

JOSEPH EARL CRABTREE

OUR REDEEMER'S LUTHERAN CHURCH,
HELENA, MONT.

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December 15, 1964

Prof. H. C. Rose'
School of Architecture
Montana State College

Dear Professor Rose'

I am submitting this research paper in partial compliance with the requirements for my thesis project.

In this thesis I have presented research material for a Our Redeemer's Lutheran Church for Helena, Montana. The research material includes reports on existing conditions, local conditions, building functions, allotted areas for these functions, aesthetic considerations, history of the Lutheran Faith, and economic considerations.

The purpose of this study is to analyze the need for a new church and to provide a concept and program on which to base further design studies, which will be the second part of the thesis program.

Respectfully yours,

Joseph E. Crabtree

Joseph E. Crabtree
Fifth year senior
Architecture
Montana State College

THESIS IN ARCHITECTURE

Preliminary Research for
OUR REDEEMERS LUTHERAN CHURCH
Helena, Montana

Joseph Earl Crabtree Jr.
Montana State College
Bozeman, Montana
December 15, 1964

P378

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ACKNOWLEDGEMENT

I am greatly indebted to
Reverend I. C. Gronneberg
Reverend Strom
Mr. & Mrs. Frank Erickson
for their assistance in this
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thanks goes to Homer Wheeler
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INTRODUCTION

My purpose in this written part of my undergraduate Architectural thesis is to present the general information I will need to do the second part of the thesis, design a new Our Redeemer's Lutheran Church in Helena, Montana. In accomplishing this purpose I have used the outline provided by the Architecture Department at Montana State College for the first part or written part of the required undergraduate Architectural Design Thesis as a guide to the information that would be needed. The six major divisions of the outline are:

1. Creating a Need
2. Local Conditions
3. Site Conditions
4. Function of the Building
5. Aesthetic Considerations
6. Economic Considerations

CREATING A NEED

The present church was built in 1958 and at that time was inadequate in space for the educational classes. The space is extremely inadequate today with the number of students being more than doubled the original number. The classes are held in three shifts with some classes in the basement of a near-by home. Also the adult education class is being held in the pastor's office at the present. The classrooms consist of small spaces of the multi-purpose room in the basement divided by hanging single thickness cloth drapes. The sounds from one class are completely audible to the other classes; one class giggles, they all giggle. Also because of the lack of space some of the classes have over twenty students in them. For the close contact that is necessary the classes should be about 12 students in size. To complex the problem of teaching in such a inferior situation, the choir's robing room is in the same area.

In between services the choir is trying to put on their robes, the children are changing shifts, the parents are checking on the children and the teachers are trying to organize their classes in an area that is too small for the classrooms alone. There should be an altar of the students to receive the opening services from. But the space for the altar and the gathering of the students has been changed into classroom space.

The worship area is not equipped or designed properly. The pews and the seats for the choir are just standard

folding chairs. The pastor has to robe in his office and then walk down the main aisle of the nave to the chancel. The nave and chancel occupy a room which was originally designed for a multi-purpose room of a church and education complex that was never finished. The chancel is against the far wall, The choir is about in the center of one side wall and the congregation takes up the remaining area with one hundred and seventeen folding chairs.

The entrance, the stairs, the coat facilities, and the crying room all reflect that they were not designed for the number of people using them. The stairs are too narrow, the coat facilities are too few, the entrance is too small and the crying room is an after thought.

Though the existing building is inadequate for its present uses, it is fairly new and is good condition. It would work fine as part of the fellowship area and part of the educational area of a larger church. If it would be converted to such an area the flow of traffic in it would be less than half.

The growth of the congregation is now making the present building inadequate. The pastor feels that a thousand baptized members would be an excellent size. At this size the closeness between the members will still exist and there would be enough members to support the church's needs. At the present rate of growth the congregation will have a thousand members by 1970. The thousand

members would break down into about 400 children and 600 adults. There probably will be two services and two school sessions each Sunday. If so the nave will have to hold about 350 members, not 117. The classrooms will have to have space for about 250 students. The present facilities would not begin to hold these predicated numbers. In fact if the present building is not added to, it will slow down the growth of the congregation. People won't join, an organization that does not have space for them. Even if they do join, there is a tendency for them to lose interest and become indifferent to the activities of the organization.

Therefore, if the church plans and wants to grow at its present rate it will have to build and provide the needed space for the present members and for future members.

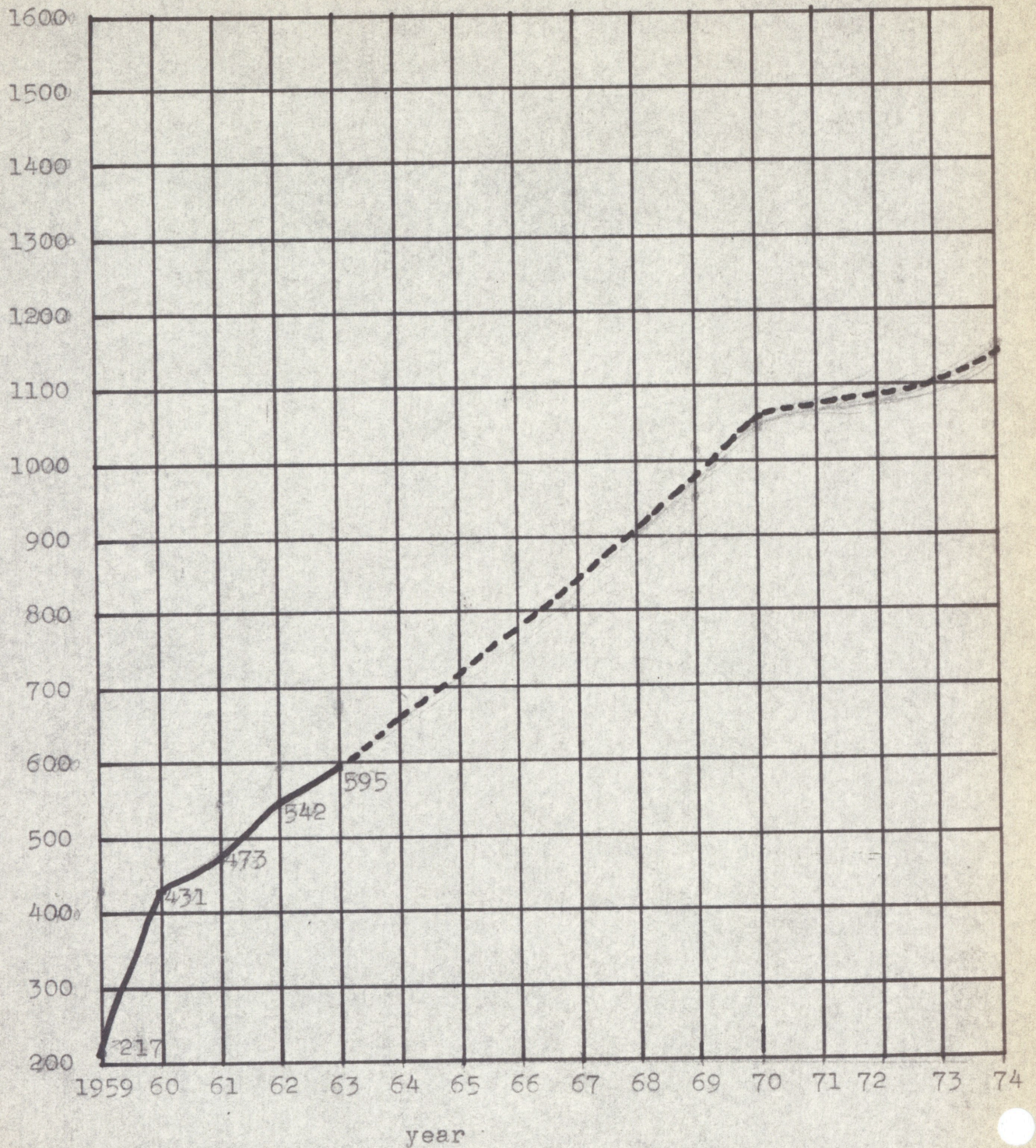
BAPTIZED MEMBERSHIP

Graph #1

Our Redeemer's Lutheran Church

Helena, Montana

Figures through 1964 from Parish records



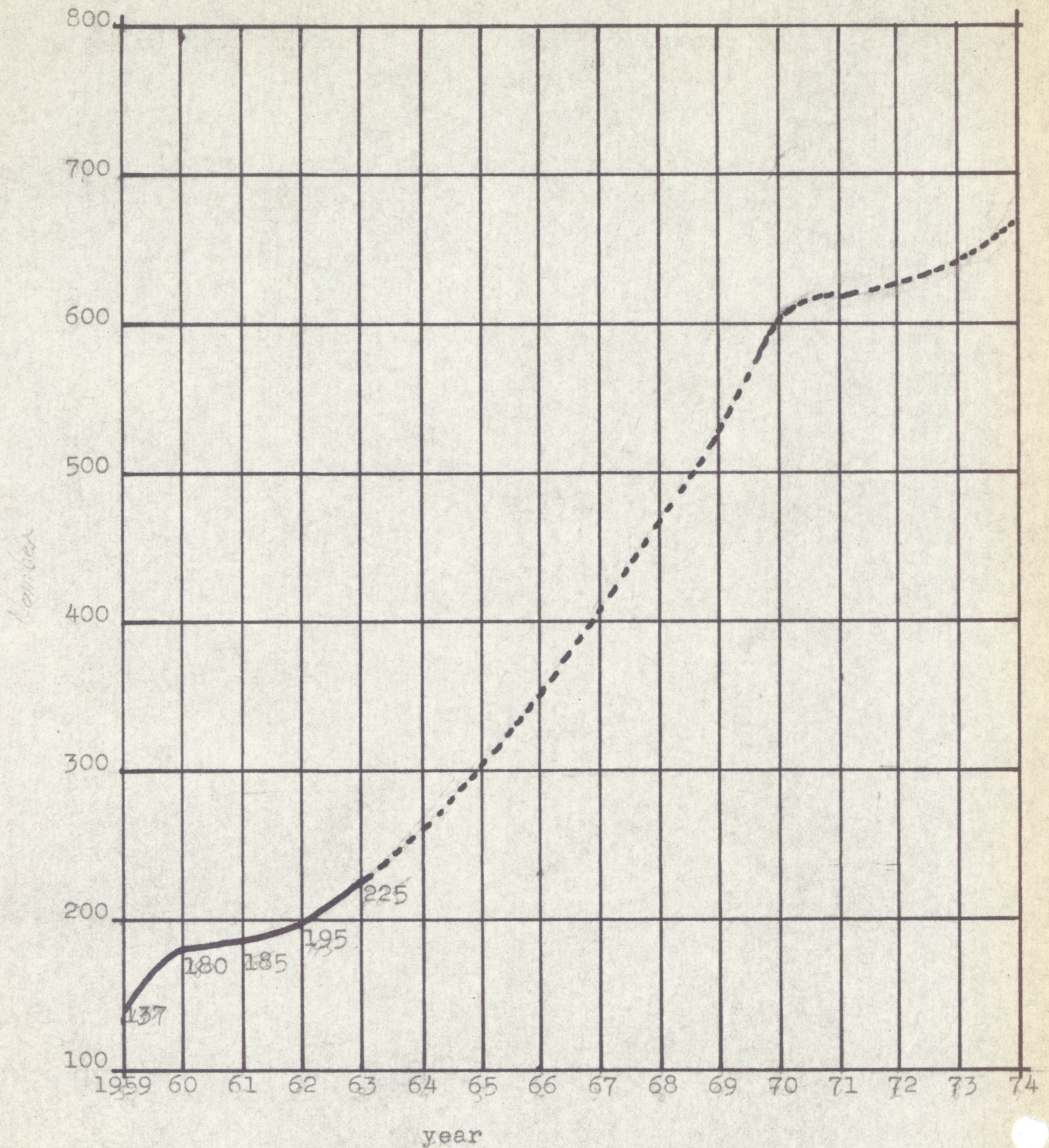
WORSHIP ATTENDANCE

Graph #2

Our Redeemer's Lutheran Church

Helena, Montana

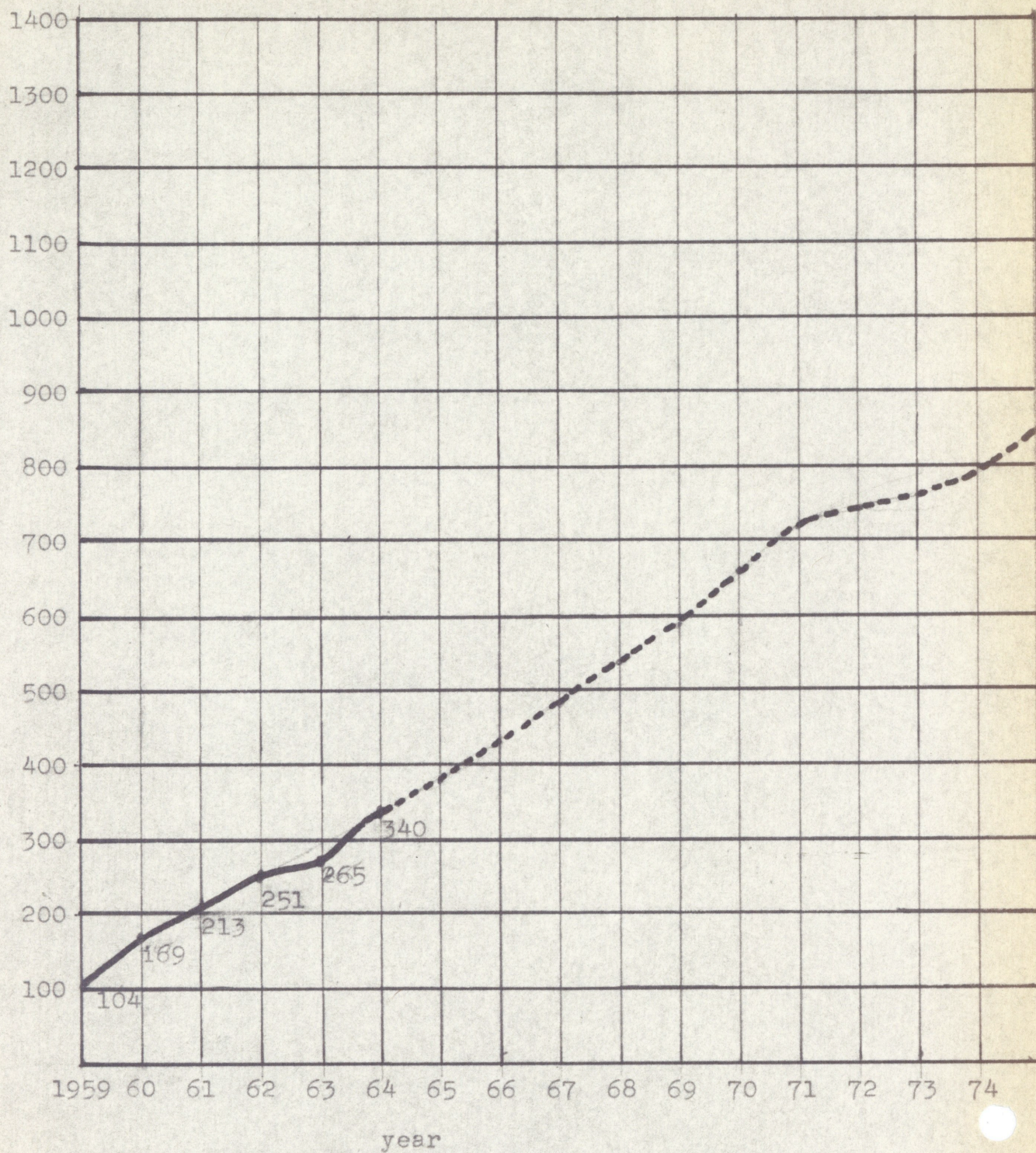
Figures through 1964 from Parish records



COMMUNION ATTENDANCE
Our Redeemer's Lutheran Church
Helena, Montana

Graph #3

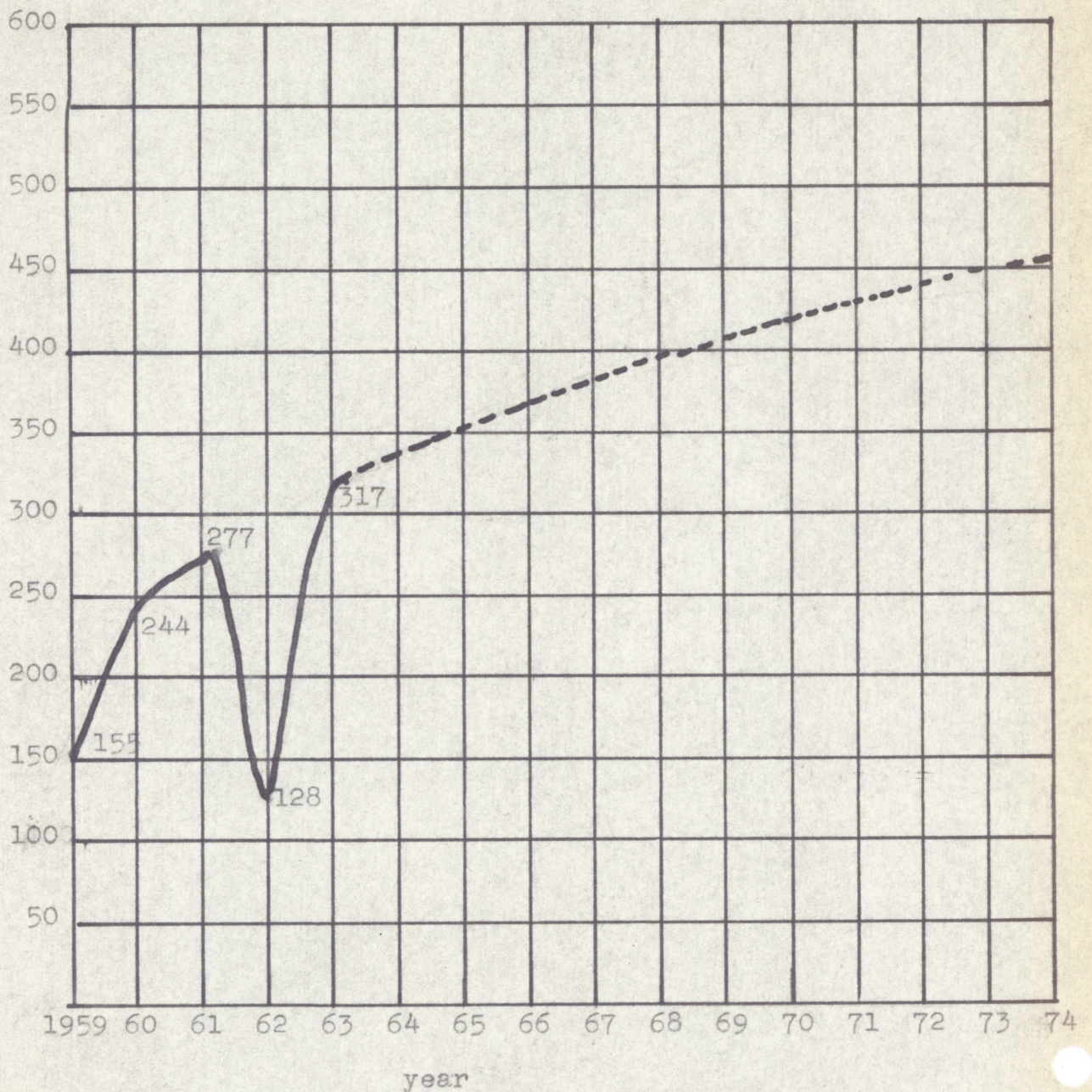
Figures through 1964 from Parish records



CHURCH SCHOOL ATTENDANCE
Our Redeemer's Lutheran Church
Helena, Montana

Graph #4

Figures through 1964 from Parish records





Norther - Entrance to Crying Room & to Nave.

East Side - Main Entrance





The Classrooms.



the Crying Room.

LOCAL CONDITIONS

GEOGRAPHICAL

Helena is located in the south western corner of the Helena Valley. It's latitude is $46^{\circ} 36'$ N, longitude $112^{\circ} 0'$ W, with elevation of 4,100 feet. It is about fifteen miles east of the continental divide, but has weather similar to that west of the divide.

The town runs along the base of and between Mount Helena and two other mountains. The main street is in Last Chance Gulch, which separates Mount Helena from the other mountains.

Helena Valley is about ten miles across north to south and about fifteen miles across east to west. The eastern twelve miles of the valley is mainly wheat land. The remainder is useless for crop production, but does provide for limited cattle grazing. This section is being divided into subdivisions for people who do not want to pay the high city taxes.

The mountains are not the rough and rugged type, but they are relatively steep and are covered with pine trees, fir trees, and open parks. They rise anywhere from a 1,000 feet to 2,000 above the town and are separated by gulches so they do not form a continuous mountain ridge around the south and west sides of the town.

SOCIAL

Helena is a retired town and a government town. It's people are not very receptive to changes. They apply the saying "if it was good enough for me, I guess it is good enough for them" to everything, churches, businesses, homes, government, everything except schools. The majority of buildings in Helena reflect this backward attitude through a lack of originality and good design. In the last few years a few homes and the new Plymouth Congregational Church are beginning to show a break through this barrier of apathy with good design and Contemporary design.

This apathy toward change is not present in the congregation of Our Redeemer's Lutheran Church. It is a young congregation, the average adult age is between 30 and 35 years, with young and new ideas and a desire for adventure into the new and contemporary. It will be the social activities and ideas of the congregation that will rule and not those of the towns people as a whole. The church, though a important part of the town, is mainly for the use of the congregaition.

ECONOMIC

The congregation is mostly from the middle class. They are white or blue collar workers. At the present the combined income of the members of the congregation is around one million dollars a year. An average of about five thousand dollars a year per family.

The church is operating on a budget of about \$22,000 this year. In the next couple of years the annual budget of the church should be between \$35,00 and \$40,000.

The building program is divided into two parts, the first investing \$30,000 to \$50,000 for part of the needed educational facilities, the second investing \$100,000 to 130,000 to build the rest of the educational facilities and a new church proper. The total investment can be as high as 180,000 dollars.

SITE CONDITIONS

ADJACENT ENVIROMENT

The site is on the north side of Mount Helena, near the base. It covers the half block bordered by Stuart Avenue on the south, Henderson Street on the east, and Mountain View Street on the west. All three streets are paved. There are two streets and a boulevard with limited access above Stuart Ave. on the side of Mount Helena. None of these latter three streets are paved. All five blocks down the slope to the highway to Missoula are bordered by paved streets. All pavement ends two blocks west of the site and goes east through the main part of town.

The site is in a "AAA" residential zone. All the homes are fairly new, the oldest being about fifteen years old. The value of the homes vary from \$15,000 to \$40,000. Even though the homes are new they are not of contemporary design. Most of them are contractor designed and built. The area does not look like a large housing project because many different contractors have constructed houses of different designs in it and there are a few architect designed houses mixed in. It is an area of comfortable and conservative homes.

There is very few large trees because of the development of the area being fairly new. Flower beds and retaining walls are the major landscaping features of the homes around the church.

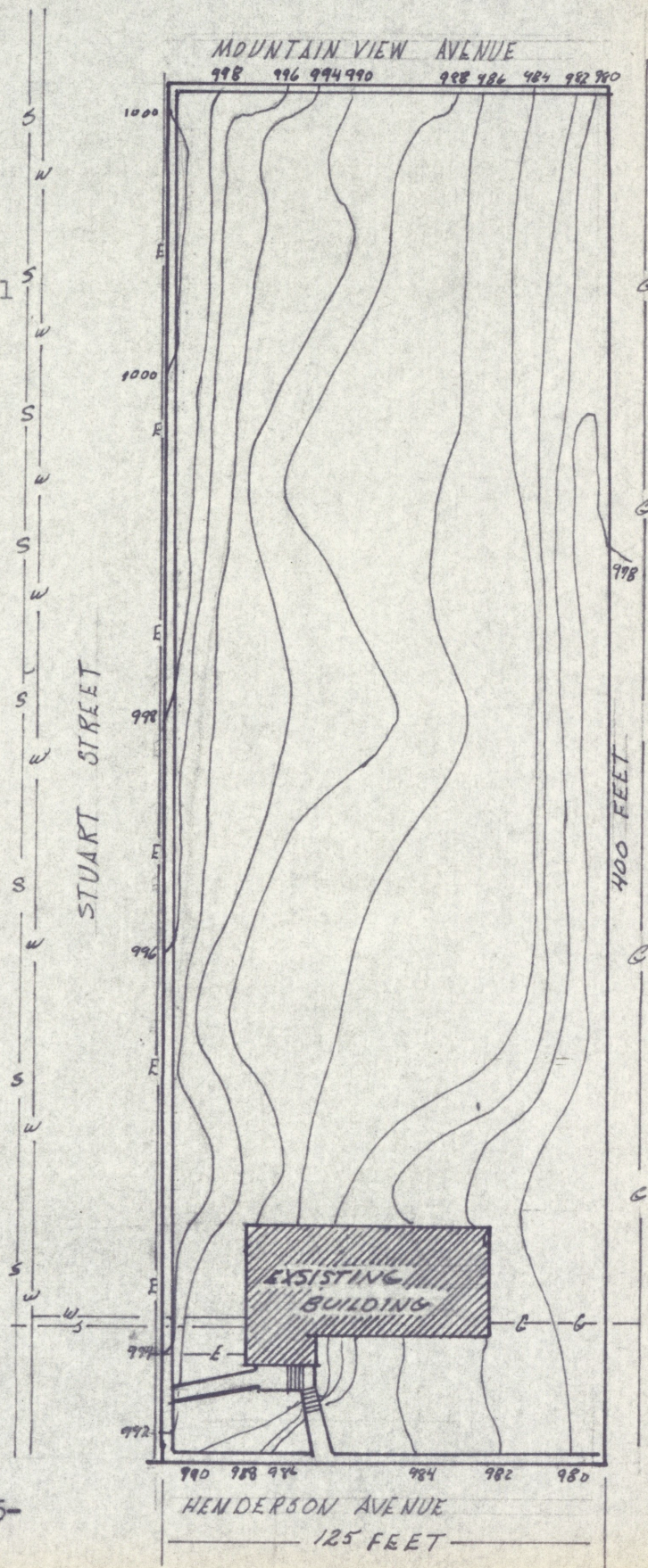
PLOT PLAN
scale 1" = 50'

Contours at every 2 feet

All buildings
adjacent on the
four sides of the
plot are residential



- W — W — WATER
- S — S — SEWER
- G — G — GAS
- E — E — ELECTRICAL
TELEPHONE



THE VIEWS

The view of the valley is one of the desirable features of the site. This view is protected by a zone ordinance restricting the ~~highest~~ part of a building to eighteen feet above the highest point on the lot. The view is a semi-circle from the north-west around northward to the east. This view is of the northern part of town, the valley with it's subdivisions and farms and the mountains on three sides of the valley. At night all the lights from the homes, cars, and yards create a quiet and pleasant view from the church site. Other nde worthy views are of the continental divide to the west and Mount Helena to the south.

The immediate views are just of the homes and yards that are in the neighborhood of the church site.

ZONING REGULATIONS

The fallowing zoning ordinances for a "AAA" zone are the only ones that will have any effect on the design of a new Our Redeemer's Lutheran Church. They are taken from the zoning ordinance for a "AAA" zone that was provided by the Helena City Engineers Office, located in the Civic Center in Helena, Montana.

"AAA" zone, section3

(d) ALL SIDEWALKS within any one block must be uniform and built adjoining the curb.

(e) THE VERTICAL WALL OF ALL BUILDINGS

must be placed at a minimum of 20 feet from the front property line unless another definite front setback line has been established within the block by previous construction; the most extreme portion of roof overhang shall be not less than 17 feet back from the front property line unless another definite front roof line has been established within the block by previous construction. In the case where the frontage setbacks of the corner lots is reversed, both the required minimum front and side yard setbacks shall be 20 feet.

(f) THE MAXIMUM HEIGHT of any building shall not exceed 18 feet from the highest point of ground on the lot upon which the building is constructed.

(h) THE VERTICAL WALL OF ALL BUILDINGS must be placed at a minimum of 10 feet from the side property line of the lot upon which it is built unless another definite side setback line has been established within the block by previous construction; the most extreme portion of roof overhang shall be not less than 7 feet back from the side property line of the lot upon which it is built unless another definite side roof overhang line has been established by previous construction. In the case where the frontage of the corner lot is reversed, both the required minimum front and side yard setbacks shall be 20 feet. However, where a plot conformed on the date of the passage of this Ordinance to the City of Helena Zoning Ordinance, and has less frontage than required otherwise in this Ordinance, the most extreme portion of roof overhang shall be not less than 5 feet back from the side property line of the lot upon which it is built unless another definite side roof overhang line has been established within the block by previous construction.

(i) NO FENCE shall be built beyond the front of the house on the property upon which the fence is built.

CLIMATE

Helena has a moderate Montana Climate. The yearly average temperature is 43° Fahrenheit. The highest temperatures are in June, July, and August. Hot spells with the temperature in the nineties usually last less than a week. On extremely hot days the temperature may reach just over 100° Fahrenheit. December, January, and February, are the coldest months with the temperature dropping below -40° F. on extremely cold days. The cold spells will have temperatures that will remain below zero degrees for a week or more.

Hail and blizzards are the only disastrous weather conditions that hit Helena. Neither occur in damaging force more than once or twice within a ten year period.

Thirty Year Means

13 days above 90° F. yearly

54 days maximum below 32° F. yearly

82 clear days yearly

110 partly cloudy days yearly

173 cloudy days yearly

Last occurrence of frost in spring May 12

First occurrence of frost in fall September 23

TEMPERATURE
based on a 30 year mean
Degrees Fahrenheit
for Helena, Montana

MONTH	DA. MAX.	DA. MIN.	MO'LY AVG.	RECD HIGH	RECD LOW	NORMAL DEGREE DAYS	NO. DA. ABOVE 90° F.	NO. DA. BELOW ZERO F.
JAN.	27.7°	7.5°	17.6°	62°	-42°	1469		10
FEB.	34.1°	12.7°	23.4°	68°	-31°	1165		5
MAR.	43.2°	21.1°	32.2°	73°	-30°	1017		4
APRIL	55.7°	30.7°	43.2°	85°	1°	654		
MAY	65.1°	39.5°	52.3°	90°	17°	399		
JUNE	72.2°	46.6°	59.4°	98°	31°	197	1	
JULY	83.8°	55.2°	68.0°	99°	36°	36	7	
AUG.	81.5°	50.0°	65.8°	102°	32°	66	5	
SEPT.	69.1°	40.6°	54.9°	96°	21°	320	1	
OCT.	57.8°	32.3°	45.1°	84°	10	617		
NOV.	42.2°	21.2°	31.7°	70°	-29°	999		2
DEC.	32.6°	12.7°	22.7°	60°	-29°	1311		6
YEAR	55.4°	30.6°	43.0	102°	-42°	1469	14	27

The wind usually bears down from the westerly direction. The thirty year mean for the year around wind velocity is 7.9 miles per hour. It has reached over 70 miles per hour.

Wind Helena, Montana				
MONTH	AVERAGE VELOCITY PER MONTH MPH	DIRECTION FROM	MAXIMUM MPH	YEAR
JAN.	6.7	SW	73	1944
FEB.	7.7	W	73	1949
MAR.	8.4	SW	61	1955
APRIL	9.2	W	52	1950
MAY	9.1	NE	50	1946
JUNE	8.8	W	52	1948
JULY	8.0	SW	59	1942
AUG.	7.6	S	65	1947
SEPT.	7.5	NW	54	1943
OCT.	7.2	W	62	1948
NOV.	7.0	SW	54	1942
DEC.	7.0	NW	59	1946

12

The thirty year mean of precipitation is 12.31 inches per year. It falls in the forms of snow, rain, sleet, and hail.

PRECIPITATION

PER MONTH

HELENA, MONT.

MONTH	AMOUNT INCHES	SNOW& SLEET INCHES	SNOW MAXIMUM DEPTH INCHES	YEAR
JAN.	0.46	9.0	24.6	1943
FEB.	0.39	5.7	14.5	1953
MAR.	0.70	8.3	21.6	1955
APRIL.	0.96	3.3	10.9	1955
MAY	1.48	1.5	8.4	1950
JUNE	2.98	0.1	1.5	1950
JULY	1.47	0.0	0.0	-
AUG.	1.06	0.0	0.0	-
SEPT.	1.15	2.0	13.4	1957
OCT.	0.68	1.7	18.2	1957
NOV.	0.48	7.5	19.9	1950
DEC.	0.56	8.5	22.6	1951

EXISTING SITE CONDITIONS

The only building on the site is the present church. It occupies the eastern seventy feet of the site. The present church will remain as part of the proposed new church.

The remaining part of the site is bare. Part of the site was leveled to provide off street parking for the members of the church.

SOIL CONDITIONS

The soil is a clay and sand mixture. Bedrock is to far below the surface to set the foundations on; therefore the clay and sand mixture will have to support the building. None of the neighboring home owners have complained about unusual or uneven settling, so I will assume the soil has good bearing qualities.

TRAFFIC PATTERNS

Stuart Ave. will have to be the main artery to and from the church. When Henderson St. and Mountain View St. are slippery because of ice or snow on them it is impossible to reach the church on them. The limited one-street access to the church implies that the entrance to the off street should be off Stuart Ave. But the possibility of traffic coming out Stuart Ave. and down Henderson St. or Mountain View St. to parking off the alley should not be ruled out.

When the hill is inaccessible from Henderson St. and Mountain View St. the traffic will approach the church

from the east on Stuart Ave. and will leave the church going east on Stuart Ave. On days when the streets are clear the traffic will come up the slope from the highway on Henderson St. and Mountain View St. and leave going down to the highway on Henderson St. and Mountain View Street.

AVAILABILITY OF UTILITIES

All utilities are present. Water, sewer, gas, electrical, and telephone are connected to the present church. The sewer and water Connections will be inadequate for the proposed building, therefore, new connections will have to be made. The sewer is laid in the street above the site. The elevation of the plumbing facilities will have to be above the elevation of the sewer for drainage. This will limit the depth of the basement

FUNCTION

The function of the church is to provide for worship, education, fellowship, recreation, and administration. The rooms required by the different activities shall be considered separately, although one space may serve more than one activity.

SPACE REQUIREMENTS

The following data was taken from a list of space requirements prepared by P. M. Terrace^o, a member of the Architecture faculty at the University of Florida.

CHURCH PROPER

Elements	Square feet
Narthex	1-1.5 sq. ft. per person
Nave	7-9 sq. ft. per person (variable depending on specific conditions)
Chancel	800-1,000 sq. ft.
Robing room	250 sq. ft.
Vestry or Study	200-250 sq. ft.
Choir	3sq. ft. per person (min.)
Organ	100 sq. ft. (min.)

SOCIAL & EDUCATIONAL

Entrance Lobby	1.5 sq. ft. per person
Offices	150 sq. ft. each
Lounge	6-8 sq. ft. per person
Coats	0.6 sq. ft. per coat
Toilets	Variable
Social Hall	For dining 9-12 sq. ft. per person served simul- taneously. For seating 7-12 sq. ft. per person
Stage	800-1,00 sq. ft. including wings
Kitchen	1.5-2.5 sq. ft. per person served
Dressing room & storage	Variable
Library	25 sq. ft. per person plus shelving space
Size range of classrooms	300-500sq. ft. depending on age groups

WORSHIP

All major religious functions such as communion, baptizings, weddings, Sunday services, funerals services are held in the worship area. It should have enough space to house the congregation during the services. It must have space for the choir and pastor to prepare themselves and the material to be used during the services. The different parts of the worship area are the chancel, nave, narthex, robing room, choir seating, working vestry, vestry, and crying room.

Chancel

The chancel is usually located in the front part of the church proper and must be in full view of the congregation. It is divided in to two parts. The front part is the choir area (even if the choir is not seated in it.) The back part is the sanctuary and is where the services are given from. A demarcation line of some type has to be devised for between the choir area and the sanctuary. The communion rail has been used for this purpose, as have such devises as arches, columns and steps. The sanctuary should be at least one step higher than the nave. The highest level in the sanctuary should be the pulpit. Sunday services are given from it and all members of the congregation should be able to see the pastor during them. The chancel and it's furishing have a great amount og religious symbolism attached to them. The furnishings of the chancel are a communion rail (27-29 inches high,) kneeling rail, pulpit, electorum. altar(39 inches High,) cross (one or three,) altar paraments, eucharistic lights,

missal stand, credence, candlebra (1, 3, 5, 7 candles to a group,) flower stands, baptismal stand, clergy seats, and flags.

Nave

The nave is the largest area of the worship section. Here the congregation is seated during services. A main aisle down the center of the nave for weddings and communion has been established through tradition. Side aisles are provided as needed. The nave and chancel should have a strong religious feeling. They also should have good accoustical qualities for both speaking and music. The nave will be furnished with pews that have a book rack on the back.

Narthex

The narthex is a convenience not a necessity. It serves as a barrier against the cold air that would hit the people already seated if the outside entrance opened directly into the nave. It will serve as the main entrance to the church and should be situated so that any part of the church can be reached from it. It should be equipped with a guest book, a place to hang coats, a bulletin board, and a tack board.

Robing Room

The choir's robes are stored here. The room should have enough space for the choir to have a last minute rehearsal and to put their robes on. It's position in

relation to the other parts of the church and its sound proofing should be so that the choir can rehearse without being heard by the incoming congregation.

Choir Seating

In modern design it has been the trend to place the choir in a loft in the back of the nave. From here the presence of the choir will not distract the attention of the congregation. The director can use his hands to direct without disrupting the attention of the congregation. From the loft the choir can see the pastor and the chancel from a seated position and from a standing position. Chairs, organ, and organ equipment are needed in the choir loft.

Working Vestry

The working vestry is for the storing and preparing of items used in the services. Cabinets should be provided for altar paraments, flower vases, candles, candle lighters, candle snuffers, funeral palls, and communion vessels. Also a small work counter, ironing board, and a sink will be needed.

Vestry

The vestry or sacristy is a private room for the pastor to make last minute preparations and to put on the vestments. It should be furnished with a mirror, lavatory, prayer desk, chairs, and a closet for the vestments.

Crying Room

Mothers, whose children are crying will take them into the sound proof crying room. A glass wall facing the chancel allows the mothers to watch service while an intercom system allows them to hear it. Pews like the ones in the nave will be furnished. A small sink would be an added convenience.

EDUCATION

The physical conditions of the school is just as important as good teachers. If the classrooms are dark, drab, and dreary they will have a depressing effect on the younger children.

The classrooms should present a bright and cheerful environment as well as one that tells of God. All classrooms should have outside exposure. The window area should be at least 20 percent of the floor area.

Education includes Sunday school and Bible classes, vacation Bible school, and confirmation class for both adults and children.

The Sunday school and Bible schools are headed by a superintendent and two principles.

The facilities needed for parish education include:

- a. Space for each department
- b. Space for each class of each department
- c. Storage for teaching aids and supplies
- d. Office for superintendent
- e. Coat hanging space
- f. Furniture and furnishings
- g. Chalk board and tack board for each classroom
- h. Library
- i. Visual aids and equipment storage.

SPACE REQUIREMENTS

The space requirements for the different departments is given in the following as square feet per person.

Department	Age yr.	Area per person sq. ft.	Minimum per person sq. ft.
Nursery	3	20-30	15
kindergarten	4-5	18-25	15
Primary	6-7-8	15-18	15
Junior	9-10-11	15-18	15
Junior High	12-13	12-18	10-12
Senior	14-18	10-15	8-10
Adult	19 & over	10-15	8-10
Assembly		7-9	7

Maximum Number of Students Per Room

Nursery	18	15 good
Kindergarten	25	20 good
Primary	8-10	
Junior	10-12	
Junior High	up to 25	
Senior	up to 25	
Adult	up to 25	

Classrooms

Each classroom for children under 9 years old should have a large table and chairs sized according to the age of the children. From the nine years old and up no table is needed

Assemble Room

Each department should have it's own assembly room for opening services. It should be furnished with a small altar, a storage area, and chairs.

Library

The library is an important part of the school. Its presence encourage the child to learn on his own. It should be furnished with a small altar, a storage area, book shelves, reading table, chairs, files for strip films, slides, and library cards.

The superintendents Office

The school superintendent needs a private area on Sunday morning to conduct the business of the school. During the week this office can serve as the office for the church secretary. It should be located between the classrooms and the administration; close to the main entrance. The furnishings needed are a desk, chairs, small vault, and correspondence size file cabinets.

FELLOWSHIP

Fellowship is a very important part of the church. Through fellowship the bond between the members themselves and between the members and the chruch is strengthened.

The fellowship area is a meeting place for the various clubs and organizations of the church members. It is the space for banquets, receptions, meetings, and other activities of the congregation that are not held in the

worship area. It is desireable to have a multi-purpose room (the parish hall,) a lounge, kitchen, entrance, storage, toilets, and room to hang coats in the fellowship area.

The present organizations are:

- ALCW (Ladies)
- Luther League
- Boy Scouts

Some of the banquets are:

- Father and Son
- Mother and Daughter
- Converts and Parents
- High School
- Stewardships (the Largest, for whole congregation)
- Family night

Multi-purpose Room

The multi-purpose room will have to be a flexible area. Some provisions for dividing it into classrooms will have to be provided. Usually folding partitions are used. When all partitions are pushed back the area should be large enough to adequately hold the largest banquet. The large meetings, banquets, and recreation is held in the multi-purpose room. If possible a stage with a small back stage should be included in this area.

Kitchen

The kitchen facilities must be able to handle the largest banquet that can be held in the multi-purpose room. It should be next to the multi-purpose room. The kitchen equipment will have to be equal to the equipment used in

commerical kitchens. The kitchen should have cupboards to store dishes and food and it should have a service entrance.

Lounge

The lounge is for small meetings and informal get-togethers. It will be furnished with comfortable furniture such as lounge chairs, davenports, coffee tables, end tables, and lamps.

Entrance

A separate entrance should be provided for the fellowship area. Most banquets and meetings are held on week nights. A separate entrance would enable the rest of the church to be closed off from the fellowship area. It would also be convenient to enter directly into the fellowship area and not have to walk through the rest of the church. The area for the coats and the toilets would be off the entrance.

Storage

The size of the storage area must not be underestimated. Storage for folding tables, chairs, recreation equipment, Boy Scout equipment, visual aids, electorum, and the materials and equipment needed by the various organizations must be provided.

RECREATION

The recreation facilities will be kept down to table tennis, shuffle board, and such games as the Boy Scouts play. There is adequate recreation facilities throughout the town. I feel that the parks, school grounds, Y.M.C.A., backyards, and the basements of the homes provide the necessary recreation for the children. The height restriction for a "AAA" zone and the cost of construction makes such things as a basketball court or volleyball court next to impossible.

ADMINISTRATION

Contrary to popular belief the pastor is not the administrator of the Lutheran Church. The congregation elects officers (the church counsel) to handle the administering of the church affairs. The important matters are voted on by the whole congregation. The administration area will consist of a pastor's office, assistant pastor's office, a office for a secretary, and a work room.

Pastor's Office

Here the pastor prepares his sermons and tends to his duties. It is usually equipped with a desk, chairs, files, and a book case for his private library. The exact type of furnishings is usually left up to the preference of the pastor.

Assistant Pastor's Office

At the present there is no need for this office. As the congregation grows the need will be created. Until an assistant pastor comes to the church the room will be used for visiting pastors and a brides waiting room. The furnishings are the same as the pastors office.

Work Room

The printing, poster making and general secretarial duties are performed in the work room. It will be equipped with a desk, chairs, work counter, lavatory, and storage cabinets.

~~Secretaries~~ Secretary's Office

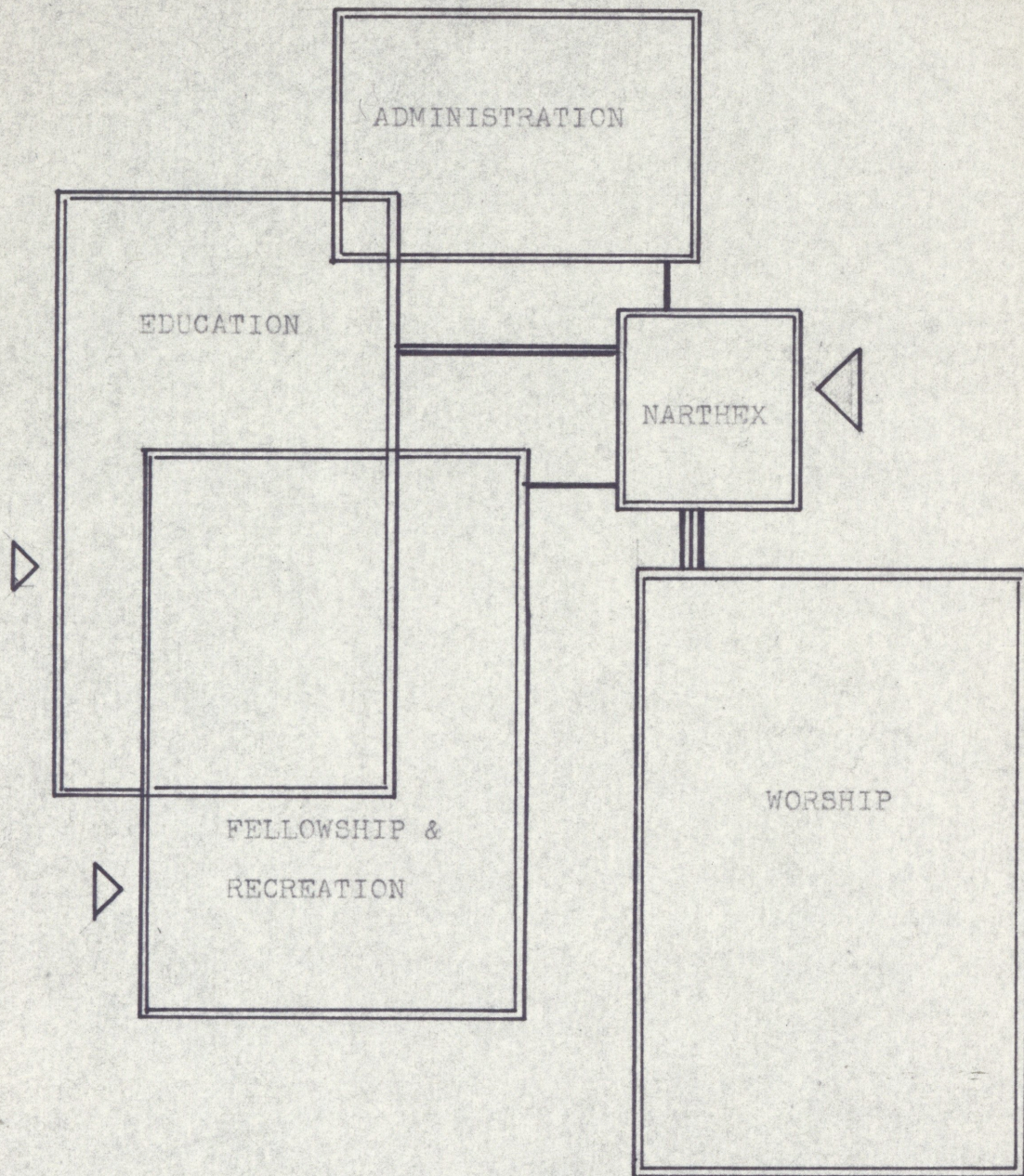
See superintendent's office page 30

UTILITIES

The present utility space is too small for the proposed building. One furnace room, one janitor closet for interior maintenance and one closet for yard maintenance will have to be added.

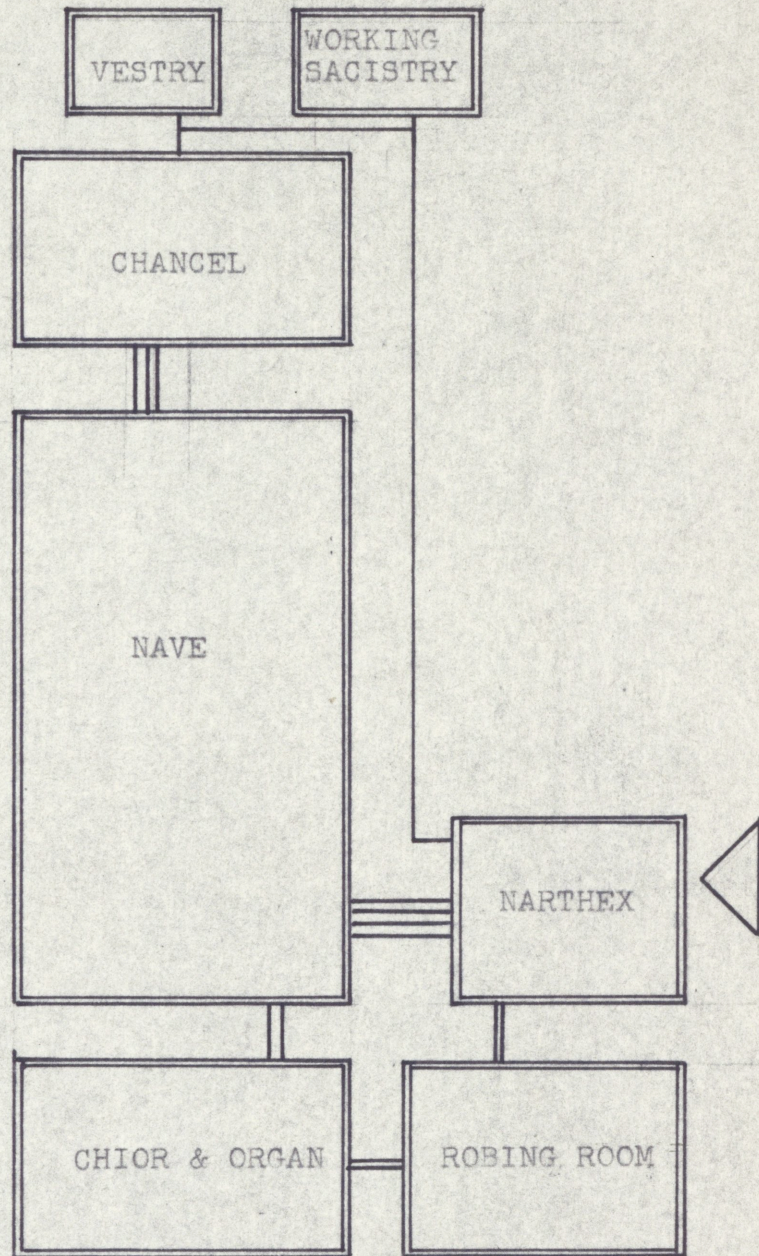
31

CIRCULATION DIAGRAM #11
Relationship and circulation between the
general functions



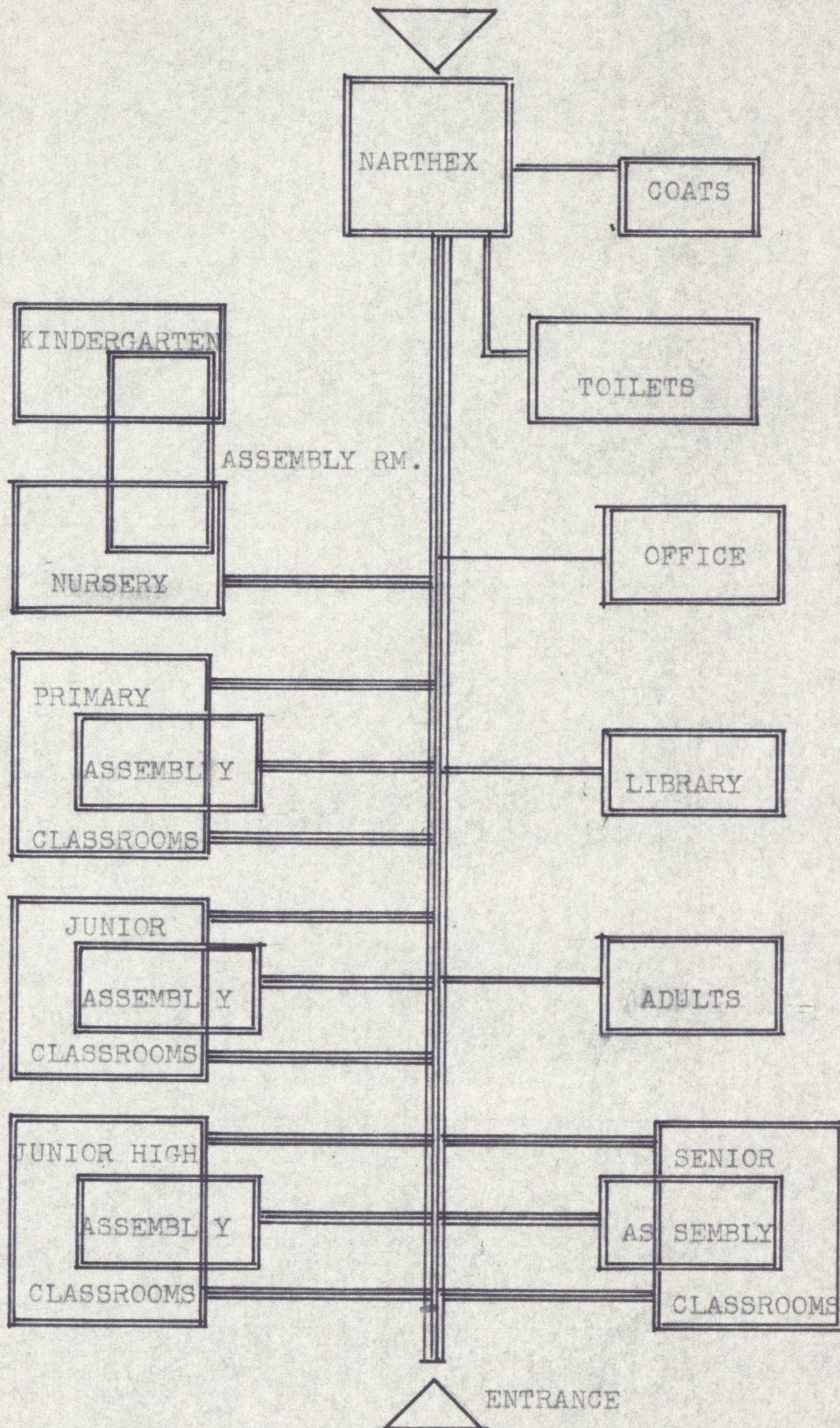
CIRCULATION DIAGRAM #2

WORSHIP AREA

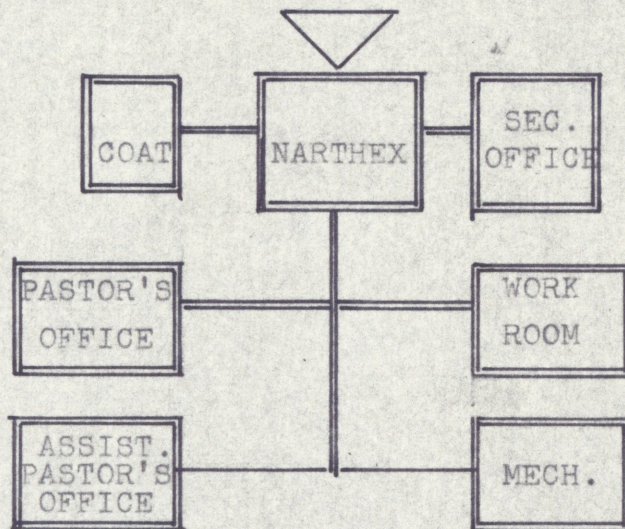
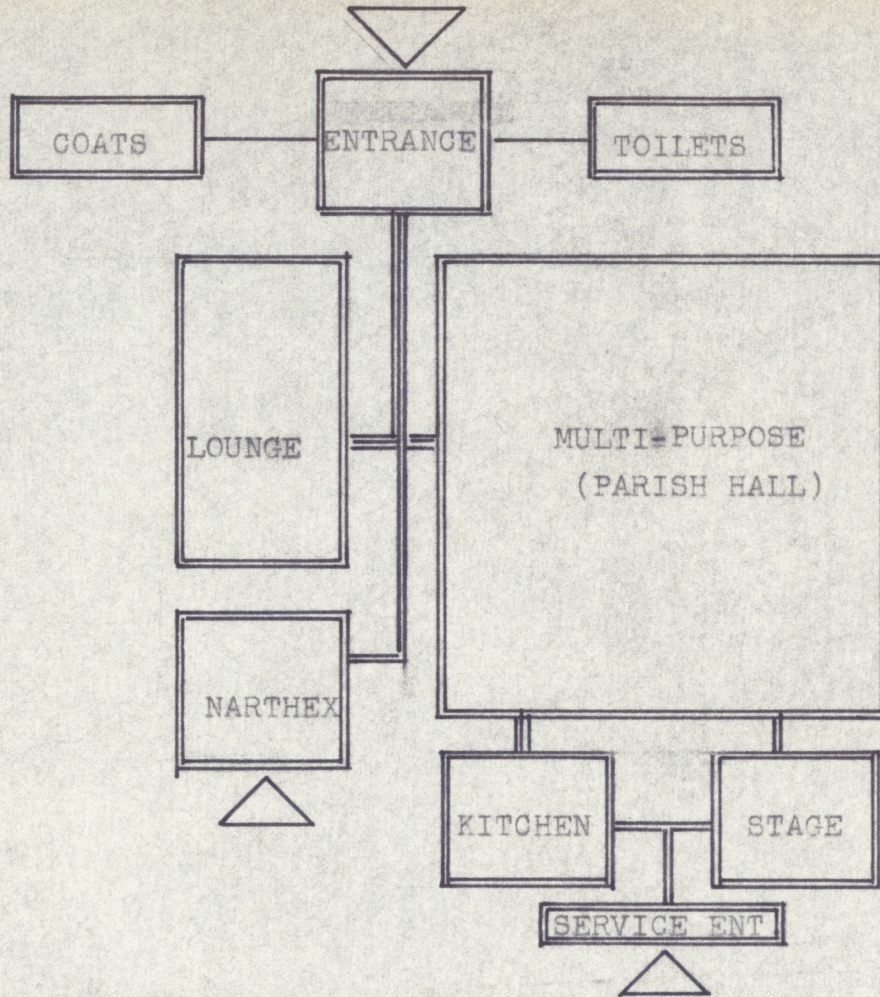


CIRCULATION DIAGRAM #3

EDUCATION



CIRCULATION DIAGRAM #4
FELLOWSHIP & RECREATION



ADMINISTRATION
CIRCULATION DIAGRAM #5

AESTHETIC CONSIDERATIONS

What should a church look like? A church should look like a church; probably would be the answer of the layman. He'll go on to describe the general characteristics of the churches that he knows of. Maybe his answer will be a gothic church, a colonial church or even a modern shell church. All of which may have been the correct solution for their location, period, and congregation.

The congregation of Our Redeemer's Lutheran Church in Helena, Montana is a young and active one. It consists mostly of young married couples, whose children are the core of the Sunday school classes. A church of modern design would fit the personalities and ages of the members of the congregation.

Helena sets against the mountains and is a mixture of the old and new west. All through the town the remains of the aura of the gold rush days can be seen. The modern west is shown in the new architecture and in the new sections of town.

The use of materials native to the area could possibly be the answer to the problem of uniting the aura of the gold rush days with the present, while expressing the mountains around the town.

The site is on the side of Mount Helena and has a relatively steep slope. The slope of the site is a feature that will have to be considered. The building will have to either compliment or contrast the slope

The description, a contemporary church of native materials could fit any denomination of churches. The church could be Catholic, Lutheran, or Unitarian. The catholic church has the oldest tradition of the three and has an air of authority and strictness about it. The Lutheran boast of the reformation, although they show much more restraint in throwing off tradition than do most protestant denominations. The unitarian church seems to neglect traditions and holds to modern philosophies of religion. The aesthetic problem of separating the Lutheran church from the others can be solved by the use of abstractions of the symbols of the traditions retained and of their Augburgs Confession, or by using the actual symbols themselves.

In conjunction with its religious function, the church will serve as a meeting place, a school, a place of recreation, and a place for social events. All functions enter into the total design of the church but the expression of the Christian Religion through symbols and forms should dominate.

The aesthetic considerations for Our Redeemer's Lutheran Church are the expression of the present Christian Lutheran Faith, the consideration of the type of congregation, the consideration of the physical features of the region and site and the consideration of modern ideas.

DEFINITIONS

Lutheran is the general title given to those Christians who have adopted the principles and beliefs of Martin Luther over those of Calvin, the Roman Catholic Church, and the sectaries of the time of the reformation.

The dogmatic symbols of the Lutherans are usually said to include the nine separate creeds, which together form the Book of Concord. Yet, only the Augsburg Confession and three of the earliest creeds, the Apostles' Creed, the Nicene Creed (in its western form,) and the Athanasian Creed are adopted by all Lutherans.

The distinguishing factor of Lutheranism is neither their form of worship or their form of organization, but in their confession of faith through belief in the Augsburg Confession.

HISTORY

Martin Luther, the father of Lutheranism, was born November 10, 1483 in Eisleben, Germany. As he passed through his childhood and into adulthood he showed a great ability for learning. By 1505 he had received a Master of Arts Degree from the University of Erfurt. There had not been any emphases on religion in his life until his sudden decision to become a monk. On July 17, 1505, Martin Luther, to the despair of his father and close friends, renounced society and entered into the monastery of the Augustian Eremites at Erfurt. His explanation for this was a vow made during a sudden fear of death, after being prostrated by a bolt of lightning,

Luther served as a monk for about ten years during which time he developed a keen sense of sin and a sensitive conscience, which caused him to become critical of some of the practices of the Roman Church.

The extreme misuse of indulgence was the greatest factor causing him to break his vows. Indulgence had reached the point of having a monetary value for all sins. The church had placed a monetary value on the forgiveness of sins. Even the sins of souls already in purgatory could be paid for through indulgence.

On October 31, 1517, Martin Luther broke his vows by posting his 95 theses on the door of the Castle Church at Wittenburg. In these theses he distinguished between repentance and mere penance for sin, he maintained that the pope could only remit penalties imposed by his own authority or that of common law, that God alone can remit the guilt of sin, which is obtained only in sacrament of penance; not by papal indulgence.

The Roman Church demanded that Luther retract all theses attacking the papal power but he refused to retract them or any part of them. Four years the Roman Church tried to separate Luther from his doctrines through excommunication, accusing him of being a heretic, defeating him in debates, and through a series of papers written for the church by its officials denouncing and attacking Luther and his principles. About four years after the posting of the 95 theses Martin Luther made his final refusal to

retract his attack on the papal powers and was freed from the church. He was no longer considered a monk or even a member of the Roman Church.

Luther continued his attack on the Roman Church and the miss-use of papal power in other theis that were receiving wide acclaim from the German people. Though Luther approved of the principle of communion and marriage of the clergy he was desposed to consider the expediency of actual changes before making them. He hung on to many traditions, refusing to change for the idea of change as many other reformation leaders were doing.

Towards the close of 1514 the influence of the evangelical movement on the masses recieved a startling exemplification in the rising of the peasants. The extremists of the Peasant Revolt prejudiced Luther against the movement with theological differences. Later the use of force by some peasants to achieve social reform forced him to take the side of the nobles.

After the revolt was put down, Martin Luther found that his actions during it had won for him the support of many of the princes and lords. These evangelical princes set up churches in their domain according to the instructions of the diet of Spires which met in 1516.

At the diet of Augsburg in 1530, the emperor, Melanchthon, appeared in person and presented a confession of Lutheran Faith, (the Augsburg Cofession.)

Not only the nobles were adopting the Lutheran Faith but the masses quickly turned to it. By February 18, 1546

the time of Martin Luther's death, the Faith he had started had spread from Germany to many of the surrounding countries.

The most important converts were the people of Sweden, Denmark, Finland, and Norway. These countries adopted Lutheranism as the National Church in the 16 th century and their Lutheran Churches are all established by law.

Many of the immigrants from these and many other countries brought the Lutheran Faith to America with them. But they also brought such barriers as language, tradition, culture, and theological differences which caused the Lutheran Faith in America to grow as many completely separate parts. Over the past hundred years a uniting of the Lutheran Faith in America has been taking place.

The number of Lutheran bodies has been reduced to 17 from about 100. Two thirds of the Lutheran bodies work together in such fields as publicity, social action, education, mission and welfare and all are crossed by federations, associations of Lutheran men and women, young people, educators, publishers, editors, statisticians, etc. Further uniting of the Lutherans has been taking place through the use of a common liturgy by several of the different synods.

Our Redeemer's Lutheran Church uses the common liturgy. It is a part of the American Lutheran Church. One of the largest synod in America.

ECONOMIC CONSIDERATIONS

CONSTRUCTION COSTS

The cost of construction is dependent on the quality and type of materials and on the quality of labor. At this stage of development it is impossible to estimate the actual costs. The following data from the Marshall Stevens Appraisal Manual gives the cost per square foot of the different quality church construction. This data will be used to give rough estimates of cost of construction.

GRADE	TYPE	CHARACTERISTICS	COST/sq. ft.
A	Good Church	stone, good curtain walls, leaded windows, ornamental, special lighting, P. A. system, good plumbing, steam heat	\$24.17
A	Average Church	concrete, metal, some leaded windows, stone trim, plaster, some ornamentation, terrazzo, hardwood, asphalt tile, adequate lighting and plumbing, steam heat	\$20.29
B	Good	stone, good curtain walls, leaded windows, ornamental, ornamental plaster and details, terrazzo, marble, vinyl tile, special lighting, P. A. system, good plumbing, steam heat	\$20.72
B	Average	concrete, metal, some leaded windows, stone ornamentation, terrazzo, hardwood, asphalt tile, adequate lighting and plumbing, steam heat	\$17.61

GRADE	TYPE	CHARACTERICS	COST/sq. ft.
A-B	Basement	plaster, finished rooms, asphalt tile, adequate lighting and plumbing, steam heat	\$12.11
A-B	Balcony	stepped, plaster soffit, adequate mechanical	\$ 3.71
C	Excellent	fine masonry, window, and roof, special trims, finest plaster and wood detail, terrazzo, vinyl tile, special lighting, P. A. system, good plumbing, tile restrooms, steam heat	\$21.69
C	Good	good plaster and detail, vinyl tile, hardwood, good lighting, good plumbing, P. A. system, steam heat	\$17.15
C	Average	block or brick, stucco trim, few stained windows, some plaster, asphalt tile, hardwood, carpet on concrete, adequate plumbing and lighting, forced air heat	\$13.88
C	Low Cost	brick, block, little trim, composition roof, plain windows, painted plywood trim, concrete or softwood floor, minimum mechanical with wall furnace	\$10.98
C-D	Basement	plaster, interior finished rooms, asphalt tile, adequate mechanical and steam heat	\$ 8.81
C-D	Balcony	stepped, plaster soffit, adequate mechanical	\$ 3.30

GRADE	TYPE	CHARACTERISTICS	COST/sq. ft.
D	Good	brick veneer, good stucco, stained glass, ornamental, good plaster and hardwood trim, terrazzo, vinyl tile, good lighting and plumbing, P. A. system, forced air heat	\$15.21
D	Average	stucco and siding, few stained windows, some trim, plaster and veneers, hardwood, asphalt tile, carpet on concrete, adequate lighting and plumbing, forced air heat	\$12.25
D	Low Cost	cheap siding or stucco, plain windows, little trim, dry wall and veneers, softwood or concrete floors, minimum mechanical, wall furnace	\$ 9.76

Key To Grades

Grade "A" buildings have fireproof structural steel frame with reinforced concrete or masonry floors and roof.

Grade "B" buildings have reinforced concrete frames and concrete or masonry floors and roofs.

Grade "C" buildings have masonry exterior walls, and wood or steel roof structure.

Grade "D" buildings have wood or steel frame and roof structure.

The above square foot costs are only for the church proper. But for rough estimates they can be used for the square footage of the entire church building.

Cost Per Seat Method

The cost per seat method is a quick way to estimate the cost of the church proper only. The following figures would have to be one and half to two times higher to include the entire church building.

QUALITY OF CHURCH	LARGE	SMALL
	(over 500 capacity)	(under 500 cap.)
Good	\$478	\$666
Average	\$311	\$444
Low Cost	—	\$270

Special Equipment

Some of the items found in a church are not included in the base price. These items constitute a sizable part of the total cost. The quality and type of each item is usually is left up to the church building committee.

These items and their relative costs are as follows:

Pews

Plain hardwood, per linear foot	\$10-15
Good hardwood with book racks, prayer bench, per linear foot	\$15-25
Excellent hardwood, carved and ornamented, with book racks, prayer bench, per linear foot	\$25-35
Altar	\$360-800
Lectern	\$100-250
Pulpit	\$150-525

Organs

Electric \$2,00-6,500

Pipe organ (installed) per stop or
"rank" or pipes \$1,450

Bells

Bronze bell, 12"-36" in diameter \$450-3,500

Cast bell chimes, set of 12-15 \$12,000-18,000

Carillon, Cast bell 2- 2½ octaves \$12,000-20,000

Carillon, cast bell 4 octaves \$50,000

Carillon, electronic \$1,500-8,000

Stained glass windows

TYPE	COST PER SQUARE FOOT
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Leaded glass	Plain clear glass	\$3.50-12.00
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	Colored or opalescent	\$4.10-13.00
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Painted and fired

Minimum painted	\$10-15.00
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Geometric symbols	\$28-165.00
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Rose windows	\$19-140.00
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Figure background	\$18-40.00
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Simple figures	\$45-65.00
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Detailed figures	\$67-110.00
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Fancy detailed figures	\$110-170.00
------------------------	--------------

Add \$2-5 per square foot for installation.

SITE COSTS

The proposed site is owned by Our Redeemer's Lutheran Church. This eliminates the cost of buying a site. The slope of the site will increase the cost of landscaping because such devices as retaining walls and steps will have to be used in providing parking and access to the church. Other costs will include sidewalks, trees, shrubbery, lawn, and curbs and asphalt for parking.

MAINTENANCE

Maintenance can be kept to a minimum by good design and the use of permanent materials (stone, brick, etc.). These materials will have a greater initial cost than wood or stucco. Over a period of years the cost of maintenance of the wood and stucco would erase in difference in the initial cost.

The question is, can the church afford the higher initial cost of the permanent materials. This question can only be answered after the exact square footage of the church has been determined.

BUILDING PROGRAM

ATTENDANCE

FUNCTION or ORGANIZATION	1964 no. of persons	1971 no. of persons
Worship services (total of two services)	260	620
Communion	340	720
Chior (3)	30 each	40 each
Education		
Nursery	15	30
Beginners	45	60
Primary	120	140
Junior	120	140
Internals (Junior High)	30	50
Senior High	30	50
Adult	6	10
Fellowship		
Largest Banquet	125 each night	250 each- night
Luther League	20	50
A.L.C.W. Ladies	30	75
L.L.L. Men	to be organized	40
Lutheran Children Organization	to be organized	70

Administration

One Pastor
One Assistant Pastor
One full time secretary
One janitor

SPACE REQUIREMENTS

AREA	Number of Square Feet
Narthex	500-600
Nave	
One Sunday Service (650 seats)	4550-5850
Two Sunday Services (350 seats)	2450-3150
Chancel	800-1,000
Robing Room and Rehearsal Area	400-500
Vestry	200-250
Choir	250-300
Organ	100 minimum
School (each department)	
Nursery	600-900
each class (2)	300-450
Beginners	1,080-1,500
each class (3)	390-500
Primary	2,520-3,500
each class (14)	180-230

School (continued)

Junior	2,520-3,500
each class (14)	180-230
Interals (junior high) (4)	600-900
each class (4)	150-225
Senior High	400-750
each class (2)	200-375
Adult (one class)	80-145
Storage, Toilets, and Coats	variable

The assembly room will be formed by opening up two class rooms to form one large room.

The above figures are for a one session Sunday School. If two sessions each Sunday are required because of the lack of funds the number of classrooms will be divided by two. This would cut the size of the school about in half.

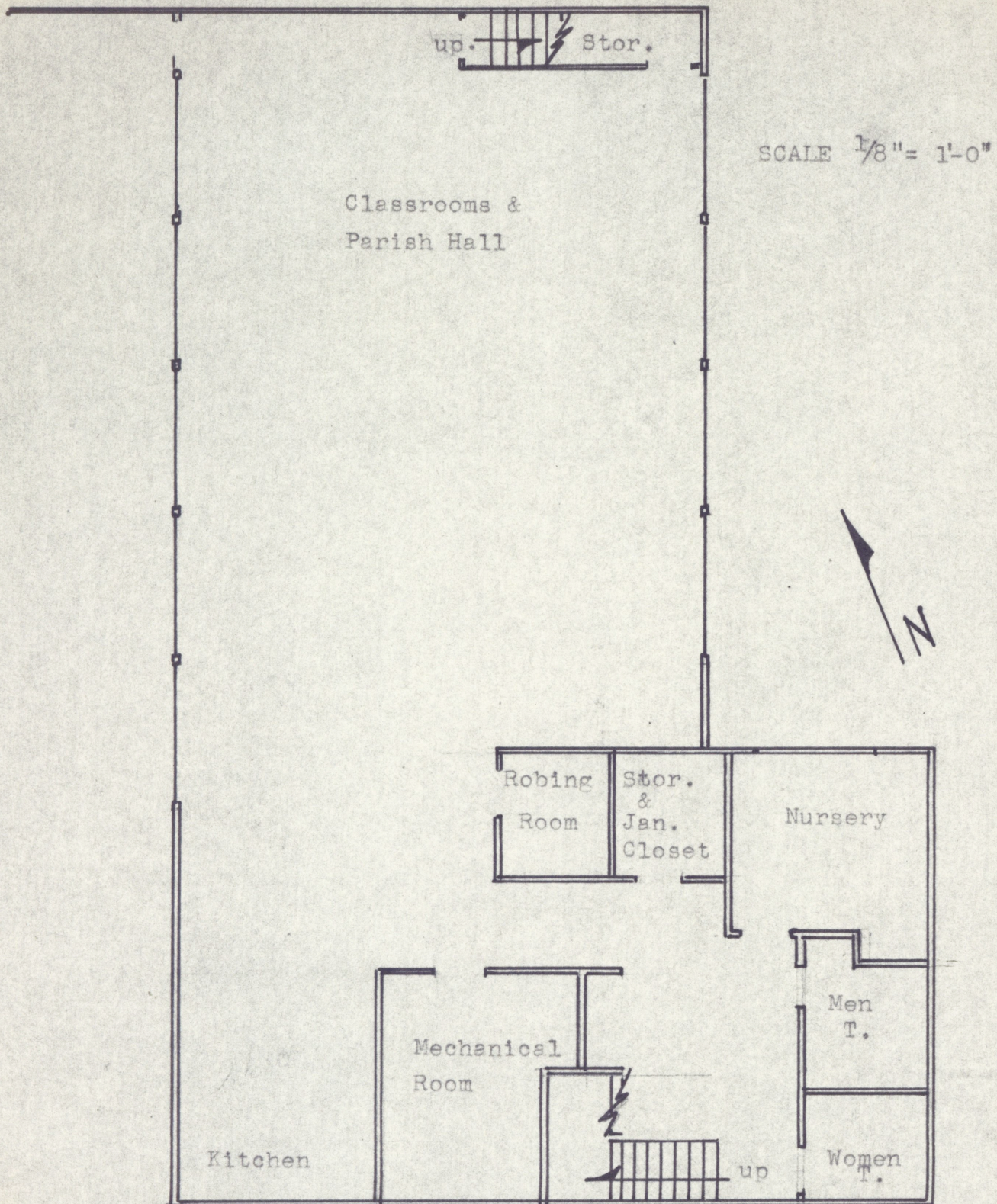
AREA	Number of Square Feet
Administration.	
Pastor's Office	150-250
Assistant Pastor's Office	150-250
Secretary's Office	150-250
Workroom	200-300
Mechanical and coats	variable

AREA	Number of Square Feet
Fellowship and recreation	
Parish Hall (multi-purpose room)	2,250-3,000
Kitchen	300-600
Lounge	700-1,000
Entrance	200-350
Toilets and Coats	variable
Stage	800-1,000

The maximum size of the church will be determined by the size of funds available. The minimum size is determined by the preceeding figures. The smallest possible size is around 12,000 square feet, including basement. Also the Sunday school would have two sessions each Sunday and there would be two services each Sunday.

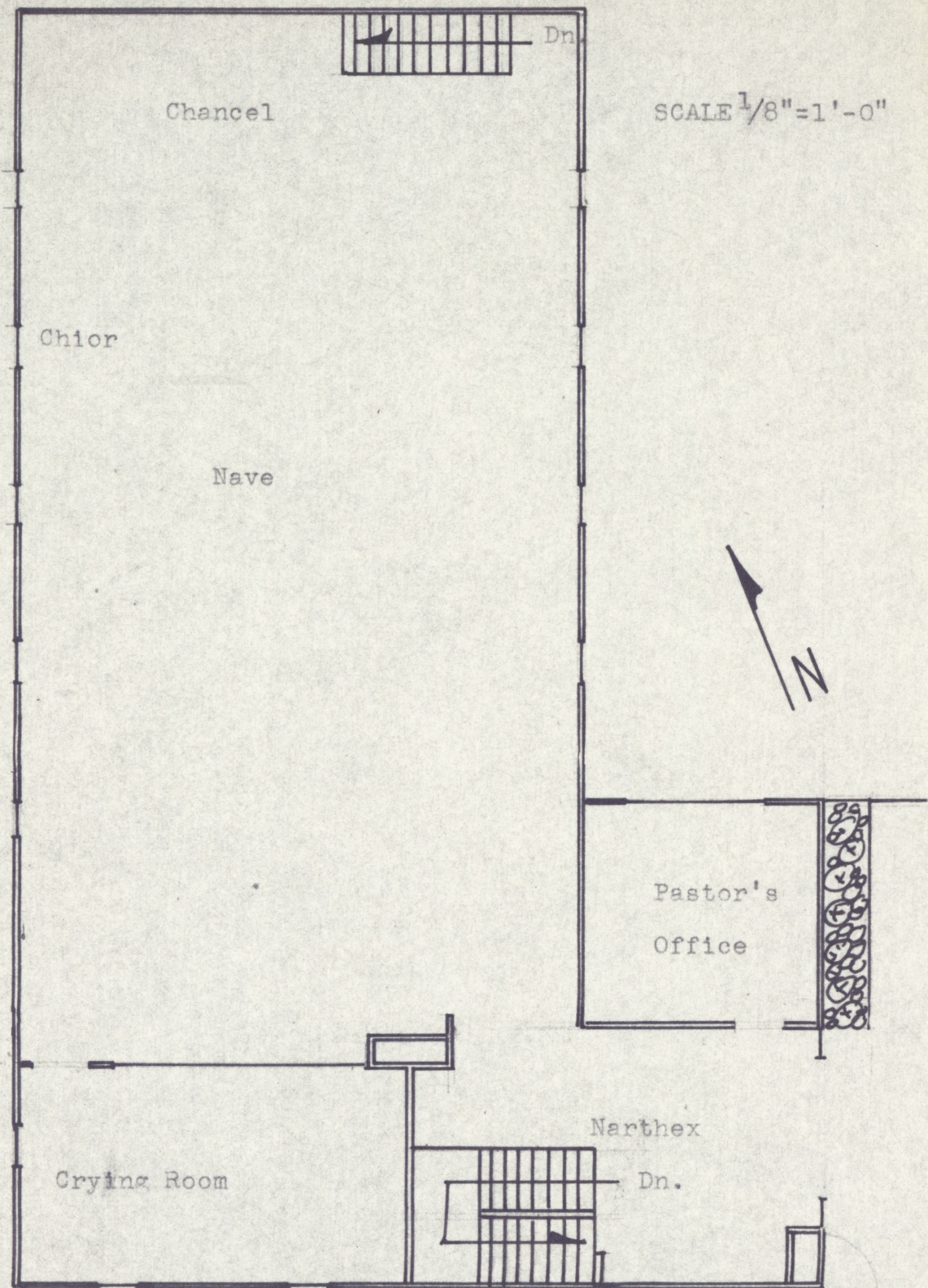
The budget of \$200,000 will cover a church of 7,500 square feet plus a full finished basement of any of the grades and types mentioned in the Economic Considerations.

Basement Floor Plan of
Our Redeemer's Lutheran Church's present building



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Main Floor Plan Of
Our Redeemer's Lutheran Church's Present Building



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- 13 Sovik, E. A., A.I.A., "A Guide for Planning Lutheran Church Buildings", Journal of the American Institute of Architects, Volume XXXVIII No. 6, December 1962, pages 35-40

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Published by a Lutheran Publishing House, 1958

Credit must be given to those listed below for information
obtained through personal interviews.

Rev. F. C. Gronneberg, Pastor of Our Redeemer's
Lutheran Church in Helena, Montana

Rev. Strom, Lutheran Student Pastor, Montana
State College, Bozeman,, Montana

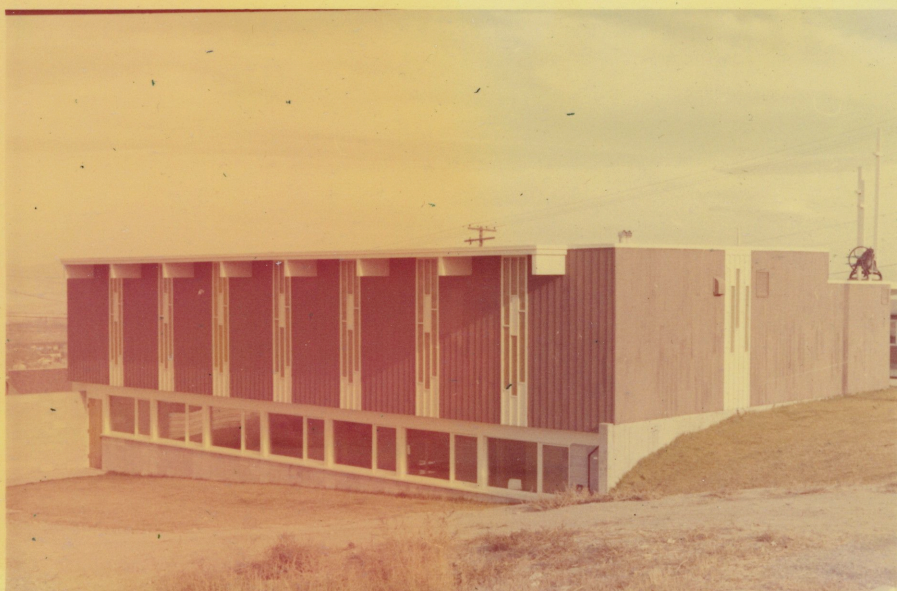
Mrs. Frank Erickson, Superintendent of school
Our Redeemer's Lutheran Church, Helena, Montana

Mr. Frank Erickson, Sunday School teacher
Our Redeemer's Lutheran Church, Helena, Montana



View Across the Site to the North West

North & West Sides of the Present Church.

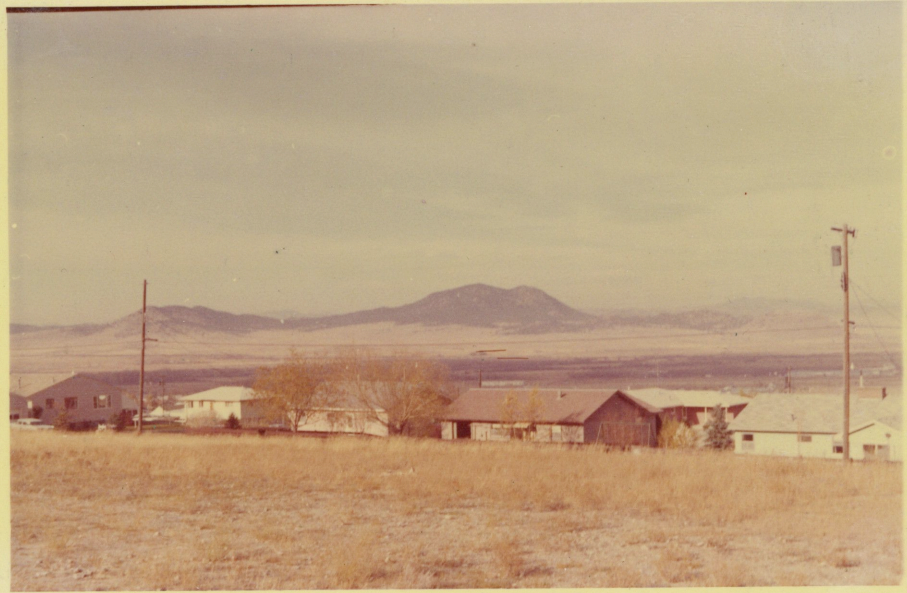




View of typical homes - South side of Site

*Telephone & Power Poles
On Stuart Avenue*





View Across the Site to the North



View Across the Site to the North East

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