, in Canada, twenty-eight hundred Catholic parishes among which five hundred forty-seven are located in cities and towns. The remaining are of the rural and mission types.

This research, in the thesis, deals principally with the first group, because this group involves more requirements and in its solution is contained the other types.

Every Diocese has been fully covered: All Catholic parishes located within cities or suburbs have been included and those of every important town and center; this is in order to get a good cross-section of Canadian problems and view-points. (1)

The following results and data have been obtained by the sending

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(1) Le Canada Ecclésiastique, which is a complete directory of Catholic parishes in Canada has been our guide in the selection of desired parishes.

out to every selected presbytery, one, two, and in some cases, three forms which add up to more than a thousand forms.

They have been grouped like geographical provinces so that the percentages of each group be in equilibrium. The percentages of the Central Provinces were increased in proportion with their population.

The following table shows the break down by Provinces of the number of forms sent out, and of those returned.

Table 1

CANADIAN RESEARCH

Groups	Provinces	Sent out	% sent out	Received
Ocean	Nova Scotia	19	14.1%	2
	P.E.I.	2		0
	New Brunswick	18		7
	British Columbia	29		6
Central	Québec	279	20%	107
	Ontario	142	20.9%	38
Prairies	Manitoba	21	13.3%	13
	Saskatchewan	26		14
	Alberta	23		13
Total		553	17%	202

PART I

CAPACITY and SEATING

Q. -- What is a good number of seats for a given population?

To clarify it further: how many people according to your own experience, in your own parish, should be seated at one service. Where ever I felt that this question has not been thus understood, the answer has been discarded.

The purpose of this part it to establish, definitly through the analysis and compilation of data received, the seating area on any new project. Actually, in a new project, the seating area is not calculated but arrived at by mere previsions; which are, in most cases, erratic.

Terms and their meaning.

Population

The number represents only the Catholic population and not the whole population living within the parish. What seems to be here a small parish may be combined into a large civic agglomeration.

CAPACITY

The number of people who can be seated in a church at one service.

Mass

The number of Masses which are said on each Sunday.

Percentage (%)

All answers were based on the rate per hundred of the Catholic population.

□

All doubtful answers having been discarded, the ones used, its goes without saying, are worthy.

Capacity

The percentage obtained has been applied to each individual case.

This enclosed term is the basic factor which regulates the chart on which it is applied.

M.C.T.

The first letter identifies the Province, ex. Manitoba
The second letter and third identifies either a city or a town.

b. - Seating. -- Before I treat the general topic of capacity I shall discuss the specific problem of seating; that is, with regard to pew and individual seats.

Today, in almost every Catholic church, the old pew system, is still in fashion. However, one goes through, at least once a week, the laborious process of getting in and out the traditional pew, which process becomes more difficult with the cold season, when clothing is much thicker. Many people feel that something ought to be done, but they don't complain, officially, as they probably think, that to have to squeeze into a pew, is part of the ritual.

Once into the pew you also notice, especially during High Mass, men standing and taking off their overcoats which they put on the floor or, if there is room, beside them.

When the sunny season comes along everyone of the parish complains about the intolerable heat that fills the church. The attendance being much greater at some Masses, people are usually crowded into an eighteen inch space, which may become even smaller as the original three seats pew is turned into a four place one.

This brief description of what actually goes on speaks for itself. Individual seats, designed and built for their purpose, is the logical solution, not only to bring comfort to the church but to solve the solution regarding the capacity of a church.

If we follow the old rule a pew for every family in the parish,

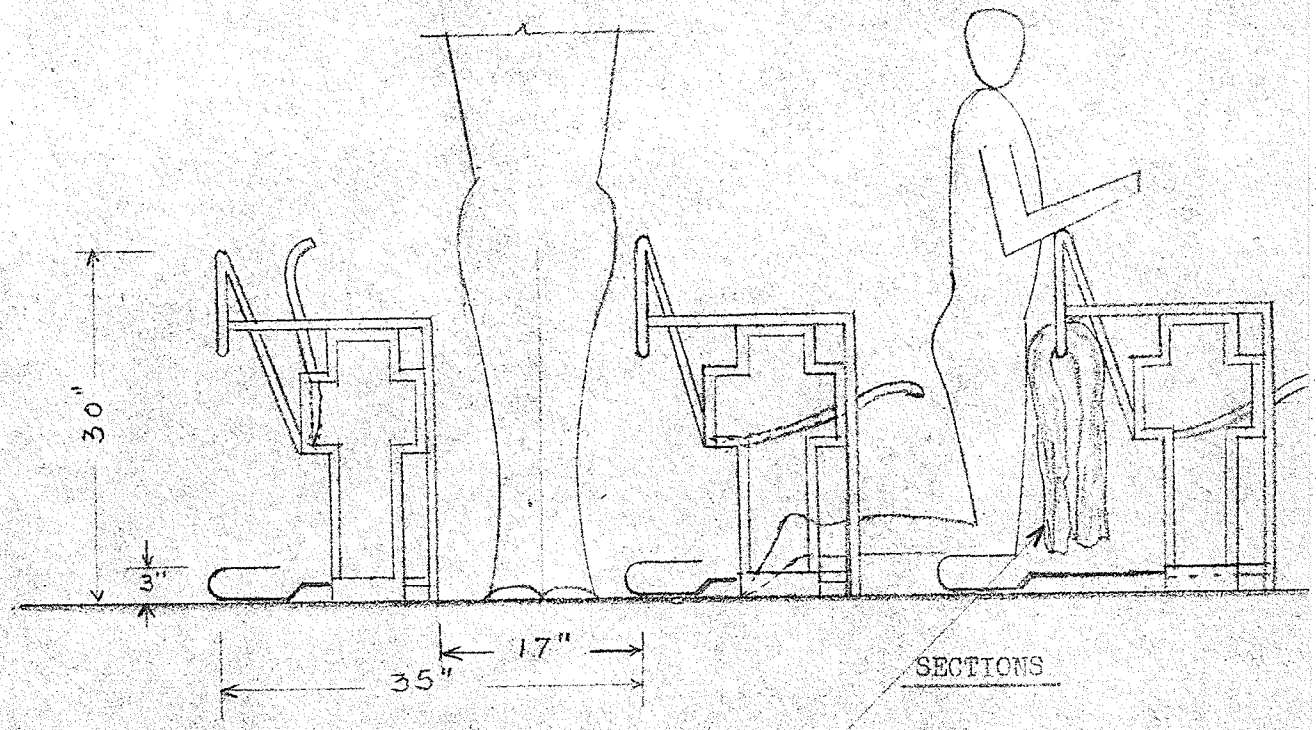
then the data sheets tell us that our church is too small. As an example, a population of a thousand people requires, according to that rule, two hundreds pews or six hundred seats which is a 60% capacity. This percentage obtained from the research, that is 33⅓, totals a hundred pews which leaves a hundred families, in the parish, pewless. As thisenters in the discussion of capacity I will go back and discuss individual seats.

There are no such prefabricated seats on the market with the exception of theatre seats. These, however, by their very design and conception can not be used, as they are, in a church because they would bring, with their use, a high tone of profane charcater to the church.

On order to avoid this anomaly, I have redesigned the theatre seats to suit religious requirements.

In order to keep within religious tradition, a continuous back has been adapted with a twenty inch divided individual space. A fold-up type seat: the circulation is further eased by a thirty five inch spacing from back, in order to permit a larger grouping of such units. As from twelve to twenty seats could be grouped together, central and side (wall) isles, only, would be necessary, even in larger churches. A movable kneeling pad together with an overcoat-bar have been provided for in the design. Such a seating will not only add to the comfort of parishioners but will ensure an easy flow of circulation which is of prime importance in any public building.

B. - Capacity. -- The number of Sunday Masses times the capacity should add up to the parish population. To this rule a factor of safety

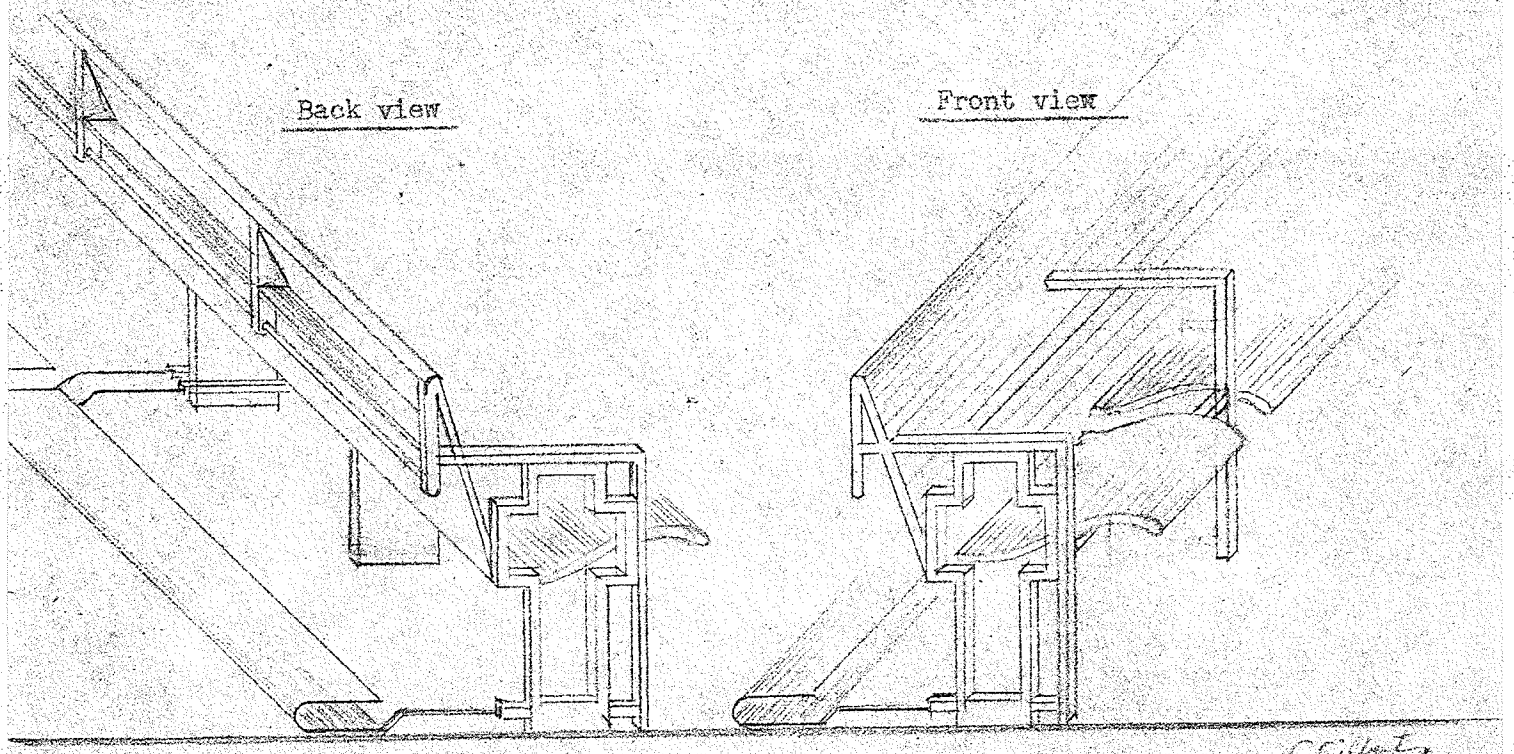


SECTIONS

COATS

Back view

Front view



of ten per cent should be added to provide for any possible expansion of the parish. This is specially true for small parishes having only two Masses on Sunday.

Another factor which, to my mind, is of first importance and on which all calculations will be based is the representation of all families at one service.

The individual seats will permit, with a rather low percentage, (1) that two members of each family of the parish be present, at one time in the church. On such religious festivities as Christmas Eve, Easter and so on, the demand for accomodation always exceeds greatly the facilities. Everyone wants to attend night Mass on Christmas but the church can take only one third at a time. With such a basis, every family will be entitled to two seats which is the least that should be done.

These are the answers to questionnaires regarding attendance at late Masses:

> "My church is over crowded at late Mass and many have to stand up." The church will never be large enough to meet this new trend. (2)

This present trend can be coped with rather easily especially so, if we accept the individual seats, thus increasing the mating capacity.

There remain the last two factors which make up the equation; population and the number of Masses, capacity being our unknown. Which is, of the two, the controlling one?

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(1) As shown in the results. p. 22

(2) Thirty per cent of Rectors have pointed out this problem.

Table 2

RESEARCH- CAPACITY			
Population	Capacity	Mass	%
400	450	2	25'
402	400	2	75
557	500	1	79'
646	444	2	50
825	600	3	60
8 50	350	4	14'
908	425	3	33'
1050	300	4-	30
107 0	200	2	30'
1061	500	2	75
1137	700	2	53.8
1145	260	4	33
1276	700	3	50
1300	600	2	40'
1324	800	2	60
1400	900	4	60
1600	600	5	2 0
1674	335	4	100 '
1700	1000	5	59
1745	300	6	30
1800	1100	2	61
1900	1200	3	33'
2308	540	4	25'
2352	670	4	25
2368	625	3	35
2392	400	4	20'

Table 2 (continued)

Research - Capacity			
POPULATION	Capacity	Mass	%
2400	800	3	25'
2545	600	4	20'
2600	900	4	25'
2738	1200	3	47
2800	650	5	50
2848	800	4	60
2915	1000	3	33'
3083	900	5	25
3118	850	4	30'
3188	—	4	33
3192	1850	4	24
3053	1200	3	29'
3200	1000	4	33
3200	1000	4	30
3202	930	3	55
3200	800	2	25'
3216	1050	4	25
3346	1000	5	25
3389	1100	4	33
3738	668	4	18'
3788	1000	6	30
3942	800	4	25'
4000	1000	8	20
4000	1000	5	25
4148	1600	4	33
4533	1200	4	26
4869	850	5	25

Table 2 (Continued)

RESEARCH- CAPACITY			
POPULATION	Capacity	Mass	%
4966	---	4	75
4990	1000	4	20
5000	950	6	20
5014	1000	3	30
5432	1100	5	16
5550	1600	5	35
5678	1300	4	20
5600	2600	8	60
5827	1400	5	20
5840	1500	9	20
6075	1750	9	25
6 044	1500	5	25
6228	2300	5	20
6300	950	7	20
6331	1300	4	20
6400	1200	8	66
7000	900	7	20
7436	1650	6	58
7650	1340	6	10
9255	1700	4	25
9810	2000	6	22
10442	2000	8	75
10549	3000	8	30
10729	1500	7	13
10737	2600	6	58
14485	1200	5	25
15107	3300	9	20
18880	2000	10	17

Factor population does not greatly affect the capacity of a church, as the tabulated date show. Let me take, as an example, cases a, and b which have the same population. (1) In a the actual capacity times the number of Masses add up to 1200 seats, which is on the safe side. There are 150 seats to take care of a possible influx and one third of the parishionners may attend the late Mass, which is above the maximum. Assuming an average of five people per family, a population of 1050 gives 210 families which require 420 individual seats to accomodate two members of each, at one service. So there are 120 seats lacking to comply with the requirements accepted as a minimum.

In b where the number of Masses is only of two instead of four, it is quite evident that the capacity is too low; half the people are seatless. The desired capacity asked for falls short by 30% with the chart. Everyone must be able to assist at services and have seating accomodations. This is the first requirement. (2)

Adding to the formula MxC ten per cent, in order to take care of late Mass attendance and population increase, we obtained a total percentage of 60%.

This short analysis shows that population is not the controlling factor but rather the number of Masses said on Sunday. Data sheet further indicates that capacity decreases with an increase in Masses and this up to four. (3)

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(1) Table 2 - p. 13

(2) All given percentages marked with this (') are too low as they cannot offer enough seats for the population on hand.

(3) Table 3 - p. 17, 18, 19, 20.

Table 3

RESEARCH - CAPACITY

	Population	Actual Capacity	[illegible]	%	New Capacity
O-T	557	500	1	79	445
A-C	646	444	2	50	333
S-T	1070	200	2	30'	350
Q-T	402	400	2	75	300
M-T	1137	700	2	53.8	550
A-C	———	300	2	50	———
M-T	1324	800	2	60	800
M-C	400	450	2	25'	100
———	———	564	2	55	———
———	———	1000	2	50	———
S-T	1800	1100	2	61	960
O-T	3200	800	2	25'	800
Q-T	1300	600	2	40'	600
Q-C	1061	500	2	75	700
———	———	800	2	60	———
A-C	———	275	3	33	———
O-T	———	400	3	20'	———
Q-T	5014	1000	3	30'	1500
M-T	2400	800	3	25'	600
O-T	———	500	3	33	———
S-C	825	600	3	60	500
S-C	1900	1200	3	33'	627
O-T	3053	1200	3	29'	700
Q-T	3202	930	3	55	1700
D-C	———	200	3	33	———
Q-T	2738	1200	3	47	1200

Table 3 (Continued)

RESEARCH - CAPACITY

	Population	Actual Capacity	MA S	S	New Capacity
Q-C	7650	1340	6	10	1200
Q-T	———	525	6	50	———
Q-C	7816	1650	6	58	1300
Q-C	1745	300	6	30	538
Q-T	9810	2000	6	22	2600
Q-C	3788	1000	6	30	3200
Q-C	10737	2600	6	33	3300
Q-C	5000	950	6	20	1000
Q-C	10529	1500	7	13	1500
Q-C	6300	950	7	20	1400
Q-T	7000	900	7	20	1400
Q-C	4000	1000	8	20	800
Q-C	6400	1200	8	66	1200
Q-C	10442	2000	8	75	7800
Q-C	10519	3000	8	30	3100
Q-C	5600	2600	8	60	3300
Q-C	5840	1500	9	20	1100
Q-C	6075	1750	9	25	1500
	15107	3300	9	20	3300
	18880	2000	10	17	3200

Table 3 (Continued)

RESEARCH - CAPACITY

	Population	Actual Capacity	[illegible]	%	New Capacity
M-T	——	——	3	10	——
Q-C	1276	700	3	50	630
M-T	908	425	3	33	294
Q-T	2915	1000	3	33	850
Q-T	2368	625	3	35	900
Q-T	5678	1300	4	20	1100
Q-C	2300	540	4	25	460
Q-T	9255	1700	4	2 5	2314
Q-C	3216	1050	4	25	804
——	3188	——	4	33	1100
Q-T	3738	668	4	20	850
M-T	1674	335	4	100	——
Q-T	4966	——	4	75	3700
Q-C	2392	400	4	10	400
Q-T	6331	1300	4	20	1300
Q-C	2600	900	4	25	668
Q-C	——	700	4	80	——
Q-C	105 0	3 00	4	30	300
Q-C	1145	260	4	33	350
Q-T	2818	800	4	60	1600
Q-T	4148	1600	4	33	1400
Q-T	4533	1200	4	26	1200
Q-T	4990	1000	4	20	1000
N-C	3118	850	4	30	1000
N-C	3200	1000	4	30	1000

Table 3 (Continued)

RESEARCH - CAPACITY

	Population	Actual Capacity	[illegible]	%	New Capacity
Q-C	3192	1850	4	24	1850
Q-C	1400	900	4	60	840
Q-C	3200	1000	4	33	1056
Q-C	3389	1100	4	33	1100
Q-C	2545	600	4	20	600
Q-C	850	350	4	14	125
Q-T	3942	800	4	25	985
Q-C	2352	670	4	25	600
Q-T	6228	2300	5	20	1200
Q-C	3346	1000	5	25	800
Q-T	5827	1400	5	20	1200
Q-C	6044	1500	5	25	1500
Q-T	5550	1600	5	35	1600
Q-	2800	650	5	50	1400
Q-C	4000	1000	5	25	1000
Q-C	5432	1100	5	16	900
Q-C	4869	850	5	25	1200
Q-T	1700	1000	5	59	1000
Q-T	------	800	5	75	------
Q-C	------	600	5	75	------
Q-C	11485	1200	5	25	3300
Q-C	1600	600	5	20	1100
Q-T	3083	900	5	25	985

Any value of M above four in the equation looses its mathematical value and does not affect the capacity of a church. When there are more than four Masses said it becomes a matter of accomodation for different group hour attendance; this is quite evident in large cities where Catholics are not in the majority.

With these factors in mind all data have been summarized into a chart under three sections. (1) A common denominator of a thousand people has been choosen.

The first section is controlled by the factor of safety which takes care of late Mass attendance and population variation. The other two groups are based on a just representation, that is, two members of every family, with the use of individual seats.

C. - Conclusion. -- This analysis of the seating arrangement of a Catholic church has brought to light a new consideration; a just representation of the parish's families in the church. This new outlook calls for the redesigning of the present pew, not only to obtain individual seats, but also to provide more comfort and a better circulation within the seats.

It is a current practice in America to buy a family pew at his parish church, so that he may have its exclusive use during special services. The present system is faulty at its very root as there are, taking the whole parish into consideration, only fifty per cent of these three to four seat pews available leaving half the families pewless.

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(1) Table 4 - p. 22

Table 4

CAPACITY of a CHURCH (With individual seats)

P - population
C - capacity
M - number of masses
% - percentage of catholic population

A parish of a thousand people has been taken as a common denominator.

1

P	C	M	%
1000	600	2	60

M x C -1200

Three seats per family
Factor of Safety of 10

2

P	C	M	%
1000	500	3	50

M x C -1500

Two seats per family

3

P	C	M	%
1000	400	4	40

M x C -2000

Two seats per family
Late mass attendance good

This section should be used for any increased value of M as the smaller % which offers two seats per family is 40.

The proposed plan will not only correct this situation but will oblige every family to be responsible for the payment of two seats which means a greater financial return for the church and a better representation at the parish at special services.

If the capacity of a new church may be assertained from this chart for every project, it goes without saying, that, inplaces where seasonal interest brings about a greater influx in population, a special percentage should be added to the figure shown on the chart. This depends upon the lenght and importance of the influx.

PART II

PRACTICAL POINTS

1.- Q.-- Is there a waiting line on Sunday, between masses, due to lack of sufficient exits?

This question, as some pointed out in their reply, is very unusual and does not have any sense. However this survey shows that the function of "CIRCULATION" has been left without a thought in nearly every church planning.

In most cases, even if ninety per cent wont admit it, there is a certain lapse of time during which incoming people have to wait outside in any temperature, in order that outgoing people may walk out of the church. A few rectors pointed out to me that such conditions do not exist in their parish, as they see to it that services do not last too long, and by doing this avoid such conditions. But, unfortunatly, in most cases, services last the whole hour, and the process of coming in and out of the church becomes quite elaborate. In two instances supplemental exits have been pierced in church buildings, in order to avoid such situation; in the first case two exits have been provided, and in the latter one, four new ones have to be provided.

To anyone familiar with this picture it seems unbelievable that a few hundred people be crowded into a space which offers only four exits. To speak of four exits is a broad statement as in a lot of cases only two exits are located at the rear; even if these exits are large the circulation being focused at one point cannot be, but very slow. Saint Ann's Church in Saint Louis, and this is a modern example, is one such case.

For safety and good circulation within the church, exits should be located at least at three points on each side of its nave.

Not only this planning would provide for a faster circulation but would add to the ventilation period between masses, in order to clear up this violated air, which, as it is, always remains from one mass to the other.

This is all I am going to say on this subject, as I shall treat it more fully in my next section under the heading - "Function of Circulation."

2.- Q.-- Would a closed space, within the church, for sick people, pregnant women and so on, be of any value?

There is in every parish a small group which is deprived, through sickness, of the attendence at services; it is for this minority that I have put the problem to the rectors.

It is common in every community to find young and old who cannot, for a certain period, go to crowded places; the church being the first one. Belonging to such minority are pregnant women and a few other medical cases. However small this group may be, it is there, and it must be included in good sound planning. There are also infants brought to mass, this against every decent medical advice, but still they are brought along, due to lack of guardian,a desire to sleep late on Sunday mornings.

With these cases in mind I have included this question first, to know how useful it will be judged by the Church and, in the second place, to see how they have coped with such problems in Catholic parishes.

A special glass enclosed space within the church, which may be

planned anywhere, as in the Narthex, Sacristy or the choir, is what was meant by the question.

Two thirds of the replies were strongly negative because, in the rectors' mind, such minority should stay at home. This may be rather clear, but is most unsatisfactory.

The problem has been solved in different ways in Canadian Catholic churches. The Sacristy, Sanctuary and even cloisters, have been used for such people. A definite planned enclosed space exits in eight churches.

Among the negative answers I must stress the fact that many rectors feel that the sacristy is a good place for such cases; the people like it very much they say.

I do agree that in existing churches the above accomodation is quite right but in planning a new one, as is the case here, one should, to my mind, clarify areas: Every function, every need should be studied and taken care of in a proper manner. Why crowd the sacristy with sick people? If the sacristy is the right place then its area should be enlarged for this new function and a definite space built and provided.

> "To provide a special enclosed space within the church is a good idea. This should be included, by all means, in every new church, as it will render great service and by very practical." (1)

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(1) This is in a nut shell the suggestions and commentaries submitted by the Rectors on this question.

PRACTICAL POINTS

3.- Q.-- IS THERE A TOILET?

YES 125 No 72

Within the last twenty years toilets have been established as a first utility. Naturally I mean here, toilets for the church goers use, easy to reach, and, not located in a far corner of the sacristy as a few were pointed out to be.

4.- Q.-- DO YOU NEED A TOILET?

Yes 23 Existing 125 Grand Total 148

Both sacristy for priests and altar boys alike, the choir space and so on should have separate toilets, as it has been recommended on numerous forms.

5.- Q.-- IS THERE A CHECKROOM?

YES 75 No 115

I will clarify this question as it is obvious that a general checkroom for the church is not the idea at all, but rather small checkrooms; one on each side, located in the vestibule in order to accommodate parties on hand on special occasions such as weddings. These will be of great utility on Sundays and Feast days for the ushers and the men in charge of the ailses and so on.

6.- Q.-- DO YOU NEED A CHECKROOM?

Yes 16 Existing 75 Grand Total 91

These clearly planned spaces will, no doubt, bring order within the church, as tables set at the rear for such purposes will disappear.

A church must be planned for all its activities, however small these may be, and only by providing the proper accommodations for all these activities will a definitly new church be set up.

PART III

FINANCE

This section has been included in order to give you a general picture of the wide range in cost of Catholic churches and also to get the financial religious picture across Canada.

As I have to safeguard secrecy, and more so in this matter, a negative and rather general chart is given here. A twenty year span of life for the buildings in question is the yard stick, and all marks (x) dealings with cost stand for such a Period. As an example: xx means that the church has been built forty or more than forty years ago and that it is nor paid for. Half an x (/) means that the particular case is still within its regular initial twenty year span. An x in the interior column indicates only the interior is unfinished. I shall give you now in a tabulated form the hundred and fifty-two answers gathered in the forms. (1)

Data tells a definite story on church financial planning. (2)

From the records it is evident that up to the $100,000, mark, rectors have been careful and that, in this first section, practically no over financial burden has been given to parishioners.

However by a look at the following price brackets one feels that a definite lack of prevision and planning is the keynote.

I will say in conclusion, as results speak for themselves, that in in project of $100,000, and more, architect and rector should get together and work our a plan which won't ask a financial period over that

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(1) Table 5, p. 30, 31, 32

(2) Table 6, p. 33

Table 5

RESEARCH - FINANCE

Cost	Interior	Paid
$ 7,500		
10,000		
10,000		
10,000		
10,000	x	
11,000		
11,000		
12,000		
15,000		
18,000		
20,000		x
20,000		
24,500	/	/
25,000		x
25,000		
25,000		
25,000		
26,800		
29,000		/
30,000		
30,0000		
30,0000	x	
30,000		xxx
30,000		
30,000		
32,000		
35,000		
35,000		
35,000		

Cost	Interior	Paid
$35,000	x	xx
38,000		
40,000		
40,000		
40,000		
40,000		
40,000		/
44,000		xxx
45,000		
45,000		
45,000		
48,000	x	
50,000		
50,000		x
50,000		xx
52,000		
53,000		
60,000		
60,000	x	
60,000		xxx
60,000	x	
63,000		
65,000		x
67,000		xxx
70,000	x	/
75,000		
75,000		
75,000		
75,000		

Table 5 (Continued)

RESEARCH - FINANCE

Cost	Interior	Paid	Cost	Interior	Paid
$75,000			150,000		/
75,000		/	150,000	x	x
80,000			150,000		
80,000			150,000		
80,000			150,000		
80,000			150,000		xx
85,000			150,000		
90,000			160,000	x	xxx
90,000	x		160,000		x
95,000	x		166,000		/
97,000		/	167,000		
100,000	x		175,000		
100,000		/	175,000		
100,000			175,000		x
100,000			175,000		
100,000			180,000		x
102,000		/	196,000	x	/
109,000	x	x	200,000		
110,000			200,000		
110,000	x		200,000		/
122,500		/	200,000		x
125,000			205,000		xx
125,000		xx	218,000	x	xx
125,000			230,000	x	/
125,000			250,000		
125,000	x	/	250,000		
135,000	x		250,000	x	
135,000			245,000		x

Table 5 (Continued)

PENTAGON - FINANCE

Cost	Interior	Paid
$ 250,000	X	X
250,000		
250,000	X	/
250,000		X
280,000		X
280,000	X	
300,000		
300,000		XXX
300,000		
300,000	X	
300,000		X
323,000		
325,000		
350,000		X
350,000		
350,000		
350,000		X
350,000		
362,000		/
375,000		

Cost	Interior	Paid
$ 400,000		
400,000		XX
400,000		X
400,000		X
460,000		
500,000		X
500,000		X
513,000		
525,000		
600,0000		
600,000		
650,000		
650,000		
680,000		X
800,000		XXX
800,000		X
800,000		
1,000,000		X
1,000,000		

Table 6

RESEARCH & FINA NCE

	Recieved	Not paid	%
$1,000. to $100,000.	68	11	17.5%
$100,000. to $200,000.	51	16	31.3%
$300,000. to $1,000,000.	33	13	39.9%

Broken % for twenty year periods

	Received	Twenty	Forty	Sixty
$1,000. to $100,000.	68	7.3%	3%	5.9%
$100,000. to $300,000.	51	21%	6%	1%
$300,000. to $1,000,000.	33	6%	30%	6%

of twenty years, which is considered as a good rule for any construction. Any building, and a church as well, has a yielding life of not more than twenty years. By this I mean that after that period the building needs reparations and alterations to meet new requirements, and these will necessarily add up to the initial cost remaining to be paid, and would thus create too much of a liability ot parishioners. These requirements may be in the form of a new heating plan, ventilation, repairs, redecoration and so on.

Before I conclude this section I would like to clear up a point which is rather obscure to everyone, weither he is a Catholic or not. On the financial point of view Catholics and protestants stand at opposite poles. The protestant's religious understanding reads as follow; all expenses dealing with the church or parts affected by it, should be dictated by necessity, as revenues must be spent for the benefit of their followmen. Their cold and denuded interiors and their ornaments clearly express this way of thinking. Catholics hold an opposite outlook which may be summarized by these words: The so called, "Fruitless expenditures." The church, in the Catholic mind, is built for Christ, as a token of thanks and veneration from men to the Supreme Master; it should be as rich and ornate as they can possibly make it. As Christ permitted Marie-Madeleine to pour on His feet a whole urn of precious perfume, and this precisely to show men that there was no such so called fruitless expenditure when directed to His glory; so today, His representatives follow the Master's will and still today advocate what seems to be for non Catholics, fruitless expenditures.

When we deal with the construction of a church we must remember that the total to be spent as given by the rector is precisely based on this philosophy and represents the full capacity of the parish to pay.

PART VI

CLERGY'S POSITION ON DESIGN

Q.-- Do you share my belief that our church should be redesigned in order to meet new demands and in order to fit within our social pattern of life?

The vagueness of this question was intentional in order to get the true view of the clergy on actual churches. The results have been excellent as more than two thirds of the rectors made a definite statement. These statements deal with the present conditions of existing churches and provide very useful information as to how to improve them.

First there are those who do not believe in any changes:

> "Our (traditional) churches answer our present needs both architecturally and spiritually and they should remain as they are. These churches promote worship as the modern ones detract from it. Let the elements continue as they are and add up-to-date decoration."(1)

This opinion in whole or in part is shared by 45% of the Catholic Canadian Clergy who have answered the forms. Not only do they preserve actual architecture (traditional) but they go so far as to ban the modern outlook as an assistance to worship. I shall call on Mr. E.N. Conover, director of the Interdenominal Bureau, to clear up this point:

> "In a few cases there is an attitude still to be overcome, against even simple comfort and efficiency in churches, as somehow inconsistent with the true essense of religion and its practice. These minds must be persuaded that early Christianity flourished not because of the Catacombs, but in spite of them.

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(1) In order to safeguard the confidential character of the informations received the single spacing quotation used throughout this section does represent actual statements received but in a reworded and grouped form.

> There may be a disposition to regard provisions for good lighting, hearing, heating, and air-conditionning not as a concessions to Mammon but as desirable and even provocative adjuncts. However, committee members who favor them in the abstract, when it appears that their adoption in the program will necessitate modification or elimination of sentimentally cherished form, cling tenaciously to the latter. Enlightment here may come along the lines of showing that powerful religious expressions in past architectures came, not as a result of Miracle of Revelation, but through the progressive andinnovative use, by men, of the best materials, skills, and methods available to them in their times. This view does not deny that they were inspired by great faith and essence of supreme purpose, a spirit such as we must have in our own times for like expression. But neither does it imply that these forms are sacrosanct, nor that our persistent imitation or tokens of them prove us to be similarly inspired. On the contrary, we show in this a poverty, if not a superficiallity and dishonesty in our own spirit. I do not believe that the men of inspiration behind Chartres Cathedral, if they were building today, would be nearly so constrained as we tend to be by the example of their own splendid past achievement. (1)

However 55% of the rectors who have so willingly filled out the form have a different view on the present state of architecture and express themselves as follows:

> "The Church, always open to new ideas, feels that present churches no longer answer our needs but rather are merely copies of European realizations which have ot cope with different elements. Here we shall stress this very important point that our religious buildings are much too high; this overheight calls for considerable heating and are unecomical in this country. A low, simple design with as few outside ornaments as possible is

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(1) E.N. Conover, "Realistic Planning For Religious Inspiration," Architectural Record, (New York, Dodge, F.W. Corporation) September 1947, p. 89

> the answer for our Canadian climate. The trend of large elaborate churches disappearing out, as our Archibishops feel that a number of smaller parishes with a smaller church is the actual planning of Canadian religious authorities." (1)

The criticism on actual non-protected accesses and high vaults was very firm and severe on every form which carried the above opinion. The exterior flight on steps which become icy in winter time and which requires considerable upkeep was condemned. I would like to stress here taht traditionnal architecture has been ruled out, because, it is not suited to our climate and this consideration was the main one. However the Church is always open to new ideas and any modern logical suggestions which fulfill worship and site requirements will be received with an open heart.

> "The Church in her cannon of laws and principles is quite clear and holds that to speak of a style for a new project is meaningless and against liturgy. As every style has given to the Christians beautiful churches, well planned to fulfill their function, so today the artist must speak his own language and build in accordance with the laws which govern his art. Remembering that he is partaking in the divine cult and working for God he must avoid all forms perimé and specially so because he is working for God. However, in his up-to-date conception he should avoid loosing sight of his work and giving the church the appearance of a shed, railroad station and so on. (He should be with this time, with the laws of his art, and with the respect of traditionnal requirements?) (2)

As it is clearly stated by this code, it is the first duty of an architect, especially if he is a Catholic, to build the House of God

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(1) See note on page 36
(2) Aigrain, R. Priest, Liturgia (Pavis, Bloud & Gay, ed. 1930) p. 132
Cannon 1164 Cannon Law

so that it may answer his requirements both architecturally and technically. To reproduce old forms shows not only a lack of interest in his own art, but is also a failure in his duty as a catholic.

Among other highlights brought forth in the forms is a provision on the overall plan for an extra chapel, which would be used for weddings, and special groups. This chapel should be so planned as to accommodate a group of 25 people.

Then we come to a very difficult problem; that of arrangements for the outside group activities both religious and social, which are growing in importance today. As many parishes have separate social halls, only forty per cent of the answers call for such provision in the basement of the church. Along with this opinion the following was express on five instances:

> "Catholic Churches should follow the new trend but only in so far as their will not be transformed into an athletic or social club."

The first and only function of the Catholic Church as such is worship and in this it differs from Protestant or other Denominations which stress the social aspect.

To have the social halls, bowling allies, card parties, etc requested by many defies the very purpose of the church and these activities cannot mingle with one another in a Catholic set up. As these activities always become commercialized their very aim is defeated, as they must often be closed in order that services may be conducted above. Another consideration which calls for careful reflection is the difficulty in providing proper light and ventilation for such basement spaces.

Bad conditions of ventilation exist in all such locations as I have described and their anti-hygienic conditions are tolerated solely because of their ownership.

Adequate rooms for religious activities only should be provided, but these should be in the Presbytery where they belong. I am especially concerned here with new projects and I feel that such a number of rooms as may be needed, can and should be placed within the Presbytery where porper heating, ventilation, access and so on will be included. If numerous areas for recreation and social activities are required, they should be by all means provided in a separate building, so that the catholic church keeps its own character. If money is a matter of great consideration here, then, our schools can, and, will in some cases, very well fulfill these requirements.

This solution is dictated by Cannon Law:

> 1.- Priests must see, with the guidance, if necessary, of experts that the form consecrated by Christian tradition and artistic laws be maintained in the construction or repairs of churches.
>
> 2.- There must be no opening or windows leading from the church to a profane building: the space, if existing underneath or above the church cannot be used for non religious purposes. (1)

The Reverend Father Gatien Bolduc, doctor in Canon Law and Professor at the Scholasticat St-Charles, Joliette has commented on this canon:

> "What do you mean by "usages purement profanes?" It is evident that the church basement can be used for all necessary functions of the church

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(1) Canon 1164, Canon Law Translation

as, for exemples, furnace, coal, storage room and so on.
But it is forbidden to use such space for movies, dancing parties for charity, and as far as that goes for, card parties, bingos, ect." (1)

As Father Bolduc points out some archibishops are rather too broad minded in this Canon interpretation. With the abuses which have been going on in this matter I feel sure that to provide such space as is asked for, would be rather foolish as a definite ban is bound to come.

All other suggestions and remarks gathered on the forms will be included in the following sections in order to avoid unnecessary repetitions.

Conclusion - There is still among the clergy and public as well a large proportion who not only dislike the modern trend but go far as to regard it as a detriment to worship. However these conservative minds require a fireproof church and all other modern conveniences which they succeed in hiding behind the traditional cloak. Some of them, conscious of the progress which surrounds them, will go so far as to redecorate their church in a modern character not realising that by so doing they destroy the real value of their buildings.

Parallel with this group are the advocates of modern architecture. This group, however, has been influenced as the research shows, by the logical and practical side rather than by purely artistic comprehension.

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(1) This opinion is also shared by Rev. Doctor Bruno Desrochers chancellor of the Archidiocese of Quebec and Professor of Canon Law at Laval University.

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They have realised through sheer observation that our churches are not build for our climate, being too high and too hard to heat. They have also realised that we have only mere copies, poorly done European translations which were originally designed to cope with altogether different local and climatic conditions. More than half the Canadian Clergy asks for a new design, a new conception yes, but their request is much deeper than it seems; they require a true modern, Canadian religious architecture. What would be this new conception based on our practical needs both climatic and social if not a Canadian one.

To our importation we have added the new system which is an American necessity. Capacity in European churches fluctuates with the crowds on hand, with the use of individual chairs, contrary to our fixed and limited pews. As seen in previous discussions our pews as they are, do not fill our requirements. In order to get a nave area which will accommodate a just representation of the parish's families and yet be of reasonnable dimensions, individual seats and established percentages are the answer to the Canadian problem.

Then, exits, comfort as toilets, checkrooms, rest rooms and so on must be included in any new projects so that evolution of religious architecture parallels that of other buildings.

As we progress let us erect our temples as richly decorated as reason dictates. However we must bear in mind the spirit of the Catholic Church and avoid useless expenditures. In so doing the Catholic church will always stand out, unique in its treatment of this matter among all others temples of other denominations.

SECTION 2

PART I

A- ARCHITECTURAL SURVEY

Religious Architecture, everlasting, everchanging did follow this (century art revival) and its numerous exemples lead us to the present clarified notions of form and functions.

The revolution in the arts arts against the academic teachings and realisations which manifested itself by a return to pure forms stripped of any decorations and all superfluous ornaments, left the architects somewhat in a daze. Still influenced by Gothic grandeur they turned to reinforced concrete to create new wonders. Thus all religous monuments of the twenties and thirties reflect this state of mind and we encounter complicated, reinforced concrete structures, new new arrangements of domes, various elipsoides arches, all of which is intended to replace ornaments by new and intricate volumes in some instances, and by a complex structure, in others. The following quotation from an expert French religious critic conveys that thought.

> "Wherever the brother Perret will realise the project of a bell tower six hundred feet high, then modern architecture will surpass and by far, the most outstanding mediaval creation." (1)

I would like to add here another quotation from a modern Americain architect who has done much in the catholic architectural field:

In contrast, it is the imaginative projection

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(1) D'Agnel E. Arnaud Canon L'Art Religieux Moderne (Grenoble B. Arthaud ed; 1936) p. 24 - 1
Translated from French

of function into expressive form that makes a living architecture. And in seeking this transmutation of material and physical qualities, either sentimentality nor romanticism can play much part. Instead what is required is higher realism, a super realism, expressing the design potentialities of structure and use. In church building, morecver, we must beware of a sentimentalizing of religion that constitute its grievious impairment. The reflection of it in a church woefully lessens its quality and even brings into question its rights to be considered a piece of valid architecture. Sentimentallity, and the false standards it has imposed on public taste, have been over reflected in Americain church buildings, but growing understanding of the difference between genuine religious structures and sentimentally impure is aparent, almost more than the present ability of Americain architects to satisfy it.

In opposition to sentimantal or romantic religiosity, modern Europe furnishes numerous examples of churches which are reaction against it. Our tendency to imitate European models particularly necessitates a critical estimate of these buildings which, generally speaking, divide into two types. One of these is no more than a simplification of mediaval types, allied to considerable esthetic knowledge of primary historic architectural forms. The work of Domenious Bohm is an instance of this at its best. I regard his contributions to the future of church architecture as negligible; the central problem of church design for a modern society will find no solution in such work. It begs the question.

The other and more significant type represents a return to function as a basis, often in a doctrinaire manner, in the mode of stylization promoted by the Bauhaus in Germany and the work of Le Corbusier in France. Occasionally these last succeed in being true buildings and to that extent, at least, they have virtues of a basic kind. It is a less fortunate aspect of such work, however, that there rarely appears any fundamentally new resolutions of the element of plan, and the buildings in question do not often succeed really in becoming churches. Nor as a well known ecclesiastic has stated, is this achieved

> by adding a cross, much as if it were an after thought, as a sign to advertize the purpose of building Churchness, in contrast, must be integral in the very fabric of the architecture. Its note, if one may generalize, should be that of gracious austerity. Barrenness, or meagerness does not achieve this. (1)

And Barry Byrne goes on:

> Granting the special facts of worship and its requirements of Seclusion and detachement from the material world, one would say that the function of a vital church architecture largely depends on the application of this concept of continuous exterior and interior space to clarify and intensify given forms of worship. All of this, it will be seen, has to do with the building plan, for in taht lies the intellectual bases around which interior space is evolved. In the building plan, architecture has its beginning. A new, logical plan having its inception in the purposes or worship will inevitably lead toward a new architectural form, but the approach must not be vitiated by desire for trivial innovation or novelty. The dynamic element must be found in the nature of the problem of a church itself and not be imposed on it. Super-imposed, simulated, muscular dynamism of a specious type is one of the less fortunate aspects of much of architectural modernism.
>
> The attainment of a symbolic expression of worshipful functions in the whole church, by esthetic means, is the real objective. An enduring quality should be of a vital concern to us, for the worship of God, to which churches are dedicated, is a profound and not a transitory matter. There are some who will disagree with my ideas of what is important, but I think they can scarcely be persons who would be happy in designing a church. This article is not address to them but to persons who, like myself, beleive in the primary necessity of the worship of God and hope to design in a way this is suitable. (2)

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(1) Byrne Barry "Toward a New Architecture of Worship", Architecture Record, (New York, F.W. Dodge Corporation) Sept. 1947, p. 94
(2) Ibid, p. 96

The imaginative projection of functions into expressive forms which brings about in the building a continuous exterior and interior space are the main principles which commands modern achitecture.

The Revolution in architecture against the Academies, together with the introduction of new materials and techniques, have resulted in numerous realizations. I shall study a number of these realizations with the light of the principles expressed in the introductions and above quotations in order to further clarify architectural problems as to form, plan, and function.

This analysis will also stress how new materials and techniques have affected religious architecture and have brought it up to the actual stage.

Rouges Barres, Paul Vilain & Serex, Architects. (1)

There is a striking example of the new technique. In this particular case the architect has replaced the fanciful ornamentation of the Renaissance by an intricate reinforced concrete coupola composed of triangles and losanges. The bands of yellow openings which divide the coupola and arches into three sections not only add interest to the structure, but possess a high religious significance, being the symbol of the Holy Trinity. The side arches built of inclined plans, carry the same divisions and lighting effect.

This realisation brings out very nicely the transformation brought about by the use of reinforced concrete. The original pendentive of

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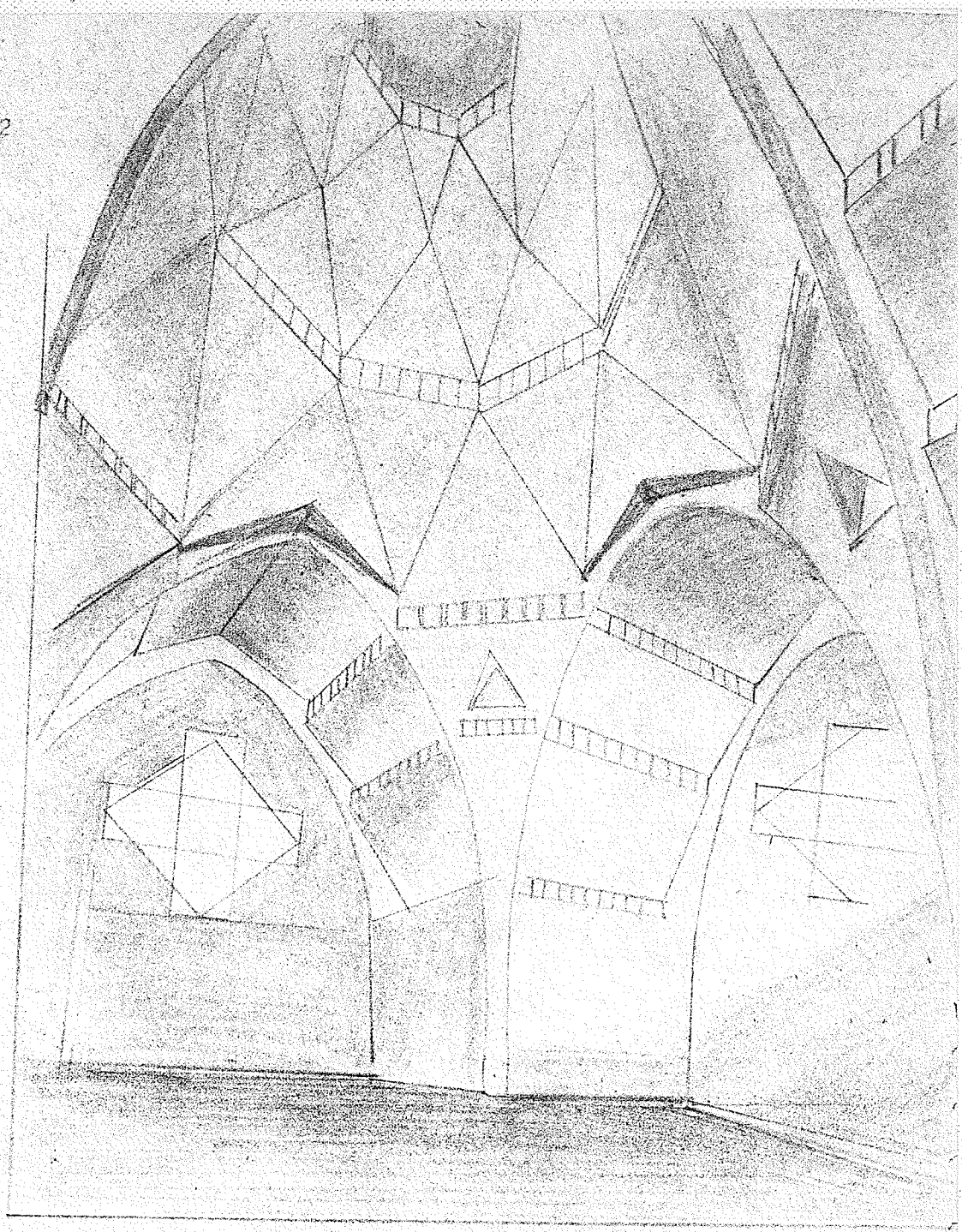
(1) D'Agnel E. Arnaud Canon L'Art Religieux Moderne (Grenoble B. Artheud, ed. 1936) p. 23

Plate 2



Church of Rouges-Barres, Paul Vilain & Serex, Architects.

the Byzantine and Renaissance looses its real character to retain only its shape. The heavy columns and pendentive disappear to be replaced by a continuous flow of a material from the base to the summit. With the fluidity and unity of the concrete all masses loose their weight to compose one great unity.

This interior, no doubt, has a fine religious atmosphere, one with a mysterious note, but as a whole, does not contribute to the clarification of modern principles; its real contribution is one of technique:

It is the search for new forms for their own sake. It does not BRING ANY NEW VIEWS ON FUNCTIONS and the traditionnal plan has been used as it always was. The plan being the basis for inovation, Rouges Barres will always remain the concrete wonder rather than a glorification of given forms of worship.

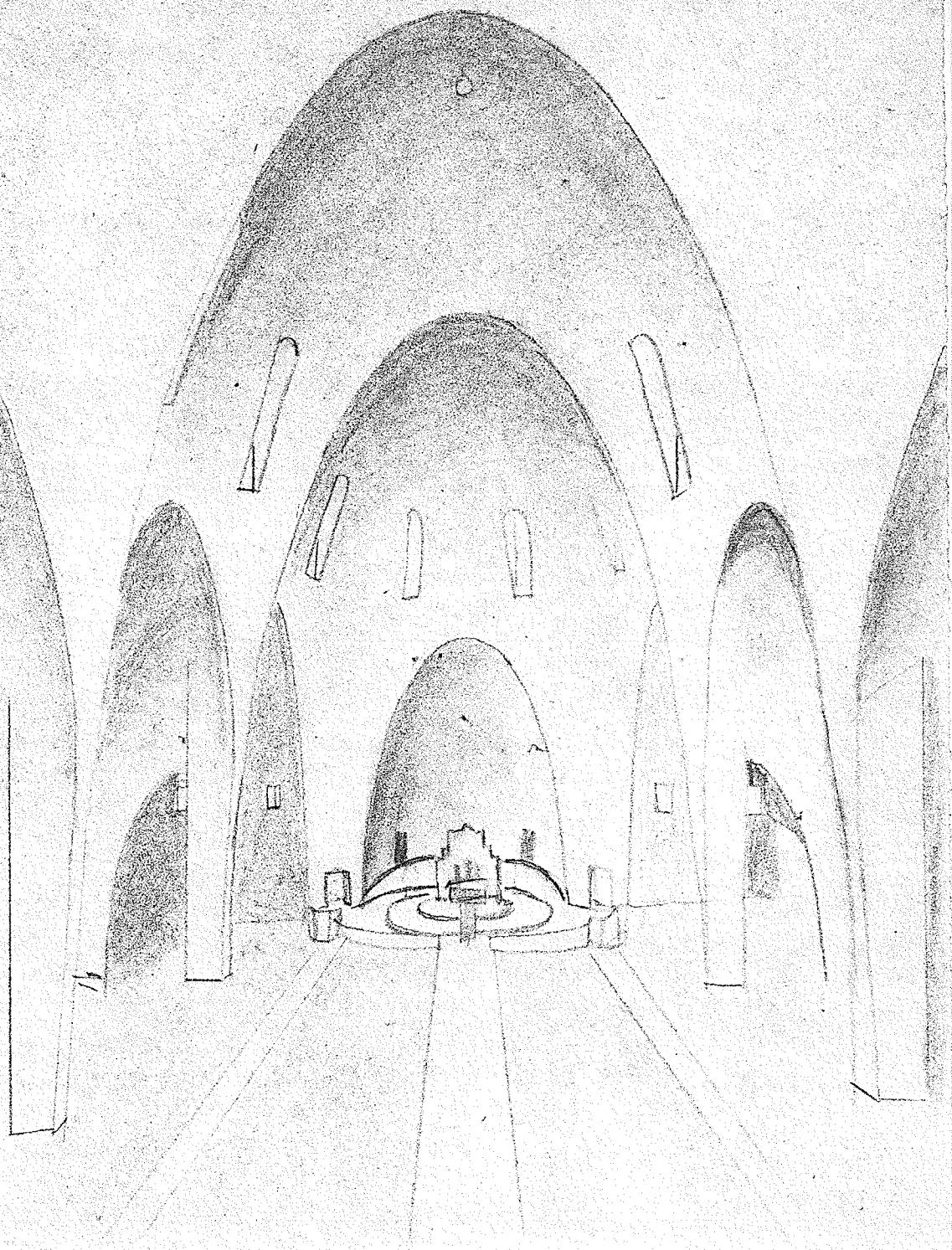
SAINTE-JEANNE D'ARC, NICE, FRANCE, *Jacques Droz, Architect.* (1)

The Gothic grandeur and plan is the source of inspiration which has directed this elipsoide realization.

Droz has filled up the original plan of central nave, side aisles and bays with a series of half domes. The complicated and ornamented Gothic structure gives way to the new material and the pure volumes thus created do have a modern character. However the architect, being prejudiced to tide up a traditionnal plan, did not take full advantage of the possibilities of the reinforced concrete by which all side domes could have been avoided and a simpler effect could have been obtained. This is especially true in the exterior treatment which become an ag-

(1) Ibid p. 17

Plate 3



Church of Sainte Jeanne-d'Arc, Nice, France, Jacques Droz, Architect.

glomeration of domes more or less in equilibrium. To these, two towers of purely decorative purpose definitely break up the unity.

The relationship of exterior and interior space is hard to read and the church of St-Jeanne d'Arc will only stand up as a marker of the modern search for truth.

Let us remember that this conception is one of the thirties and that, at this period, the modern principles as we understand them now, were still very vague. The main thought of that time was to get rid of all superfluous ornaments and to create new buildings so as to give the structure its full value and true appearance.

All attention was given to forms rather than to functions.

D'AUDINCOURT, Doubs. Dom Paul Bellleau, Architect. (1)

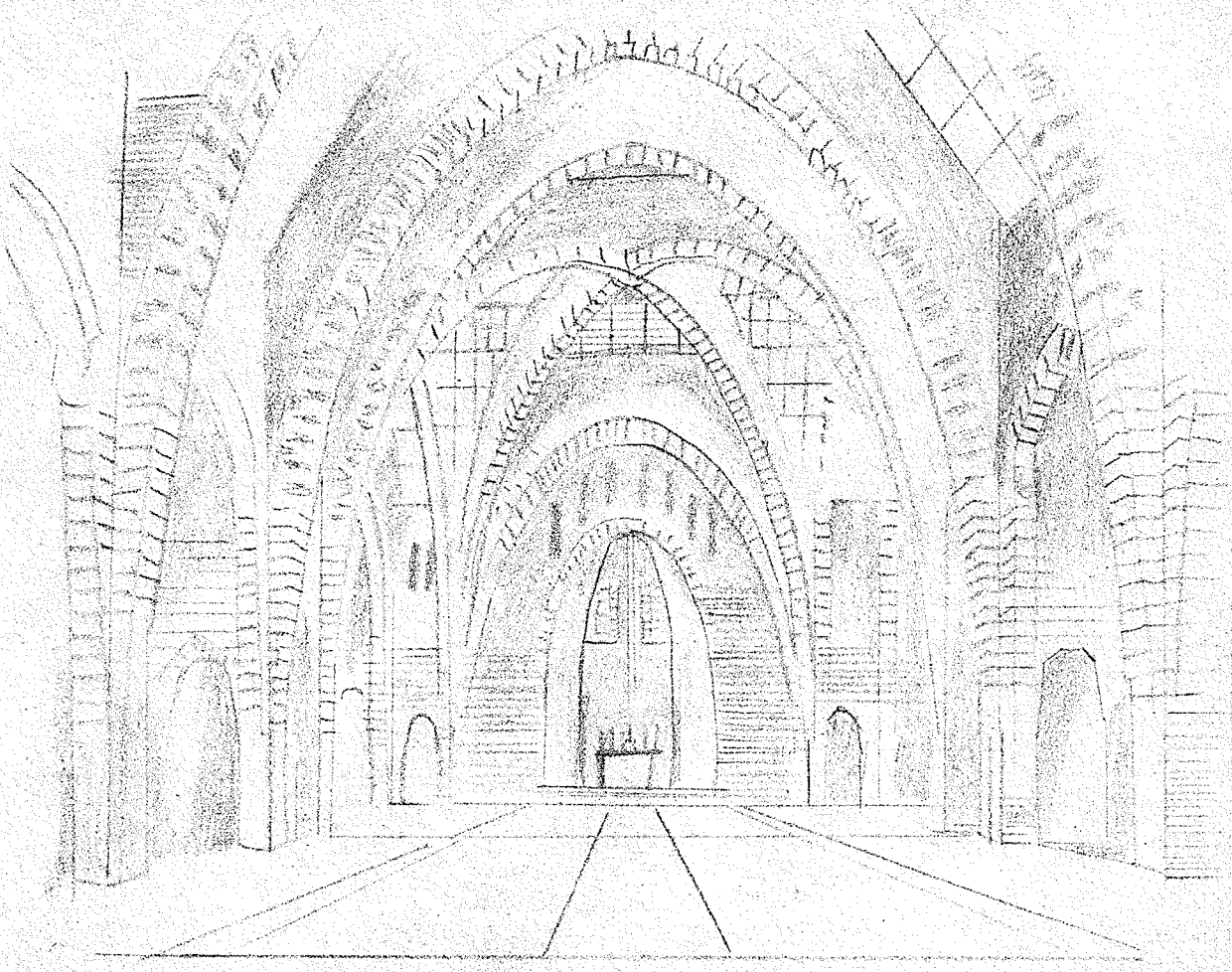
I have included here works of Dom Paul Bellleau since this architect has a great influence on religious Canadian architecture both through his works and personnal contacts with our architects. A great master in the use of bricks as structural and decorative element, his contribution in the field is only one of decoration.

The master and disciples take the churches as they were and replace all structural and decorative elements by heavy, colored brick arches. The use of bricks is carried to all possible uses. In columns, walls, nave arches, choir decoration and so on, and even in the communion railing as in Notre-Dame de Trévois.

The Modern spirit, as understood by everyone and shown in every example, is to light up the church; but to Dom Belleau it is to add weight and more weight, and this heavy feeling extends even to the com-

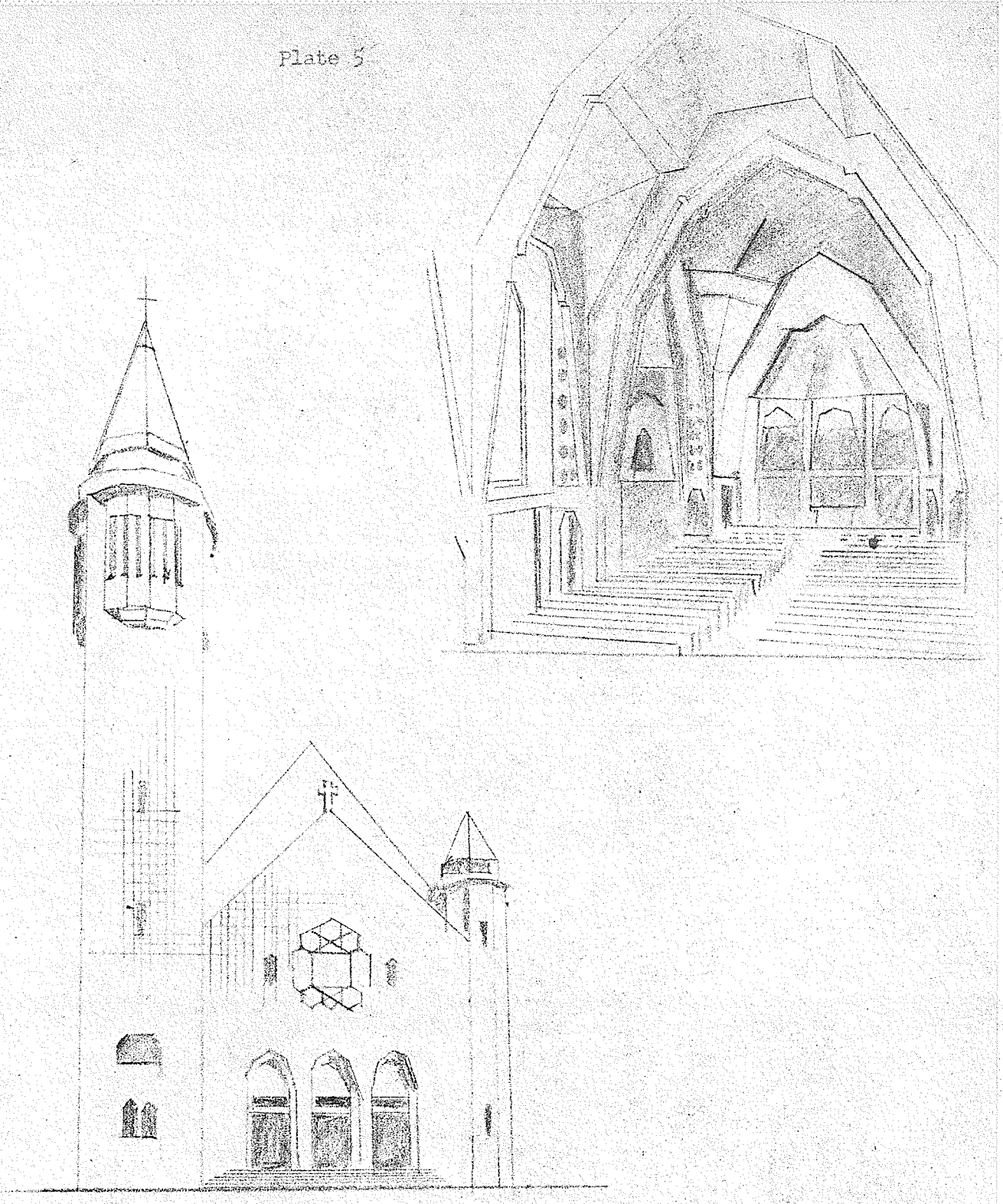
(1) ibid p. 30

Plate 4



Dom Paul Belleau's Work

Plate 5



Church of d'Audincourt, Doubs, Dom Paul Belleau, Architect.

munion railing.....

Then all this heaviness stops abruptly at the nave proper which is made up of a very light panelling, too abrupt a contrast to be esthetic.

When he deals with concrete as in D'Audincourt he requires new material, with properties of its own, to create effects similar to the timber frames of the Middle ages and Renaissance. His masterly treatment of obliques in various directions and projections gives a nice effect, but, an effect which is ridiculous in concrete.

Dom Paul Belleau was rooted in the old Academies and has tried to get away with colored bricks and treatment which are in themselves outmoded.

He is of the men of the thirties, the one who brought less to the advancement of Architecture and the one who had in Canada, as well as in Europe, the greatest influence.

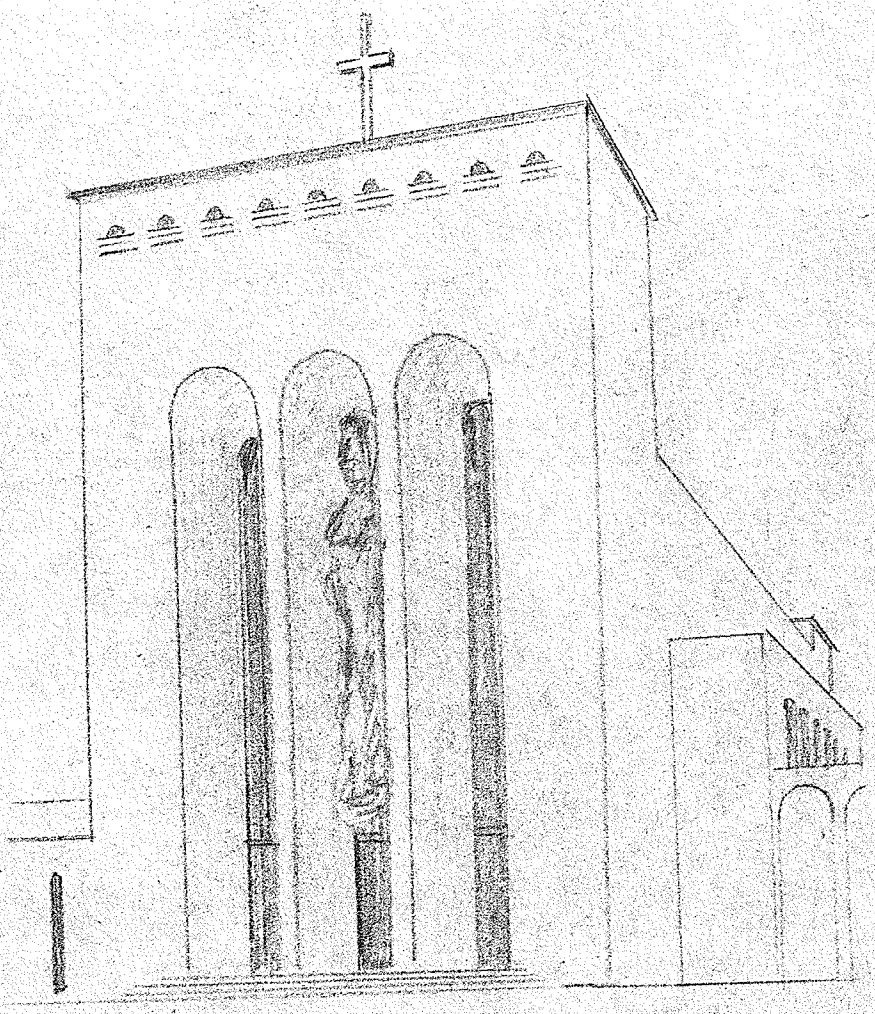
FRAUENTRIENMEN, Germany Dr. Paul Wolf, Architect (1)

A common element in all manifestations of that period was to build in a colossal way. Still, under the influence of the Gothic grandeur and in a search for new standards, the architects clung to the precedent expressed by Canon Arnaud D'Agnel, in order to achieve greater and bigger churches than those of Medieval times.

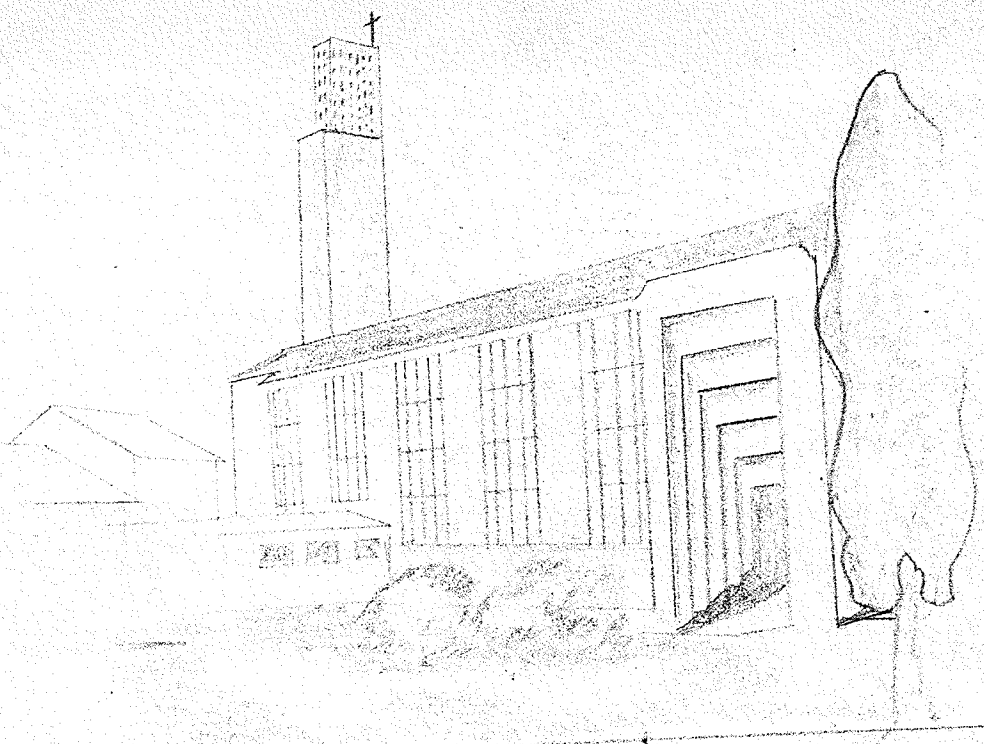
I have included this example in order to show at its best this tendency. This imposing structure may stand for a mausoleum a public museum as well as for a church for the cross on top of it does not, by its mere presence, classify the building as a church. The first quality

(1) Ibid p. 83

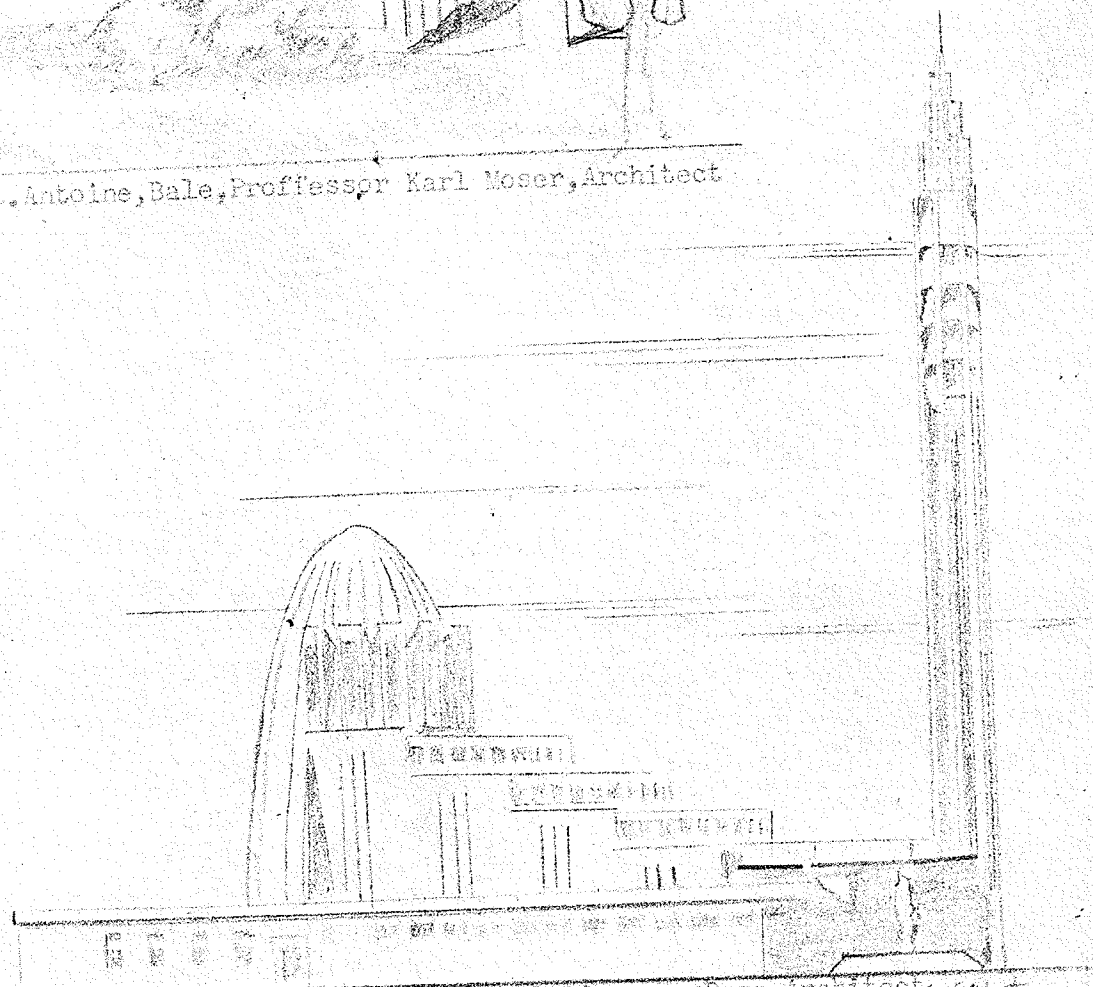
Plate 6



Church of Frauenfrienden, Dr. Paul Wolf, Architect.



1.- Church of St.Antoine,Bale,Proffessor Karl Moser,Architect



2.- Church of Christ the King,Munninge,H auf-Min,Jacques Droz,Architect

of a religious building, and for that matter of any building, is to express simply and with clarity its primary function, its use, its purpose.

1. St-Antoine, Bâle, Prof. Karl Moser, Architect (1)

2. Christ-Roi, Nunningue, Haut-Rin (PROJECT) Jacques Droz, Architect

Here we deal with two examples which are in strong contrast with traditionnal standards.

This criticism has its root in the principle;forms follow functions. A new formulation of the needs of worship has come into being, and, quite naturally, new forms have resulted.

The approach in these two instances was sincere and the contribution to architecture great.

Unfortunatly the first example lacks religious character, while every use seems to be ascribed to the building except the one for which it was intended. It is quite evident that a tower, and this one even lack religious tone, cannot of itself constitute a church.

The second example possesses, an abundance indeed, of religious tone. It is evidently a temple; there is no doubt about that, but, is it a Catholic one? The Catholic Church is a sanctum sactorum intended for the participation by the faithfull in the Holy Sacrifice, and not a social hall where people gather to hear a preacher. This structure would make a very interesting Masonic temple but does not symbolize the Catholic Faith.

However I regard these as great contributions to Modern Architec-

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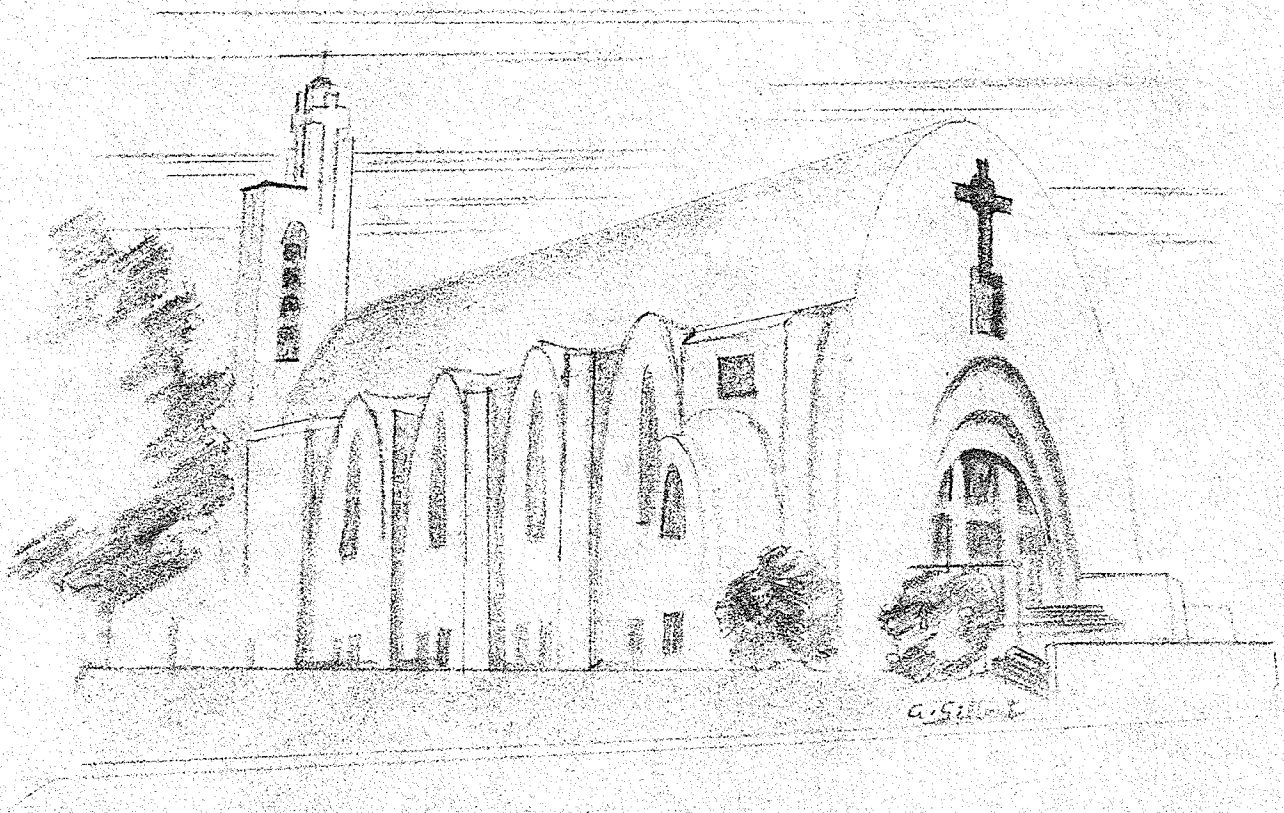
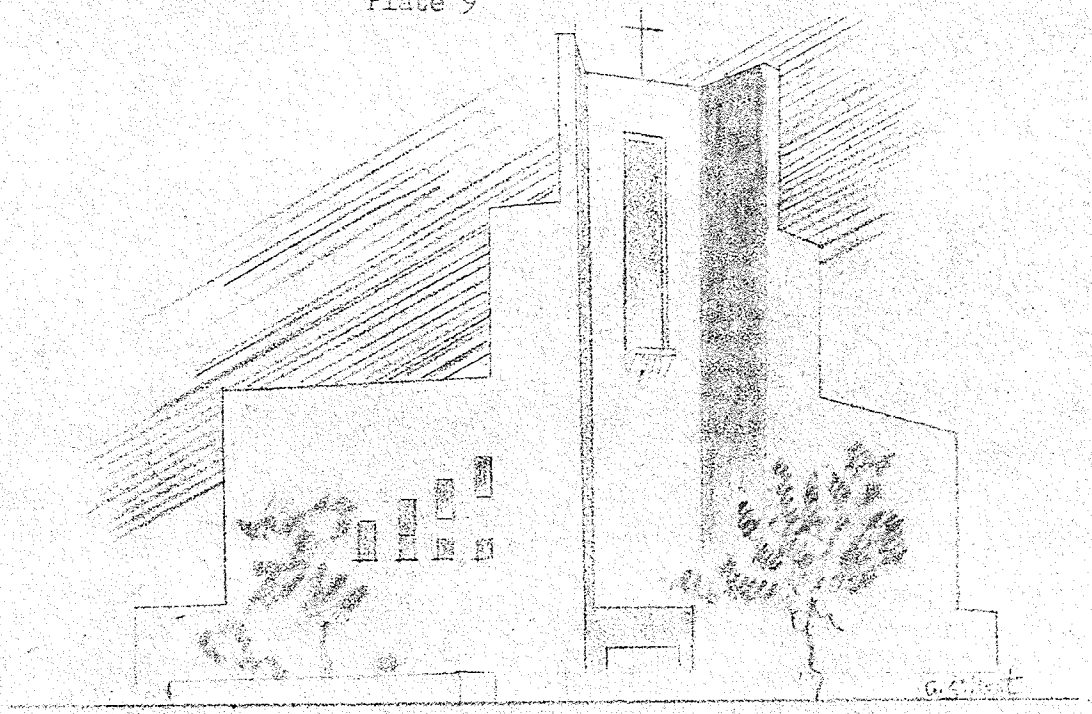
(1) Ibid p. 25 & 19

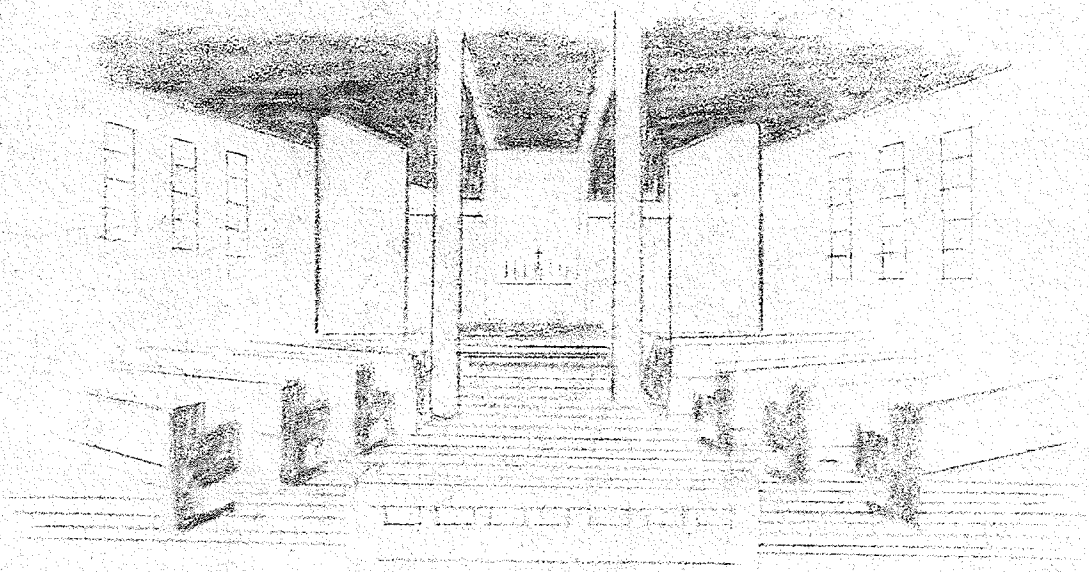
Plate 8



Church of St.Austin,Minneapolis,U.S.A.

Plate 9





Church of SS.Peter and Paul,St.Pierre,South Dakota, U.S.A.

ture and only by such attempts shall we be able to achieve the creation of a perfect Catholic church.

St. Austin, Minneapolis, Minnesota (1)

This project is a graphic example of that phase in the evolution of modern architecture which is called STREAMLINING.

This School was principally active in the commercial and industrial design field but extended its influence to architecture.

The term "streamline" means to get rid of all ornaments and to replace all sharp angles by curved lines in order to create a clean cut product. This phase or movement was solely interested in lines and appearance and no thought whatsoever was given to functions.

This church is a streamlined version of the ordinary small American and Canadian churches and all its parts were left as originally designed the exception that sharp angles were rounded off.

This is a fine commercial designer's work but a childish architectural contribution.

St.Peter & St.Paul, St. Pierre, South Dakota, U.S.A. (2)

This is an attempt to build a functionnal church.

The altar, the focal point of the church, is placed in a prominent place, but the study of functions stops right there. The adoption of a square plan is this case does not make sense, as the seating arrangement clearly shows; an extreme lack of study is the overall note of this realization. The bareness of the interior and its treatment has a strong Protestant influence which is against the Catholic spirit.

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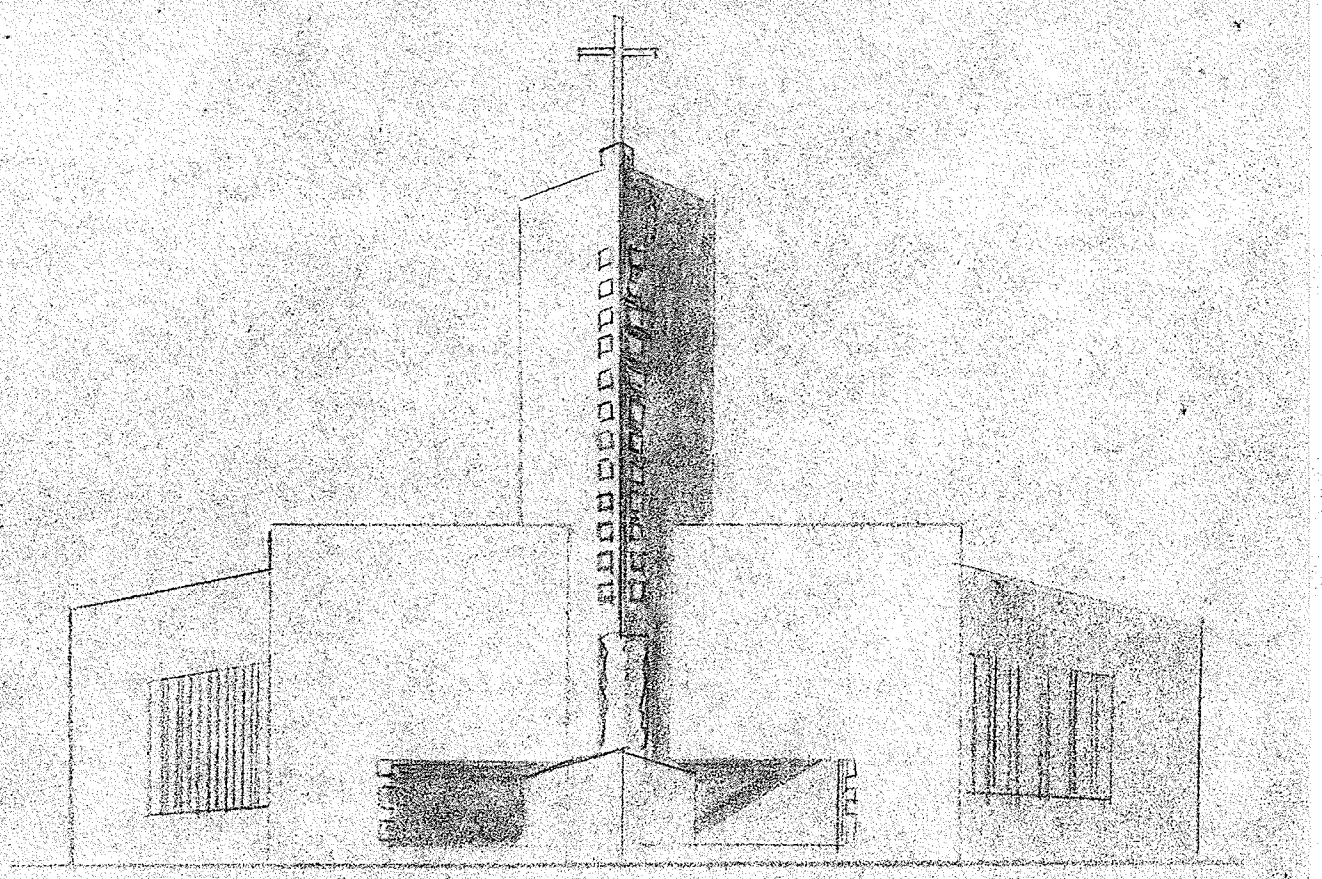
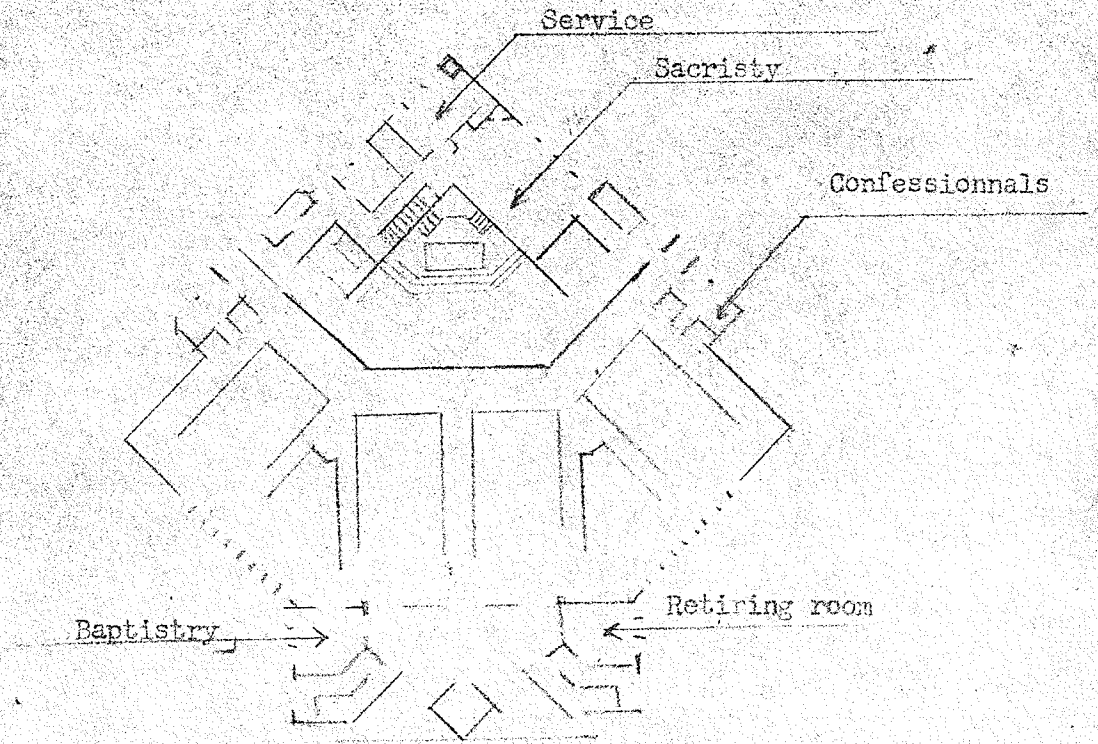
(1) Desider Hollsher, "The House of God", p. 175
(2) Ibid p. 180

Plate IO





Chapel of St.thomas More,University of Iowa,Barry Byrne,Architect

The adjacent planes, which mount so as form to a bell tower, recall a theater setting and have none of the properties of a bell tower. In a functionnal project a bell tower is built to support bells and cannot stand there with no purpose.

The whole project reflects misunderstanding of Catholic requirements, of modern principles and denotes a very poor architectural ability.

Chapel of St. Thomas More, University of Iowa, U.S.A.
Barry Byrne, Architect (1)

Here is a good example of a modern functionnal church. Conceived on the same plan as the preceding one, it underlines and clarifys faults and qualities of each one.

The mainaltar, with its good visibility and proximity to worshippers, is the keynote of the plan. Side altars, because of their of secondary importance, have been, rather wisely, hidden from the main entrance.

We say that it is functionnal because, having studied and understood the importance of the main altar, the architect has conceived his plan to express his understanding.

However, there are a few features which, to my mind do not answer fully the requirements of the Catholic Faith.

In his conception Barry Byrne has left the faithfull practically without scope for piety and personnal devotion which is a very important role of the church. Outside services, the Catholic goes to church to

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(1) Architectural Record, (New York, F.W. Dodge Corporation) Sept. 1947, Church study no. 2

Plate II

Church of St, Marc, Burlington, Vermont.

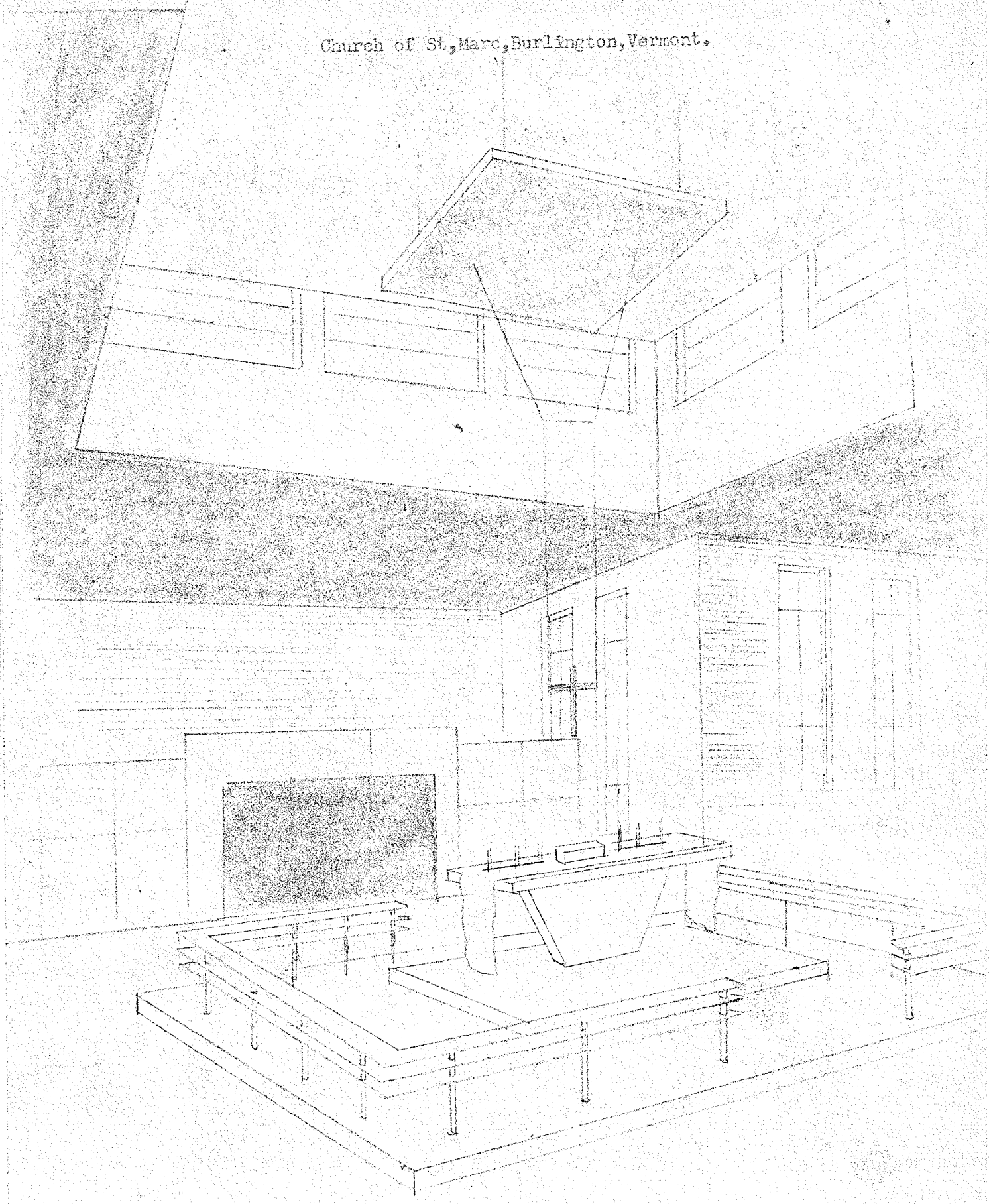
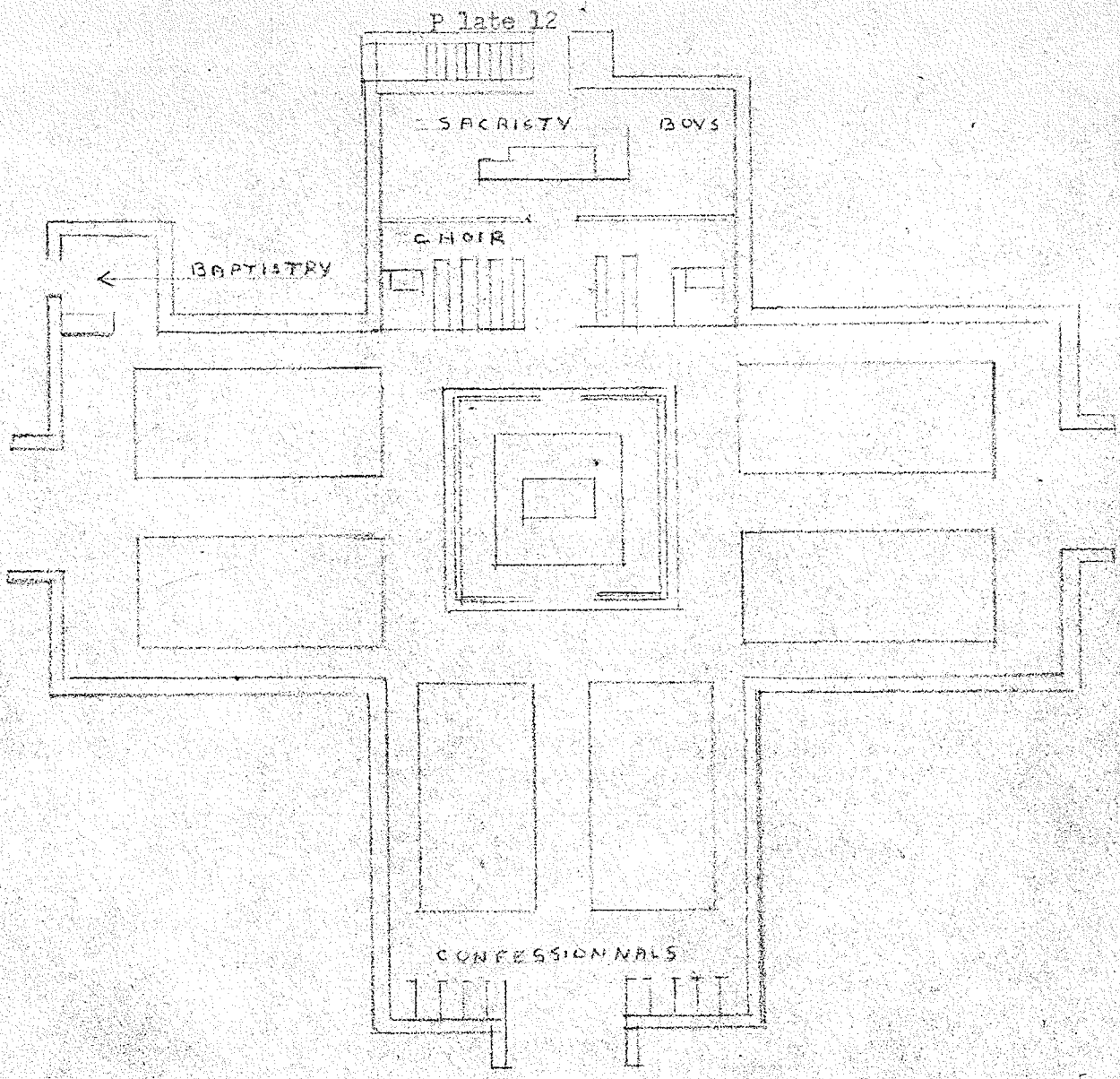
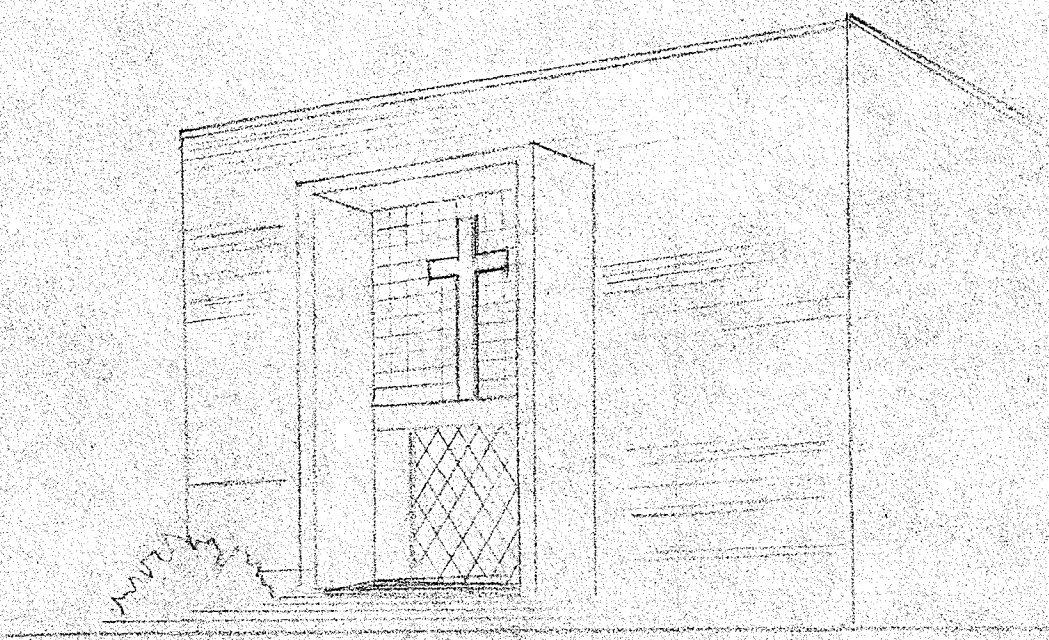


Plate 12





Church of St. Marc, Burlington, Vermont.

pray to the saints of his choice, to light candles and so on, and no provision has been made to erect such statues in this building. As I understand it, side altars are intended specially for this purpose and in that light I would set them in the nave where they would be more accessible and nearer to the public.

As to the confessionnals, the Church is very definite and says in her Laws that these should be located in an open place and not hidden in an enclosed hall. (1)

There is another point which is of primary concern in planning a church as well as in connection with church functions.

The Baptistry is a very important element in a Catholic church and should be treated as such both in plan and elevation.

A rest room on the contrary is a pure addition in the line of comfort and has no functionnal importance. To treat these two parts in plan and elevation in the same manner is a serious misunderstanding, a mistake which cannot be tolerated. In studying fuentions one must not stop at the consideration of the main altar solely, as the trend seems to be, but should study every one of them, giving, in the final plan, the proper importance to all and everyone.

St. Mark Church, Burlington, Vermont, U.S.A.(2)

This is a rather fine modern version of the old Greek cruse plan. The position of the altar is further stressed by the clerestory lighting.

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(1) p. 85, 2

(2) Architectural Forum, July 1944

The composition is simple and straight forward but might have too much of the Protestant influence.

As to the plan itself, I would like to point out that with the evolution of the liturgical choir becoming greater and greater, the position of the altar does not seem to accommodate itself very well with the needs of the present liturgy. This plan has never been very much used in past centuries for Catholic churches. Such a statement speaks for itself.

Project for a Catholic Church in the Philippines

Antonin Raymond & L.L. Nado, Architects (1)

The problem is to design a small church for the officials and community of workers in the sugar mills on the island of Negros in the Philippines. Because of local conditions the materials to be used are limited to reinforced concrete and concrete blocks. Tropical climate dictates maximum openness to facilitate the constant movement of air, and large overhangings to keep the sun and glare out. These open spaces have to be controlled against rain and wind.

All functions, climatic as well as liturgical, have been masterly solved into a building, symbolic of the principles taught within.

I must stress here the Baptistry which has been given its full importance both in plan and elevation. All other parts of the church are well planned, clearly defined and in perfect relation with one another such as the porch and the Baptistry, which is likewise the bell tower.

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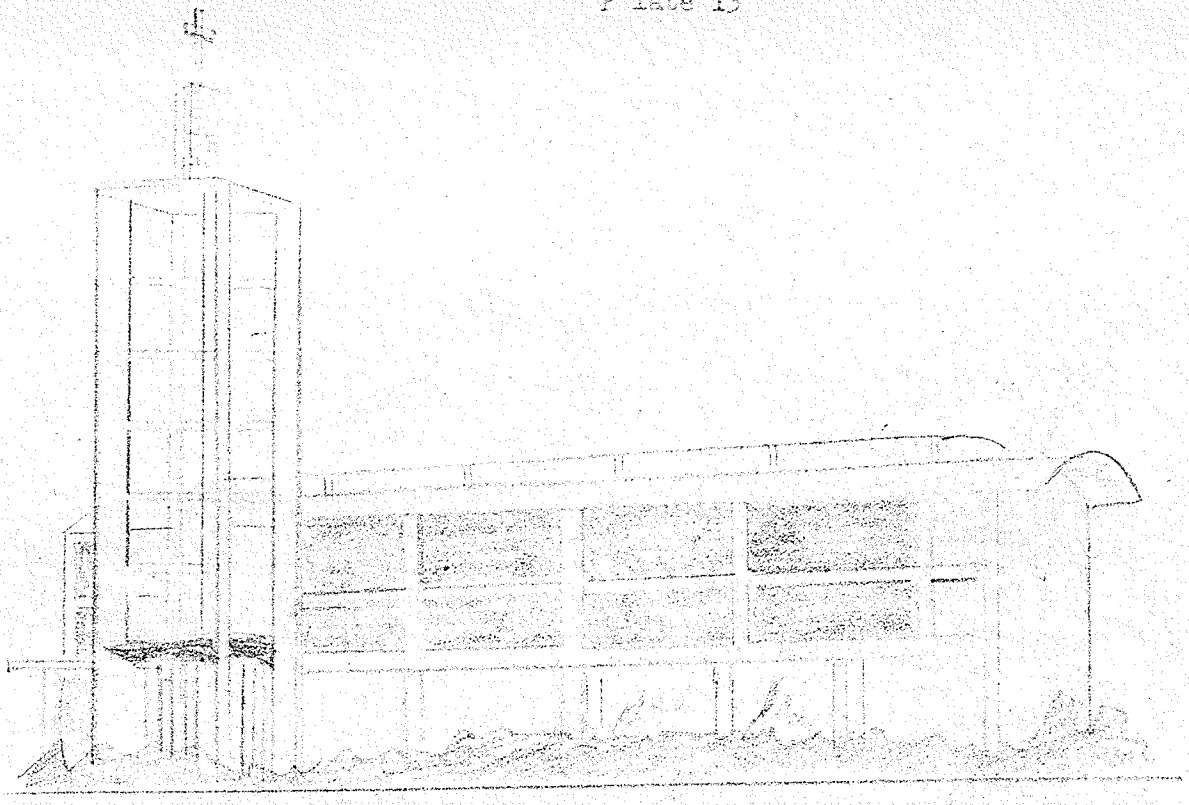
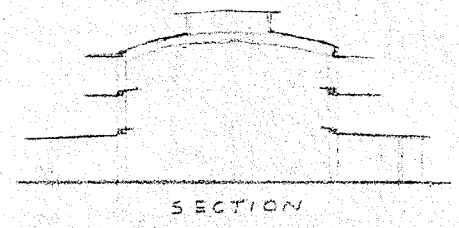
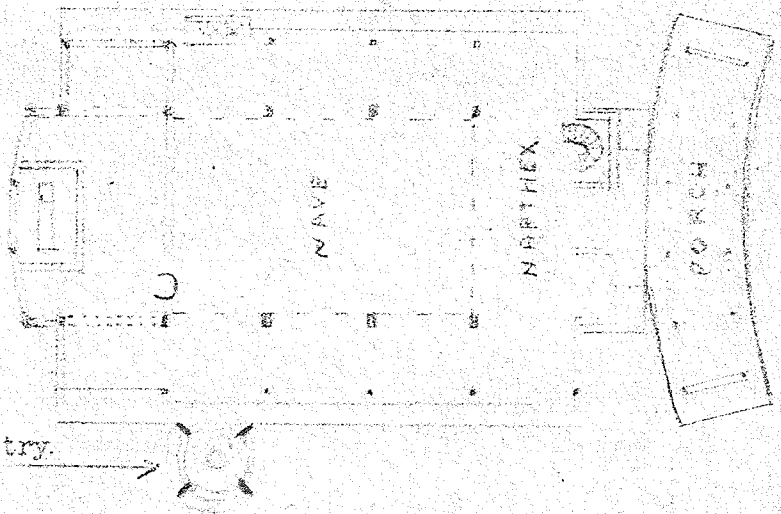
(1) Liturgical Arts (New York, Litorgical Arts Society, Inc.) Vol. XV, Nov.'47, no. 1, p. 22-23

Plate 13







Church in the Philippines, Antonin Raymond, Architec

This project was made possible by a new technique: the reinforced concrete structure has been used both structurally and decoratively to achieve an ornate and substantial building. The folding doors used on the whole length of the nave not only afford a free circulation of air but add a note of picturesqueness, and of geographical character.

This project is among the finest expressions of the principles which make up Modern Architecture; - forms follows functions. Functions of worship with those of climate have received their full meaning and were clearly expressed with the materials ans structure of our times.

Chapel of St. Francis, Pampulha, Brazil Oscar Niemeyer, Architect (1)

> "Symbolism is one of the most important functional requirements of church design, the psychological need, so to speak, (that supplemental, gives meaning to the more routine matters of adequate space allotment and arrangement.)
> ....Niemeyer develops a design based on imaginative use of the structural potentials of today's techniques." (2)

The striking quality of this project is the clear expression of every component part; nave, choir, baptistry, and sacristy are outstandingly well developed both in the plan and elevation.

This is a masterpiece into which form, functions, imagination, and simplicity intermingle form a perfect unity.

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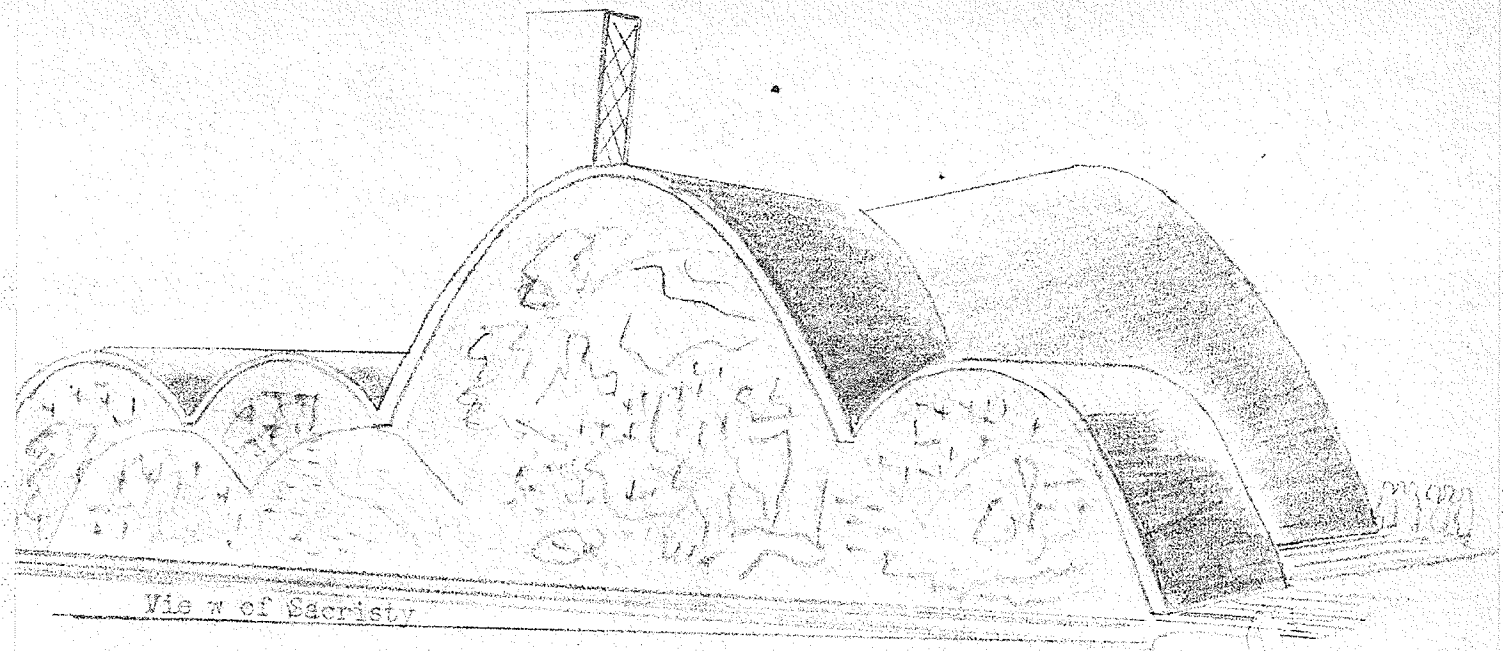
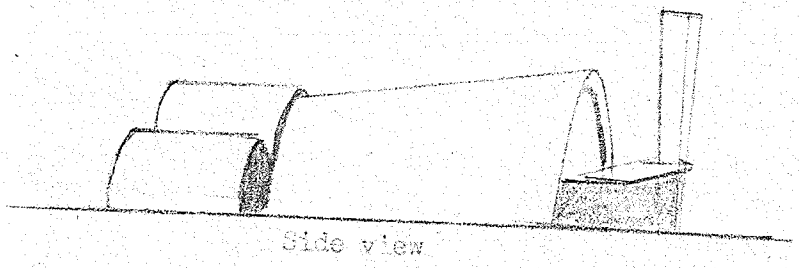
(1) Progressive Architecture, December 1946, pp. 54, 55
(2) ibid

Plate 14

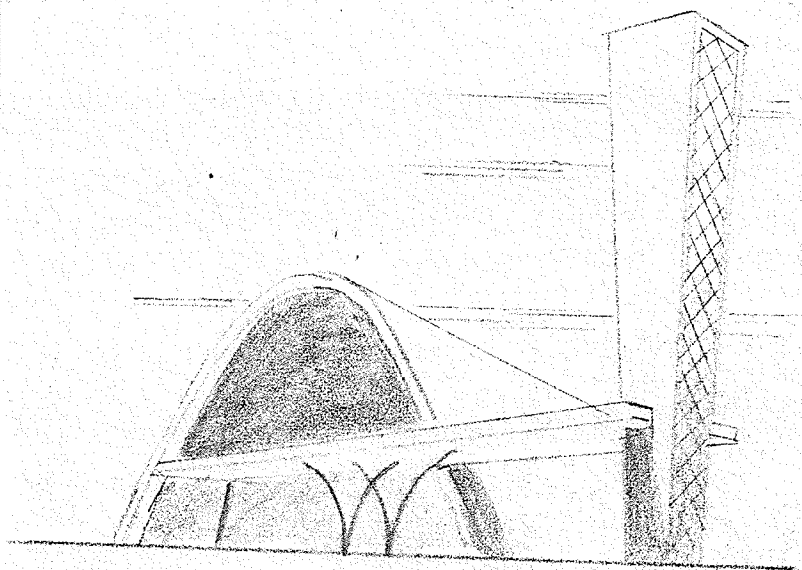


View of Sacristy

Church of St. Francis, Pampulha, Brazil, Oscar Niemeyer, Architect.



Side view



Entrance

G. Gilbert

Conclusions

Materials and techniques were always basic factors in the evolution of Architecture and their advancement from the Greek trebeated to the Gothic pointed arch established this truth - new techniques call for new conceptions.

The birth and control of such new materials and techniques as reinforced concrete open up new horizons and with them new outlooks. These outlooks remain always the same; that is to build according to needs which through the ages developed new styles. This stone history of nations, after years of service became corrupted deseases brought about their decadence and their passed along with the civilizations that they had reared.

This century's mechanisation and its fast tempo together with reinforced concrete and other new materials as plastics and manufactured materials have opened up a new era in all fields of thinking and especially so in Architecture which makes its record in stone.

Religious Architecture, everlasting and everchanging, follows the new trend and furnishes in its buildings records of the architectural trials and errors of Modern Architecture.

Rouges-Barres and Ste. Jeanne d'Arch are fine examples of the search for truth and through the understanding and application of new potentialities they have paved the way to more mature realizations.

The growth of a style is a slow process and as we have seen the above examples are tied up with the past. Then in the process one succeeds in breaking all ties and starts afresh. In this case the plan

gives as a result, a functionnal building. These buildings as St. Antoine de Bâle and that of Christ the King, sincere in their conception stand as a land marks along the road to progress. One of this century's characteristics is the desire for speed and had its influence on arts which was expressed by the streamlining of objects and buildings. This school of design has given false standards of modern Architecture as in St. Austin Church, and many other renovated interiors throughout the country.

In order ot achieve a functionnal church, a church which will fulfill all requirements of worship one must study every function and plan these in relation to their importance. If a new conception arises from this study, its translation into the plan must be logival all its parts, and satisfy all its functions, as in the chapel of St. Thomas More, which may be compared with that of St. Peter & St. Paul where only the main function was considered. These two examples, built on the same plan, the same central idea, show clearly how Modern Architecture comes into form.

The last four examples included here express, with various intensity, foctors of understanding on the architect's part which create great works of art. With the full knowledge of the possibilities inherent in materials and the requirements of the project to be built, the architect must add a part of himself, imagination. Imagination brings unity in a non-axial arrangement, it creates new structural beauty and it creates also new arrangements of volumes and forms. Antonin Raymond achieves in his church for the Philippines a simple yet adequate building which I classify as a structural masterpiece.

Niemeyer, on the other hand, by an outstanding imaginative use of concrete together with a profound knowledge of the components parts of a Catholic church gives us a masterpiece of clarity and simplicity. In this chapel of St. Francis all component parts as nave, choir, baptistry and sacristies are well conceived both in plan and elevation and yet offer a grand simple unity.

This analysis was mainly concerned with the clarification of the principles regulating modern Architecture and I shall now proceed to a more detailed study of the Catholic Church.

PART I

B- RELIGIOUS ATMOSPHERE

To build is to limit and confine space with such materials as to protect it from nature's elements. To these furnished bounded spaces are attached feelings and impressions-feelings of warmth and peace inviting or repelling nature, impressions of grandeur, sadness, mystery and inspiration.

As these feelings are of an intellectual nature, atmosphere, remains in a latent state in almost every building. This atmosphere is created by the architect's deep understanding of the purposes and aim of his project and the expression of such purposes and aim in materials and forms. A building, just as a room, may be converted to different uses by the sheer alteration of furniture and decoration, but these changes only classify the building for a use and do not give any true atmosphere. So what is atmosphere is not the intensity of comprehension of a use of a definite space and, as a tangible result, the very artist's personality translated into his work; just as a painter puts his ideas on canvas. It is intellectual quality directly-dependent on the author's ability to create and infuse his understanding into materials and forms.

Religious atmosphere is then the communication of the architect's own conception of the house of God through forms, volumes and materials to other intellects. This quality will be present if the general public feels it; as a church is used by the parishioners and not merely by a few individuals. To explain this point further, a church is built for

a whole community and this community must be at ease in the building if the building is to suit its function.

In order to understand and create such an atmosphere, one must know the basic principles of the Catholic faith and especially the purpose of a church as a building. Catholicism is the communion between the faithful soul and his God, expressed by adoration and gratitude on one part and by greatness and forgetfulness on the other. The church is then the place where the faithful gather to offer, their prayers to God. They gathered, yes but they further unite in the Holy Sacrifice with the priest so that the assembly becomes one in mind and one in prayer. To express this in a schematic form we may say with accuracy that the nave acts as a funnel which directs all prayers to the altar which by the union with the priest are fused into one and sent up to God as a compact offering of veneration, adoration, and petition.

Again Catholics have to deprive themselves of cherished things to offer them as presents to God which brings about the so called fruitless expenditures which are expressed in the church by extensive altar drapes and so on. These principles are the basic ones in the conception of a Catholic church.

The Medieval cathedral with its pointed arch and vaulted roof was of symbolic of the union of the faithful as they raised their hearts in prayer. In a recent example such as Rouges-Barres (1) new techniques and materials put further stress upon these principles through the very intricate central dome. However modern Architecture has given us a per-

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(1) Plate 2, p.

fect example which expresses fully the union and cooperation in a Catholic Church. The Chapel of St. Francis in Brazil (1), is to my mind, an outstanding realization of Catholicism translated into forms and volumes of extreme simplicity and yet of high symbolism. The funnel type of nave leading into the sanctuary is symbolic, effective and of great simplicity, which results in a true religious atmosphere.

Wherever the intimate union of the faithful with one another, and, with the priest, is clearly expressed in simple yet rich symbolic forms and volumes, a religious atmosphere results.

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1 p.68

PART II

THE CATHOLIC CHURCH SAYS

Catholicism has a rich tradition which has been recorded from the beginning of time in its fullest details.

With the progress of Catholicism from Christ on, the ritual took definite forms and was passed on to us as it is today. In order to obtain and maintain unity throughout the world both on Her teaching and in Her ritual, the Church created what may be called permanent committees, to set up laws and principles. Of prime importance to us in this work are the rules established by the Congregation of Sacred Rites, Canon Law and an elaborate compilation of these works and others into a work called Liturgia.

This second part is a compilation of such findings as given in these works and which concern the church as a building. Consequently as these rules are cleared I shall make only those personal commentaries which, to my mind, will clarify given rules.

These data will be grouped into three main divisions: the church, its parts, and its furniture.

I- The Church

a- One should be able to walk around the church: the building must stand free on the lot.

b- There must be no opening or window leading from the church to another building: the space, if any, underneath or above the church

cannot be used for non religious purposes.(1)

It must be understood by this cannon that the basement may be used for the purpose of storage of supplies as such oil, coal and so on, and for these purposes only. Such existing space, for example, cannot be turned into recreation rooms, social quarters or anything devoted to activities other than those related to worship or its upkeep.

c- 1. To be used for worship a church has to be consecrated or at least blessed

2. Cathedrals must be consecrated

3. A church made out of wood, iron or any other metal, may be blessed but cannot be consecrated. (2)

By consecration is meant that the building, in this case, the church, is given solely to the service of God. A consecrated church cannot be used for any other purpose than the Roman Catholic Worship and, if it is abandoned, it must be torn down. On the contrary the blessing is somewhat a temporary use give to the church.

It thus follows that a permanent church has to be built of either stone, brick or reinforced concrete or any combination of these.

d- The Church and Modern Arts

His Holiness Pope Pius the XII in His last encyclical stresses the fact that modern works should not be despised and rejected as a whole but should be given the same opportunity and liberty that other styles have enjoyed in the past. However the authority, which, in this case,

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(1) Canon Law, Canon 1164 - 2
(2) Canon Law, Canon 1165

is the rector, must avoid the modern excess of "realism" and "symbolism" having in mind the needs of the community rather than the individual taste of the artist. Such works which seem to be a deprivation and a deformation of true art in that they openly offend beauty, reserve, and piety by their very contempt of religious feeling and must be banned from the church. (1) It must be remembered that religious art is for the appreciation of the community and, not, for the appreciation of a limited group of artists.

e- Vision

Vision in a church has its requirements and they are related to the liturgy. If the Church asks its faithful to assist at Mass, it is more with his eyes than with his ears; it is especially with his eyes that he will be able to follw and associate himself with the Holy Sacrifice.

The elevation of the sanctuary above the nave is way to obtain a better vision. The Church requires that this elevation be of numerous steps (usually three) in odd numbers. However we should not be afraid to increase the number of steps; we know only too well how a Sanctuary as that in Notre-Dame-of-Paris, which is practically on the same level with the nave, makes it difficult for the spectator to follow the ritual. The longer the church the greater ought to be the difference in level. Another way to achieve the same result, which was practiced in Medieval Times, is to give a slope to the nave pavement, which if not readily visible to the eyes, sets up the sanctuary pavement and affords a better

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(1) Pope Pius XII, "Mediator Dei", Quebec, l'Action Catholique

view of the ceremonies. (1)

f- Orientation

Even if the Church has always advocated that the altar ought to be placed on an axis running east-west, so many exceptions have been made that we should no more follow the rule to the letter.

The Church will, then be planned according to local and geographical conditions: however, whenever it is possible, we should try to keep the traditional east-west orientation. (2)

g- Plan

The usual plan of a Church is that of a Latin cross, the sides of which are equal. It is not necessary that the plan be so conceived on the ground: the transept has not to extend beyond the width of the nave. The Latin cross is not the only accepted form: the Greek one, a circular or rectangular shape, and, even any combined forms may be used in as much as they are adapted to the requirement of worship and offer advantages to the faithful. (3)

h- Beauty

Again we urge and recommend heartily that churches and sanctuaries be beautiful. Every one must make his own this inspired word: "The zeal of Thy House hath eating me up" and he should do all in his power so that churches, vestments, and liturgical ornaments be suitable and of good taste as they are consecrated to the divine royalty. This should be done

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(1) R. Aigrain, Liturgia, (Paris Gould et Gay, 1930)
(2) ibid, p.
(3) ibid, p.

without excessive luxury. (1)

f- Purpose

One must not confine the liturgy merely to exterior ceremonies, to a mere ritual, or to a kind of sacred pantomime. One should be careful even if the Mass is the center of liturgy, not to understand by "liturgia" the Mass only, especially the low one. Mass, canon's offices, sacraments, all public acts of worship make up liturgy. (2)

If we follow this last principle to the letter, private devotion, which in itself is not strictly a public action, is not a function of the church, and no special attention ought to be given to private devotion in the planning of the house of God. Unfortunately this is exactly what has been done in almost every modern Catholic church. A few modern project, side altars, statues of the saints and so on have been left out. Private devotion, which is a necessary function of a church has been deprived of its rights. This is what Pope Pius XII has to say on that point:

> The original piety, called "devotion" by the angelical doctor, and which is the main act of the virtue of religion-act which puts men in the right way guides them to God and which leads them on the Divine cult (33) this original piety needs in order to feed us, to set us on fire, and to bring as to perfection meditation of supernatural reality and practices of devotion. (3)

Then the Holy Father goes on and clarifies the very important point, that of the source of inspiration of today's artist. If He stresses the

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(1) Pope Pius XII, "Mediator Dei"
(2) R. Airgrain, Liturgia (Paris, Gould et Cay, 1930) p. 59
(3) Pope Pius XII, "Mediator Dei" (L'Action Catholique, Québec)

very good thing that is the return to the study of liturgy in order to further clarify its meaning He condemns the return to antiquity. Return to antiquity means here the simplification of the alter to a table, the absence of liturgical colours, a statueless interior and so on;

Then the rubics emphasize, the importance of side altars by this statement:

Today, a church without its chapel to the Holy Hearth, Holy Virgin, St. Joseph or any other local saint, is hard to conceive. To these larger chapels built for a frequent and worshipful use we ought to give an area of which the dimensions and accessibility are practical. Their services must be separated from those of the nave and sanctuary in order that two services, sometimes simultaneous, may take place without disturbing one another. (1)

II Its Parts

a- Elements

There are two elements in a church, the nave and the sanctuary, and practically always a third one-the secondary chapel. (2)

b- Elements as to functions

From the stand point of functions, the altar, (attached should be pulpit and provisions for eucharistic worship and processions) and the baptistry (attached should be provisions for sacrements of penance and confirmation) should denominate the building, inside and outside. (3)

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(1) R. Algrain, Liturgia (Paris, Gould et Gay, 1930) p. 135
(2) ibid p.
(3) Nathis, Michael A. C.S.C., "Notre Dame Liturgy Program" Liturgical Arts (New York Liturgical Art Society Inc.) Vol. XVI - Nov. 1947 no. 1, p. 5

c- Bell tower

Every church should have its bells. The importance of the bells as a signal for the faithful has been gaining from century to century. Besides tradition, the Church has stressed this element by a very solemn ceremony called the "blessing of the bells." (1)

d- Transcepts

There is no difinite rule on the design as it may extend or not, beyond the nave. However tradition has given us an element, that of the triumphal arch, which should be kept. This arch divides the nave and sanctuary and in a modern church may be realised by an increase in depth of the beam which occurs at that point. Another traditional item is the presence, on that arch, of the crucifix. (2)

e- Sanctuary

In order to give the sanctuary the prominence it deserves and in order that the laity may be able to watch the ceremonies, the sanctuary should be elevated above the floor of the body on the church. For large churches an elevation of 18" or three risers will be sufficient. In this case, there should be one riser outside the Communion Rail, on which the communicants may kneel, and two risers about three to four feet inside the communion rail. For small churches or chapels an elevation of six inches or one riser will be sufficient.

The dimensions between the lowest step of the altar and the edge of the sanctuary should be, approximately:

for a large church 10 to 12 feet
for a small church 4 to 6 feet

(1) R. Migrain, Liturgia, p. 242, Canon Law, Canon 1169
(2) ibid, p. 244

dimensions from side walls to side walls should be:

for a large church 25 to 30 feet
for a small church 14 to 16 feet. (1)

Directly connected with the Sanctuary is the main altar which somewhat guide the design and planning of the Sanctuary. This is the opinion of two important religious authorities:

> Of primary importance is the position of the altar, both in its relation to the church and in its relation to the side altars. Artist and architects have come to the conclusion that the various legislative councils, in forming their decrees, must have art as well as tradition in mind. For experience has proved that where the law has been strictly adhered to, the result is a thing of beauty. On the other hand where it has been flagrantly disregarded, the result is liturgically and artistically unsatisfactory. The very wording of many decrees shows that within well defined limits artistic freedom is encouraged.
>
> Whether building or remodeling a sanctuary, it is a fundamental concept that, strictly speaking, there is only one altar in a catholic church, and that is the main altar. (Cf. Liturgical Arts, Vol. 3, no. 1; first quarter 1934 p. 16) Standing at the church door, the first object to strike the eye should be the high altar. Much of the impressiveness of the patriarchal basilicas lies in this, that on entering the attention is immediately focused on the most important object: the main altar with its baldachino.
>
> Now let us look at what is, sad to say, the ordinary parish church. Clustered into one sanctuary we have not one but three altars. If the three altars are not in the sanctuary proper, they are at least behind the same altar rail, thus creating a false impression.
>
> The artistic and liturgical defect of having three almost equally important altars can be eliminated by simply altering the rail so that it returns to the sanctuary arch and thus encloses only the high altar and sanctuary.

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(1) Collins, Harold E, THE CHURCH EDIFICE (Philadelphia, the Dolphin Press Co. 1940) p. 164

> Aside from the few liturgical use of the side altars, their great function is that of satisfying private devotion. The Chruch has always encouraged private devotion as a worthy preparation for the daily communal prayer of the mass. These heart-to-heart communings with Christ, His blessed Mother, and the Saints are greatly aided by the proximity of their shrines.
>
> Our current practice of making the two side altars alike has little to commend it except economy while there is much to be said for making them quire different. Only one side altar needs a tabernacle and that preferably movable, so that the other altar may be somewhat smaller. I would be appropriated to conceive of this altar as being richer, both in material and design, thus attaining variety without sacrificing harmony. (1)

The altar is of such importance in a catholic church that it would not be legitimate to treat it as a piece of furniture. So I shall give here all informations pertaining to the altar.

f- The altar (2)

1. Fixed altar

NATURE

A fixed altar in liturgical language is a permanent structure of stone, consisting of the table and support consecrated together as one whole. This altar is so called an imovable altar.

2. Construction

a- THE TABLE of a fixed altar, which is super-imposed on the support must be a single natural stone and not one easily broken.

b- NATURAL STONE. The first requirement for the table is that it be of natural stone. Any hard and compact stone is admis-

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(1) Murray, Harold and Rainbush Donald "Suggestion for Sanctuaries", Liturgical Arts, (Liturgical Art Society Inc.) Vol. XIV, no. 1 November 1947, p. 8

(2) All following date on the Altar have been taken from: Collins, Harold E. Monsignor, The Church Edifice (Philadelphia, the Dolphin Press Co. 1940) p. 39 to 82

sible, as for exemple, marble, granite, sandstone and travertine. It may be of one, many or mixed colours. The Sacred Congregation of Rites allowed schist to be used, but refused to permit pumice-stone or gypsum. Any artificial stone is forbidden.

c- ONE SINGLE SLAB OF STONE. The second requirement of the table of the fixed altar is that it be of one single slab of stone. Hence a table compose of two or more pieces of stone cemented together in any fashion cannot be consecrated.

d- The table must be one whole stone, without nay cracks or crevices, or any part broken orchiseled off.

e- DIMENSIONS of the table of a fixed altar are prescribed neither by the code of Canon Law, nor by the rubrics of the Roman Missel, nor by the Sacred Congregations of Rites. The table must cover the whole lenght and width of the support. The dimensions will depend on wether the fixed altar will be the main altar in a church with or without a tabernacle.

We think that the minimum width of the table of a fixed altar should be six feet and its depth two feet.

f- For the purpose of consecration of the altar, five Greek crosses should be incised upon the table; one at each of the four corners, about six inches from both edges, but directly above the supports and one in the center.

g- JOINING THE TABLE TO THE SUPPORT. The table must achere to the support, stone to stone, on all sides. Some authors assert that it is sufficient simply to place the table upon the support

without cement of any kind. It is preferable however ot cement the table to the support.

h- Material of THE SUPPORT. The support or base of fixed altar must be constructed of natural stone with the same qualities that which are required for the stone of the altar. It is not required however that it be one solid piece of stone. At least that part of the support at the four corners must be stone where the table of the altar comes in contact with the support, in order that the prescribed unctions can be made properly in the consecration of the altar. columns of copper, brass, or other metals are not allowed. Metallic bases, however, can be permitted, provided the shaft, and more specially the capitals, be of stone.

The support must be constructed upon the pavement of the church or it ought to be set in the pavement in such a way that it cannot be moved.

In order that the ceremonies of the Pontifical may be properly carried out in the consecration, the support must stand free on all sided and not close against the walls.

THE ALTAR SEPULCHRE

The sepulchre or cavity for the relics is a small square or oblong opening made in the table or the solid support of the altar, in which are placed the relics of the Saints.

The following dimensions may be offered: the lower chamber may be two inches square by one inch in height.

Most commonly the sepulchre is located in the upper parr of the table at its center, somewhat toward the front edge.

THE PORTABLE ALTAR

It consist of a solid piece of natural stone, generally of small size, which alone is consecrated. In popular language it is called the altar-stone.

All requirements as to the stones and other details are those of the fixed altar.

There size is about twelve to fourteen inches square.

QUASI FIXED ALTAR

Its a permanent structure of wood, cement or other suitable and beocming material or compostiton, in which a consecrated altar stone is inserted.

IN EVERY CHURCH WHICH HAS BEEN SOLEMNLY BLESSED THE MAIN ALTAR IF IT BE NOT A FIXED ALTAR IN THE STRICT LITURGICAL SENSE, SHOULD BE A QUASI FIXED ALTAR.

DIMENSIONS OF THE MAIN ALTAR

lenght minimum 6'-0" maximum 10'-0"
depth " 4'-0" " 4'-3"
height from 39 to 40 inches

Predella

lenght the whole lenght of the altar
width minimum 4'-0" greater in larger church

ALTAR STEPS

width from one food two inches to one foot four inches
height 0'-6"

g- The choir and Organ

Men of the choir were originally clerics and stood in the sanctuary, as they are part of the ritual and cooperate actively

to the ceremony.

The organ after a long struggle has become part of the choir and has now gained its place in the church. Its usual place is at the rear of the church on a balcony reserved for the schola. However this location is far from being ideal or, a lack of cohesion between the voices of the Sanctuary and those of the schola results and is an obstacle to the collective singing. The best place is in front of the nave and in the middle of the public area so that a better coordination may exist between the altar and the schola. (1)

h- Baptistry

Today, the fountain may be made out of any material in as much as it is strong, clear, and leakproof. Stone is the material which satisfies more readily this triple conditions. There are some metallic fountains but when of metal they should be inoxydable. The fountain proper is round, oval, polygonal, or other desired shape but it should be scooped out on a circular rather than angular shape.

The fountain may stand directly on the floor or be held by columns or base. The regular and practical height is two feet eleven inches. The fountain must be under a locked cover unless there is a locked door at the entrance. There must be a piscina, in the baptistry proper to receive the Holy water used during the ceremony. These can also be a piscina for the priest, a piece of furniture for the necessary objects and a table for registration and records. (2)

i- CONFESSIONALS

The confessional must be located in an open place

(1) R. Aigrain Liturgia (Paris, Bloud et Gay 1930) p. 246
(2) ibid, p. 248

readily visible to all. There must be affixed screen or any other such separation between the priest and penent . (1)

There are also such requirements as a closed and locked door for the use of the priest only.

The confessional cannot and should not be enclosed but only partly hidden from the public.

III ITS FURNITURE

a- Stations of the Cross

1. Their essence in the wooden cross which constitute in itself the station. Pictures are usually included, even if they are not necessary, to promote devotion.

2. They should be in line, in order, and separated by a step, which may be from one foot on.

These are the only two requirements. However in their planning, one must be careful not to give them too much importance and treat them in such a way that they attract too much attention; the Stations of the Cross are of secondary importance and fall on function devotion. (2)

b- Credence (3)

It is a small table approximately four feet square. It usually stands on the right hand side of the altar and at right angle with it on the Sanctuary pavement, at such a distance from the wall is to permit circulation around it. It ought to be simple air composition.

c- Sacrarium (Piscine-fountain)

1. Today only two sacraria are needed one in the church and the

(1) ibid, p. 250 - Canon 909-1, Roman Ritual 3, c.1, N 78
(2) ibid, p. 223
(3) ibid, p. 223

other in the Baptistry.

2. The one which belongs to the church may be located either in the Sanctuary or in the Sacristy.

3. It is made preferably, of marble or stone in order to insure cleanliness.

4. Its purpose is to receive holy water, oils and so on, which are drained directly into the earth.

5. Covered and locked, the sacrarium is further indicated by a cross. (1)

d- Communion Rail

There is no law which requires a communion rail but to day its presence in a church has become a "must".

e- Furniture

> "Every seat used in the church, must according to the general principles and laws, be of a different character than those of common use. A principle of great importance asks that seats vary in place, form, and finish and this, according to the varied degree of the ecclesiastical hierarchy". (2)

1. The Bishop's throne (3)

It is erected permanently in a cathedral church, and is a temporary one in other churches. There must be three steps leading to the throne, which however should be lower than those of the altar.

The throne is further stressed by a high back and arms.

It stands on the left hand side.

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(1) ibid, p. 224
(2) ibid, p. 227
(3) ibid, p. 228

2. Sedilla (1)

a- Located on the Sanctuary pavement on the right hand side of the altar and not too far from it.

b- It has usually the shape of a bench long enough to seat three people.

c- These may be a low bench but no arms.

3. Stalls (2)

These are long benches, to seat the clergy, which have a very high back in order to somewhat form a precint.

They run parllel to the axis of the church on both side of the Sanctuary.

4. Pulpit (3)

There is no special rule as to the pulpit with the exception that it must be located in such a place as to offer good visibility and hearing conditions to the faithful.

There is no law as to its side but the general custom is to locate it on the left hand side.

These are the rules, principles and considerations which ought to be followed in designing a Catholic church.

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(1) ibid, p. 230
(2) ibid, p. 231
(3) ibid, p. 236

PART III

FUNCTIONS

The architectural survey together with the church requirements have given us all the necessary information for discussing discuss the functions of a church.

In the first part we have clarified our notions of a modern Catholic church but from the architectural point of view. We know that modern architecture to be true should be functional, that is conceived, in its entirety and in its parts, to translate its purposes. However, it is clear that in religious architecture the function of a building is not merely to protect people from the elements but rather to manifest with structure and materials the principles and spirit of a denomination.

The second part, in bringing forth the Catholic laws, has added much to our understanding of the Catholic temple. The Church is formal as to the importance of functions such as those of the altar and Baptistery and also furnishes many details and definite information.

With this collection of information and the data gathered in the research I shall now study the functions of the Catholic church from the architect's point of view.

I Function of a Catholic Church

A Catholic church is the RELIGIOUS center of a community where all the faithful gather and unite their prayers to honor and glorify God.

Catholicism is the union of prayer and communion of thought of all Catholics throughout the world, guided and directed by one Master who has His assistants and full representatives in every country, province, city and parish. The very spirit of Catholicism: this union of all the faithful, through the clergy, who not only rule but guide and maintain the same spirit, the same principles in all corners of the earth and unite into one the prayers of the faithful of the world, differs widely from the protestant mode of thought which has reduced religion to a communion of each individual with his God. Protestants have restricted the religious activities of the faithful to the prayers of individuals uttered to God, and this, preferably in their bed room, leaving their churches as such, useless, and thus transforming them into social clubs where the main interest is the welfare of the community. A Protestant church is a community center with a place of worship, class rooms, work rooms, nursery, the most important element of which or the social hall. All these are planned as a whole and erected on the fabric grounds.

Compared with it the Catholic Church is definitely not a community center. In the parish the Catholic church is the RELIGIOUS center, nothing more, nothing less; only the church proper and the presbytery are built and located on the church fabric grounds in a Catholic set up. To day parish halls to facilitate recreation and to house Catholic so-

cieties or clubs have gained importance and are asked for by every community. These halls, however do not belong to the church but to a parish organization which may have at its head a member of the clergy.(1) These halls are decidely not built on church property but may be built anywhere in the parish. They are part of the parish but not a part of the church.

In non-Catholic countries or provinces where Catholics have to own their own shcools in order that young Catholics may receive the proper religious instruction, schools, that is primary ones, become part of the church and are often located on the church property. Since Catholics are obliged to educate their children in the Catholic Faith, it is the immediate duty of the parish and of the church to provide the necessary accommodations. Even in this case the church remains strictly a RELIGIOUS center. Same it is also the duty of the clergy to discourage mixed marriages;in such parishes dances and recreation of all kinds are conducted under the auspices of the clergy but these social activities do not take place in the church or on its grounds; they are not a component part of the church as the schools, and, cannot be planned so as to make a community center out of the group. The Catholic Church is strict. She has not, and, will not, won't modify her ruling and the existence of such centers, as seen in Canada and United States, will always remain opposed to the principles of the church and must be looked upon as such.

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(1) p. 39

The part played by a Catholic church is essentially religious; it is to help (with its priests and services) the community and each individual member of it to accomplish his duties as a Catholic.

In planning a religious building one must be careful to give to each denomination its true character.

2 Function Circulation

One function, pertaining to any building but which has been left unstudied in the planning of old, as well, as in most of the new churches, in circulation.

Both of its aspects, that is internal and external, lack planning in our Catholic churches.

Every catholic must attend mass on Sunday; this precept goes for everyone, old and young. However when you look at these high perched buildings which you reach by imposing, unprotected flights of stairs you wonder how often they are really used.

Rectors, as I have pointed out in an earlier part, ask and very definitely so, for decent accesses and intelligent planning. (1) It stands to reason that during our Canadian winter these steps become icy, are very dangerous and call for a tremendous unkeep. Besides the added financial burden caused by such conditions a great many people cannot go to church due to this ever present danger of slipping.

To day commercial buildings use many new devices to overcome bad approaches; why not apply these same devices to religious buildings?

To get a decent covered access to the church is elementary and sound planning should go further. Among special services to be considered are weddings and funerals. Here we have to deal with corteges, which, as it has been pointed out, in a few forms, delay the flow of traffic. I would like to remind you that this work deals principally with city churches.

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(1) p. 36

Everybody has noticed that the streets, in most cases, were not planned to accommodate today's heavy traffic. To further obstruct its flow by such events, which happen every morning or so, is by no means reasonnable.

Traffic is one aspect but there is another side to the problem, the persons connected with these events. That a young bride has to hold in the memory of her wedding day the unforgettable picture of a wet gown is to say the least, very regrettable.

This general picture has been drawn up in order to lead to the necessity of a car porch. It should be large enough to accommodate wedding as well as funeral parties and should offer a direct entrance into the church.

So much for external circulation and as the cars must stop sometime but where, I shall take up parking requirements.

On Sunday mornings the few streets around the church are literally packed with cars and I don't have to say nay more on the matter.....

A parking lot is just as necessary today as horses' stalls were in the old days. The only difference is that to day no provision is made for the common means of transportation.

This parking area will be the ideal place on week days to accommodate the different corteges. Let us remember here that a Catholic church has to stand free on the lot; you must be able to walk around it. To plan the remaining part of the site into a parking lot would not only be practical but could be also used on special occasions, as open air terraces, for religious activities and would certainly add to the setting of the church proper.

From the research

Existing parkings	87	- 46%
Desired parkings	21	- 11%
Total		57%

The remaining 43% still prefer the streets and at least twenty per cent are strongly against the idea.

Internal

As I have stressed it in the discussion of seating, circulation between pews, and, around them must be eased up. The minimum width of five feet given in reference books is by no means practical. In processions, three persons have to walk down the aisles and these aisles are the main traffic areas for the people in which to circulate. At least eight feet should be taken as a standard.

The planning of exterior, direct exists is not in most cases, up to good standards. At least four main exits, two at each end are to be provided: one on each side. The front entrance with its many exits is part of these. If we want to get rid of the waiting line between the services on Sunday, we have to follow these requirements which are the very minimum.

Where internal circulation offers evident lack of planning is around confessionals, and statues surrounded with candles and so on. These particular functions should be studied and enough room provided around them so that the main traffic flow won't be obstructed.

Traffic lines from Sanctuary to Sacristy and so on require keen study.

3 Function Worship

The Catholic Faith, as far as design goes, may be divided into two main elements: liturgy and devotion.

This collection of prescribed forms for public worship, liturgy, outlines very clearly the aims and functions of a Catholic church as the previous section has shown. It is also evident from it that architects and artists enjoy unlimited freedom in their conception and planning. (1) However, in order to further clarify these needs one must breakup the main function into its secondary units and give to each and everyone its proper importance and place in the final plan.

"Mass is the center of liturgy". If this statement is true I feel however, that so much emphasis has been given to the main altar that other important secondary elements have been totally left out in the planning. The sacraments, especially Baptism and Penance, and devotion are other important elements which make up a catholic church and these deserve just as important study as the main altar if we want a truly functional catholic church. These elements may be classified as follows: Sanctuary, Baptistry and the nave.

Sanctuary. - The main altar and the sanctuary are the important elements in a Catholic church and should be readily seen by every one coming into the church.

The altar has grown from a simple table into the very elaborate marble structure of the gothic. Today architects and artists have gone back to the simple conception of the catacombs and evolve from it to

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(1) p. 77

the tomb like mass that is adopted at present. In audition to the table are the reredos and the tester which make up the altar as a whole.

The reredos, as its name implies, is the background of the altar proper. Its treatment varies with every architect or artist and takes unlimited shapes. Stained glass windows, conceptions in stone, metal or wood curtains, and so on, are just so many means to create the reredos, which is further decorated with sculptures, symbolic patterns and lighting effects. If the altar is set near the wall, then the wall itself becomes, by its treatment, the reredos. The tester or baldachino, the primary function of which is to protect the altar from any falling material, has retained its place in the Catholic church. This element, of no real practical value but full of symbolic significance, is a part of Catholic tradition and should be preserved in all new projects.

The altar is further stressed by its elevation above the sanctuary pavement by an uneven number of steps; three being the usual number, symbolic of Holy Trinity. (1)

For the service of the altar we have the credence table, a small stand, approximately four feet square, which stands on the pavement of the sanctuary on the right hand side of the altar and the sedilia.

These items and the following have been fully described as to their composition and location in the previous section and here stress should be laid only on the practical side.

There is nothing much to add to the discussion of the stalls. They run parrallel to the axis of the church and their location should offer

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(1) p. M. - PRODELLA

a perfect view of the altar. Next to the stalls, on a lower level, are the pews for the altar boys. In a city parish the altar boys are about fifty in number and sufficient room should be provided for them. Then on the left hand side, right after the stalls comes the bishop's throne which has to accommodate two assistants. When the high mass is presided over by the bishop the ritual becomes very elaborate and besides himself and the two assistants six altar boys stand in line on two rows in front of the throne. It then follows that the sanctuary must be large enough to cope with these ceremonies. The sanctuary is divided from the nave by an elevation of unevs number of steps and by the triumphant arch and the communion rail. The communion rail stands for a table, a table where Catholics eat their most cherished meal; this symbolism and meaning should be carried into an elaborate treatment of this element. Even if it is true that the Congregation of the Sacred Rites and liturgy does not require actually its existence (1) the communion has gained such an importance in this century by new decrees that it has become an element of first importance. Enough room should be given on both sides so that the distribution may be effected with ease and rapidity.

The altar and the sanctuary being the heart of the Catholic church, their conception and planning must be carried out in the fullest detail. This is THE area for lavish fruitless expenditures and the luxury of its component parts must be carried out to the limits of the financial ability of the new parish.

The Nave. - As stressed again and again it must be free of columns

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(1) p. 87, d

and of such a shape as to permit every one to have a clear view of the main altar. As the Greek cros plan (1) seems to come back into fashion I would like to say here that if its purpose is to bring the attendants closer to the altar, the exigencies of the ritual are too elaborate for such a scheme. If there are through the ages a few examples, of this kind they have always remained isolated, as this disposition is rather more appropriate for a preaching denomination than for one as such the catholic faith in which ritual is the main rôle.

Baptistry. - The baptistry is a very definite function and is expressed as such, both in elevation and plan. Its purpose is to admit new faithful; and a direct access, according to the Church, has to be provided outside the church proper with an exit leading directly into the church. All religious critics insist on a clear expression of this function and to parallel the baptistry by a rest room, treated in the same manner in plan and elevation is either a lack of knowledge or of thought. (2) This mistake appears in every new project which includes a rest room.

Penance (Confessionals). - The dispense of dispensing the sacraments is an intimate function of the Church's liturgy and deserves the same attention on the planners' part whether it be a question of Baptism or Penance.

Because of its very nature this matter should be handled properly. However the Confessional for the most part has been treated as a piece of furniture that you put along side walls without much consideration as

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(1) plate, p. 63 - Plate 11 - 12
(2) p. 80, 6

to its possible requirements.

Confessionals must be located in an open place and be clearly visible; this rule, as I have said, has been carefully observed. Like the Baptistry, they should have a very definite area, well set back so that the faithful may be kept, at a decent distance. The way they are today, confession might just as well be a public affair. By having them set in an open bay, circulation around them will be eased up, priest and penitent will feel at ease and they will looked upon as an important element rather than a piece of furniture.

Devotion. - If the main purpose of the church is to create an appropriate space for the faithful to attend services, it is also obvious that this same space must lend itself to private devotion.

Pope Pius XII in His latest encyclical stresses this function, (1) this necessity of having statues, and side altars easily accessible to one and all in order to promote devotion to Saints, etc.

Unfortunately the new trend is contrary to this idea; naves are so designed that there is no place for such facilities. To reduce a catholic church to its main altar may be easier for the sake of planning and creating new shapes but a catholic church, like any other building, must be planned for all its activities. This tendency of denuding the church of all accessories (by this is meant statues, pictures, etc.) is not only in accord with the trend in art but has its source in examples of other denominations. We must be very careful in designing a catholic church to keep within the catholic concept and not be influenced by non-catholic models.

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(1) p. 79, 1

It is obvious that side altars, if they are included in the plan, must offer easy access for the public, as their main purpose is to promote devotion. Why hide them in the sanctuary so that they won't compete with the main altar? I believe that their place is right in the nave, set back of the main circulation with provision for kneeling, placing of candles and so on. Only one side-altar is needed; the other is a table without a tabernacle; why include this latter at all if we don't have the room or need for it?

Devotion is a necessary part of the church; its architectural treatment should be just as clear and definite as the other requirements.

Sacristy. - Many different elements are comprised in the sacristy and I shall outline them very briefly.

First liturgy calls for a sacrarium, one or more praying desks and one confessional. These last two may be planned together in a somewhat remote place in order to provide quietness and facilitate meditation.

Storage areas are follow:

a- Closets and drawers for sacred vestments.

b- A locked area (which may take the shape and form of a vault) for the sacred vessels.

c- Closets for ordinary vestments.

d- Room for candles, oils, and decoration such as vase flowers.

e- Small office with desk, chairs, library and so on.

Included in the inventory should be a separate area for the altar boys with closets and lockers.

Another item which has been stressed is toilet facilities in both

areas, that is, in the main sacristy and in the altar boy's division.

Each of these areas must be carefully planned so that they take only their own circulation and that the general traffic flow from one to the other is logical and practical.

Details. - In addition to these main elements there are a few details.

A rest room would be quite a practical addition but its planning, as I have said earlier, should be discreet and by no means of the same treatment and importance as the Baptistry, side altars... Two small check rooms in the narthex should be included.

Toilet facilities for public use must be incorporated in the plan and their location must be so chosen that their accesses are within easy reach.

I have in this section outlined and studied these areas and requirements mainly as functions. As their detailed requirements have been stressed in the previous section, I have mentioned only the most important ones.

PART IV

A DECORATION

Once an area has been limited on all its planes, the volumes thus obtained are marked and stamped to their ultimate purpose by the use of decoration. This element is of primary importance in a religious project as it definitly classifies a church in its proper denomination. I say "classify" as it is evident that every denomination has its own understanding and rules as to the decoration desired. In a catholic church, the so called fruitless expenditures principles guide us as to the value and choice of materials. As has been said in a previous section a catholic church must be decorated and should offer a warmth interior.

I shall content myself in this discussion with the general principles and understanding that should guide the arts and crafts involved in decoration rather than the techniques of these arts and crafts.

Decoration may be divided into two main types which are at the root of arts; the historical and liturgical.

By historical is meant the portrayal of historical events as told and reported in the Scriptures; the stations of the cross being an example. This type of decoration was widely used in by-gone days when instruction was the sole privilege of the guiding class.

This type when was the only means of educating the public who could read on walls what the high class read in books. If this type has lost its real purpose today as an overall scheme of decoration, it can nevertheless, be used with great effectiveness in the treatment of certain

areas which will always bring life and colours to the church. By areas here I mean frescos on walls such as stained glass windows.

Our present-day artists have brought to it a super-realism which has been condemned both by the clergy and the public. However it is the excess which has been banned and not the principle, as there is much to be said for realism. Men, for psychological reasons, are more interested in their own times than in past decades and will be more impressed in looking at Sacred personages dressed in twentieth century clothes, and with a familiar back ground than at the usual representations of the days of Christ. But the greatest merit of realism is to bring to light this fundamental doctrinal principle that Christ has been, is, and will, always be present among men on earth. However, if we accept realism, the artists must remember that they are working for the public and especially that they are portraying in their works tradition accepted truths and these considerations should keep them from ultra-realism, which is synonymous with the utmost individuhlism.

Today this individualism has been carried to such extremes that every artist sets up his own standard and rules with the result that his work is understood only by himself. If it is a fault in secular art, it is a far greater one in religious art and these considerations apply to arts weither it be sculpture, pairting, galss work etc.

To clarify these principles further let me say this: to distort the face, or body of Christ, in order to show his sufferings to such an exient that he is no longer recognisable, is not to be admitted any more than to reduce his body to a mere distorted skeleton. Religious art must be so

conceived and portrayed that the faithful will be inspired by it to devotion; it should never cause feelings of repugnance or induce laughter. These principles and considerations apply also to symbolism.

This brings us to the second type, that of liturgy which uses symbols in place of actual (1) representation. Symbolism has been an intimate part of the catholic church for centuries and has been the subject of much study which has established for us a wide selection of accepted symbols. If we consider that Christ Himself gave to men all His doctrine in the form of parables, which were symbolic, then in building His house it is but fitting that we make an extensive use of such given symbols.

He should not, however, be satisfied with a mere repetition of these symbols as given; on the contrary, we should apply them to our times, and also create new ones.

I shall give here a rather incomplete list of such accepted symbols, with a few illustrations;

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(1) Benedictins de St. Louis du Temple, Dictionnaire du Symbolisme, (Paris, Librairie Paris-Rome)

Benedictins de St. André, Le Symbolisme dans l'Iconographie Chrétienne, (Paris Librairie Paris-Rome)

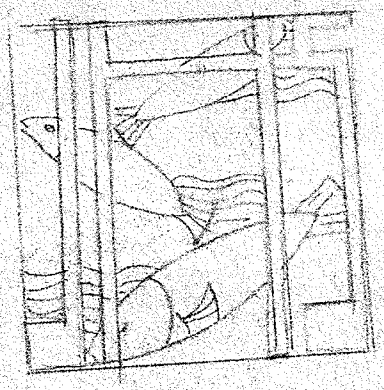
TABLE - 6

Jesus-Christ Incarnate	YOUNG MAN lamb clouds alpha and omega fishes phoenix lion unicorn light door stone
church	moon (gets the light from the sun) mountains vessels fishes carrying a boat
Eternal Life	light house birds drinking from a vessel birds number eight
devotion fidelity to Christ	heliotrope
heaven (souls pleasure)	grass
vigilance	heron
justice, prudence temperance	clock
humility	violet
innocence	lamb
martyrs	rose, sword and crown of palms
resurrection	young lions number eight
purity	lily, white garment
Trinity	number three clover leaf triangle

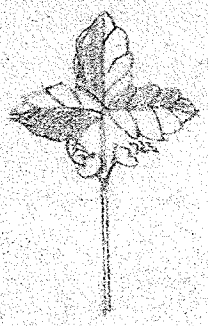
TABLE - 6 (suite)

Doctrine	bread
truth	sun green grapes
colour green	hope, immortality
" red	royalty charity

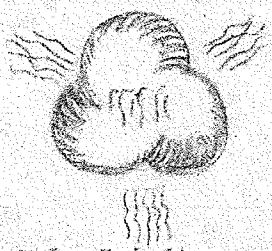
Phoenix
Christ Revived



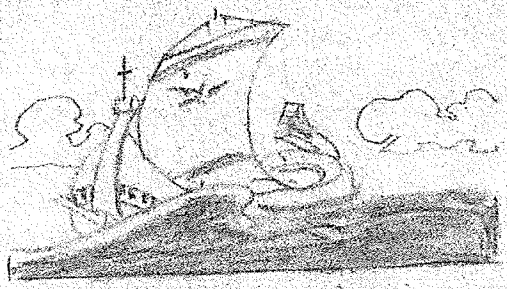
fishes
Christ



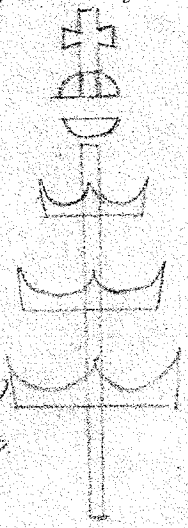
Holy Trinity



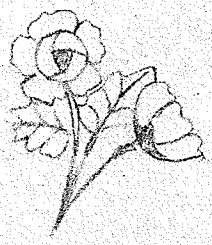
Holy Trinity



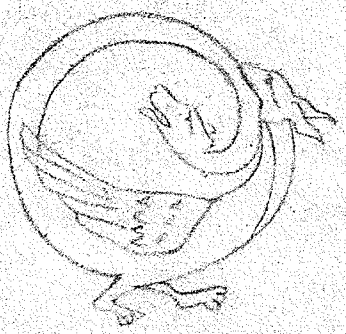
The Church



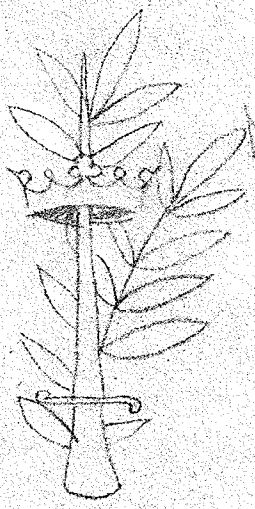
God All-Power



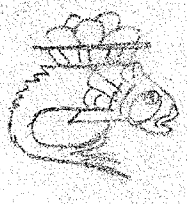
Holy Virgin

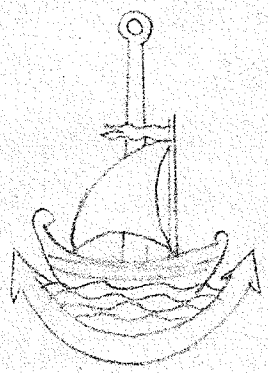


Eternal Life

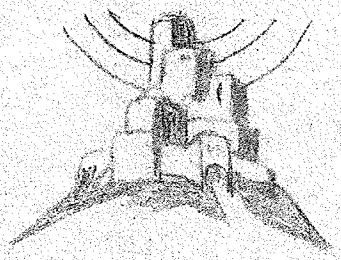


Martyrs





Life on Earth



Divine Jerusalem

Decoration, to be true and of artistic value, must form an intimate part of the building somewhat as do the stained glass windows.

We have seen in previous sections that statues must be included in a Catholic church and that they are a source of great inspiration to private devotion. (1) If we include them, let us make them functional: that is an intimate part of the church rather than isolated decorative elements. A perfect unity will be achieved when it will be impossible to vision the church without the statues and the statues without the church.

Besides sculpture, painting and other arts and crafts, there is in a Catholic interior a wide use of carpets, rugs and linens of all kinds especially in the sanctuary. The Church asks that altar pavement and so on be covered with a cloth or rug and the purpose of this, I believe, is to bring warmth to the interior of the building. These materials offer indeed a high tone of princely character together with much warmth and may be used with great success in the over-all decoration.

These are the main principles and conception that should guide all religious artists engaged in Catholic work.

There remains however a very important point relating to decoration, namely coordination. In order to create a perfect unity, the architect must have complete control over all artists in the same manner that he controls engineers and laborers.

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(1) p.

B MATERIALS & TECHNIQUES

Materials and techniques, as stated previously in the survey, bring with their evolution new concepts.

The structural principles of the Romanesque and Norman builders called for heavy ponderous walls which had to support the downward and lateral pressure of heavy stone vaults. The Gothic builders succeeded, with the invention of the pointed rib arch, to transfer the pressures to columns and flying buttresses leaving the walls as useless carriers. With this new technique, churches became lighter and the new structure was further stressed by an intensive use of stained glass windows. The Gothic style is then a structural one and its very greatness flows from the honest and simple treatment of the principles in force. These realizations are the highest potentialities of the compression material used, stones and bricks.

Modern architecture with new material and the full development of engineering sciences, has given us a tensible material, that is one which exercises its strength in all directions. Reinforced concrete and steel, by their unlimited potentiality, should bring about far greater progress than the one achieved by the Gothic builders. To express it more clearly, the architectural progress of century should parallel that brought about by the bulldozer over an oxen team as the potentialities of reinforced concrete and the machine are equal and can be seriously compared with those of the compression materials and oxen team of the Gothic days.

"Modern construction offers advantages peculiarly suited to our times in the employment of steel and reinforced concrete and in the form of new engineering principles which, according to the rules of logic and honesty, have a right to be developed. If we are willing to do this, a tremendous saving of material and time and therefore cost, can be effected and no subterfuge will have to be resorted to. New advantages of space, lighting, visibility, and acoustics go hand in hand in modern construction. The vaults and buttresses of the middle ages breathe the spirit of Christian Faith not only because they belonged to buildings that we solemnly consecrated, but also because they revealed the application of that thought upon which our faith had been planted.

To conform this fundamental idea to our own time, we will have to abandon some long-cherished forms and techniques, but we shall gain time immesurably in that in one more field the church will find herself in the middle of life, where, indeed, she has been placed by our Divine Lord Himself. The Chruch has never seen fit to canonise any particular styles of architecture, although many have served her well in giving outward expression to her beauty.

Architects oftentimes find it easier to consult their libraries for examples of other and better days and usually the result is (for examples of o) some hybrid structure, loyal neither to the past not to the present. Honest treatmeat of this problem will certainly make great demands on the creative abilities of builders, since with little or no precedent, he is called upon to give to modern forms a religious expression. A new style will be able to adopt itself to liturgical requirements and tradition as well as any other". (1)

This quotation contains in a nutshell the whole problem of Modern

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(1) Jacobs, Anthony J. "Religious Art and the Priests of today", Liturgical Arts, (New York Litugical Art Inc.) Vol. XIV, Nov.'45, p. 4.

Architecture as understood through materials and technique.

Along with such developments this century has given us a large number of new products covering all phases of the construction field. Terrazo with its wide range of colours and its ability to take all forms and volumes is a fine finish, especially for concrete, and its use both externally and internally is unlimited.

The glass industry has brought to the market varieties of glass products in texture, thickness, colours and pattern which produce new conceptions.

The introduction of the thermopane is the most striking achievement as it adds to the outside view an insulating property which is most important in this country.

Plastics of all kinds, metals in all forms and finishes, insulating and structural boards, and so on, are items which facilitate both inspiration and realization.

At this point I want to express a very appropriate statement given by a few on the forms:

> "Why having the richest country in the world, don't we use our own building materials and stop, once for all, this ridiculous European importation." (1)

This is more so in connection with church builders, as all finishes to be of value have to be of Italian marble, mosaic tiles; the metal work has to be European etc. We now have in this country, to mention only one case, tools to cut our beautiful granite to any thickness and we can produce veneers of great variety.

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(1) p. 35

Frank Loyd Wright, the outstanding American architect, stresses over and over again in his writings, as an elementary principle, that a building to be true in character and in relation with its surroundings ought to be made out of native materials.

There is enough choice of all kinds of materials in this country to make our buildings "Canadian" which, to my mind, is itself the beginning of a Canadian style; by style I really mean conception.

I have contented myself with this brief enumeration as the subject of materials and techniques would make a work in itself. However, I shall not close the subject without considering the item upkeep which is so closely related to materials. Upkeep in large buildings such as churches is a very important factor and one should keep it in mind when chosing its materials. Priority must be given to materials which have a lasting finish and by this I mean a material which does not require painting and such care.

Among other facilities required by the clergy are good acoustics, sound ventilation and illumination.

In sound proofing, research has demonstrated that shapes and volumes are the main controlling factors. It is true that acoustic tiles and like products do help in the correction of bad conditions and rare loud speakers, but, as the rectors say, it is premature and rather foolish to count solely on these devices to get perfect conditions.

The lack of ventilation, was the most criticised point on the forms received. What is asked for are complete changes of air, before, during and after services and to this we may add spot ventilation in confessionals and in the sanctuary.

When it comes to lighting no body agrees as to what are the ideal conditions. Standards desired varied from dark to bright. The alter and Sanctuary must be well lighted but it is to misunderstand the spirit of the Catholic faith, that is the communion of the faithful and the priest in the offering of the Holy Sacrifice, to have the altar disappear somewhat as a stage through too great an illumination. The light should come from behind the altar, the orientation East West says so, and this principle should guide all new conceptions. The project of Droz at Nunnigue is contrary to this and was banned as a Catholic church.

All these fields are highly specialised today and I have been satisfied in giving a very brief analysis as they belong to engineers who are specialists in such fields. It is only through the efforts of all, architects and engineers, that a perfect unity may be achieved.

Conclusion

1. New materials and techniques have brought up new possibilities and new conceptions.
2. The traditional element form is replaced by the dynamic, ever-changing element functions.
3. The Church is open to new ideas and asks the present styles to serve Her as other styles in the past have done.
4. The Canadian Clergy required that the present architecture of copies be put aside which tend to be replaced by an architecture which will take into consideration climatic conditions.
5. This Modern Malfinus Architecture is not only accepted, but required by the Church and Her representatives.
6. This new modern church will be conceived through the analysis and study of function.
7. This analysis will be expressed in the plan.
8. The function of a Catholic church is to create a space, the nave, for the people to gather in and be led to the area, the Sanctuary.
9. There are three main functions which must be expressed both in plan and elevation, the nave, the Sanctuary, and the Lamistry.
10. A bell tower is an intimate part of the church.
11. All secondary functions as Confessionals, Devotion, Circulation, must be analysed.
12. Exterior circulation to the main door and around the church, is of prime importance.

13. The current standard of comfort must be provided such as toilets, retiring room, check room and so on.
14. Decoration must be in accordance with the times; but in conformity with its purpose, which is to promote worship.
15. Artist should remember that they are conveying ideas based on tradition and for the public in general.
16. Realism and symbolism must be kept at such a phase that they will be understood.

These sixteen points constitute the main highlights of this work and are those which should be remembered in planning a Catholic church.

That is all for this part as a more tangible conclusion and summary will follow in the form of a project.

THE PROJECT

I have chosen as a project to redesign the church of St. Charles Garnier's Parish located in Sillery, Province of Quebec. This parish has a population of (4,500) four thousand five hundred and fifty Catholics which make up nine hundred families. Since, however, it is a new Parish, the number of families will reach the 1000 mark in a few years and the church should be designed with that fact in mind. There are pictures of the actual church and its surroundings included in this work:

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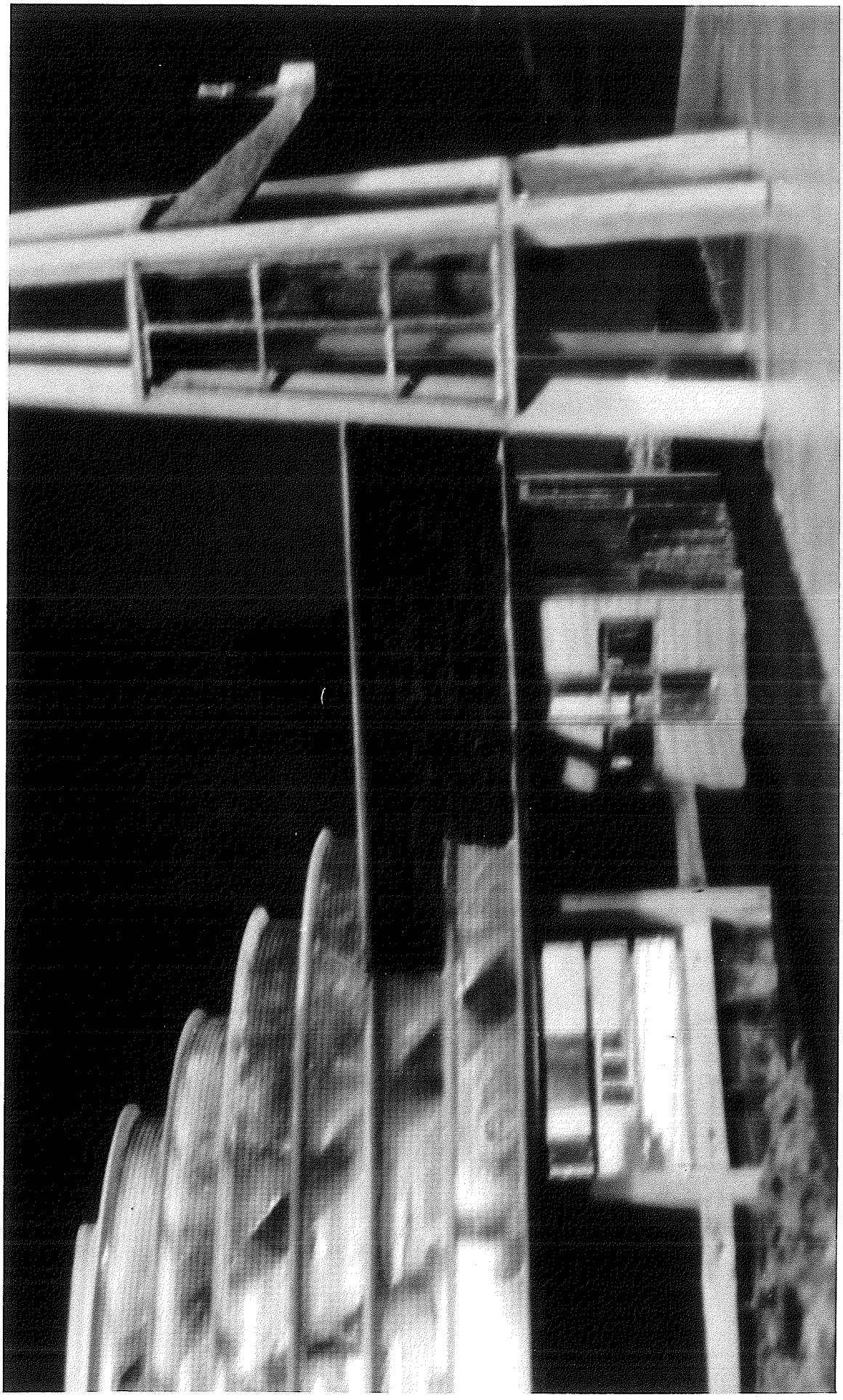
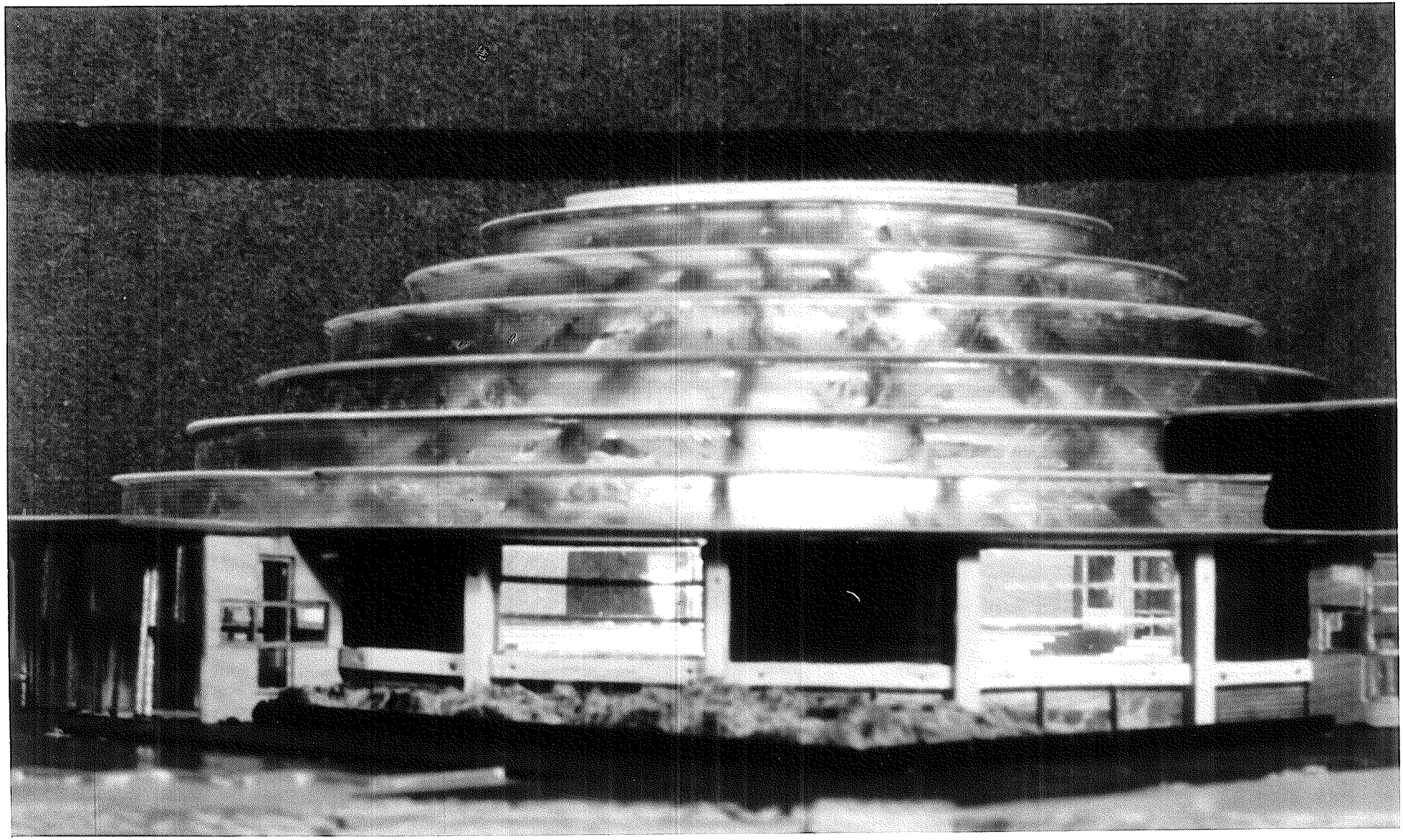
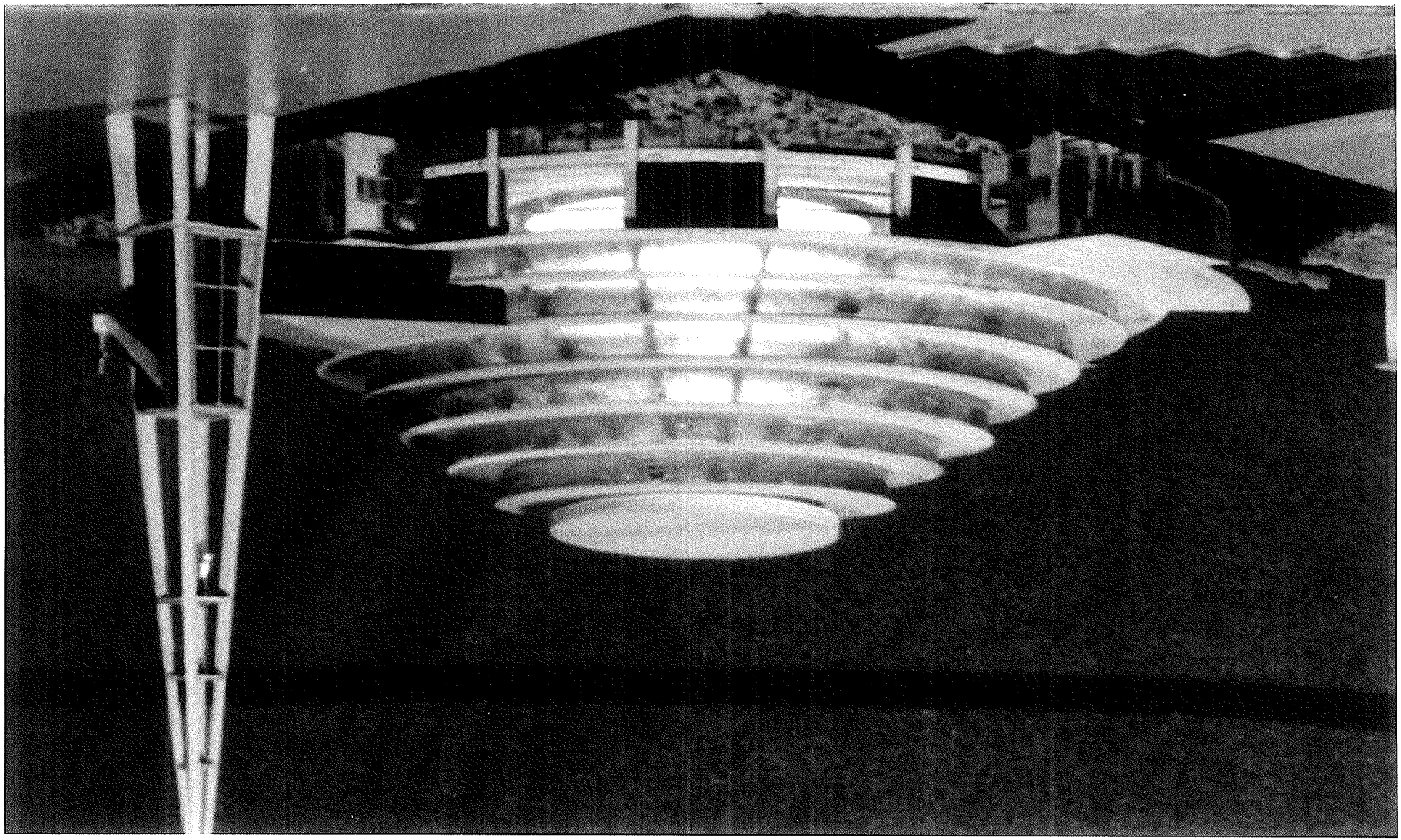
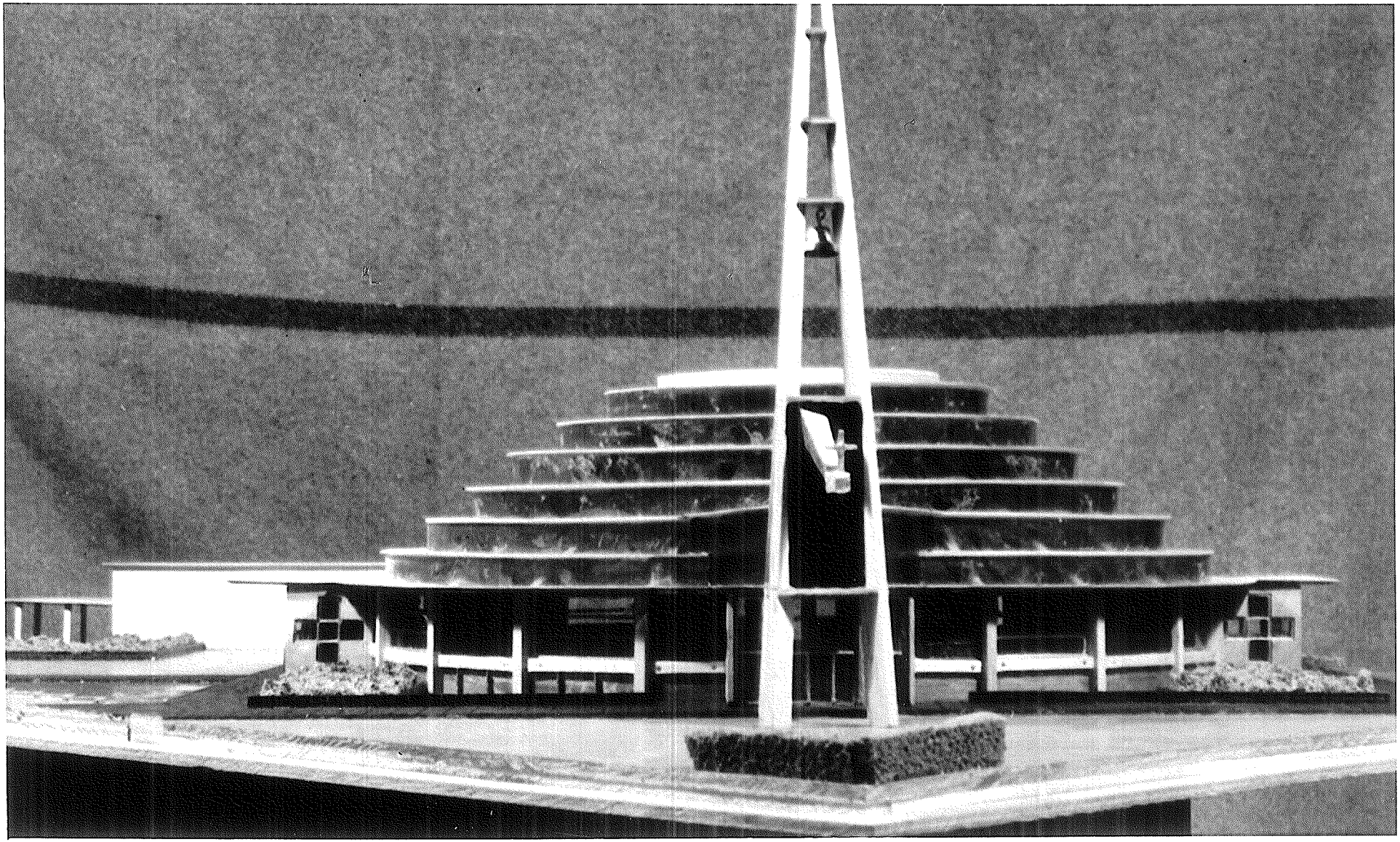








203'-0"

D/1

VESTIBULE

UP. 8R.

AISLE

4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0" * 4'-0"

RAMP

7'-0"

6'-0"

1

1

15'-6"

WALK

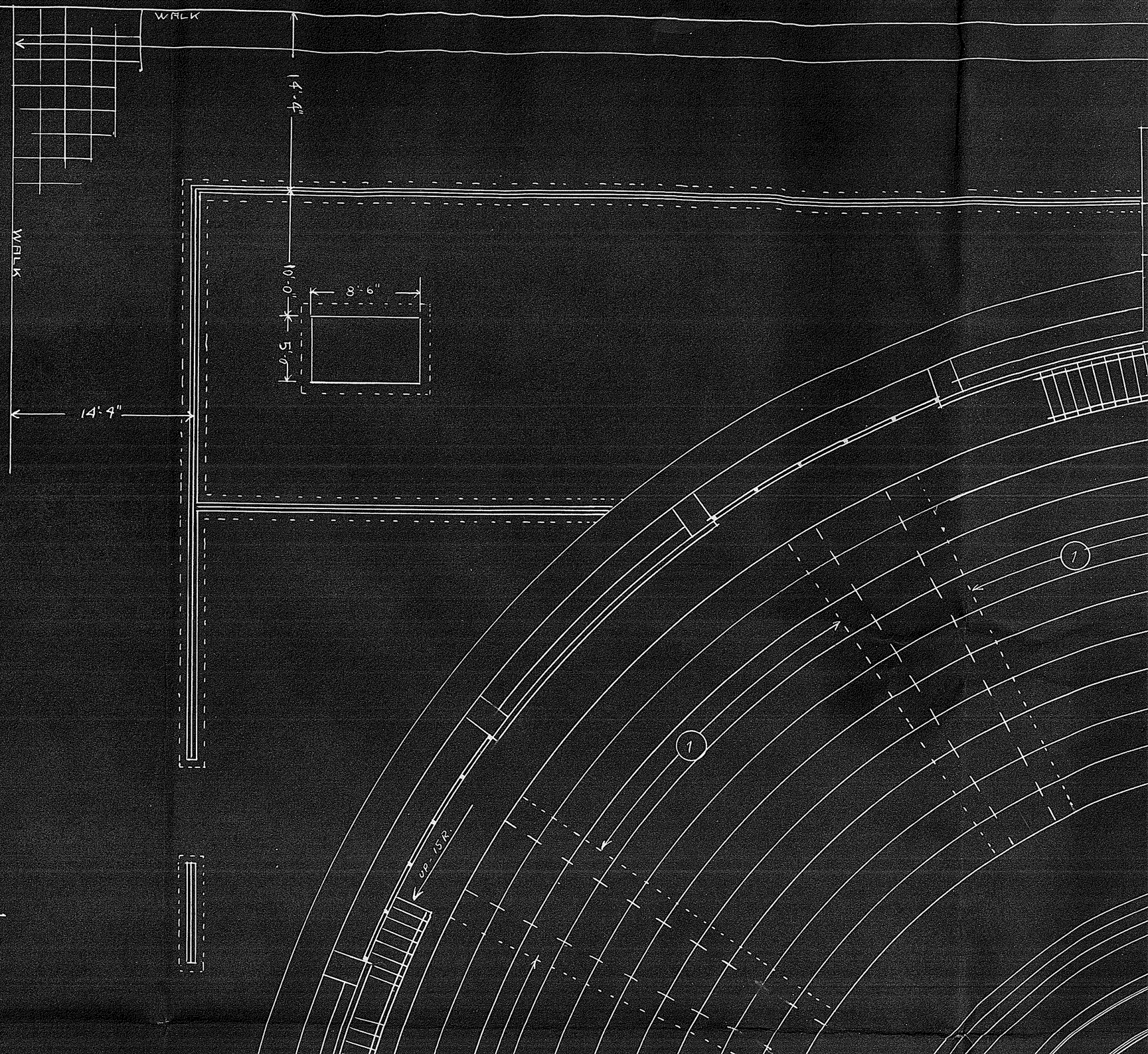
WALK

13'-0"

20'-0"

20'-0"

13'-0"



LEGEND

- Face Brick.
- Terra-Cotta
- " " with terrazzo
- Metal (Bronze Finish)
- Concrete
- Insulation Board

DIMENSIONS

Columns gives in most instances lateral Dimensions which have been thus omitted

FINISH

FLOORS

unless otherwise indicated
TERRAZZO. GRADE N°1

← (1) → 1" Cement (Trowel Finish)

28'-0"
47'-0"
81'-0"

AISLE

12'-0"

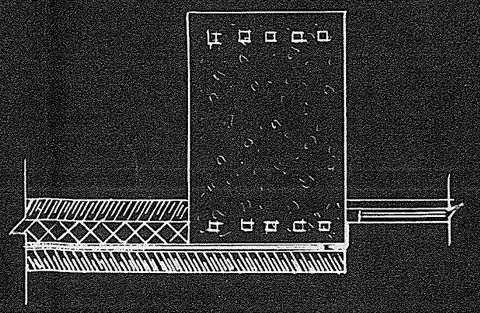
AISLE

DOWN - 18 R.

VESTIBULE

WALK

TYPICAL WALL SECTION



SCALE $\frac{1}{2}$"-1'-0"

N

4'-0"

2'-6"

22'-0"

VESTIBULE

D

AISLE

10 STEPS - 7" high x 3'-0"

12'-0"

UP

3'-1" 4'-0" 4'-8" 4'-9" 5'-0" 4'-9" 3'-0"

2'-6" 2'-6" 3'-0" 3'-6" 3'-10" 2'-9" 2'-6" 2'-6"

24" sq Glazed Black Tiles

WALK

5'-0"

33'-0"

47'-0"

1

ST. ERRAZZO FINISH

8'-6"

4'-0" 4'-1" 4'-1" 4'-1" 4'-1"

7'-0"

2'-1" 2'-1" 2'-1" 2'-1"

MALE

4'-0"

3'-6"

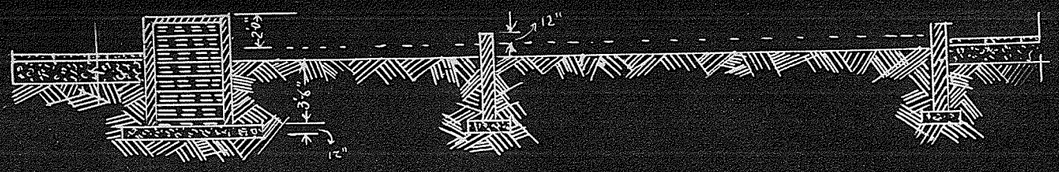
4'-0"

30'-0"

4'-8"

8"

24" sq. Glazed Black Tiles



SECTION A'A.
TYPICAL OF ALL FLOWERS BEDS

WALK

WALK

WALK

5'-0"

4'-0" 4'-1" 4'-1" 4'-1" 4'-1"

8'-6" R 21'-4"

7'-0"

2'-1" 4'-2"

ST. ERRARED FO. FINISH

8'-6"

1'-0"

39'-0"

49'-6"

7'-0"

6'-6"

6'-6"

1

1

35'-0"

47'-0"

68'-6"

13'-6"

22'-0"

8"

11'-0"

8"

11'-0"

8"

8'-6"

8"

5'-0"

16'-0"

23'-8"

18'-0"

41'-0"

AISLE

1

1

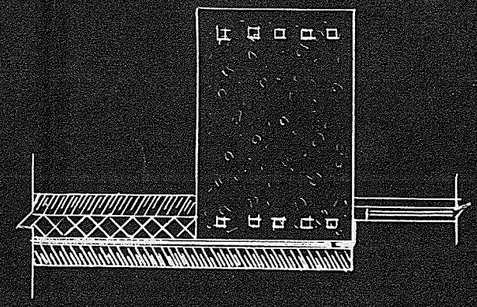
UP - 8 R.

D/1

VESTIBULE

WALK

TYPICAL WALL SECTION



SCALE ½"-1'-0"

MAIN FLOOR

CATHOLIC

UNIVERSITY OF MANITOBA

MASTER - THESIS

APRIL

'49

SCALE - ⅛"-1'-0"

SHEET

1

A. Gilbert

B. Arch. E.

CATHOLIC

UNIVERSITY OF MANITOBA

MASTER - THESIS

APRIL '49

SCALE $\frac{1}{8}$" : 1'-0"

SHEET 2

A. Gilbert
B. Arch. E.

BASEMENT

LEGEND

- Face Brick - ("LA PRAIRIE" - Glazed - Salmon)
- Terra-Cotta
- " " plastered
- Metal Screen
- Glazed Tiles
- Concrete
- Glass Blocks

DIMENSIONS

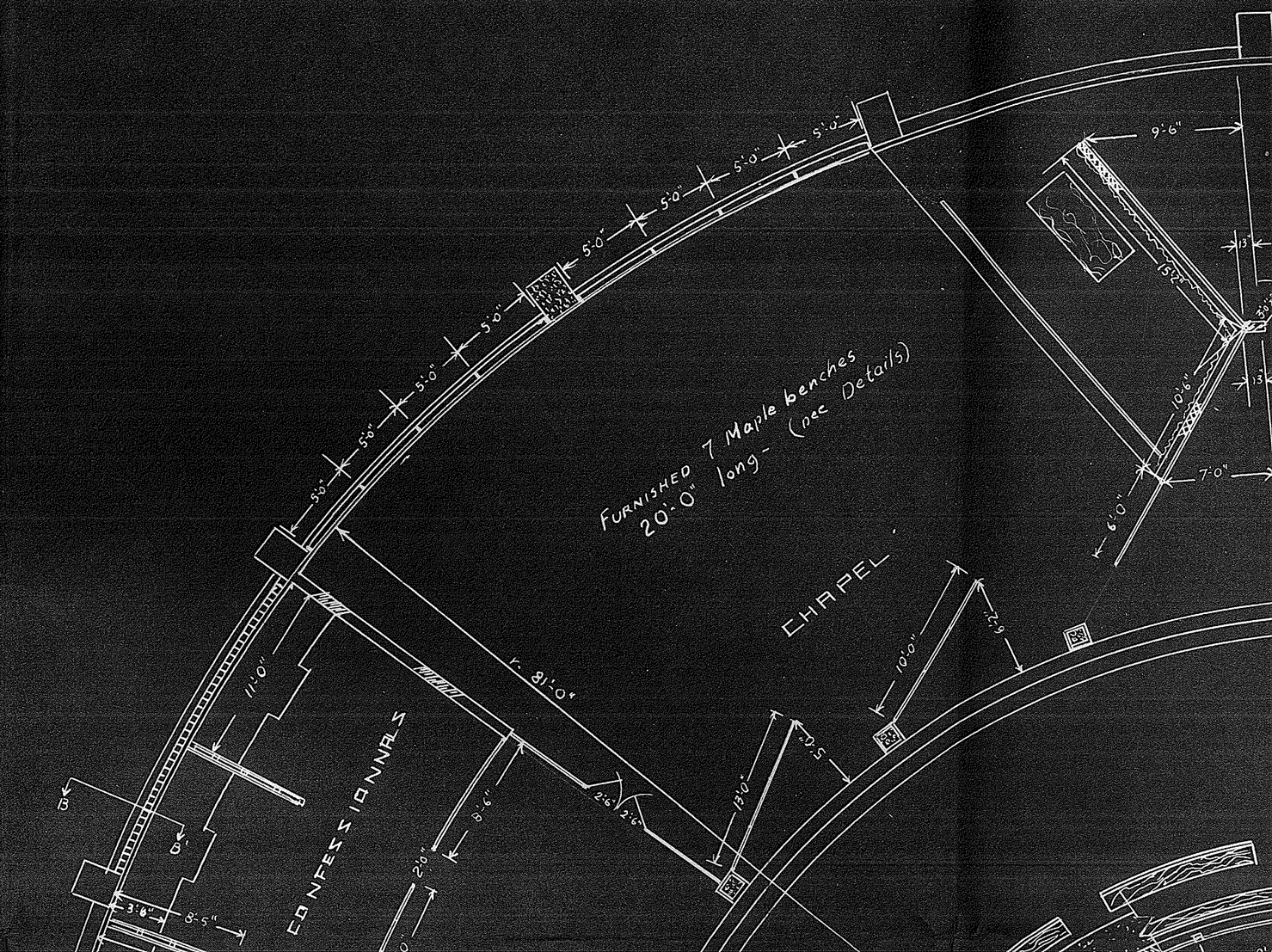
Columns gives in most instances lateral Dimensions which have been thus omitted

FINISH

FLOORS

unless otherwise indicated
TERRAZZO - GRADE N°1

1. 1" Cement (Trowel finish)
2. Linoleum (Battleship 3A)



SANCTUARY

STORAGE

ALTAR BOYS

SACRISTY

6"x12"

4'-0"

3'-0"x2'-0"

4'-6"

8'-0"

12'-6"

9'-6"

11'-6"

3'-0"x2'-0"

16 R. 6"x10"

12'-6"

16'-0"

9'-0"

6'-0"

2'-6"

2" Chrome Pipe

16'-0"

19'-0"

21'-1"

29'-4"

5'-9"

5'-0"

10'-0"

12'-4"

3'-0"

2'-6"

11'-0"

5'-6"

5'-0"

3'-6"

3'-6"

2'-0"

4"

4"

2'-2"

4"

9-8" sq. N°

pitch (one coat)

20 ga. Donacconna Board + ½" Cork

12"

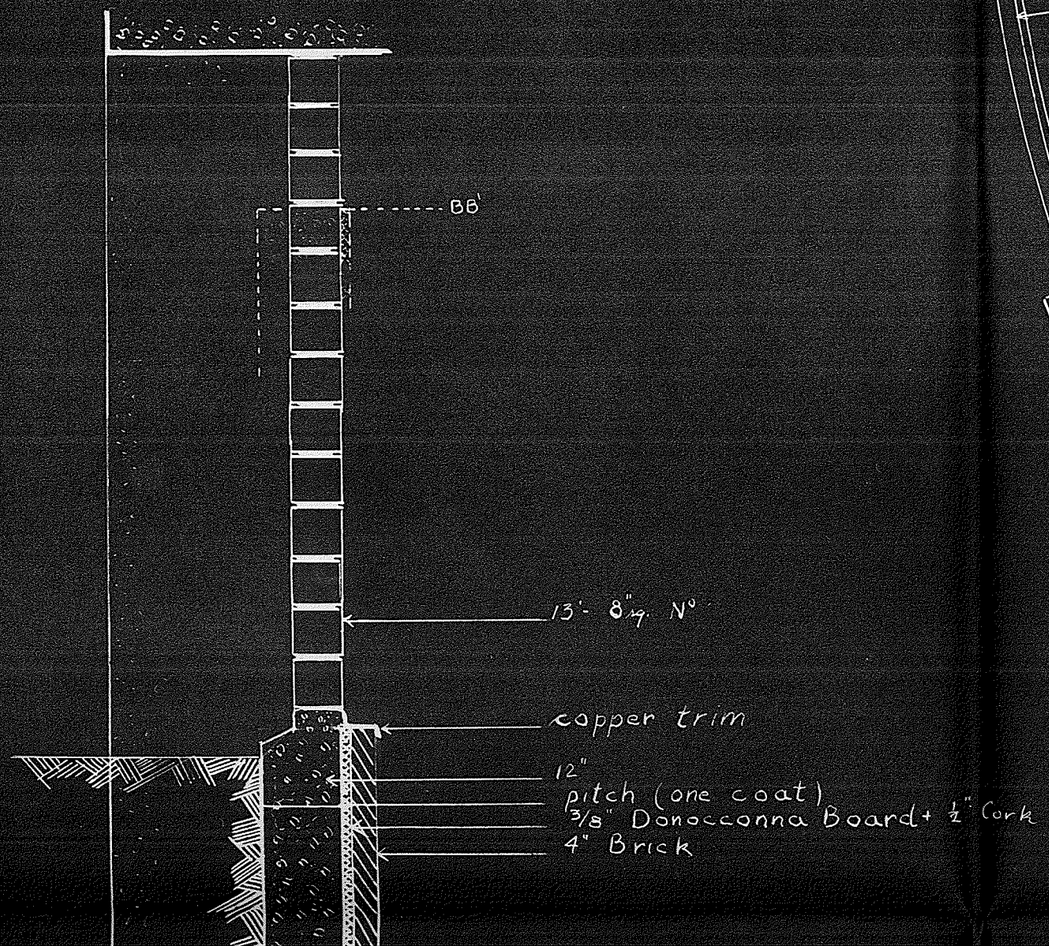
closet

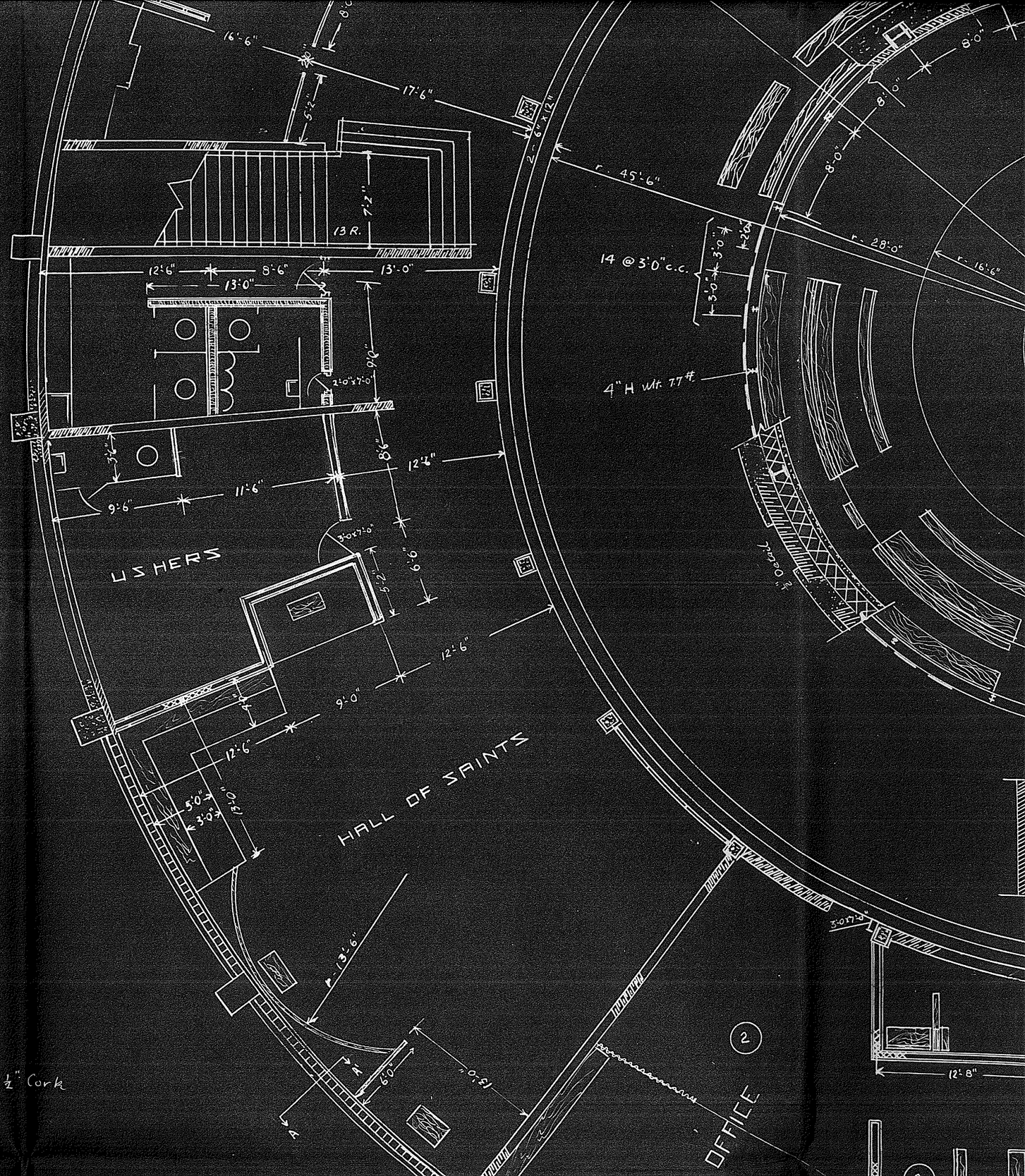
DD'

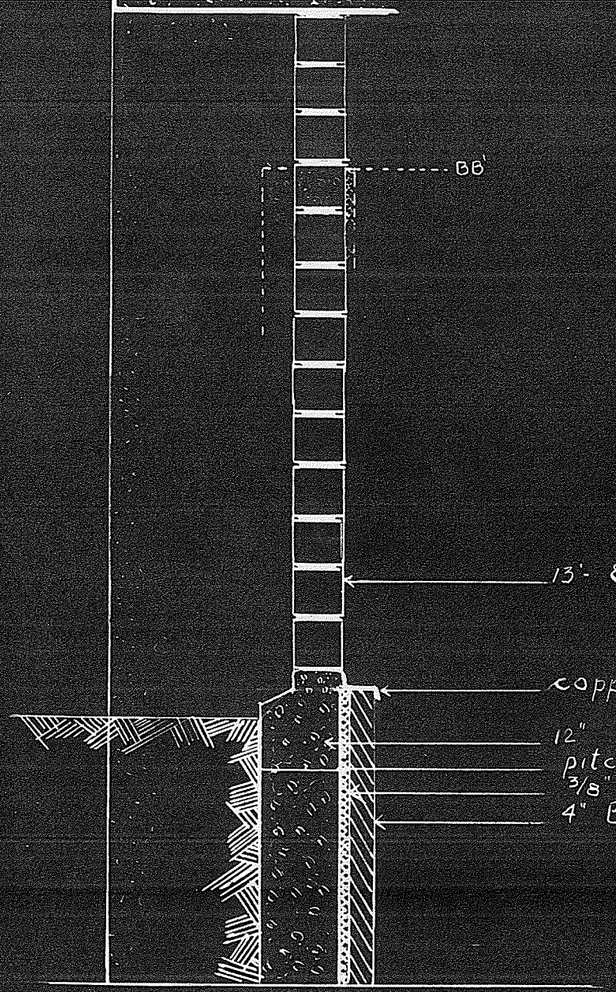
1 Coats Pitch

CEILINGS

In worship area
1 coat Filler
1 coat gold paint



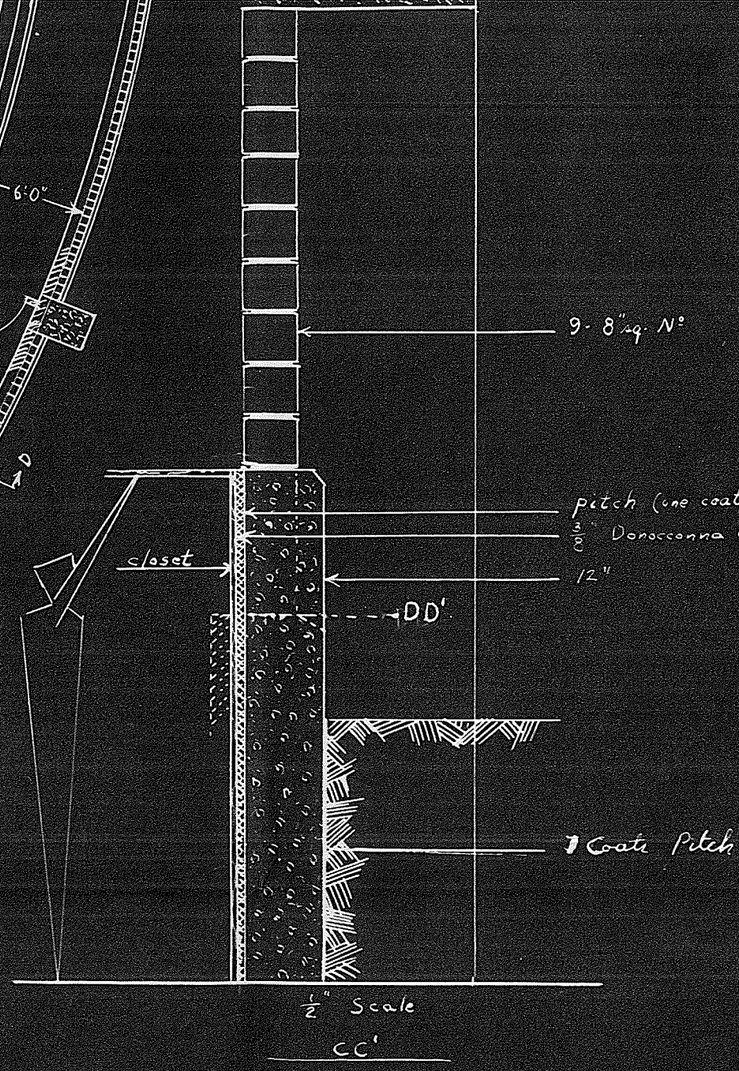




1/2" Scale

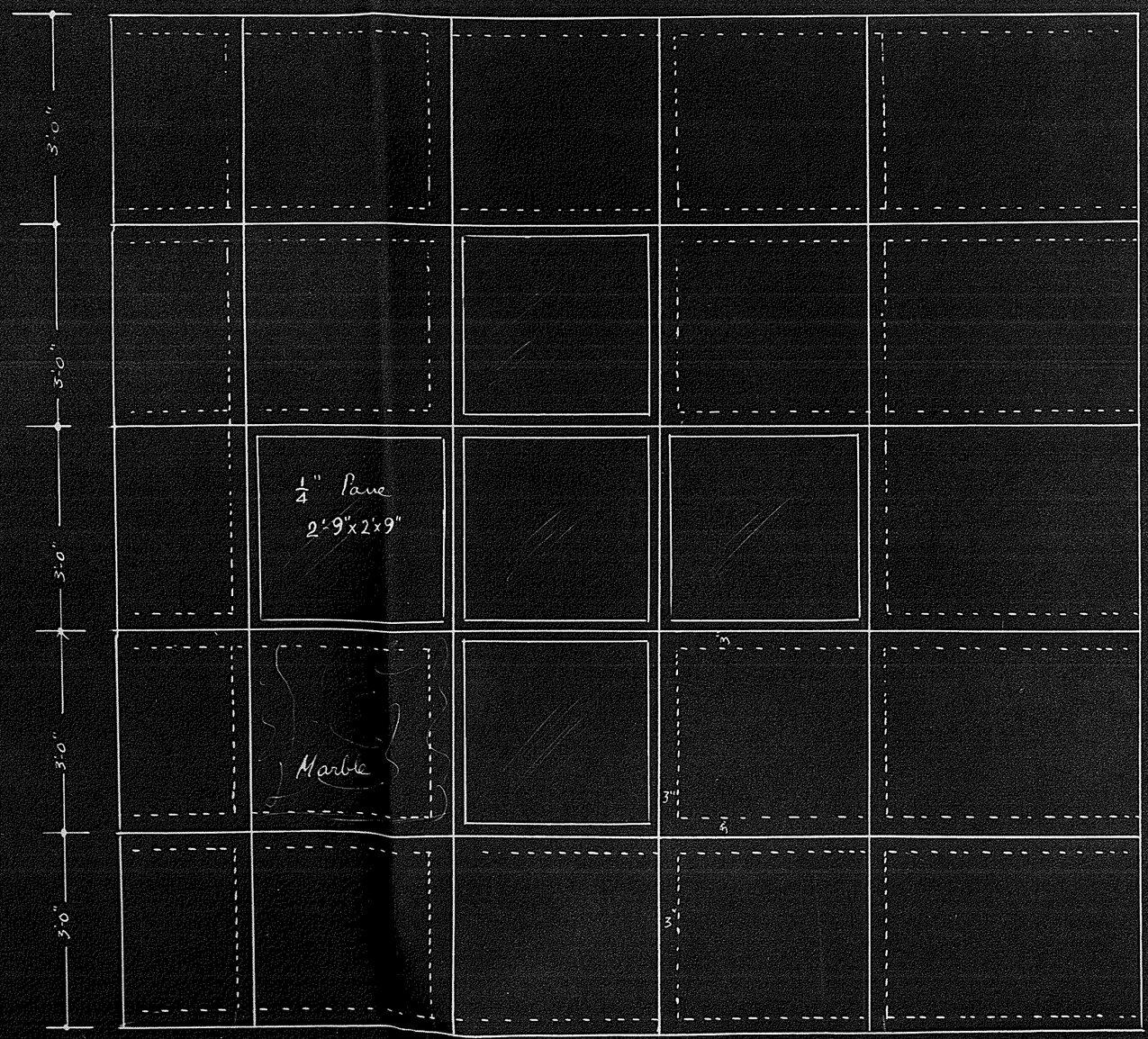
AA'

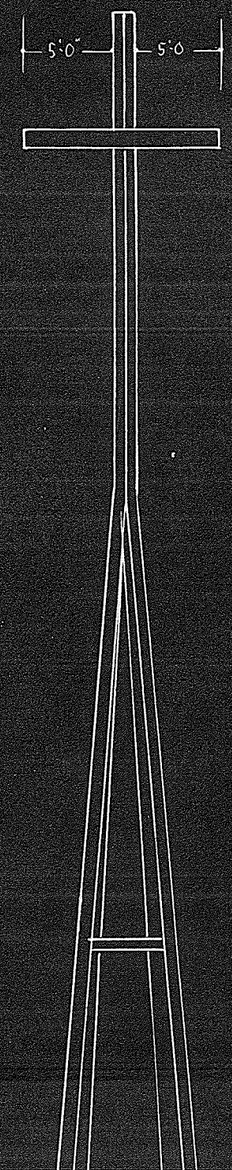
TYPICAL WALL SECTION

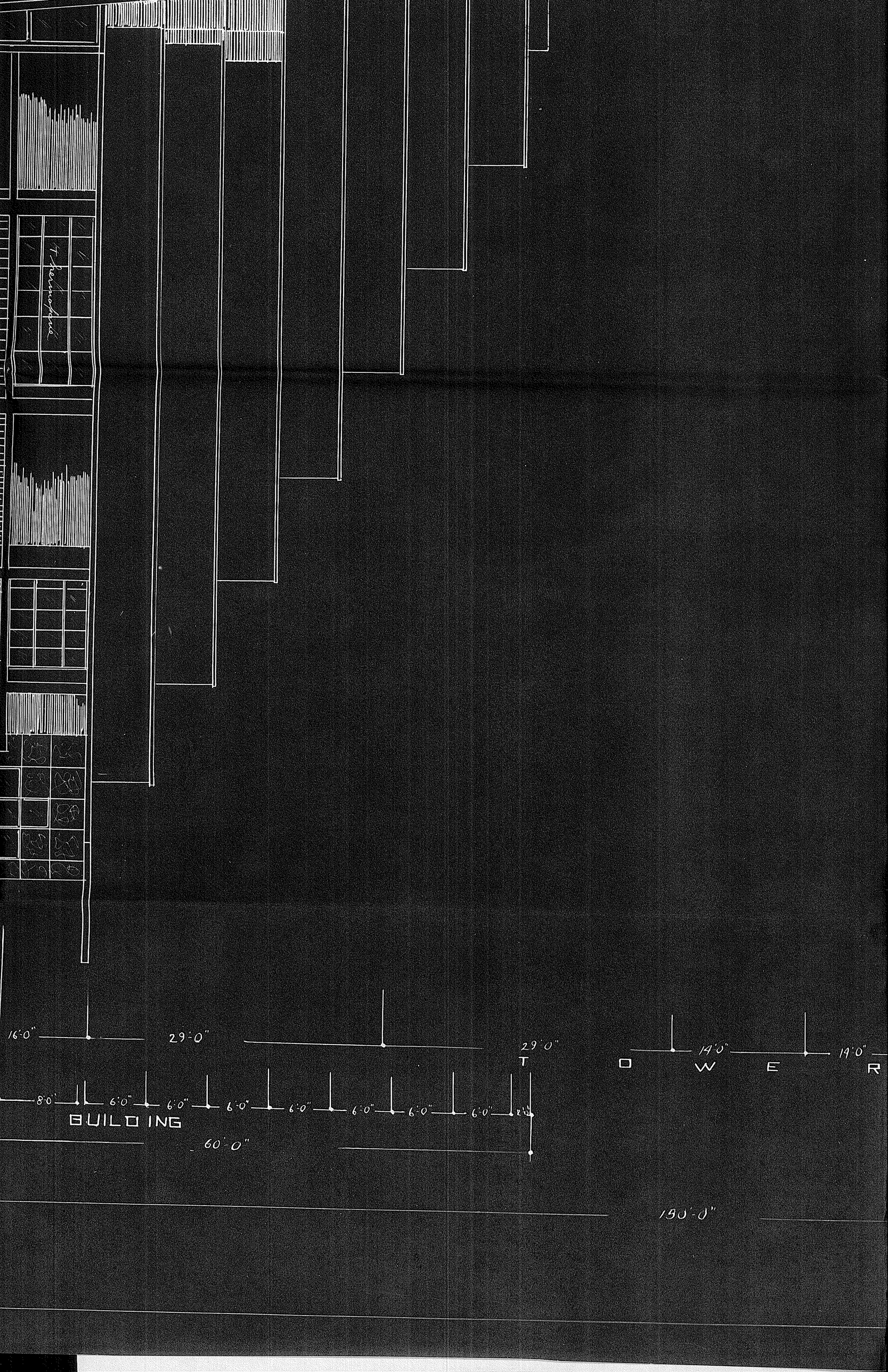


TYPICAL WALL SECTION

12"
6'0"
19'0"
26'0"
22'0"
14'0"
R

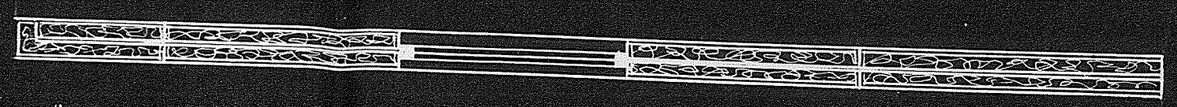

3'-0"
3'-0"
3'-0"
3'-0"
¼" Pane
2'-9"x2'-9"
Marble
3"
3"
3"
3"


5'-0"
5'-0"


16'-0"
29'-0"
29'-0"
T
O
W
E
R
14'-0"
19'-0"
8'-0"
6'-0"
6'-0"
6'-0"
6'-0"
6'-0"
6'-0"
6'-0"
BUILDING
60'-0"
190'-0"

2'-0" 3'-0" 3'-0" 3'-0" 4'-0"

D/1



3" Angle - Steel frame - Brass finish — 2" Marble Slabs (Deep Green)

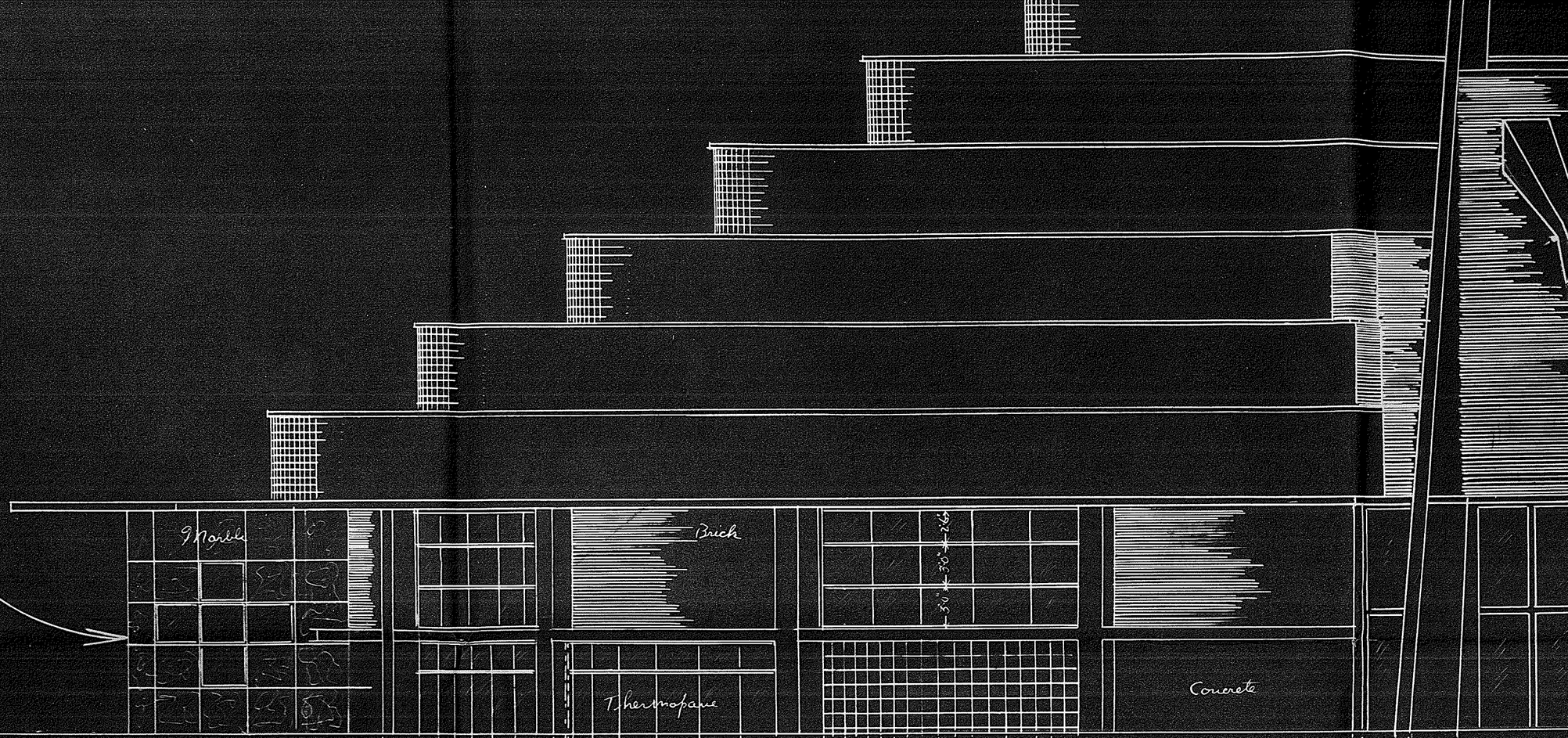
Scale ½" = 1'-0"

10 - 6"x6" Glass Blocks

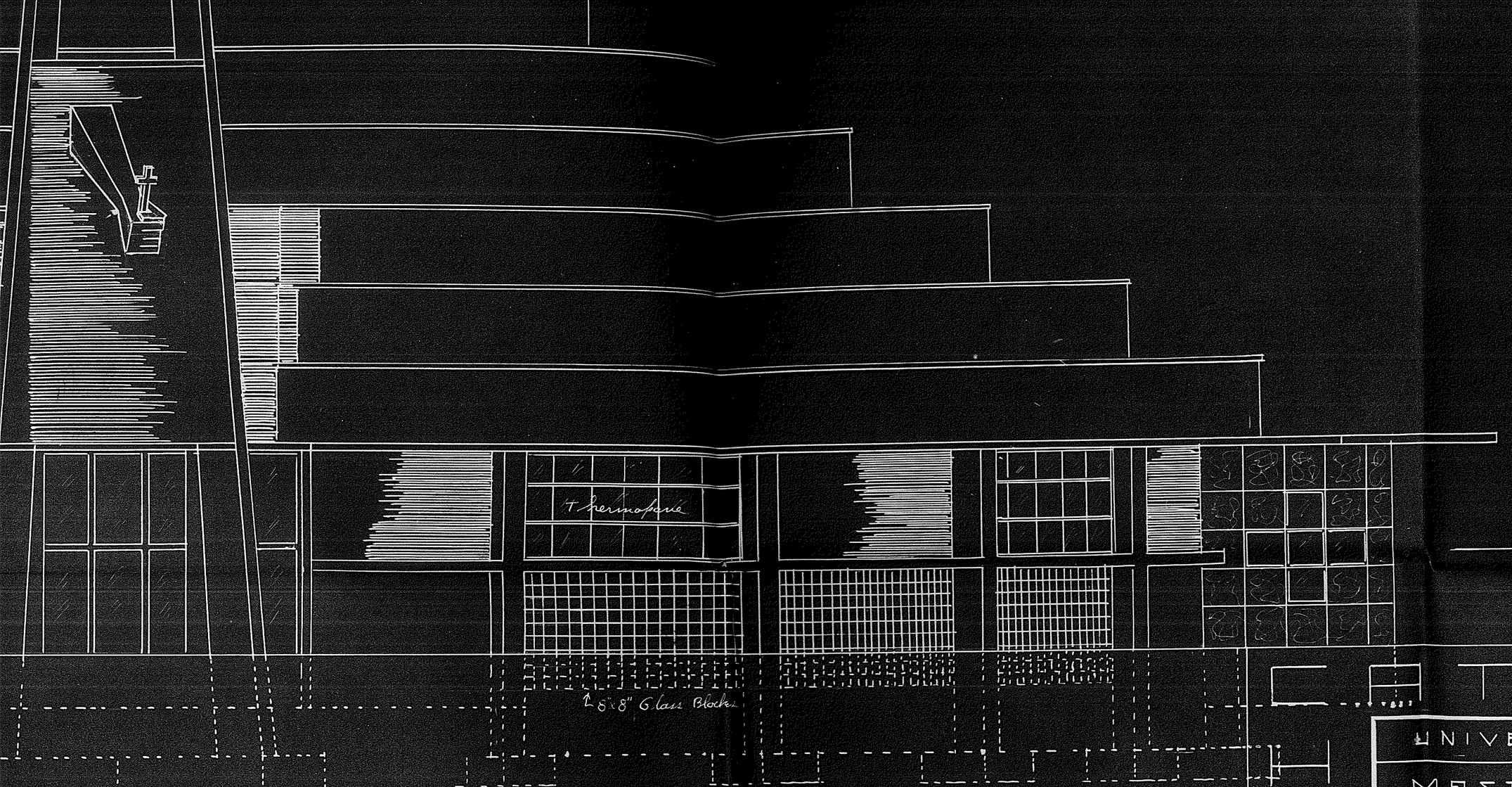
Marble

Brick

5'-0" + 3'-0" + 2'-6"



NORTH - E



RTH - ELEVATION

THE CATHOLIC

UNIVERSITY OF MAN

MASTER - THESIS

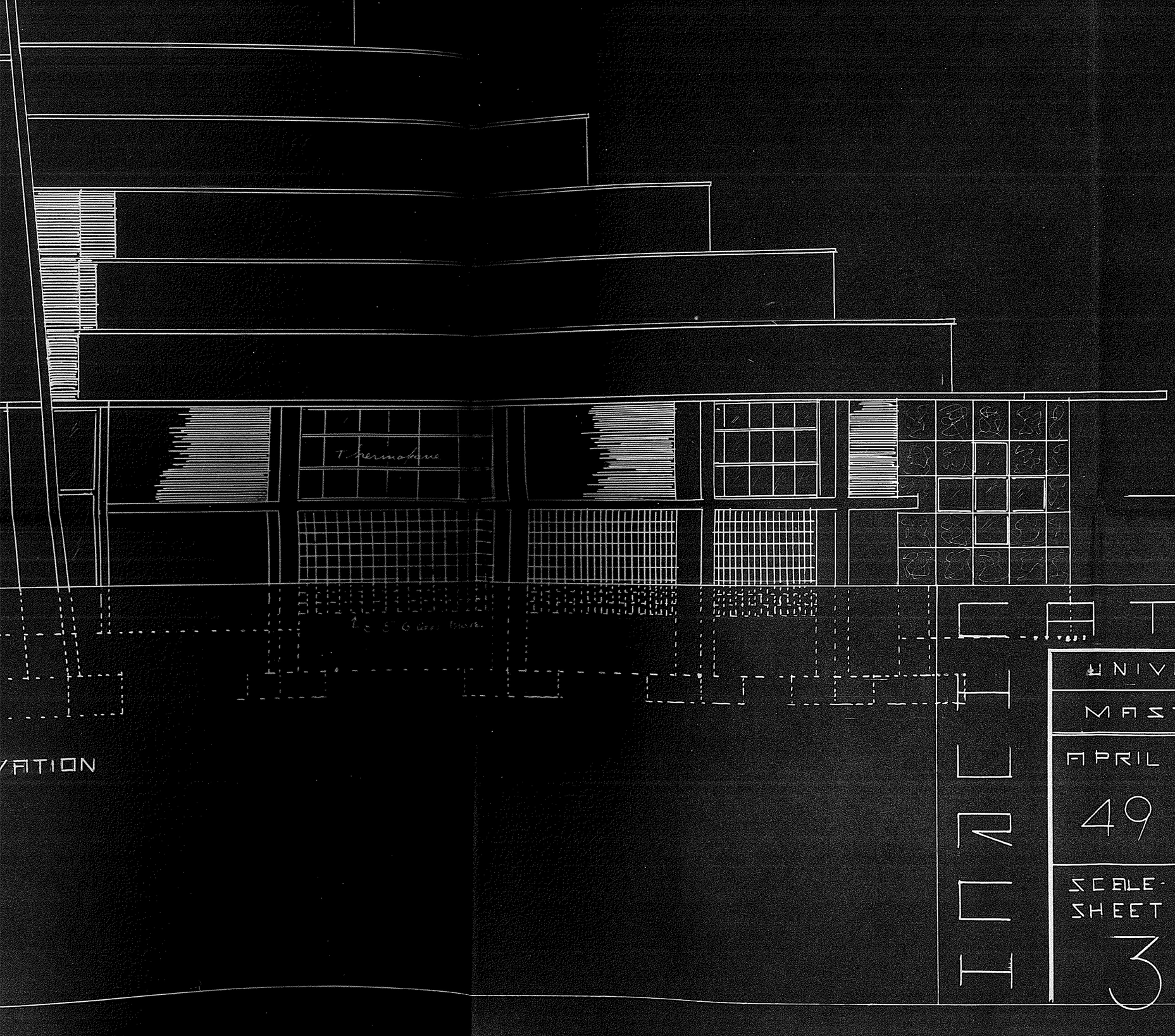
APRIL

49

SCALE - 1/8" 1'-0"

SHEET

3



VATION

BUILDING

60'-0"

29'-0"

16'-0"

8'-0"

6'-0"

6'-0"

6'-0"

6'-0"

6'-0"

9'-0"

MARIE ANTHELIC

UNIVERSITY OF MANITOBA

MASTER – THESIS

APRIL

49

SCALE - 1/8" = 1'-0"

SHEET

3

Albert

B. Grosh

6'-0"
22'-0"
16'-0"
R
E

5'-0"

Thermotane

BUILDING

60'-0"

0'-9"

0'-9"

0'-9"

0'-9"

0'-9"

0'-9"

29'-0"

16'-0"

6'-0"

26'

14'-0"

W

E

19'-0"

150'-0"

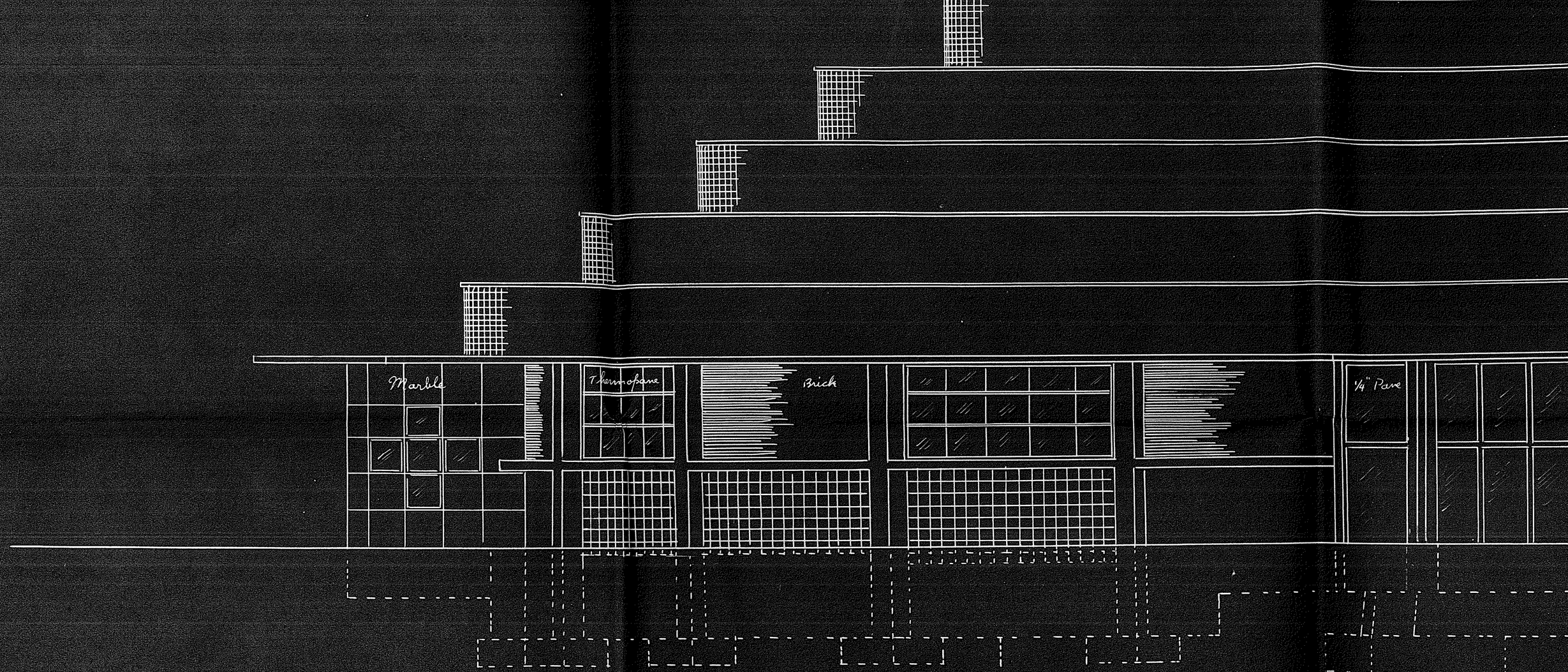
10 - 6"x6" Glass Blocks

Marble

Plate Glass

Brick

1/4" Plate



SOUTH EL

Thermopane

BUILDING

60'-0"

29'-0"

17'-0"

9'-6"

VATION

CATHOLIC CHURCH

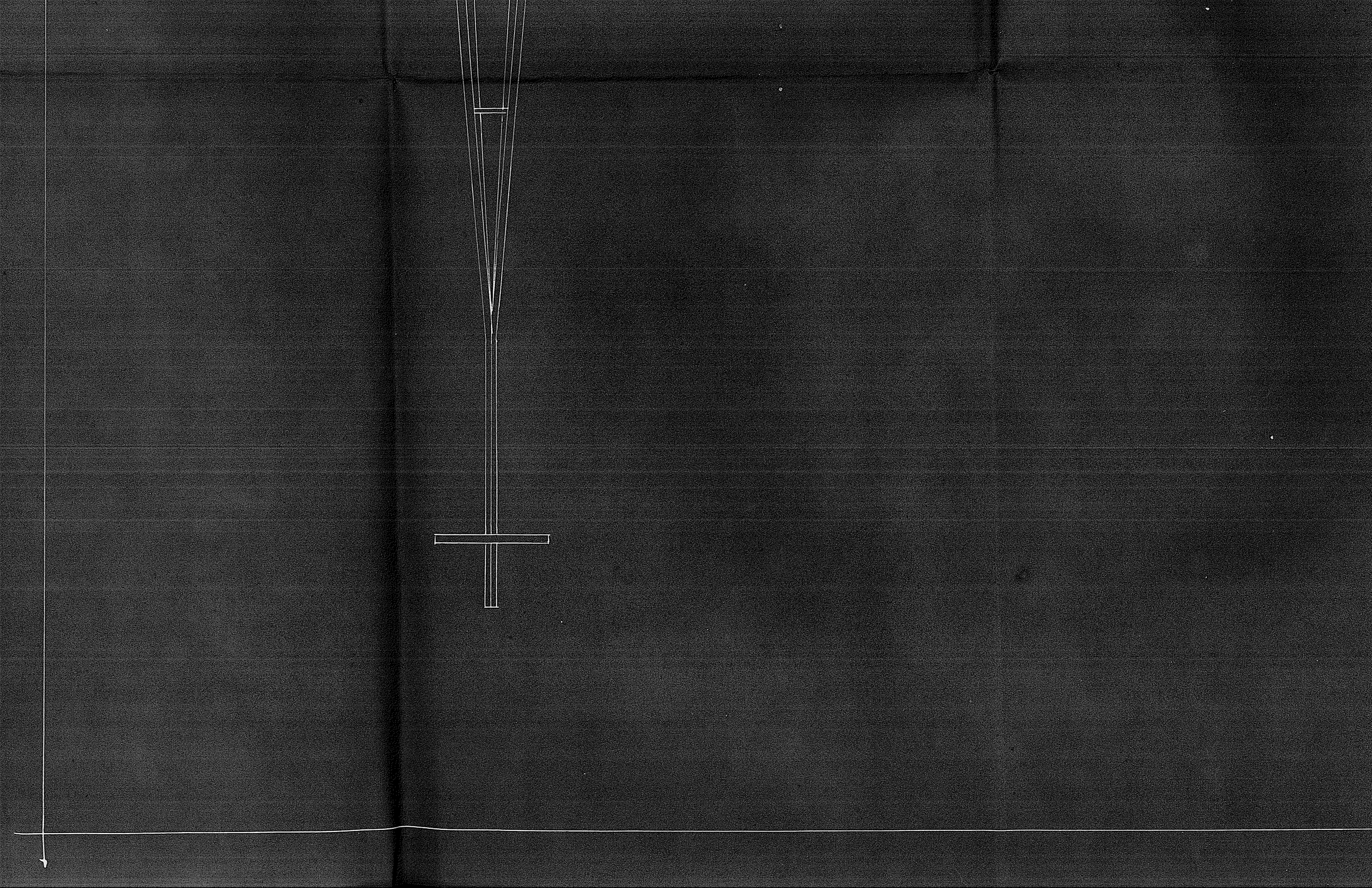
UNIVERSITY OF MANITOBA

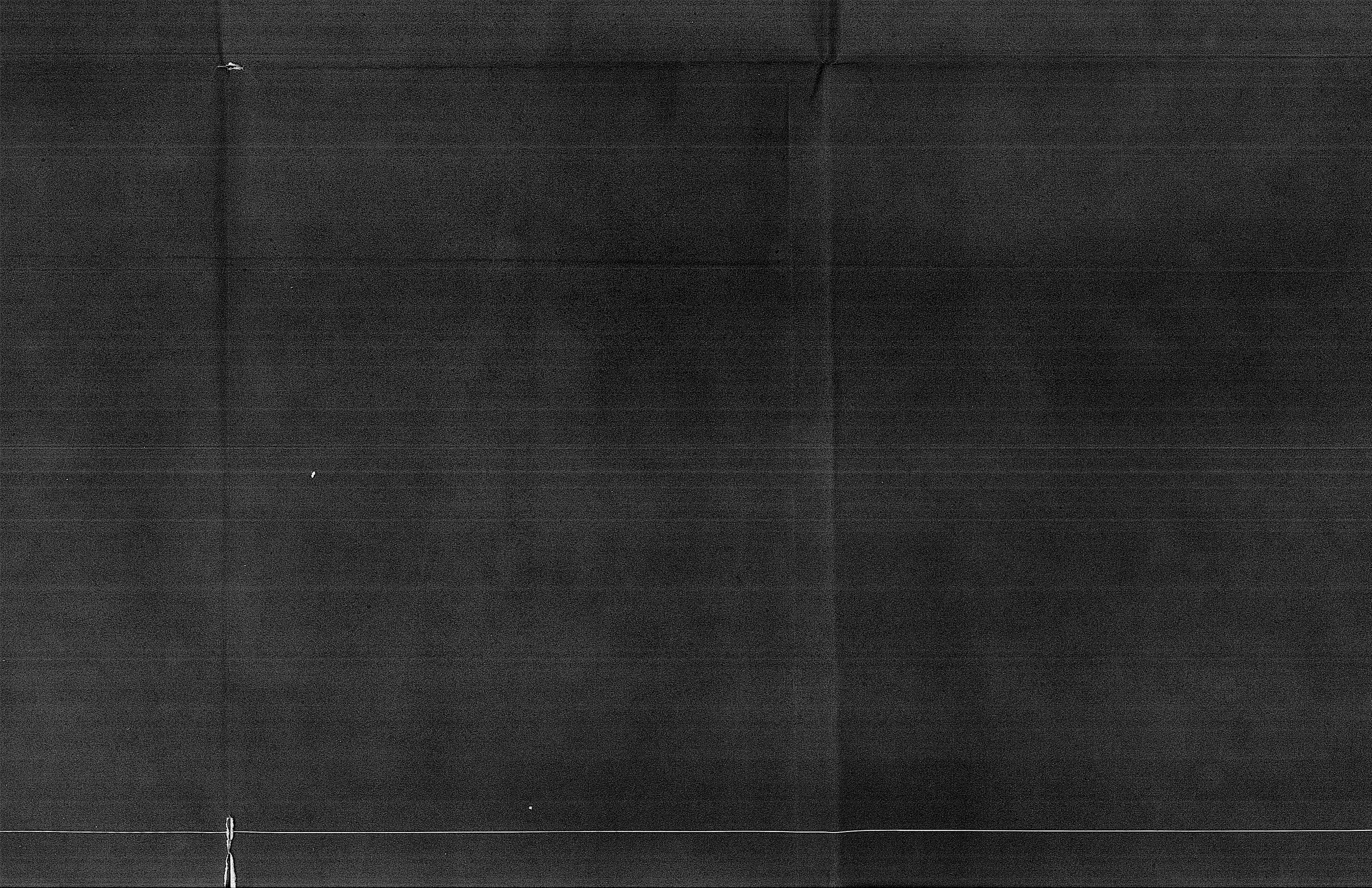
MASTER - THESIS

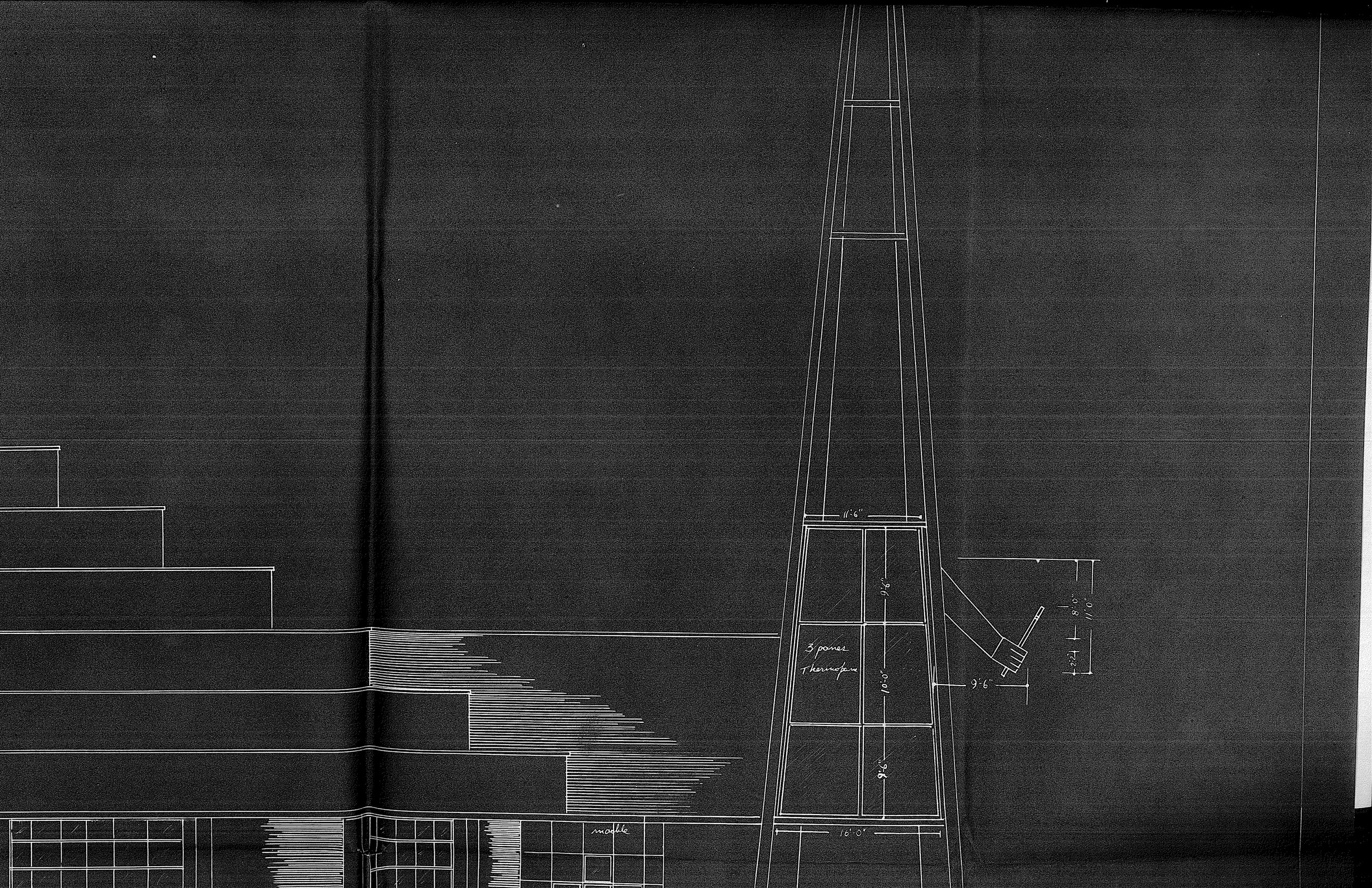
APRIL 49

SCALE: 1/8"
SHEET 4

A. Gilbert
B. Arch E.





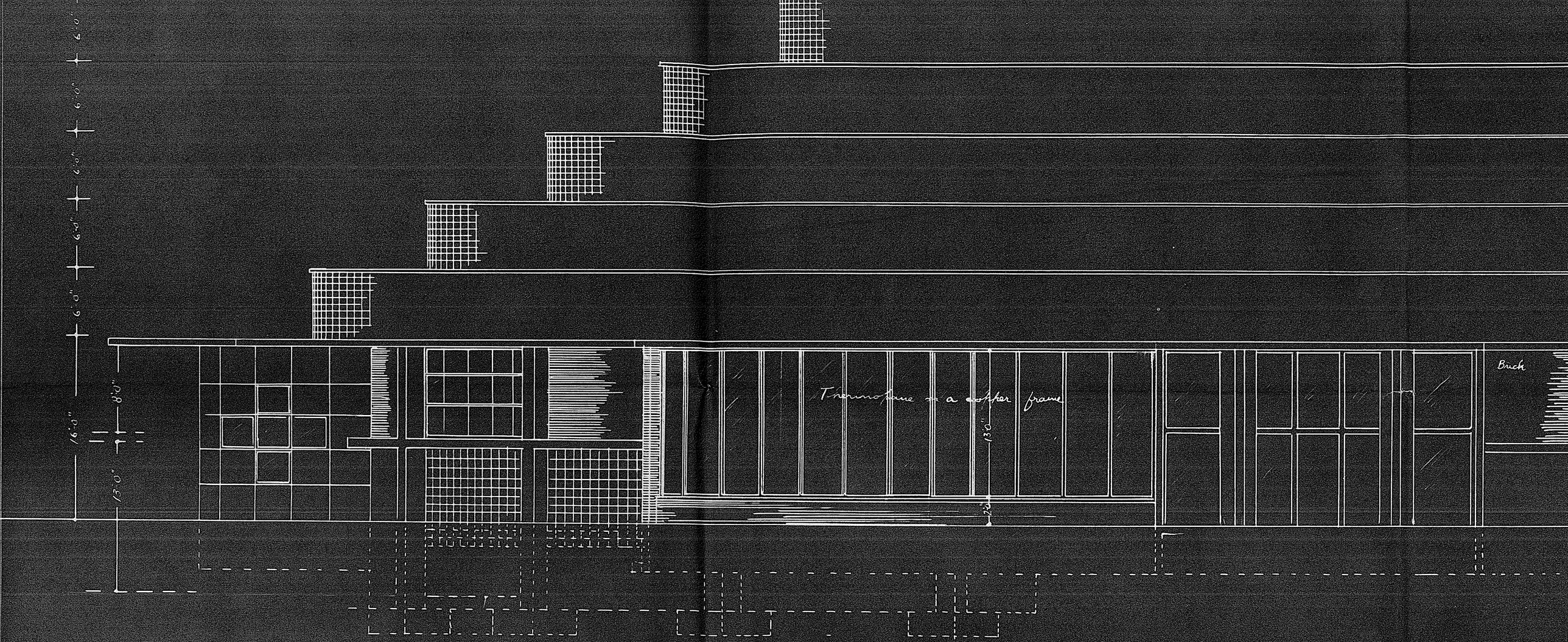

marble
11'-6"
9'-8"
3 panes
Thermopane
10'-0"
9'-8"
16'-0"
9'-6"
0'-11"
0'-8"
1'-2½"

10 - 6"x6" Glass Blocks

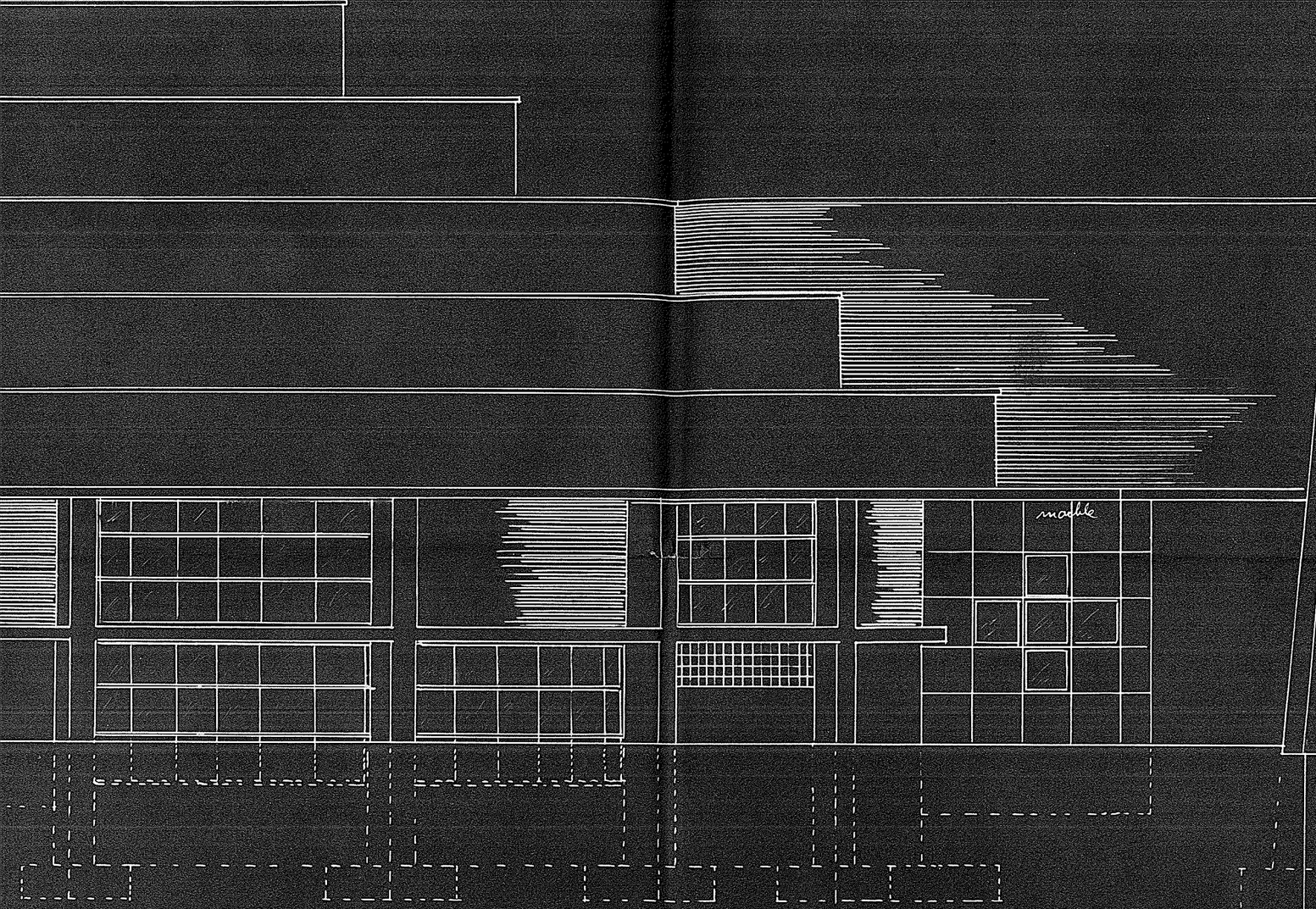
Thermometer in a copper frame

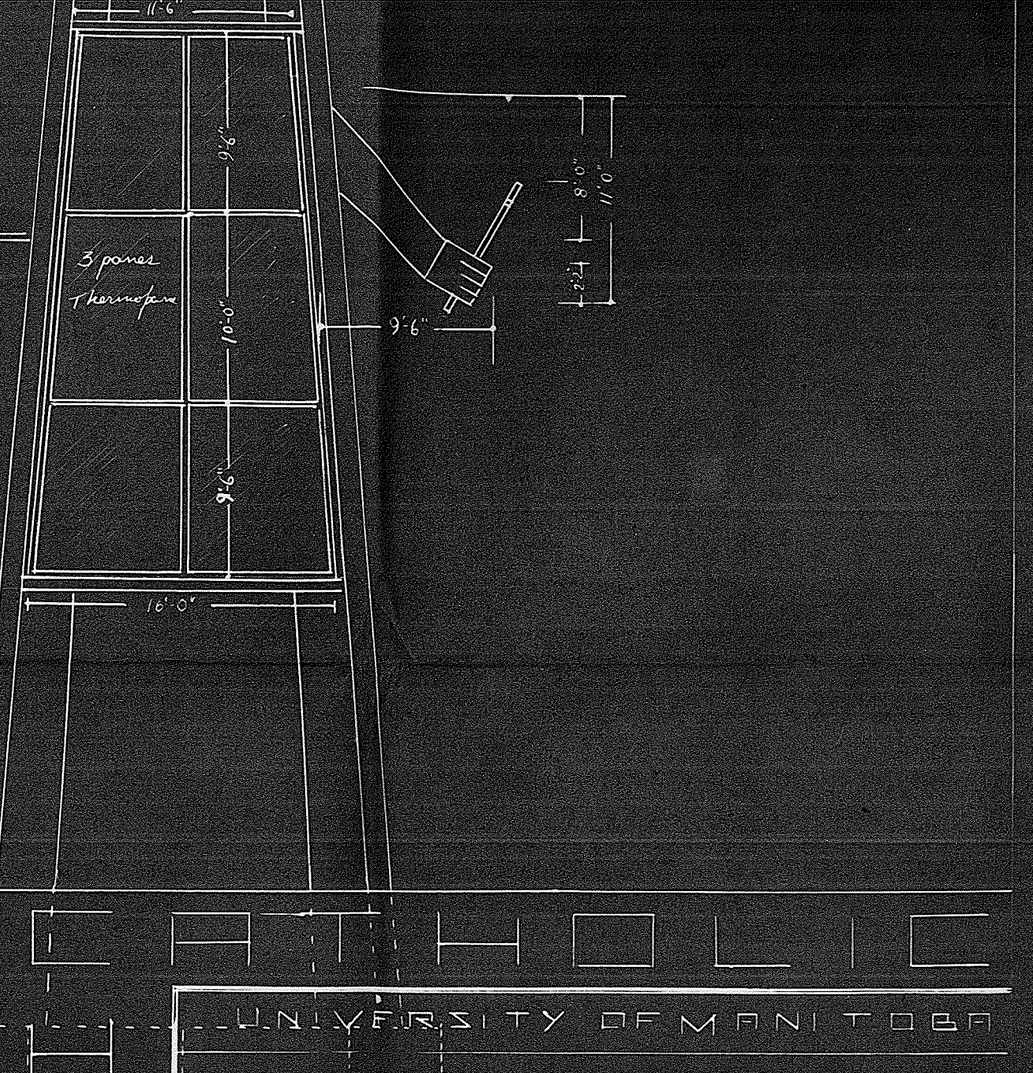
Brick

9'-0"



EAST- ELEVATION





CATHOLIC CHURCH

UNIVERSITY OF MANITOBA

M-A-S-T-E-R — THESIS

APRIL

49

SCALE 3/16"

SHEET

5

Gilbert

M

ROOF FRAMING DIAGRAM

Cantilever Beam

Ring Truss

TRUSS

Cantilever Beam
Front Ring
Auditorium Slab

CATHOLIC CHURCH

CATHOLIC

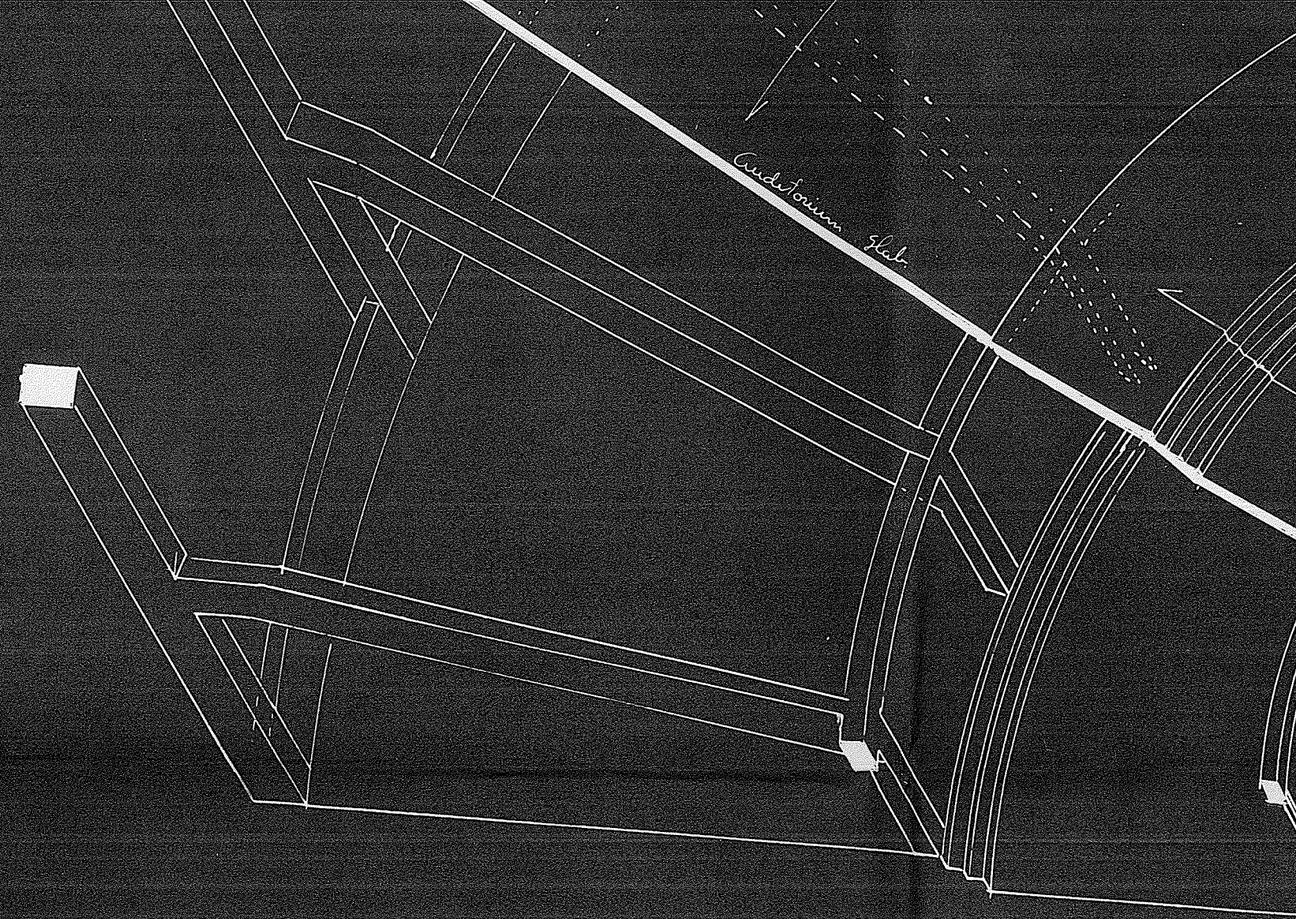
UNIVERSITY OF MANITOBA

MASTER - THESIS

APRIL 49

SHEET 6

Gilbert



FRAMING DIAGRAM

Vent - Copper frame + mesh

20 years Asphalt Roofing

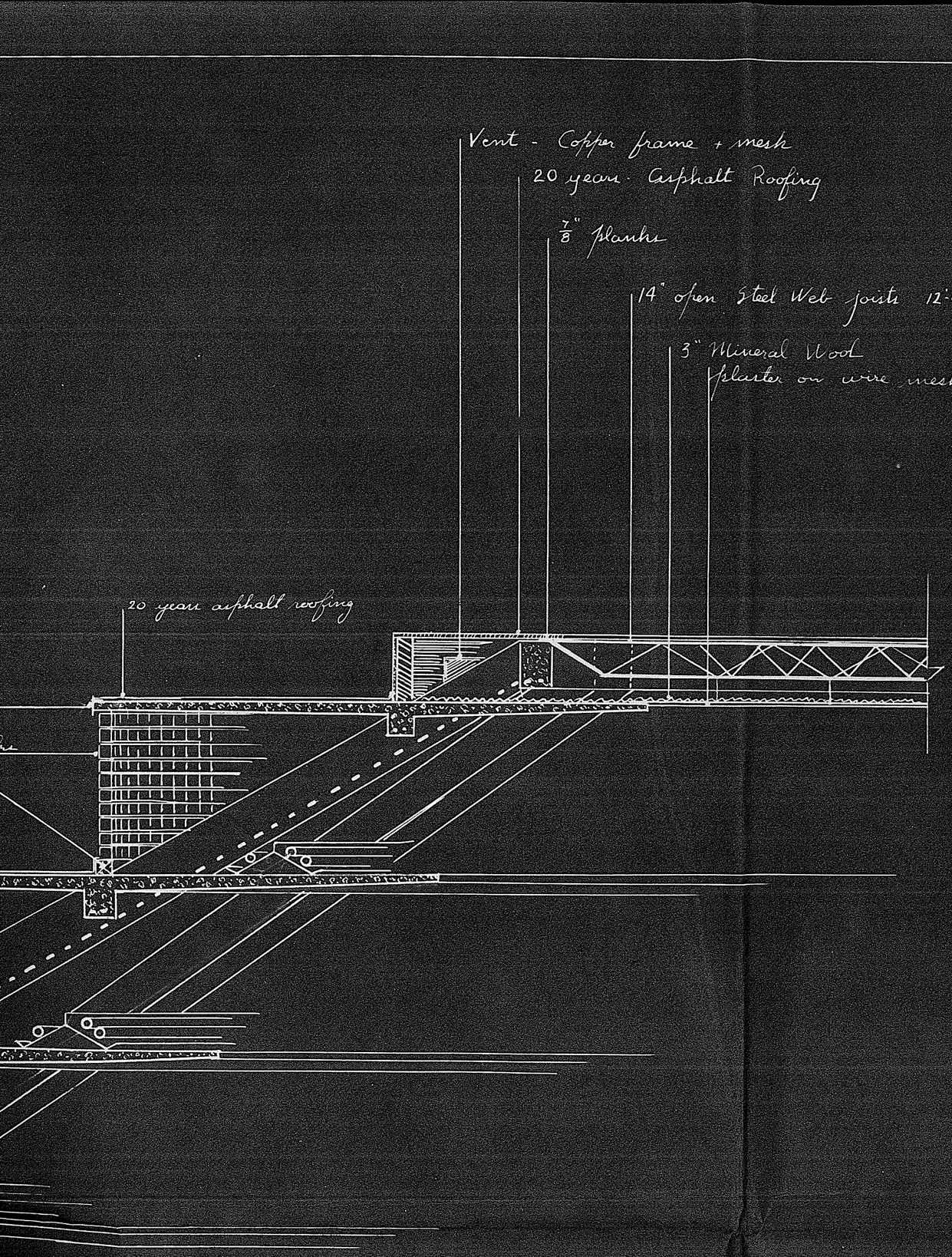
$\frac{7}{8}$" planks

14" open Steel Web joists 12'-0" c.c on outside circumference

3" Mineral Wool

plaster on wire mesh

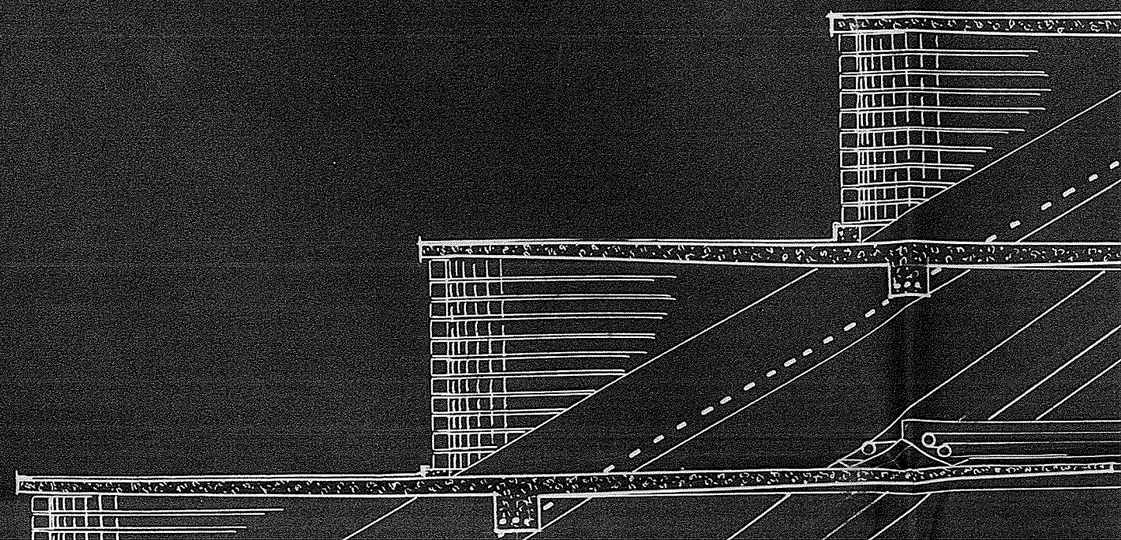
20 years asphalt roofing

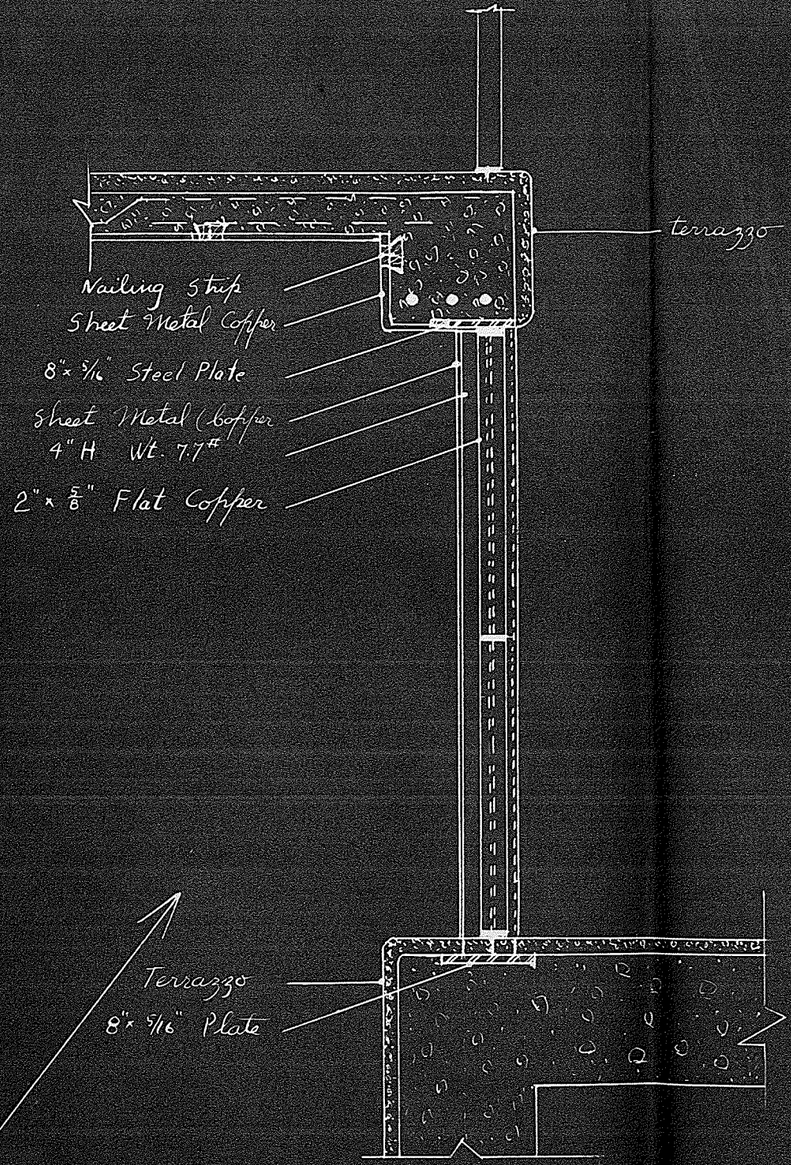


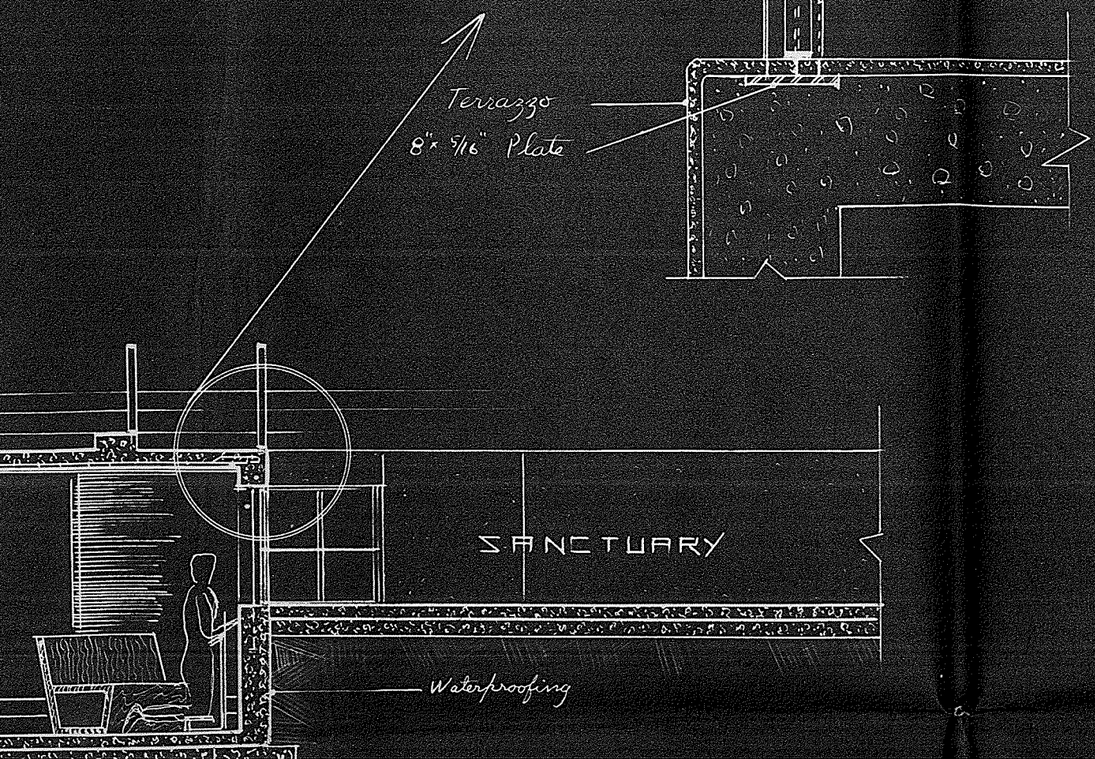
copper flashing

6"x6" glass block

step (roofing)




terrazzo
Nailing Strip
Sheet Metal Copper
8" x 5/16" Steel Plate
Sheet Metal Copper
4" H Wt. 7.7#
2" x 5/8" Flat Copper


Terrazzo
8" x 5/16" Plate
SANCTUARY
Waterproofing

12" Aluminum Reflector Nave lighting
Fluorescent "Blue Light"

VAULT

BAPTISTRY

FONTS

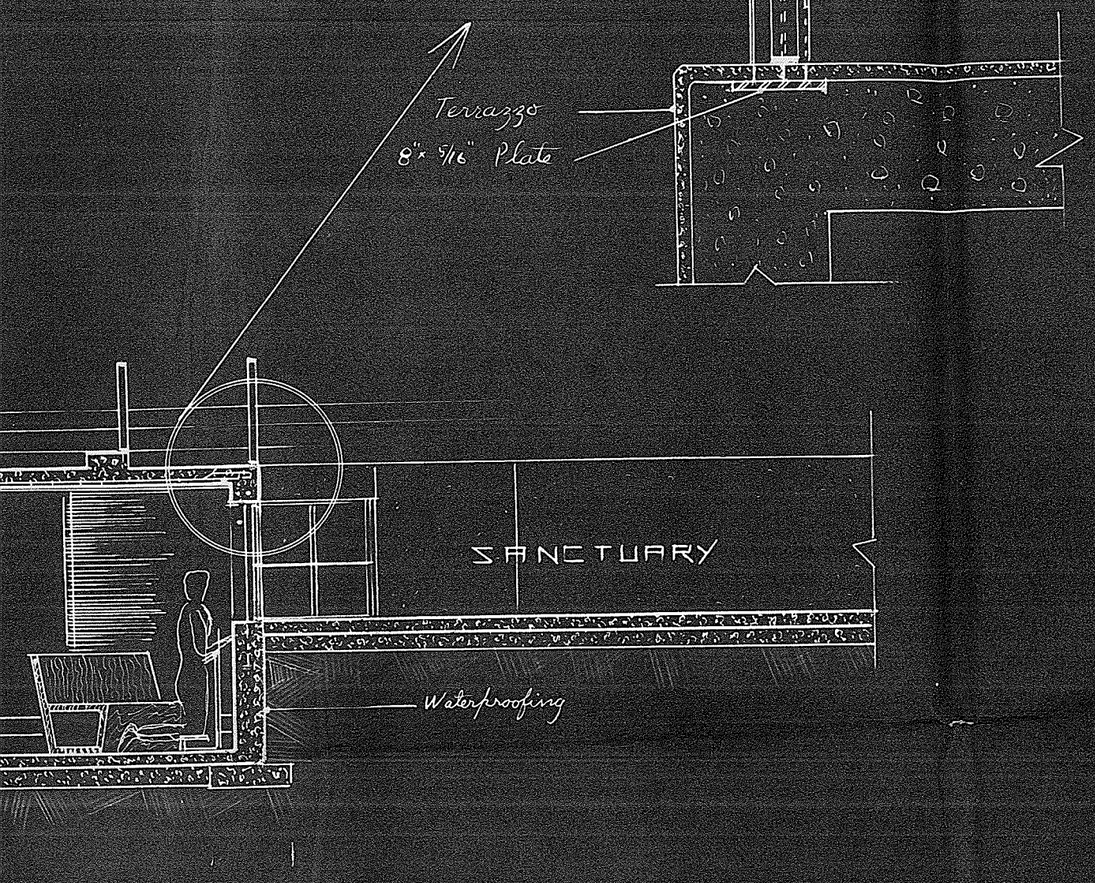
NAVE

Terrazzo

CONFESSIONNAL

RAMP

MEETING



CATHOLIC INSTITUTE

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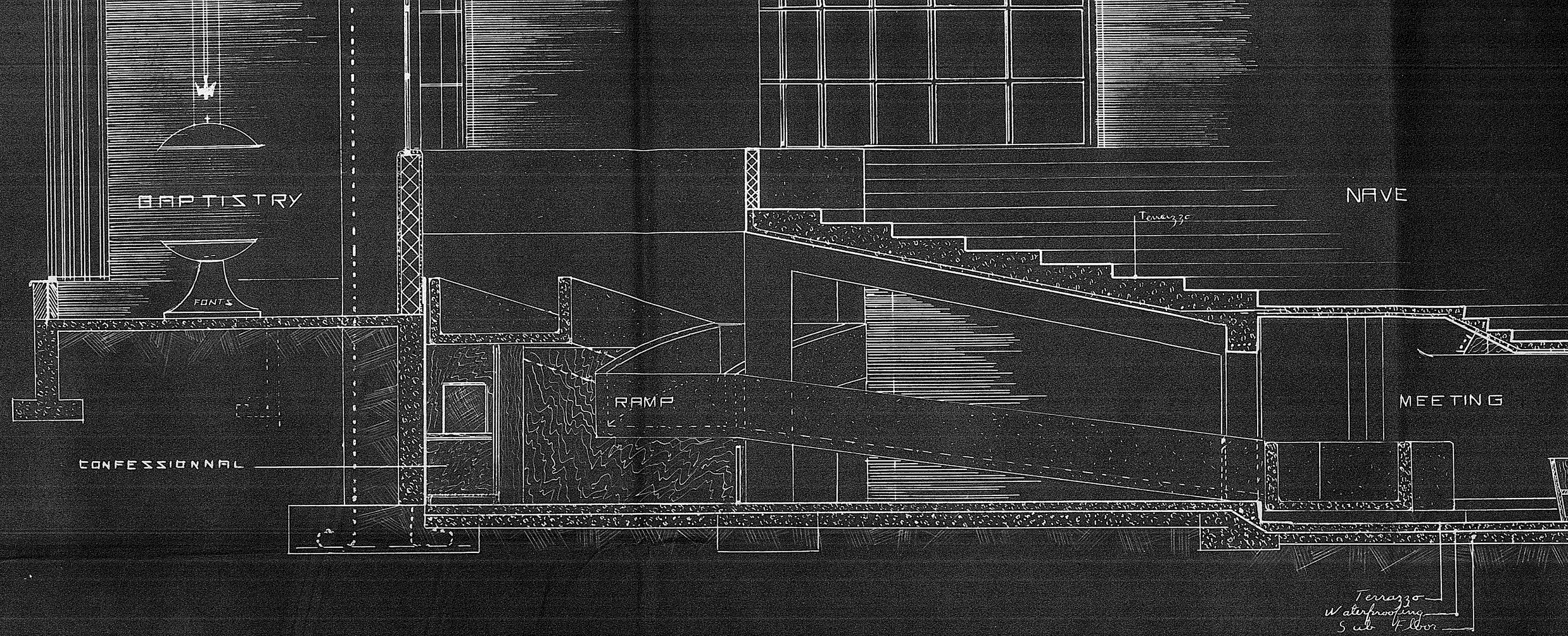
MASTER - THESIS

APRIL '49

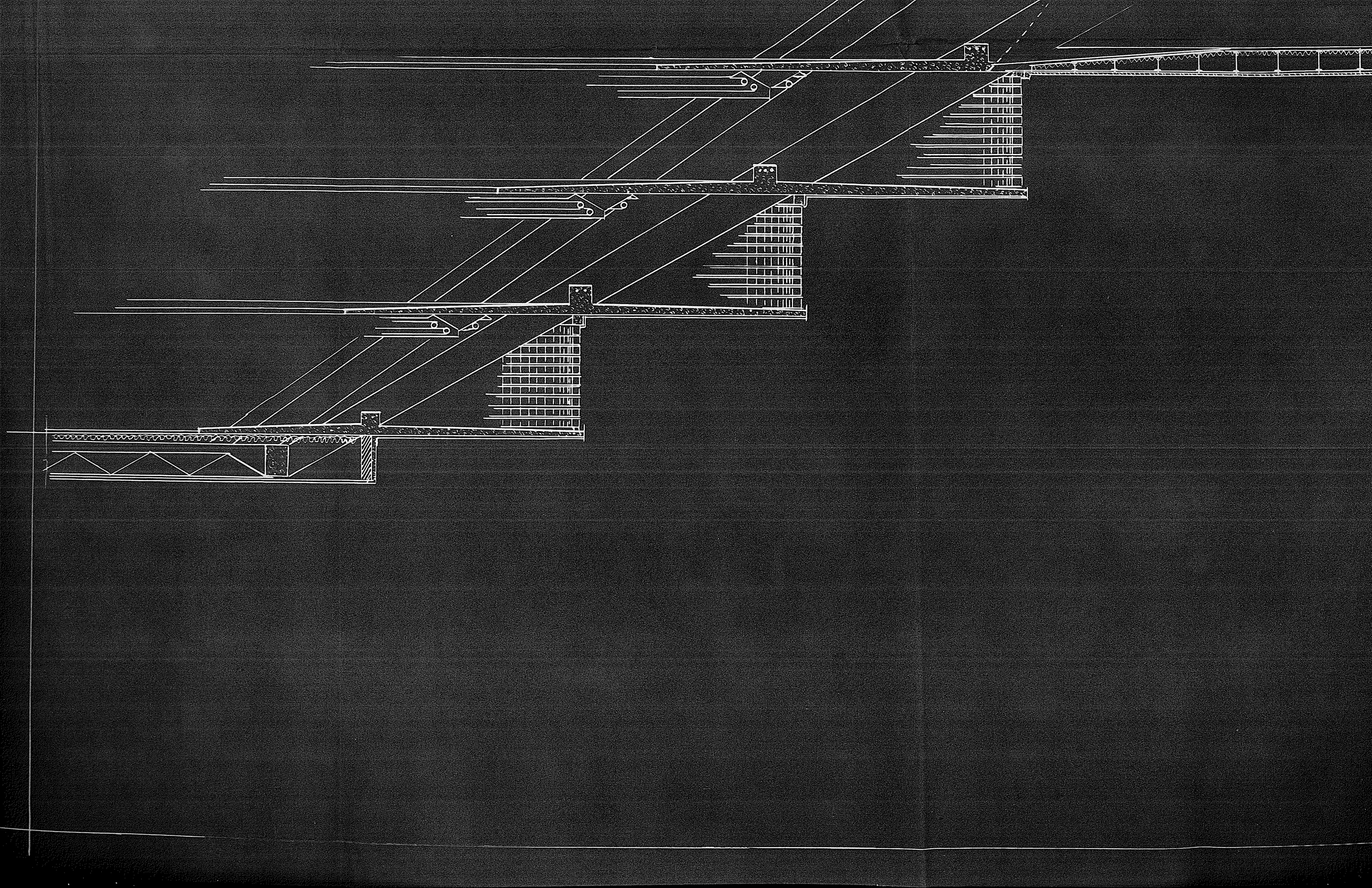
SHEET 7

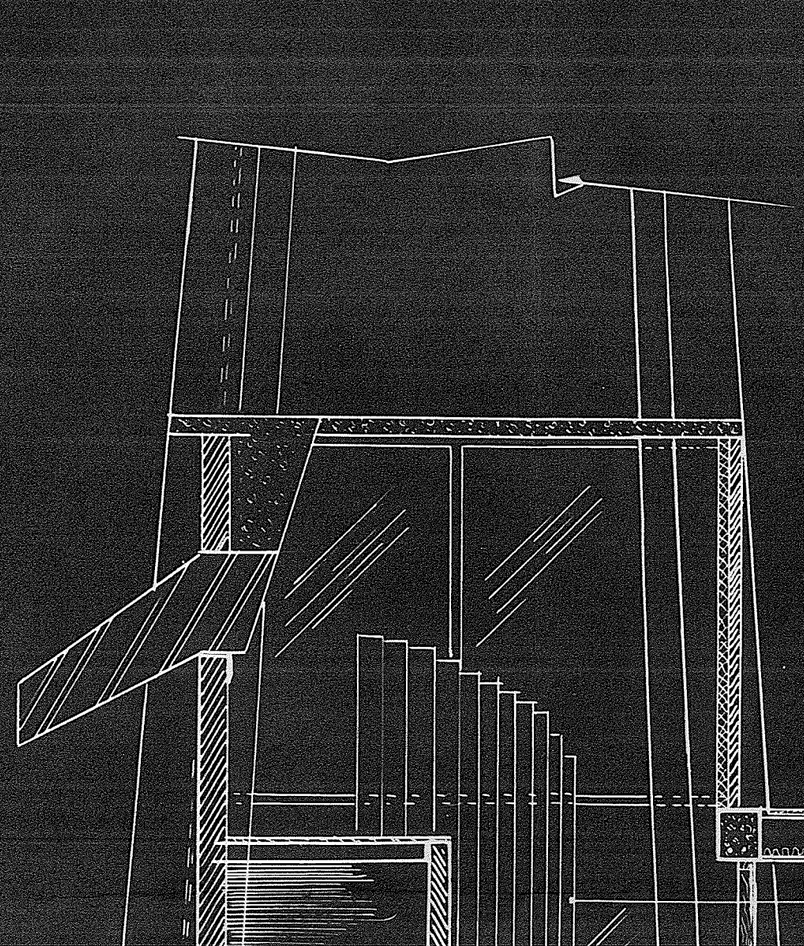
A. Gilbert
B. Arch. E.



SECTION - XX'

SCALE - 1/4" - 1'0"





20 Years Asphalt Roof
7/8" Boards "Pine"
12" Open Web Steel Jo
3" Mineral Wool
Metal lath
3/4" Plaster
12" Concrete Beam 3-1/2 ϕ

21 Note Make of Shimer Connected to Wurtlizer Organ

ROOF TRUSS

VAULT

NAVE

SLE

COM. RAIL

WALK

SANCTUARY

Terrazzo
3" Concrete
Insulating Membrane
9" Reinforced

Bells Mechanical Chamber

Bells Electric Conduit

3 - ¼" Thermopane

Model 42 "Wurtlizer" Tone Cabinet

Organ Mechanical Chamber

¼" Maple Veneer on a 2"x4" frame

3" H Steel Stand

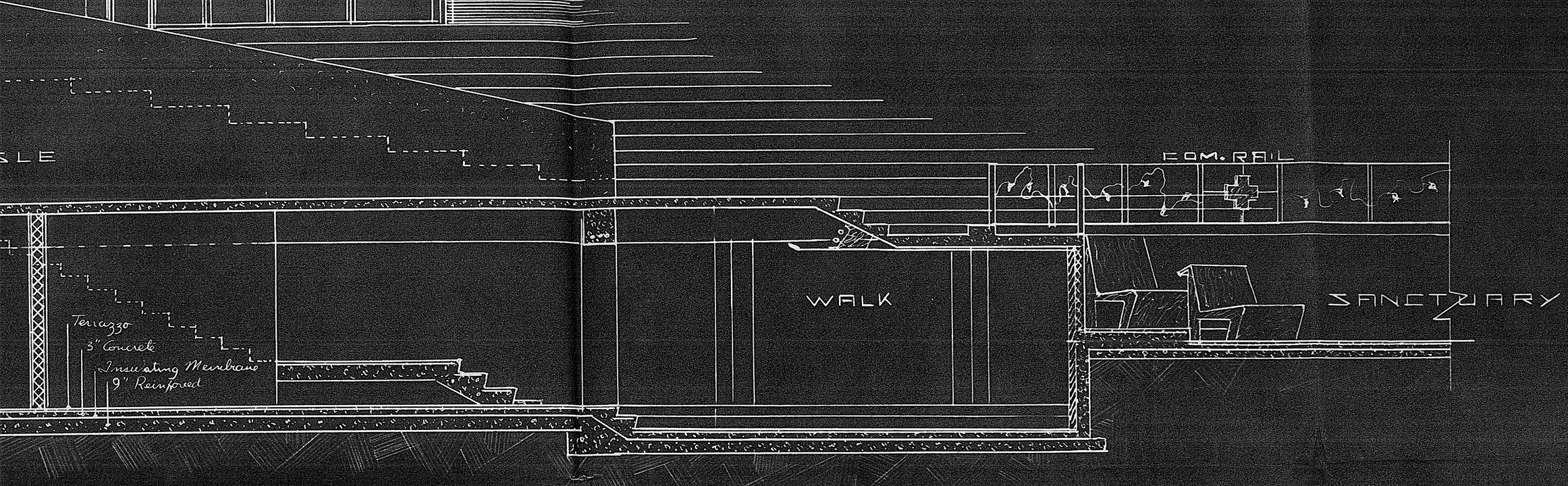
CHOIR

PORCH

VESTIBULE

Font

W. C.



SECTION AT ℄

SCALE 1/4" - 1'-0"

CATHOLIC

UNIVERSITY OF MANITOBA

MASTER - THESIS

APRIL

49

SHEET

8

Albert

J. Cinch

PORCH

VESTIBULE

fonts

W. C.