CATHEDRAL OF THE TWELVE APOSTLES ABUJA

BY

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CERTIFICATION

I certify that this project was carried out by OTADAFERUA EFE of the department of Architecture, Federal University of Technology, Minna under my supervision.

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DEDICATION

This piece of work is dedicated to the Almighty God whom has guarded me this far and also to my beloving and caring parent chief and Mrs. E.I Otadaferua for their support through out the period of my study.

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ABSTRACT

This project is title the cathedral of the twelve Apostle and is a proposal likely to be embarked upon by the Abuja Arch dioceses being the centre of the country and the Federal capital of Nigeria, as the design for the permanent site which is in the pipe line.

Presently, the Abuja pr-cathedral can no longer carry out its function properly as regard the discharge of its duties due to the horridly nature in which it was planned design and constructed. Hence the need for an urgent completion of the permanent cathedral that will meet the increasing number of Catholics moving to Abuja. Apparently coming from different part of the country and the world to settle there.

This project proposal will address all the in adequacies observed during the cause of my case studies and check most importantly the problem of echo and reverberation in churches.

The church is also to provide a condusive area of worship and also revolutioning the catholic church in terms of construction and design. And all other function necessary to make a better cathedral.

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1.1 CHAPTER 1 INTRODUCTION.

DEFINITION: The Cathedral is a church building which contain the official chair or seat of the bishop. The word cathedral was derived from a Greek word "Kathedra" meaning "seat" or "chair".

A cathedral is usually presided over by a bishop. It is from the seat or chair that he makes official proclamation which concern the diocese.

Actually, there are no typical cathedral, some are large and magnificent, others are small and plain. The primary concern and style of cathedral depends on the era, and style of architecture adopted.

The word cathedral is largely associated with the medieval period of the magnificent Gothic churches that evolves during the 13th and 14th centuries. Many European cathedrals however were built during the early Christian period.

It could also be said to have developed from the basilica church, an oblong building with nave, sides aisles and apses at the east and a narthex at the west end. This types of structure were built between 4th and 10th centuries. Between the 9th and 13th centuries, the Romanesque style became common.

Romanesque cathedrals and churches were often attached to castle or monasteries like the days of Constantine. But the Gothic style develop with the use of great European cities. The Gothic cathedrals are larger, taller and move complex with less walls as support and the convention of coloured [stained] glass. During this era i.e. the medieval period, there were no public schools, museum, libraries or theatres, the cathedral serve some of this function of this institution. Their sculpture and stain glass window illustrated events in religious history and symbolized the teachings of the Bible. Medieval trades were represented in the window and conveys as were the real and legendary exploited of kings and nobles

miracle were also often performed in cathedral squares which also served as market places.

Cathedral vary in size and plan and each region of Europe developed its own version of the early Christian, Romanesque, Gothic Renaissance and Baroque style.

Several 19th century cathedrals in the united states represent revivals of the Gothic style. Among the most famous of these are St. Patrick's cathedral and the cathedral of St. John the Divine, the words largest cathedral in the Gothic revival style. Both cathedrals are in New York City.

Finally in architectural terms, cathedral is a place for worship i.e. it is a set aside place for Christian worship. It is intended not only to shelter worshipers but also to arouse a feeling of reverence.

1.3 RESEARCH METHODOLOGY

The project is based on series of research and consultation in order to establish a firm base where the aims and objective for the project will be achieved. The following are the research methodology applied in the course of this project.

1. Several visit to different existing project and sites in different part of the country in other to get a first hand knowledge of the information needed for the project.
2. Acquisition and analysis of data and information obtained from published materials through different library sources.
3. Consultation with maps, journals, books, encyclopedias, periodicals and some unpublished works
4. Direct enquires and interviews with relevant bodies and organizations in form of case studies in different part of the country.
5. Attending mass in other to get or rather observe the problem facing most churches and making sure effort are channeled toward resolving the problems.

1.4 SCOPE & LIMITATION.

The scope of the project will embrace the basic feature or unit in a complete cathedral through with limitation to a particular section due to the elaborate nature of the cathedral. The following are some of the units that I intend to or that will appear in the land scope or site plan of the cathedral.

1. The cathedral Church.
2. The Bishop's office complex
3. Parish house
4. Parish office
5. Seminarians/visit quarters
6. Youth centre
7. Book shop
8. Nursery/primary school
9. Farm/Garden
10. Convent
11. Marian Grotto

Due to the elaborate nature of the scope area of research construction and design will be centered around the following structures. The cathedral itself, the bishops office complex, the parish house/office and bookshop.

1.5 IMPORTANCE OF STUDY.

The federal Military Government in 1975, endorsed the proposal to move the nation's capital from Lagos to Abuja. The plan to move the federal capital away from Lagos derives partly from strategy and political considerations, reinforced by the diseconomies of scale being experienced by Lagos. This movement of people into the federal capital territory is going to attract all manner of people. Statistically the catholic population in Nigeria is over hence the justification for new and permanent cathedral for the majority of catholic which are bound to follow this trend of migration or movement.

Presently there is no catholic cathedral in Abuja that is magnificent enough to represent the catholic faith. The main and importance of this project, is to design a magnificent edifice that will solve the problem common with cathedral of the accent and present times and this problem are:

- acoustic problem
- lighting and ventilation
- circulation within and around the church
- good parking space and better planned access to the site
- also better accommodation for the priest and bishop

The project is also aim and reconciling the catholic faith in the federal capital territory. The social and moral value of most youth in the country has taken a nose dive and as a result people need to turn to God for deliverance. The cathedral in the federal capital is to remind the people of the oneness of God and to be mind captivating so as to turn the social and moral value around and bring most catholic back to God.

Abuja being the federal capital deserve a cathedral that is of international standard. This proposed cathedral is expected to meet the demand of architectural technology in the 21st century.

1.6 DEFINATION OF TERMS.

DIOCESE:- It is the ecclesiastical area of a bishops jurisdiction and a province of an arch bishops administration. It could also be said to be the portion of the people of God which is entrusted to a bishop to be natured by him when he can exercise his administration and authority. It is done with the co-operation of the presbyteruim, in such a way that remaining close to it's pastor and gathered by him through the gospel and the Eucharist in Holy spirit, it constitutes a particular church. In this the one Holy catholic and Apostolic church of Christ truly exists and function.

A priest is raised to the Episcopal status of a bishop by a ceremony of consecration performed by the Pope who is the vicar of Christ on earth or his representative. A diocese is made up of about twenty [20] parishes each headed by an ordained priest or reverend father. Each parish is made up of about ten [10] or more local churches or a cathedist. Leaders of the various lay apostate societies and organisations within local church make up the church council while leaders of the various church council within the parish make up parish laity council and the leaders of parish councils form the diocesan laity council.

About three [3] or more dioceses make up a metropolitan see or an Ecclesiastical province headed by an Archbishop.

In Nigeria there about nine [9] Ecclesiastical provinces namely:

ECCLESIASTICAL PROVINCES

a. ABUJA ECCLESIASTICAL PROVINCE [Erection March 26, 1994]

i. Abuja Archdiocese ii. Makurdi Diocese iii. Lokoja Diocese

iv. Idah Diocese v. Otukpo Diocese.

b. BENIN ECCLESIASTICAL PROVINCES [March 26, 1994]

i. Benin Archdiocese ii Warri Diocese iii Issele-uku Diocese

iv Bomadi Vicariate.

c. CALABAR ECCLESIASTICAL PROVINCES [March 26, 1994]

i. Calabar Archdiocese ii Ogoja Diocese iii Ikot Ekpene diocese

iv Port Harcourt diocese v. Uyo diocese

d. IBADAN ECCLESIASTICAL PROVINCE [March 26, 1994]

i. Ibadan Archdiocese ii Ondo diocese iii Oyo diocese iv Ekiti diocese

e. JOS ECCLESIASTICAL PROVINCE [March 26, 1994]

i. Jos Archdiocese ii Yola diocese iii Maiduguri diocese iv Jalingo diocese

v. Bauchi Apostolic vicariate

f. KADUNA ECCLESIASTICAL PROVINCE [June 29, 1953]

i. Kaduna Archdiocese, ii Sokoto diocese, iii Ilorin diocese iv Minna diocese v Kano prefecture Apostolic vi Kontagora Prefecture Apostolic vii Kanfanchan diocese.

g. LAGOS ECCLESIASTICAL PROVINCES [APRIL 18, 1950]

i. Lagos Archdiocese ii Ijebu-ode diocese iii Abeokuta diocese

h. ONITSHA ECCLESIASTICAL PROVINCE [April 18, 1950]

i. Onitsha Archdiocese ii Abakaliki diocese iii Awka diocese iv Nsuka diocese v Enugu diocese.

i. OWERRI ECCLESIASTICAL PROVINCE [May 5, 1994]

i. Owerri Archdiocese ii Umuahia diocese iii Ovlu diocese iv Okigwe diocese v. Ahiara diocese vi. Aba diocese

VICARIATE:- This is a point that is part of a large parish or diocese i.e. a vicariate is not up to a diocese and the full vectoral authority is held by the Archbishops of that Ecclesiastical province who appoint a vicar Apostolic to administer the vicariate.

PREFECTURE APOSTOLIC:- It can also be called a vicariate apostolic, it is a certain portion of the people of God which for special reason is not yet constituted a diocese. It is also entrusted to the pastoral care of a vicar apostolic or a prefecture apostolic who governs it in the name of a supreme pontiff.

SACRISTY:- The place or room, were all the items that were use for mass are stored when not in use and it can also double as the place were the priest stays to prepare himself for the mass.

SANCTUARY:- The place were the alter is placed. It is from this place the priest celebrate the mass. The sanctuary also contain the tabernacle.

ALTER:- The table on the sanctuary in front of the church were the sacrifices of the body Eucharist is celebrated during mass.

CHAWCE:- The cup in which the wine that is used for the sacrifices is poured during the celebration of the mass.

CIBORIUM:- The bowl that contains the body of Christ during the celebration of the mass.

TERBERNACLE:- The enclosure engraved or embedded in the wall in which the body of Christ that is use for the celebration of the mass is kept after mass.

CANDLES:- This symbolises the light of Christ in the alter i.e. the presence of Christ during the celebration of the mass.

SACRAMENTALS:- In the Roman Catholic church, object or actions which are in some was imitative of sacrament. They are different from sacrament in being instituted not by Christ but by the Church and in conferring grace not of themselves but because of the prayer of the church. They are numerous and differ in the various rites of the Eastern and Western churches usually include are holy water and holy oil, rosaries, medals and priestly blessings.

SACRAMENT: A symbol, an oath, a spiritual covenant, but most commonly, one of certain religious rites which are distinguished from others as being instituted by

Christ. Catholic sacramentalism considers the redemptive work of Jesus Christ to be continued in the church and see it as certain rites instituted by his will signs and causes or signs and pledges of his grace communicated to men. The nature, efficacy, number, necessity and administration of sacraments are as follow:

Nature:- the traditional catholic doctrine of the sacraments are summarized in the classic form sterns from St. Augustine "an outward sign of inward grace instituted by Christ for man's sacration", i.e. it is in such a manner, a sign of inward grace that bears image and is its cause.

Efficacy:- The Roman Catholic agrees in teaching the doctrine define by the council of Trent namely that "on those who place no obstacle to the same" the efficacy of the action of the sacraments, depends on nothing human but solely on the will of God as expressed by Christ institution and promise. God is the principal efficient cause of grace; Christ's humanity is the conjoined instrumental cause; the sacraments are instrumental causes not conjoined to the divinity.

Number:- While in earlier documents, the name sacrament was applied more widely during the 12^{th} century it was definitely limited to the "seven sacrament" of baptism, confirmation, Eucharist, Penance, Extre.

CHAPTER 2. LITERATURE REVIEW
ROMAN CATHOLIC CHURCH

The largest single christian body, composed of those who acknowledges the supreme authority of the bishop of Rome, the pope, in matters of faith & sacraments.

The word catholic [Greek Katholikos] means "Wholly", "entirely". In common speech the adjective "Catholic" means extensive, inclusive, or universal and has been used to designate the church since its earliest period. This is in contrast tot he narrow, restricted, or local.

The meaning of the term "Catholic" was naturally extended in course of time. What is taught in all parts of the world was asserted to be the truth, and accordingly "catholic" came to mean "Orthodox" as opposed to what to what is taught only locally or by smaller sects.

The Roman catholic church regards itself as the only legitimate entireties, by an unbroken episcopal succession descending from St. Peter to the present time of the commission and power conferred by Jesus Christ on the 12 apostles. The church has had a profound influence on the development of European culture and on the introduction of European values into other civilizations. Its total membership in the early 1990s' was about 958.4 million [about 17 percent of the world population]. The church has its greatest numerical strength in Europe and Latin America but also has a large membership in other part of the world.

The Roman catholic believe further that Christ gave his apostles three essential powers: to the sacraments and to direct and govern all who would accept the Gospel and be baptized. He believes that the powers exist in the catholic bishops as successors of the apostles under the supreme authority of the pope, that as the teacher and guardian of revealed truth the church is infallible and that Christ

guaranteed this inerrancy when he promised that the truth will always remain in the church.

ORGANIZATION AND STRUCTURE

In keeping with early Christian traditions the fundamental unit of organization in the Roman catholic church is the diocese, headed by the a bishop. The church comprises about 1880 diocese and about 520 archdioceses, which today are simply move distinguished sees without the special jurisdiction over nearby bishops that they once enjoyed. The major church in a diocese is the cathedral, where the bishop presides at worship and other ceremonies. The cathedral contains the bishop's "throne or chair" [latin cathedra], from which in the early church he preached to his congregation.

THE BISHOP

The bishop is the chief liturgical figure in the diocese and is distinguished from the priest principally by the power to confer Holy order and to act as the usual minister of confirmation. The bishop also wields the highest jurisdiction power within the diocese. He has the right to admit priests to his diocese and to exclude them from the practice of ministry within it, and he assigns priests of his diocese to parishes and other duties. The bishop often delegates administrative duties to his vicar-general, his chancellor, or other officials. In larger diocese he may be assisted by auxiliary or co-adjuster bishop.

THE CLERGY

Directly under the bishop are the clergy, both secular and religious, secular clergy are not members of religious orders or congregations and have permanently been in corporate [incarnated] into the diocese under the authority of the local bishop. Secular clergy generally staff the parishes of the diocese and serve as pastors in them.

The religious clergy, on the other hand, are primarily committed to their orders or congregations which transcend diocesan boundaries. While working within the diocese, these clergy must adhere to the bishop's decisions on matters of public worship but otherwise enjoy considerable discretion in their ministry. The same can be said of nuns [or sisters] and brothers, who are members of orders or congregation but are not clergy. The religious – clergy and laity tend to staff the schools, hospitals and other institutions of mercy and social service in the diocese, since the second vatican council, the laity who are not members of religious orders have assumed an increasingly active role in advising pastors and bishops, especially in practical matters, and in the directly pastoral ministry such as catediesis [instruction given in preparation for adult baptism].

THE POPE

The head of the Roman catholic church is the pope, who has final authority in all matters. The pope appoints bishop to dioceses and transfers them to others. Although bishop enjoys their jurisdictional powers by reason of their office, they cannot legitimately exercise them without the permission of the pope.

On September 15 1965, Pope Paul vi instituted the synod of bishops, a representative body of bishops and others that may be called on pope to consult on major issues. The first such synod met in the Vatican City in 1967 and several others have been held since then. Synods are not to be confused with ecumenical councils solemn Gorocations of all the bishops of the world. The catholic church numbers only 21 such councils in its long history the most recent being the second vatican council [1962 – 1965]. While they are in communion with the pope, the councils exercise unquestionably the highest authority in the church.

THE CARDINALS

Cardinals are the highest dignitaries in the church after the pope. Appointed by the pope, they constitute the supreme council of the church, the sacred college,

and on the death of the pope, they elect his successor. Most cardinals are bishops of dioceses located through out the world; others are the chief member of sacred congregations of the papal administration. The sacred congregation of cardinals was formerly limited to members [6 cardinal bishops, 50 cardinals priest and 14 cardinals deacons]. By 1991 the number of cardinal has reached 163, most of whom had been named by Pope John Paul II.

THE CURIA

The pope is assisted in his administration of the church by a complex bureaucracy called the Curia of ancient origin, the Curia is located in the Varian city. It is now directed by the secretariat of state to which the various other offices report, these office now consist of the sacred congregation for the public affairs of the church, as well as ten congregations, three tribunals, three secretariats, and other bureaus.

EASTERN RITE CHURCHES

Although most member of the Roman catholic church follow a discipline, ritual, and canon law the developed in the early years of the diocese of Rome, others adhere in these matter to their own centuries old traditions. These are the eastern rite churches, or urinate churches, such as the majorette, chaldean, Rutherian, and Ukranican. Some of these churches legitimately practice Holy communion under both kinds [the use of both bread and wine] and baptism by immersion and allow marriage of the clergy.

NOTE OF THE CHURCH

According to the traditional teaching, four characteristics or essential notes simultaneously verified distinguish this church.

1. Unity, described by St. Paul as "one body and one spirit," "one lord, one faith, one baptism".

2. Sanctity, seen in the church's doctrine, worship, and the holy lives she has nurtured
3. Catholicity, as already defined; and
4. Apostolicity, or the derivation of orders and jurisdiction through transmission from the apostles.

DISTINCTIVE – DOCTRINE

Although the Roman catholic church holds certain doctrine that distinguish it from other christian churches, it is most characteristic in the breadth and comprehensiveness of its doctrinal tradition. Locating its beginning in the earliest christain communities and refusing to accept any doctrine break in its history.

Roman catholic church consider itself heir to all the theological speculation of the apostolic, patristic, medieval and morden periods. Although this doctrinal comprehensiveness may sometimes seen to lack internal coherence, it help vindicate the church's claim to "catholicity" [universality] even in doctrinal matters.

The church does not in principle exclude any theological method and since Pope Pius XIIs encyclical "Divino Afflante Spiritu" [1943 it has officially sanctioned modern principles of exegesis for interpreting the Bible. Participation since the second vatican council in the ecumenical movement has made catholic appreciate the doctrinal view point even of the protestant reformers who brike with the church in the 16th century.

The essential teachings of the Roman catholic church are found in the Apostles Nicene and Athanasian greed and are more completely summarized in a profession of faith prescribed for new ordained bishops, and priests, adult converts and certain official as follows: One only God, in three divine persons, distinct from and equal to one another, the father, the son and the holy Ghost. The catholic doctrine of the incarnation, passion, death and resurrection of Jesus Christ, and the

personal union in him of two natures, the divine and the human; the divine maternity of the Most Holy Mary, with her virginity before in and after the birth of Christ.

The true, real, and substantial presence of the body and blood with the soul and divinity of Jesus Christ in the sacrament of the Eucharist.

The seven sacrament instituted by Jesus Christ for the salvation of mankind: baptism, confirmation, Eucharist, penance, extreme unction, holy orders and matrimony.

Purgatory, the resurrection of the dead and everlasting life.

The privacy, not of honor only but also jurisdiction of the bishop of Rome.

The veneration of the saint's and their images

The authority of the apostolic ecclesiastical traditions and of the Holy Scriptures, which are to be interpreted and understood only in the sense which the catholic has held and holds.

In general, everything that has been defined and declared by the sacred canons and by the ecumenical councils, particularly those of trent and vatican, especially concerning the primary and infallible teaching authority of the pono.

THE BIBLE

Like other Christian churches, the Roman catholic church accept the bible as the basis for its teaching. This was an unquestioned assumption untill the reformation, and the theologian such as the 13th century Italian St. Thomas Aquinas taught that "scripture alone" was the source for theology. Even while maintaining a "scripture alone" position, however, theologians also held that certain truths of practices [such as infant baptism], although not found in scripture, were validated by the tradition of the church. They agreed moreover, that the

solemn decisions of the church, especially those that were arrived at by the ecumenical councils, were authentic interpretations of christian doctrine and therefore irrevocably binding on the church.

TRADITION

In reaction to the Protestant insistence during the reformation on a seemingly unqualified "scripture – alone" principle, the council of trent affirmed [fourth session] that christian revelation was contained in "written books" and in "unwritten traditions" although this decree speaks at length and almost exclusively about the bible, and insertion of the phrase about "unwritten traditions" was interpreted until recently as indicating a "two source" theory. Today the interpretation of the decree is debated, but its significance has been some what diminished by a general agreement among both catholic and protestant scholars that the books of the New Testament are themselves the product of various traditions or schools in the early church.

APOSTOLIC SUCCESSION.

Somewhat related to the theological nation of tradition is the doctrine of apostolic succession, that is the continuos transmission of ministry from the time of Jesus until today. The doctrine is found as early as the epistle to the Corinthians. Traditionally attributed to Pope Clement I. it is present in a qualified from in some protestant churches, but it is more affirmed in Roman Catholicism. It is identified with the succession of bishops in office and interpreted as the source of the bishops authority and leadership role. The most specify instance of this claims is that the Pope is the successor of St Peter, who was chosen by Jesus as head of his church.

Thus, Catholicism tend to see authority and spiritual gift operative in the church today as were operative in the apostolic communities.

Almost implicit in this belief in apostolic succession is the belief that the church has the right and duty to teach christianity and morals authoritatively and that the substantial correctness of this teaching is guaranteed by the concurred of the Holy spirit in the church. For all practical purposes, catholic theology located this authority in the bishops the pope, and the ecumenical councils; under certain circumstances it acknowledge this teaching as infallible. The teaching authority of the magistrium, a term that came into common use in the 19th century.

THE CHURCH

Because of catholic emphasis on the abiding presence of the Holy spirit in the church, catholic theology has given more attention to ecclesiology than has the theology of other christian bodies. Trying to correct an excessively juridical concept of the church the second vatican consistently spoke of it as a mystery and favoured images such as the "people of God" to described it. Fundamental to catholic belief in all ages has been the assumption that God's love and grace are mediated to the world in a uniquely efficacious way through the ministry of the church.

SAINTS.

With greater enthusiasm than other western churches, Roman Catholicism fastens the vancration of the saints and especially of Mary. In 1854 Pope Pius XII proclaimed her assumption often criticized for letting veneration of the saints observe the worship due to God, the church has tried to limit it, for instance by reducing the number of saints whose feasts are observed in the liturgy. Catholic also believe that they can help by their prayers and good works for those who have

died without being fully purified of their sins. The belief is closely associated with the doctrine of purgatory and indulgence.

WORSHIP AND PRACTICES

Catholic worship is unequivocally centered on the mass, at which the faithful are expected to be present every Sunday and on a few major feasts during the year. Mass is also celebrated daily in most churches and is the essential element of the service at marriages, funerals and other catholic observances.

Catholic membership is obtained by profession of faith [made vicariously for infants] and baptism and submission to the authority of the church and carries with the right to participate in the other sacrament and sacrificate [mass] of the church.

After attaining the age of reason, every catholic is obliged to obey the precepts of the church such as:

1. To hear mass on Sundays and holy days of obligation.
2. To fast and abstain from eating flesh meat on the days appointed.
3. To confess at least once a year.
4. To receive the Holy Eucharist during the Easter time.
5. To contribute toward the support of his pastor.
6. To observe the laws of the church regarding marriage.

THE MASS

The mass consist of several parts of which the longest and most important are the liturgy of the world and the eucharistic liturgy, during which Holy communion is distributed within this set structure considerable variation is possible in the use of music pageantry, and other devices to render the service appropriate for a given occasion.

The potential for variation is graphically illustrated in the history of the mass and in the differences that exist today between the Roman rite and the rites of the

Eastern churches. The most sweeping changes ever made in the Roman rite were those effected by the second vatican council in its decree [sacrosanctum concilium] the general tendency of these changes was to excise accretion to the liturgy that observed its purpose and basic outline of all the provisions legislated or inspired by the council none was more dramatic than the translation of the liturgy and rite of the church from their traditional latin language into modern vernaculars.

THE CELEBRATION OF THE MASS

The mass is carried out by every congregate present but only a bishop or an ordained priest is empowered to preside over and consecrate the Eucharist, that is to effect the transformation to the bread and wine. The celebrant may be aided in the service by one or more acolytes or alter boys. Also assisting is a lay person called the lector who reads certain parts of the mass and leads the participation of the congregation in the service.

The ritual objects required for performance of the mass are an alter containing relics and covered by three cloths, two candles of pure bees wax and a crucifix. Also essential are the host, made of unleave wheat flour and grape wine, to which are added a few drops of water.

In the early church mass was offered homes or near the tombs of martyrs in the catacombs. Today mass is held most commonly in a church, although for sufficient reason bishops may authorize the celebration of mass out of doors or in other locations. Mass is usually offered in the morning but afternoon and evening masses are permitted. The length of mass service is about 40 minutes. Although mass is celebrated for the benefit of all, specific concerns, called intentions of individuals may be mentioned in the service. In such cases the church permits the priest to receive a stipend, or money offering. The priest accept money as payment for his support not as the price of the mass.

TYPES OF MASS

One distinction in all mass services is based on the manner in which the major portion of the liturgy is vocalized. At high mass the prayers are elaborately sung or chanted. The text of a low mass spoken, but the service may include the singing of hymns. Masses may also be distinguished according to the celebrants.

A papal mass is one offered by the pope. The mass celebrated by a bishop is called a pontifical mass. A concelebrated mass is one in which several priest or bishops offer mass together at the same alter, each celebrating the sacrifice.

When the priest is assisted by functionaries, called deacons and sub-deacons, the mass is a solemn mass and when the text is sung a solemn high mass.

Mass offered for special purposes are called votive masses, these may be substituted for the regular mass on certain week days. The votive mass celebrated on the occasion of wedding is called a Nuptial mass and that offered on the day of a funeral is a Requiem mass. Gregorian masses are celebrated on 30 consecutive days the soul of a deceased person. Votive masses may also be offered for particular concerns of the church such as peace in the world.

INSTRUMENT OF THE ALTER

The primary action of the mass takes place in the alter, which is a symbol of Christ. The structure is generally located at the front of the church, commonly facing the congregation. It also has within it relics of the martyrs, recalling the early days of the church when the mass was celebrated in the catacombs. Other object of the alter are three alter cloths, the crucifix and the two candles which must burn through our the service.

A chalice is used to hold the wine consecrated at the alter. The chalice must be made of silver or gold, and the interior of the cup must be at least gold plated. It is sometimes covered with a stiff square linen, called pall, and after consecration it is cleaned with a towel known as the purificator. The paten is a round dish on which is placed the host used by the celebrant for greater visibility this host is

longer than the host that are distributed to the congregation. The upper surface of the paten is a linen napkin called the corporal. The smaller host or communion vest in the ciborium another vessel resembling the chalice.

VESTMENT

During the celebration of mass, the priest wears special garments, or vestments. The amine is a rectangular piece of white linen drawn about the shoulders. It formerly serve as a head covering. Over it is worn the alb, along, white, sleeved garment derived from the common garb of the 6th century. The cincture is the belt used to gather the alb on his left forearm the priest wears the maniple a bound of colored cloth about a yard long and the three inches wide a longer band, the stole, is worn around the neck. This scarfike cloth is a sign of the priesthood. The outermost garment worn by the priest's is the chasuble, which probably develop from the Roman toga.

The dominant color of the priest's vestments symbolizes the nature of the mass being celebrated. White [purity, joy, glory] is worn for feasts of the Trinity, the sacred humanity of Christ, the Blessed virgin, angels, saints who are not martyrs, on Sundays after Easter, and in the mass of the Resurrection celebrated for the dead.

Red [fire, blood] is used on feast of the Holy spirit, Apostles and martyrs. Pose [Joy] is worn at mass on the their Sunday of Advent and fourth Sunday of lent. The priest wears green [peace, life] on Sundays after the epiphany and pentecost. Violet [sorrow, penance] predominates on ember days and during penitential season of Advent and lent, and black [mourning] is used during the mass of the presanctified on Good Friday, on the feast of all souls and at funeral masses.

THE ORDER OF THE MASS

The Sunday parish mass is considered typical how Mass. The first part of the service is called the liturgy of the world. As the priest the church in procession with the alter boys and the lectors, and entrance hymn is sung by the congregation. During the first section of the mass, the priest celebrants sits behind the alter on the presidential chair. The congregation led by the lector reads aloud a short selection from the psalms, called the introit verse. This is followed by the priest greetings to the people, his remarks on the theme of the mass and a penitential acknowledgement of the sins of the celebrant and the congregation. This is followed by the kyrce, a litany imploring "Lord have mercy" and Christ have mercy" and the Gloria, a hymn of praise beginning "Glory to God in the highest". The Gloria is omitted during Advent and lent and at masses for the dead.

Following the gloria the priest rises from his chair and greets the congregation with the words "The Lord be with you. The people reply, "And with thy spirit". This short dialogue is a declaration of God presence during mass and a reminder of the joint involvement of priest and people in offering the mass. The celebrant next invites all to join in the collective prayer with the word, "Let us pray: after the collect the lector reads the apostles letters in the new testament. The congregation then recites another short passage from the psalms depending on the season, this recitation is known as the Gradual, Alleluia or Tract. The celebrant goes to the pulpit where he reads aloud from the Gospels and give a homily, or sermon. The congregation professes its beliefs in the credo, or creed through the recitation of the Nicene creed and joins in the prayer of the faithful, litany summing up the current petition of the congregation.

The second major division of the mass is the liturgy of the Eucharist. It consist of the offertory the canon, and the communion. The offertory begins with the presentation of the wafers, or alter breads, t be consecrated and cruets that

contains the water and the wine. During the preparatory prayers the priest offers the host that will be consumed at the communion. He then pours the wine into the chalice mingles a few drops of water with it and offers it to God. The mingling of water with wine is done in imitation of Christ action at the last supper. Preparation of the bread and wine together called the gifts, concludes with the secret prayer said silently by the priest.

The canon of the mass contain the rite of consecration it begins with the preface, a prayer of praise that varies accord to the ecclesical season and the sanctums which begins with the words "Holy, Holy, Holy, Lord God of Host several short prayers to the church on earth and heaven follow.

The priest next bless the host and the wine. He takes in his hands the large white wafer and bending over it recites the woes commanded by Christ at the last supper. This is the consecration and it is at this moment that the bread is changed into Christ body and blood. The priest immediately elevate the large host in front of him for the worship of the congregation. The consecration of the wine and elevation of the chalice follows. An alter boy may ring a bell to emphasize the importance of what is happening at the alter. The body and blood of Christ are offered to God, and at the end of the canon, the congregation gives its assent to the action that has taken place with great Amen.

In the common ceremony the priest and the convergent partakes of the sacrament. During or after the communion the congregation recites a communion verse. Following the communion and the cleansing of the sacred vessels the priest says a post communion prayers, he then declares the dismissal "Go, the mass is ended and gives the final blessing. A closing hymn may precede or accompany the recessional from the alter.

TRINITY

The church found it necessary to define its position on several theological issues which divided its constituency i.e. that is what precisely, was the relation of the son to the Father, and how were the divine and human in Jesus related. The Roman catholic declares that Jesus Christ is of the same substance as {"consubtantial" with} the Father and also of the same substance as men that he his both fully God and fully man. Moreover, it state that the two natures divine and human are in Him, but that in such a union both are preserved without being separated into two persons. Some Eastern churches while insisting that they held to Nicaea rejected chalcedony. The separation was partly on political and ethnic grounds and arose from unwillingness to submit to the Greek and latin who controlled the Roman Empire and the catholic church.

SACRAMENTS

The Eucharist is one of the seven sacraments, which are the most important symbolic rite by which the church nourishes it members. Catholics believes in the real presence of Christ in the body and blood [transubstantiation] and are encouraged to receive the Eucharist at every mass in which they participate. The other sacraments are baptism, confirmation, penance, Holy orders, Matrimony, and the Anointing of the sick. Catholic theology teaches that these signs, instructed by Christ, effect their spiritual benefit on the recipient independent of the faith or virtue of the minister [ex opera operato].

Liturgical reforms after the second vatican council revised the sacrament of penance to shift attention away from confession of a detailed list of sins to the healing nature of the divine mercy mediated through the sacrament. To highlight these purposes the alternative term sacrament of reconciliation was advised. besides other revisions in sacrament rites, the council determined that the anointing of the sick should be administered in every serious illness or old age and

not be delayed until the point of death. Hence, it should no longer be extreme [last] unction.

The minister for the sacrament of matrimony is not the officiating priest, as is usually thought, but the bride and grown themselves. The bond this sacrament creates between two baptized person cannot according to catholic theology, be dissolved. Numerous prior conditions exist for a valid bond, however, so that it is sometimes possible for the church to declare, after examination, the a marriage was null and void from the beginning. Often viewed as the catholic equivalent of divorce, annulment is based on different principles. The church teaches that the purpose of matrimony is foster mutual love and procreate children.

GOVERNMENT

In the Roman catholic church supreme authority and jurisdiction over clergy and laity alike is held by the pope, who is elected by the cardinals assembled in conclave, and holds office until his death or legitimate abdication. According to catholic teaching there can be no ecumenical council without the pope, to who exclusively are reserved the convocation presidency, determination of agenda, transference, suspension, dissolution, and confirmation of a general council [thus the Roman catholic canon law]. The cardinals constitute the senate of the pope, and are his chief advisers and assistants in governing the church. While the pope is obviously independent of the law made, and he officials appointed, by himself or his predecessors, usually exercises his administrative authority according to the code of canon law and through the congregation, tribunals and office of the curia Roman.

In their respective territories [called generally dioceses] and over their respective subjects, the patriarchs metropolitans or archbishops, and bishop exercise a jurisdiction which is called ordinary [as attached by law to an office and so distinguished from delegated jurisdiction which is given to a person] certain

abbot and prelates also have this jurisdiction, the major superiors of exempt clerical religious orders enjoy it, but only with regard to their own subject. Finally, pastor strictly so called have ordinary jurisdiction within their parishes and over their parishioners.

In Roman catholic church the pope either appoints or confirms the election of bishop these in turn name the pastors and diocesan officials. In modern times, and with few exception, the laity have novice in the selection of ecclesiastical superiors. The teaching authority of the Roman catholic church is exercised either with solemn dogmatic definition or in the ordinary general teaching. The former is the prerogative of an ecumenical council and of the pope.

EDUCATION

Roman catholic had that the right to educate children belongs to the parent, who may revoke the aid of other agencies and that time education includes education in Religion. To this and they maintain schools at all levels, especially in countries whose state schools exclude religious education. Roman catholic schools are pontifical diocesan, parochial, or private; the teaching is largely entrusted to member of religious orders.

OTHER PRACTICES

Catholic express piety in many ways in addition to the mass and sacraments. The rosary of the virgin Mary, for instance is still a popular devotion. In recent the strict obligation to fast and to obtain from meat on certain days has been made optional but still observed by many. Although the earlier instance of bishops, especially in the united state, that children be sent to school operated by church has been abandoned, many catholic continue to do so, maintaining a strong system of elementary and secondary education. Throughout the world the church sponsors a

number of universities and an even larger number of facilities of theology. The church is directly or indirectly responsible for an immense number of publication that range from popular journalism to highly sophisticated scholarship.

CURRENT ISSUES

The Roman catholic church as be characterized in morden terms by strong positions on some controversial issues. Beginning with pope Leo XIII'S encyclical "Perum Novarum" [1891], the pope's have consistently the injustices to the economic and social conditions created by modern industrial societies and proposed remedies for them. They have denounced nuclear welfare, repeatedly urged an end to the arm race, and sought to half the exploitation of poor nations by rich ones. The protection and promotion of basic human right in the social, economic and political orders have been central to these pronouncement. The so-called liberation theology created by some catholic intellectuals in Latin America has recently attempted to fit these concerns into a less traditional frame work of speculation, even utilizing concept found in Marxist literature.

They encourage member to work with other religious for common human goals and for the reunion of various Christian churches. Although the Roman catholic church has never joined the world council of churches it does maintain contact with it.

On certain other issues the church has been more conservative but no less forceful. The prohibition of "artificial" means of birth control. The Roman catholic church has never been a fierce opponent of liberalized abortion lawd and has inspired political resistance of such legislation in several western countries.

Although the church permits women under certain circumstance to administer the Eucharist and perform some other ministries, it has not allowed them to be ordained as priests or deacons. For priest of the Roman rite, marriage is strictly forbidden.

CHRISTIANITY IN NIGERIA

Nigeria like other region or country in west Africa has a long intricate and complex history behind it. Not only has empires and chiefdom come and gone, there have also been significant changes in every aspect of like and culture including religion. Religion in Nigeria has far as this project is concerned means Christianity in particular. Christianity has both influenced and been influence by economic, political, social and cultural development. However before going further on the subject of Christianity in Nigeria, the political and social organization of people of Nigeria will be taken into consideration.

POLITICAL AND SOCIAL ORGANISATION

Throughout Nigeria within the three geo-political zone mention [i.e. North, East and South] political and social organization differed. In some parts of the coastal region, there were fairly compact, centralised chiefdoms while further south political units were much smaller and were sometimes villages village based. This however do not prevent the development of a fairly wide trading net work along the coast and into the interior. But most people would have been engaged in such occupation as animal husbandry, agriculture and fishing.

The pattern of political and social organization was not that dissimilar in the forest region where chiefdoms and states could be found alongside much smaller independent communities consisting of no more than a handful of villages. Urban settlement were more common among the Yoruba than most other people and in Oyo and Benin large centralised states had either begun to energy or were already in existence by the time the first christian missionaries arrived in West Africa in the second half of the

fifteenth century. This development was assisted by the fact that these two state their iron deposits had established wide trading net works with commercial centres in the savanna region and elsewhere.

Some of the largest kingdoms established in the savanna region have already been mentioned, and in general the kingdom was the most common form of political organization in Nigeria. One reason for this lay is the fact that communication and travel were much easier in the savanna and this facilitated the establishment of relatively large political entities, of course, there were also to be found in this region, as elsewhere, highly decentralized societies, even stateless societies, with no central authority, for example in area in habitude by the Tiv.

While some people engaged in such occupations as the mining smelting and forging of iron, the making of agricultural implements, domestic utensils and weapons, the wearing and dyeing of cloth, or leather work, other were involved in agriculture, fishing or in administration. But it is important to remember when we come to discuss christian missionary expansion in this region that there were small scale societies and scattered, isolated settlements. This made missionary activity difficult and account to some extent for the somewhat slower pace of development of christianity in these areas.

RELIGION

Several centuries before the arrival of christianity in Nigeria Islam had already established a presence there. However, Islam at this time was for most part confined to a limited number of area in the Northern Nigeria. While traditional religion remain the religion of the vast majority. The use of the term traditional here describe African religion is not intended, it

should be noted, to convey the impression that these religion were static, unchanging systems of belief and practice, but is simply a convenient and appropriate way of referring tot he oldest of West Africa's in general, "Living traditional religion". Although traditional religion were once regarded as nothing more than poeticism or a bunch of superstitions by social scientist, historians and missionaries alike, they are now studied with greater sympathy, objectivity and understanding.

It is not my purpose in this project to describe in any detail the 'nature' of African traditional religion but simply to point out that they were often a very important force in the society, exercising a strong influence on the educational, medical, cultural, economic, social and political spheres indeed it is sometimes difficult to draw a line between the religious and these other area of life. There is, of course a personal as well as a social dimension to traditional religious.

While recognising that there were differences in belief's and practices many African traditional religion not only shared a belief in a supreme being but also similar views on such matters as the nature of the person, the relationship between the individual and the wider society, and the role of religion in society. While it was stressed that the individual was unique with his or her own personality, talents and destiny the individual was not thought of in isolation from the cosmos as a whole or interest society.

This, in a sense, one is a person by virtue of one's membership of the community, and this establishes an inextricable bond between the individual and society. Moreover, individual freedom and maturity consist in large measure in being socially responsible and in adapting one's thoughts and actions to the needs and requirement of the society of which one is a member. It was the role of religion to sustain and maintain this relationship

between individual and society, and in the course of doing so it would inevitably tend to uphold and reinforce the existing norms and values of society at large. This to some extent explains the close relationship between the religious and political spheres.

Religion, as I have already pointed out influenced every sphere of life, including art. In western Nigeria, to take but one example, the well know terra cottas and bronzes from Ife which date back may centuries and among other things representation of sacred king. This art which often had some religious significance was intended like religion itself to give cohesion and unity to the community.

CHRISTIANITY

To treat christinaity as if it were a unified system of belief and practice would be to distort the reality as the history of christianity in Nigeria and elsewhere demonstrate clearly. There is a vast variety of christian churches and movements and these have emerged at different times in history. On historical landmark as far as christianity is concerned, was the Reformation that took place in Europe in the sixteenth century. Until then the Western part of the christian church was under the authority of Rome. The district Eastern church, which had separated from Rome in 1054, was centered on constantinople [Istanbul]. In the first half of the sixteenth century, under the inspiration and leadership of Martin Luther, and later John Calvin, the Protestant Reformation took shape and gave rise to several new church organizations reflected the authority of the Pope of Rome and consisted that scripture alone was the only source of guidance and authority.

The Roman catholic church which accepted the authority of the pope remained a very large body, but Protestant churches became prominent in a

number of European countries. These Protestant churches gave rise to other groups and churches for example the Baptism, Presbyterians.

The divisions within the christian churches were later reflected in the development of christianity in Nigeria and indeed in the pattern of world wide christian missionary expansion as it got under way in earnest in the eighteenth and nineteenth century.

Christianity, therefore, is a very general term covering a great varity of religious beliefs, practices and organisations. Furthermore, disagreement, rivalry, competition and conflict characterised relations between the various christian traditions for a long time after the Reformation and this was once again reflected in the Nigeria Context. In more recent times efforts has been made to bring closer co-operation between the christian churches and to promote greater tolerance and understanding not only between themselves but also between christianity and other religious.

While disagreement have loomed large, it is possible, nonetheless to point to some overall agreement on alimited number of founder mentals which all christian traditions have accepted in the past and accept today, although they might interpret it in different ways, all agree that because of "original sin" all men need to be saved, and that Jesus Christ is the saviour.

THE ARRIVAL OF THE CATHOLIC MISSIONARIES IN NIGERIA

The Roman catholic mission began to take steps towards re-establishing itself on a permanent basis in Nigeria in the 1860s. a catholic missionary based in porto Novo in present day Benin visited Lagos in 1863 and found there a catholic community consisting of a catechist Pa Antonio, and several thousand Portuguese- speaking returnees [sarcs], former salves who had returned home to Nigeria from South America. Pa Antonio was

born in Sao tome and spent his youth and early manhood as a salve in Bahia in North – eastern Brazil. After emancipation he tracelled to Lagos via Whjdah, Sao Tome, Fernando PO and Porto Novo and there took on the role of spiritual adviser to the repatriates from Brazil.

Pa Antonio's community was served by a catholic priest from Porto Novo until 1868, when it was decided to establish a permanent base in Lagos. A mission house was open in Broad street and a decision was taken to spread the catholic mission in Lagos had eight schools attended by 600 students. The size and influence of the catholic community was increased by the emancipation of the salves in Brazil in 1888. They also played a very important role in the development of music, song, dance and cultural life in Lagos.

By 1890 catholic missionaries were also working in eastern Nigeria. And while the French SMA Fathers in Lagos favoured the school system the French Holy Ghost Fathers who arrived at Nkissi near Onitsha wharf in September, 1885 began by favouring the system of the christian village. This system consisted essentially in redeeming salves; that is buying them from salve dealers, and settling them in villages where they will be taught the christian faith, employed by the mission and trained as evangelists. The entries in the mission journal of Holy Trinity mission near Onitsha, opened by the Holy Ghost Fathers in January, 1886 document the buying of salves for this purpose. The entries in the journal are repetitive on the following manner '12th June [1886]. Buying of salve 90 Frances 6th August [1886]. Buying of a three year old boy for 12 sacks of salt.

This method of evangelisation used to a greater or lesser extent by the Holy Ghost Fathers and other catholic and Protestant, missionary societies in Nigeria was soon to be abandoned. The Holy Ghost Fathers in eastern

Nigeria had come to realise that it was expensive, slow and unproductive in term of gaining convert and replaced it with the school system of evangelisation.

SPREAD OF CHRISTIANITY

Although the main priorities of the missionaries under invent some change with the passage of time, it is possible to single out what they were during the colonial era and the means the missionary adopted to attain their objectives. Most of the missionary societies concentrated on establishing christian families and where possible christian communities, and while this method of evangelisation proved highly successful in some areas such as eastern Nigeria it had numerous drawbacks, and to a lesser extent the same applies to the system of catechists. The training of sufficient number of indigenous clergy to serve the people was also an era where there was little advance among Roman catholic in particular.

Missionaries too often saw themselves solely as leaders and felt that there was little or nothing to be gained from an open, equal partnership with Nigeria or African christians. They only very rarely blamed their show progress on their own methods and approach and almost always on extrinsic factors such as Islam, the policy of the colonial administration, the secret society or the lack of self- sacrificing activism on the part of Nigeria and Africa.

The race with Islam pre-occupied a great deal of missionary thinking in certain areas, lack of success here led to the development of a variety of explanation, for the most part extremely negative and disparaging, for the advance of Islam. Another draw back for the advance of the missionary societies was that they brought their theological and other differences with

them from Europe to Africa, pursuing their accusation and their recriminations and feuding, which did little to the image of christianity. Each mission society tend to believe that it alone was in possession of the full truth of christianity and this made for a narrow, authoritarian, exclusives presentation of the christian message. A more co-operative, tolerant, ecumenical approach began to emerge in the colonial era and is now wide spread through out Nigeria and Africa as a whole.

Nevertheless, it is clear that by the 1950's as Nigeria moves into having her independence, the mission established churches had achieved a considerable amount. Indeed in some missionary circles for example in eastern Nigeria, there was a certain euphoria over the number, size and quality of the schools, hospitals and churches under their control. But in their excitement over schools and training college some missionary societies were paying less attention to the development of national education system. They were placing their faith in the teachers under their charge, regarding them the pillars of the catechist in the local church, especially in the rural areas. Little was being done to improve the status, position and training of the catechist and yet once the schools were taken over by the government, the mission established churches would have very little option but to have recourse once again to the catechist system. Undoubtedly, although the number of 'foreign' missionaries was on the need forever increasing number of Nigeria clergy, assisted by well trained, well qualified catechist. Without the latter, the rural areas in particular could not be served, and without the former there was no prospect of a transfer of ecclesiastical authority and responsibility from European to Africa.

CHAPTER 3 AREA OF RESEARCH

SOUND CONTROL IN DESIGNS

The control of basic sound by clearly defining its path of reflection, absorption or isolation is referred to as Acoustic.

Acoustics is one of the many aspects of the environment in which we live.

The basic purpose of sound control in Design is to provide satisfactory acoustic environment for whatever use the space is intended. In the office building the designer may wish to provide freedom from distraction or privacy for conservation between the performers and listeners, allowing the room itself to enhance the quality of the musical sound. In almost any situation one can determine just what the environmental requirement are, and then proceed to design the building to satisfy them.

Qualities that characterise the desired acoustic environment vary widely depending on how the space is to be used and how the space relates to other parts of the building. People usually tolerate a noise conveying no information better than they do one which tells them something about activities in an adjoining space. An expected noise is often move tolerable than an unexpected one of the same magnitude.

In addition to describing the magnitude and dynamic characteristics of the back ground sound. We should also describe the character of the occupied space. If a room is furnish with materials much are highly sound reflective, then the sound will priest for a longer time and will seems to be coming from all direction. The space will be less pleasant than one which has a moderate amount of sound – absorptive finish. Everyone knows the experience going into an empty house before the furniture has been put in place – how much move pleasant it is often rugs, curtains and chairs have

been moved in. a room can be too "dead" however, and therefore quite oppressive. There are optimum ranges for reverberation time in occupied spaces.

All these matter must be looked into carefully in the course of my design.

PRINCIPLES GOVERNING SOUND CNTROL IN DESIGNS.

Satisfactory acoustic environment is one in which the character and magnitude of all sounds are compatible with the satisfactory use of the space for the intended purpose. While this is a reasonable objective, it is not always easy to express it in qualitative terms. In sound control we can not just say how much sound we want but rather we must specify what kind pitch whether it is continuos, expected or contain information e.t.c.

Human being are highly adaptable to various physical phenomena of heat, light and sound and their sensitivity varies widely. The human air can detect the sound intensity levels of less than 10dB [the gentle rustle of leaves] and yet can survive without permanent hearing damage the powerful roar of a jet engine – as much as 120dB, a million- million times the intensity of the leaf rustle sound.

Psychologist and research workers in acoustics have laid a good deal of the ground work that enable us to understand how much and what kind of noise or sound will after speech communication, annoyance, and fatigue. Although the research work are far from complete they do lead us to certain generally accepted specifications on the noise environment in many of the kind of space we design especially in connection to my proposed thesis.

REFLECTION AND ABSORPTION OF SOUND

When a sound is placed within an enclosure, reflection of sound wave traveling outward from the sound source occurs at the boundaries, and the sound waves continues to reflect between the boundaries themselves. If the sound source is continuos, this reflection of sound will establish relatively constant level within a normal sized room. These built up or reverberant level are dependant on the amount of absorption of the sound energy that takes place at each encounter of the sound waves with the closing surfaces. This phenomena could however be further understood by expressing the aforementioned illustration with a slightly different practical out look. The reduction of the reverberant sound level becomes a thing of interest and this is achieved by introducing absorption materials on the enclosing surface.

Every occupied space has some sort of reverberant characteristics. It may be alive or it may be dead, but there is always certain amount of return energy reflected from the distance surface to the listener that give him a "feel" of the space. There are no critena for exactly what reverberation time should be in a large hall or a church, but experience has shown that, unless such occupied space are furnished or finished with reasonable amounts of sound absorbing materials, they will not be comfortable.

Sound absorbtioning treatment in a space reduces the spreading of sound and localizes the direction of the sound source or sources. Sound do not seem to come from everywhere, and the annoyance level from all arts of noise source is less.

An auditorium or a church building which must serve many function may be designed with a compromise reverberation time. A better solution is to provide large area of adjustable sound absorbing treatment to accommodate functions demanding more or less reverberation than the basic design provides.

Need for sound absorption

1. To reduce noise levels [noise control]
2. To shorten prolong reverberation [reverberation control]
3. To eliminate echo [echo control]

In a concrete hall design or in a church design, the architect may avoid introducing any sound absorption except that provided by the audience itself, as to achieve the longest possible reverberation time, even the inclusion of sound absorbing material for echo control any prove undesirable in concrete hall or church design. A preferable solution may be to redesign any offending surface so that the reflected sound is redirected and no longer heard as a discrete echo.

As an architect, the first job of the designer is to determine which of these requirements must be met in the space and to what extent, that is, as in every acoustic problems, the design objective must be clearly defined. The success of meeting these objectives depends largely upon the designers knowledge and still in the selection and use of materials. Note: it should be emphasized that the principal use of sound absorbing materials are for the control of sound transmission between spaces. There is much confusion on this point and much disappointment has resulted from the misapplication of sound "insulating" materials to room surfaces, such use of sound – absorbing materials often makes no significant difference in the sound transmission between spaces. For the most part, sound absorbing materials especially the porous light weight ones, offer little resistance to sound transmission. There are, however, some new specially design materials [suspend acoustic ceiling tiles] which act as both sound – absorber and sound reducing barriers.

All materials and objects in a space where a sound field exists absorb some of the sound incident up their surfaces. Porous, fibrous material such as cerpets drapenis, upholstered furniture, and clothing and specially designed sound – absorbing materials are capable of appreciable sound absorption, that is they do not reflect very much of the sound energy which strikes them. Impervious, thin, flexible panels e.g. plywood, absorb sound also but their effectiveness is usually limited to low frequency range of the audible spectrum. By contrast of these absorbers, most common building materials [brick concrete, glass, plaster etc] are very poor sound absorber and most often absorb less than 5 percent of the incident sound energy in the frequency range of interest. In fact these latter material may be classified as sound reflecting materials and can be used effectively in auditorium design or church building design to distribute the desirable sound properly.

BASIC SOUND CONTROL ACOUSTIC MATERIAL TYPES

An actual selection of effective sound absorption material has been made difficulty by the ever increasing number of building material saucily designed to meet the demand. Basically, however, there are four board categories of acoustical materials some of which can be delivered to the job ready for installation others may require on site assembly, that is in-situ or application viz.

1. Prefabrication, factory finished materials;
2. Plastic [or "wet"] applied materials
3. Special site-assembled materials

4. Suspended baffles or "space absorbers.

Prefabricated materials:- These are factory finished products. The thickness and method of mounting are important in the determination of the sound absorption co-efficient at various frequencies. The sound absorbing characteristic of a given materials will vary with the mounting technique used. when evaluating a project, therefore, on the basis of sound absorption co-efficient, it is important to know what mounting technique was used.

Plastic applied materials: This category includes acoustical plaster and mineral cellulose fiber products to which a binding agent and water are added at a time of application. They are applied in a wet, semiplastic state either by hand troweling or spraying on by machine. In this matter, these materials on application have visual continuity without modular line or joints. However, the absorption achieved in the field by these products is strongly dependent on careful installation. Co-efficient determined from field measurements provided installation if accurately done, have been significantly lower than those on carefully prepared laboratory samples.

Note:- Unlike in the application of this acoustical plaster where its total thickness is ½ in or less the mineral or cellulose fiber can be applied with a total thickness of up to 3 in [8cm] of a somewhat soft , porous, light weight material and the possibility of application on an open lath lakes advantage of the airspace behind the surface, thereby, increasing the low frequency absorption.

Special site assembled materials:- In spite of the tremendous variety of "off the shelf" materials, there are occasions when acoustical or visual requirements require a "custom" design. Very often the desired acoustical result can be achieved with a porous sound absorbing material [10 r 2 in thick mineral fiber blanket] with or without airspace behind to increase low

frequency absorption's.

Special site assembled materials:- In spite of the tremendous variety of "off the shelf" materials, there are occasions when acoustical or visual requirements, require a "Custom" design. Very often the desired acoustical result can be achieved with a porous sound absorbing material (10r 2 in thick mineral fiber blanket) with or without airspace behind to increase low start frequency selection. The architectural problem then is in the selection and detailing of an acoustically transparent facing or screening that will have the least effort on the efficiently of the sound absorbing material.

CONSIDERATION DURING INSTALLATION OF MATERIAL

Sound due to it porous nature, the sound absorbing efficiency may be seriously affected if the opening are blocked. Common sense dictate that materials having very tiny pores can easily be sealed by repeated painting, while large perforation, slots and fissures are not so easily bridged. Manufactures usually have specific instructions on their particular products; these should be strictly adhered to if the original acoustic design of the space is not to be altered in the future.

Light reflection and flame resistance although of no acoustical concern, are often important considerations in the selection of acoustical materials.

ISOLATION OF SOUND

The major concern of a designer interested in assuming a satisfactory acoustic environment is to control the transmission of unwanted sound into any space with in a building. The under sound may be automotive or aircraft noise from the outside, or it may be sounds generated in spaces such as speech in an adjust classroom, music or recorded sounds in an adjust apartment or it may be impact induced sound such as

foot fall if a persons walking on the floor above, rain impact on a light weight of construction, or a vibrating mechanical equipment.

All these problem can be group under the general category of sound isolation, whereas, the design criterion for the particular intruding sound will vary considerably depending not on the use of the space involved, but also on the characteristic of the intruding noise source itself. For example in place like Church, auditorium or any other listening place for that matter, little or intruding sound of any kind can be tolerated. On the other hand, in a private office, the major concern may be the elimination of intelligible sounds (such as speech from occupant next door), while relatively high levels of continuous bland sounds like the rush of air from an over head air conditioning diffuser may be quite acceptable.

SOUND - ISOLATION problem is any building can be quite complex from the point of view not only of analyzing the many potential sources of intending sound, but also of evaluating what level of intruding sound can be tolerated by the occupants of the space. The designer must not only have some fundamental knowledge of the general aspect of analysis of a sound - isolation problem but also some understanding of the important physical characteristic of barriers and low these can best be used to isolate a given space from both air - borne and structure-borne sound.

The problem of sound isolation are usually considerably more complicated than problem of sound absorption and reductions of sound level which are grater orders or magnitude than can be achieved by either absorption or separation of the noise source from listener.

These large reductions of sound level from one space to another can be achieved by continuos massive impervious berries and, if the problem involves structure-borne sound as well , it may be necessary to introduce discontinuities or resilient layers into the a barrier also

The significant point is that sound absorbing materials and sound isolating material are used for entirely different purpose. Jus as one does not expect much sound absorption from 9 - inches concrete walls, there is no much reason to expect high sound isolation from porous light - weight that may be applied to the surface of an enclosing space. As mentioned previously, some materials have been develop to fill a demand for materials which will perform both tasks simultaneously. However, the basic mechanism for sound absorption and isolation are quite different.

ROOM TO ROOM SOUND TRANSMISSION

We would try to visualize a simple case of air-borne sound transmission between two rooms separated by a common barrier, in other to illustrate a number of important variable. In any sound isolation problem one of the room (called the source room) contains a continuously operating noise source, and the other (called the receiving room) has a listener. To keep the situation simple we will assume that the only way for sound to get to the receiving room is through the common wall which is completely air-light so that all the sound has to go through the materials itself. The source excepts very near the source, impinges on the barrier at many angles of incidence. In essence, when the sound impinges, it lies more to the barrier and to the extent that it does more it. Sound is re-radiated by the barrier to the receiving room. The level of transmitted sound in the receiving (not very near the wall) is dependant primarily on three factors.

(1) The transmission lose (TL) of the wall

(2) The area of the wall

(3) The amount of absorption in the receiving space.

This can be expressed approximately by the following equation

NR = TL - 10 Log s/A2 where

NR = NOISE reduction (dB)

TL = Transmission loss (dB)

S = Area of the wall (Sqft)

A2 = Total sound absorption, that is , A is the sun of the areas of various materials in the room, sqft, time their respective sound absorption co-efficient.

The transmission loss accounts for the largest part of the room to room noise reduction but, as can be seem, the area of the wall and the amount of sound absorbing material in the receiving space also have some effect. The larger the area is the more sound energy will be transmitted. The more sound absorbing material there is in the receiving space, the lower the reverberation sound level will be. In most practical situation, the correction term account for the area of the wall to - room noise reduction by not more than about 15 dB.

However, this amount may be quite in many sound - isolation designs.

FLANKING OF SOUND

Rather than restrict ourselves to state that transmission of sound between two room occurs only through a common barrier, it is usually important to consider other part for sound transmission between spaces. These may be referred to as "flanking". Paths since . They by pass the common barrier between the spaces.

Doors should be widely separated and gasket between if a light - transmission - loss construction is required between separated rooms. To improve the door problem, as illustrated in the above diagram, the revised location for the door in one of the rooms would be advisable. Similarly, the preferred windows opening arrangement is also as shown in the above illustration.

Flanking of sound through the structure is important if high transmission loss is required between two rooms. For example, special "floated" floors o ceiling may be required if high level of air - borne sound are anticipated in a room which will excite the common light weight adjacent space. The degree of concern for air-borne -to-structure flanking of sound is important only if the common barrier between the

spaces in question requires high -transmission - loss construction. Such requirements do exist for many broadcast studies spaces, music class room spaces etc.

Flanking of sound through suspended ceiling construction is perhaps the most common problem is office building today, where large open spaces must be designed flexible partition arrangement. The obvious solution is, of course, to continue the partition construction beyond the level of the suspended ceiling to the under side of the structure above. However, such a solution is not practical in many situations and really defeats the very flexibility. That may be desired. In these instance, it makes more sense to think in terms of a horizontal barrier at the level of suspended ceiling. The sound isolation requirements of the horizontal barrier may not be as great as that which would be required for a vertical barrier, especially of one considers that sound must travels through the barrier into the room. Along the plenum space, and then down through the horizontal barrier into the second spaces. Reduction of sound energy occurs each time the sound passes through the ceiling provided the material is

DETERMINANTS FOR GOOD HEARING IN DESIGNS.

Conditions for good heaving in almost any how of out-door hall can be assured in advance of the following basic requirements are satisfied.

(1) Quite background

(2) Sufficient loudness

(3) Proper distribution

(4) Adequate blending and separation of sound.

These simple criteria, if satisfied, will result in good leaving conditions in any space something conditions in any space sometimes we can the natural sounds in the space and by proper design of the enclosing surfaces, achieve all of the requirements for even the most week-voiced speaker. In large or nosy spaces it may be necessary to use a carefully designed electronic sound reinforcements system. But whatever the

requirement of whatever the space good bearing conditions can be achieved for any types of use. The important thing, as in all aspects of acoustics, is to recognize the problems in advance and solve them in the design stage of the project, not after it is finished..

- Quiet background :- only when the lightening area is quiet can good excellent hearing condition, either indoors or outdoors be achieved. If have too much noise logically there is no point in worrying about the factors which attribute to good hearing determinants. Outdoors the noise may come from aircraft, from automotive traffic or even from wind in the trees. Inside building we not only have some of those out door noise transmitted through the shell of the Building, but we have so many noise generators such as air- conditioning systems and adjoining spaces (lobbies, stage workshops, other auditoriums) that must be kept under control. Except the techniques of noise excellent will result, no matter how the other aspects of the space acoustics are considered.
- Loudness and Distribution:- Obviously all sound should be uniformly distributed and that the sounds we want to hear should be loud enough people in front of the seating area both indoor or outdoor, should not receive great quality of sound while those in the back barely hear at all.

Adequate loudness and good distribution of sound are determined almost entirely by the size, shape and surface finishes of the space and some cases, by the use of carefully designed sound - reinforcing equipment. In most moderate - sized auditoriums, hall however, it is not necessary resort to electronic aid. If the space is designed carefully with well chosen material, the enclosure itself provides the needed sound reinforcement and good distribution

AIR - BORNE SOUND INSULATION

DESIGN CRITERIA.

Wall which separate the various room within the building, must apart from satisfying other aspect (such as materials technology, construction, loading etc) be designed to provide adequate sound insulation against air bone noise.

As a first step in the planning stage, one should make an estimate of the noise level in adjacent room resulting from their layout and function from this it can be deduced whether or not additional sound insulation measures are necessary.

The second step is to decide whether single leaf or multi - leaf walls are to be used. This implies a basic knowledge of sound insulation properties of these walls and their advantage and disadvantage since the problem of controlling air born sound between adjacent rooms within building is not confined to choosing the type and construction of the partition walls, all building element common to both room under consideration should be included in the investigation.

In the third step therefore, ceiling, windows and doors should also be examined from an acoustic point of view and their sound insulation consideration conjunction with that of the other wall, Thus decision should be made concerning the following element through design steps which run in parallel but are also interdependent.

Design of roof and floors

Suitable air -borne sound insulation often follows from the design of floors having adequate impact sound insulation. However, special design considerations are necessary with regard to

- light, heterogeneous structure .
- roof structures which also form ceiling to room particularly light frame roofing.

CONSTRUCTION OF THE PARTITION WALL.

Depending on the particular conditions therefore, requirement of partition according to their potential function as follows.

- Partition which act only as screens
- Partition with sound insulation properties

Designed to meet the needs of various application such as conference room etc.

CONSTRUCTION OF WINDOWS

The following possible forms of construction should be designed with progressively increasing sound insulation properties according to the acoustic conditions required.

- single - glazed windows in internal walls
- multiple - glazed, thermally insulating windows without special air - borne sound insulation properties.

Double - glazed casement and box window

- additional sound insulation by mean of roller blinds

CONSTRUCTION OF DOOR.

To be designed according to air-borne sound insulation requirements.

- light weight, single - panel doors with low sound insulation properties.
- Heavier, single- panel doors with medium to high sound insulation properties
- Double - panel doors and special door with the height value of sound insulation

DESIGN AND CONSTRUCTION RE-COMMENDATIONS

The designer should begin to consider structural sound insulation from the layout plan stage. Such considerations are not related exclusively to air-borne sound, but also to structure to structure borne noise Nevertheless, it is discussed at this point because air bone sound insulation affect the majority if the building in the proposed design and therefor will need to be considered in must of the problem associated with building

1. Justas position :- Any decision to use the layout of rooms as a means of avoiding sound problem will have a direct bearing on the need to employ social sound insulation measures. The greater the difference in sound properties and the sound level generated in neighboring rooms, the greater will be the need to expensive sound insulation measures.

ROOM ACOUSTIES.

DESING AND CONSTRUCTION

- Group 1 RECOMMENDATIONS.

Shape of the room: by comparison, far more important is the requirement for adequate direct sound transmission towards the listener. This for all part of the room, the objective should be to proved a constant ratio of direct sound to diffuse sound level. This lead to the requirement to provide the listener. Since the diffuse level is constant in all part of the room, the direct sound level decreases with increase distance and the theoretical requirement for a constant ratio between both level cannot in practice be maintained in large room. Room size must be reduced so that the direct sound component for each listener is as large as possible. A part from the correct plan elevation of the seating, it is also a convenient way of obtaining a short

- listening distance.

Surfaces enclosing the room :- The shape and surface finish of the enclosure are of great importance in room acoustics. They make a considerable contribution to the control of the sound level depending on their reflecting or absorbing properties and configuration.

If the existing reflecting surface do not boost the level sufficiently or are unsuitable because of their geometry, additional reflector must be fitted in order to direct reflected sound to certain area of the room in order that undesirable echoes are not produced due to propagation time, Difference being too large the path of the reflected sound should not be more than 15m longer than that of the direct sound. In addition

- where it is intended to provide a uniform distribution of sound level in a room, the following should be avoided.

- Concentration of sound (by the possibility of ranting ceiling).

- Echo effect (covering the wall on ceiling area)

Other solution to this problem include the following.

- Diffuse reflection :- it contribute to elementary sound concentration and it is done by the use of diffusers. Cylindrical surfaces, triangular and saw - tooth surface or blocks are suitable as diffusers.

Finally it should be pointed out that the necessity for diffusers in large room having simple geometry is greater than in room with irregular geometry shapes.

All the concept previously employed apply to absorber areas without a lining or cladding. But it is easy to see that cladding these materials, although for reason of design or function, alters their absorption characteristics without becoming involve in the problem. It is sufficient to point out at this stage that the flow resistance of the covering should be lower than that of the absorbent material, as in the case when absorbent are supplied with their own surface finish.

In the majority of cases, textile coverings have a high flow resistance and thus degrade the absorption coefficient on the other hand, perforated panels of various materials Having a large number of holes and small panel thickness are to be recommended . the reduction in the acoustic absorption coefficient due to these covering is again particularly notable in a high frequency.

RESONATORS :- Because of their absorption effect over a narrow band a lower frequencies, are used mainly to complement already existing porous absorbers.

In doing this, one should ensure that the porous materials is mounted, where possible, on the solid wall or ceiling and does not impede vibration by touching the panel, for this reason, a minimum size of panel must also be observed.

The panel must be held away from the walls be betters.

A suitable combination is by placing porous material on the vibrating panel , the advantages of both type of absorbers can be realised.

The listeners in the room have an important bearing on the reverberation time. It is therefore essential to ensure that when an audience area is only sparsely occupied, it has similar acoustic absorption coefficient to one fully occupied. This can be achieved by means of upholstered chair or absorbent undersides of tip-up seat.

GROUP 2 :- Basically, with these rooms the aims is to keep the sound level as low as possible.

This is done primarily by the disposition of a suitable quality of absorbent material usually on the ceiling and part of the walls.

Particularly, noisy areas or those susceptible to noise can be divided from the remaining space by means of screening partition. The screening partition should be sited as close as possible to the sound source or the position being protected and be as tall as possible.

Reflection are reduced and the sound level in front of the partition lowered by means of an absorbent panel on the side facing the sound source.

As far as possible, the area of ceiling above a screening partition or a section of partition should have absorbent characteristics so that reflections above the partition are avoided.

Acoustic treatment of rooms in group 2 should take into account that in many cases there should be a certain minimum diffuse sound level in these room so that unavoidable individual noise do not have a disturbing affect or so that a defined psychological background sound level is maintained in particular areas.

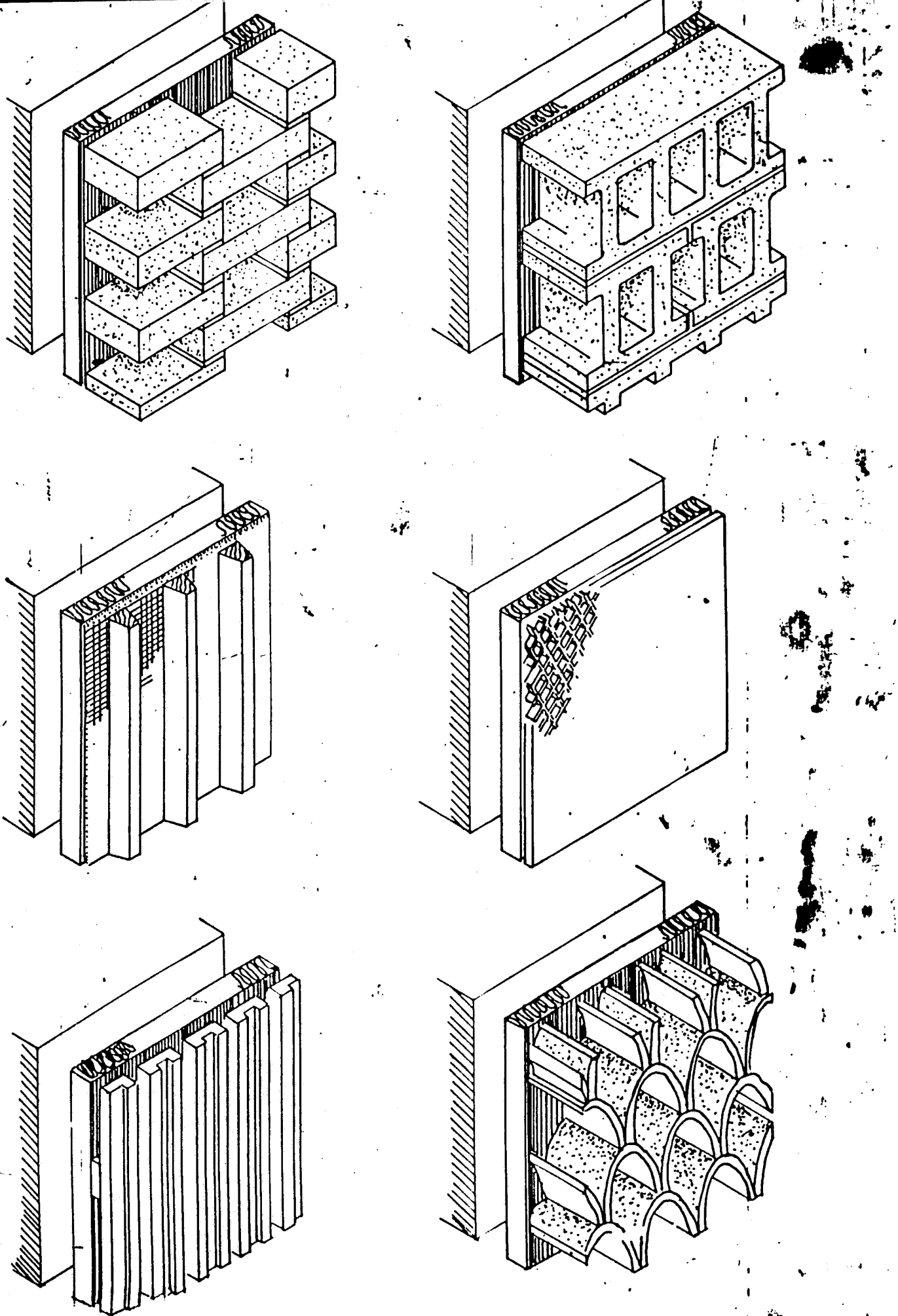
ACOUSTIC IN CHURCHES

Like any other building, all of the basic requirements for good hearing must be meet particularly in the Churches but there are a number of specific matters peculiar to this building type that the designer must take into account. Usually, the form of the Church will not be governed quite so much by acoustical consideration as would a

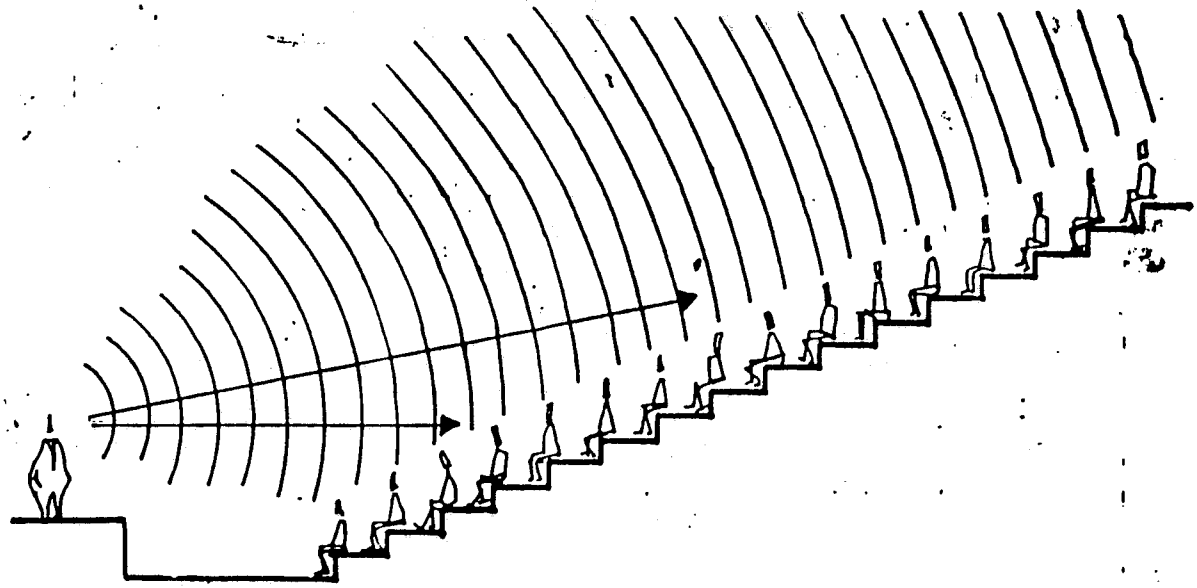
school auditorium, but basically difficult shapes such as domes, barrel vaults. e.t.c should be avoided at all cost.

The reverberation time in the Churches should be designed to be fairly high (upward of 1.6 sec), and this means attention must be must be directed to problems of speech intelligibility. In a larger Church, it will often be necessary to provided either a speech - reinforcing system or a carefully designed pulpit canopy, of course these does nothing for speech sound to the listeners without the use of electronic reinforcement. The pulpit canopy of course does nothing for speech at the alter, but many Churches up to 1,000 seats have been designed with good pulpit canopies and no sound amplification with excellent result.

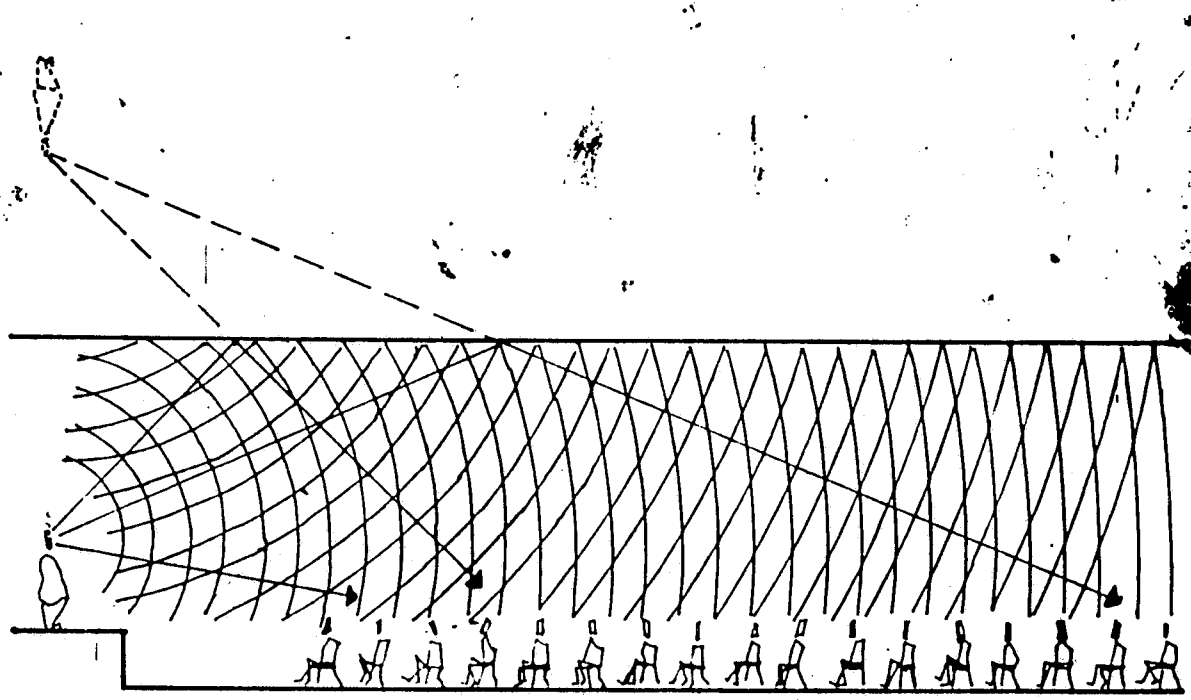
Another important acoustic problem in the Church is the placement of the choir and the organ and their relation to the congregation. The choir should be immediately in front of the organ where the singers can hear the organ as the congregation will hear it. An important function of the enclosing surfaces in a Church is to give strong. Mutually reinforcing reflections to the congregation. This gives every member of the congregation the sense of being part of a group of people singing and praying, and encourages precipitation in common worship. A Church with a sound - absorptive ceiling that does not reflect sound from one part of the room to another leaves each member of the congregation feeling alone and conspicuous, and thus non-participating .



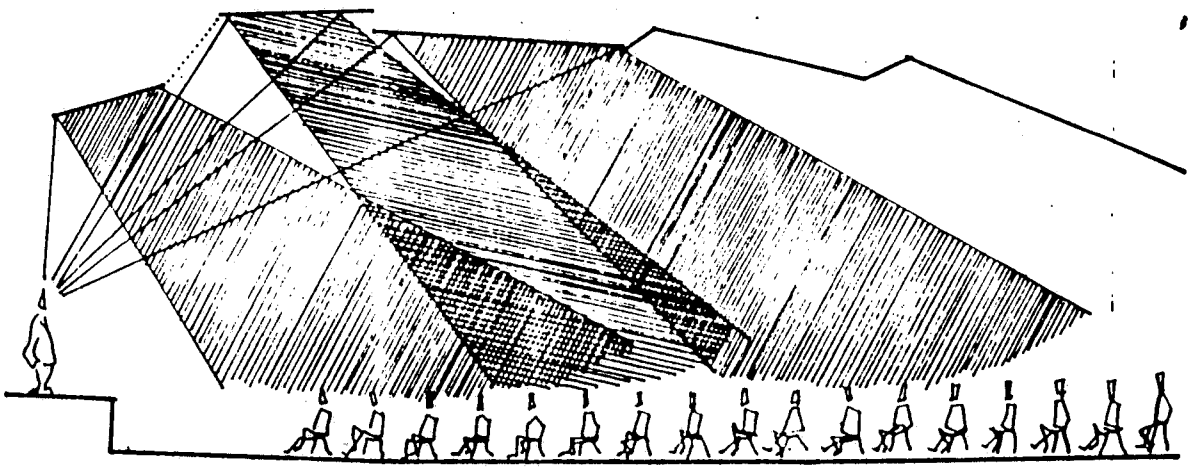
amples of some "open" architectural ma... ...hat can be used as facings for sound absorbing treatments.



steep seating minimizes audience attenuation.

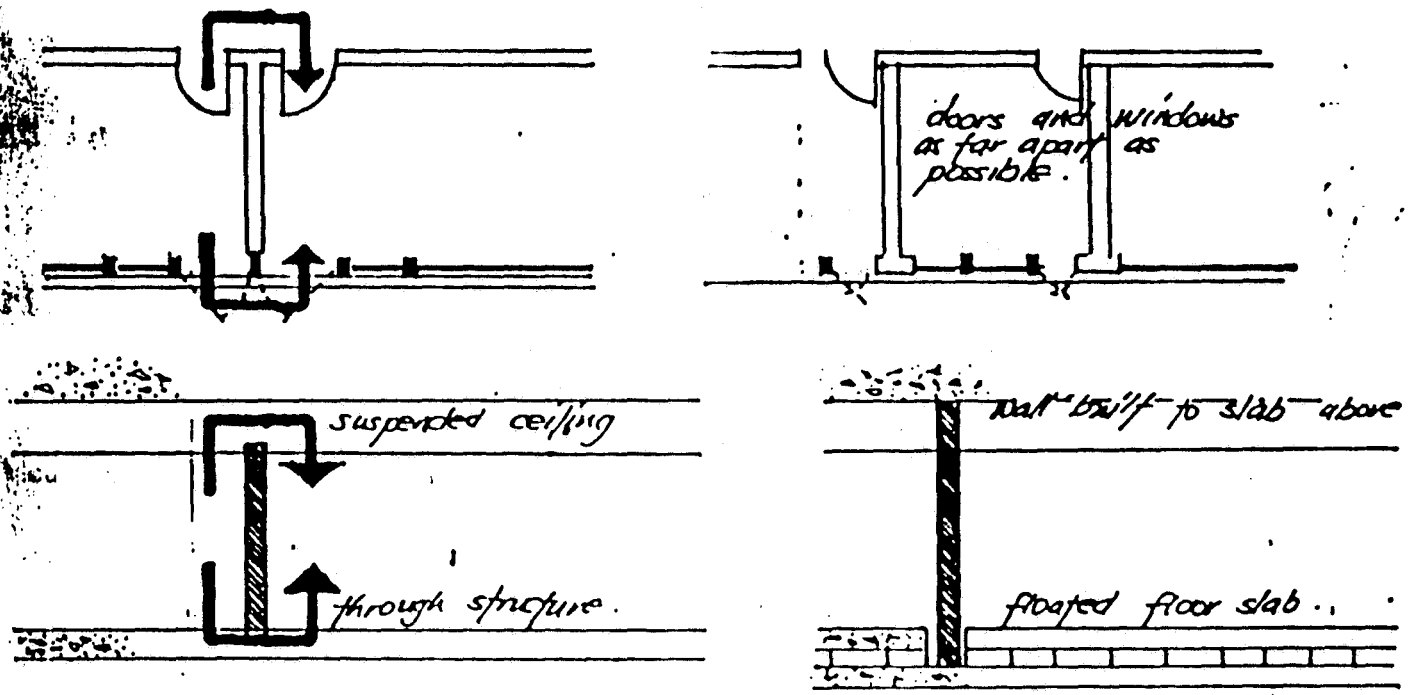


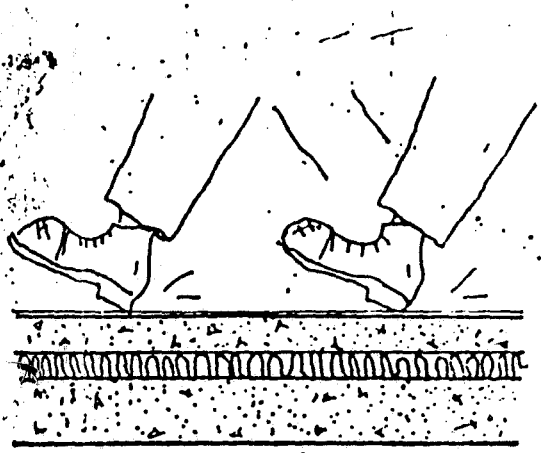
a sound-reflecting ceiling reinforces the direct sound to the audience.



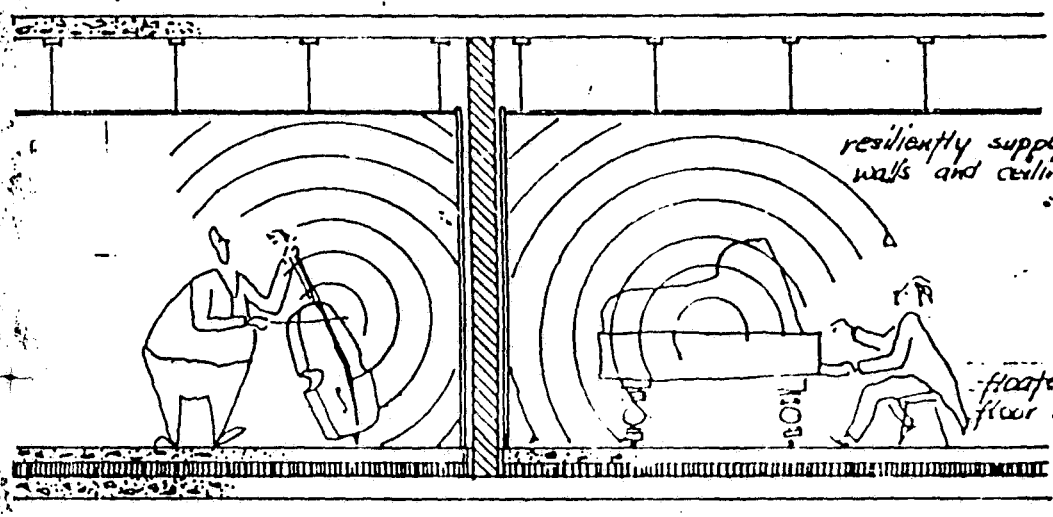
uniform distribution of reflected sound can be assured by proper ceiling design

mon flanking problems are shown schematically below.

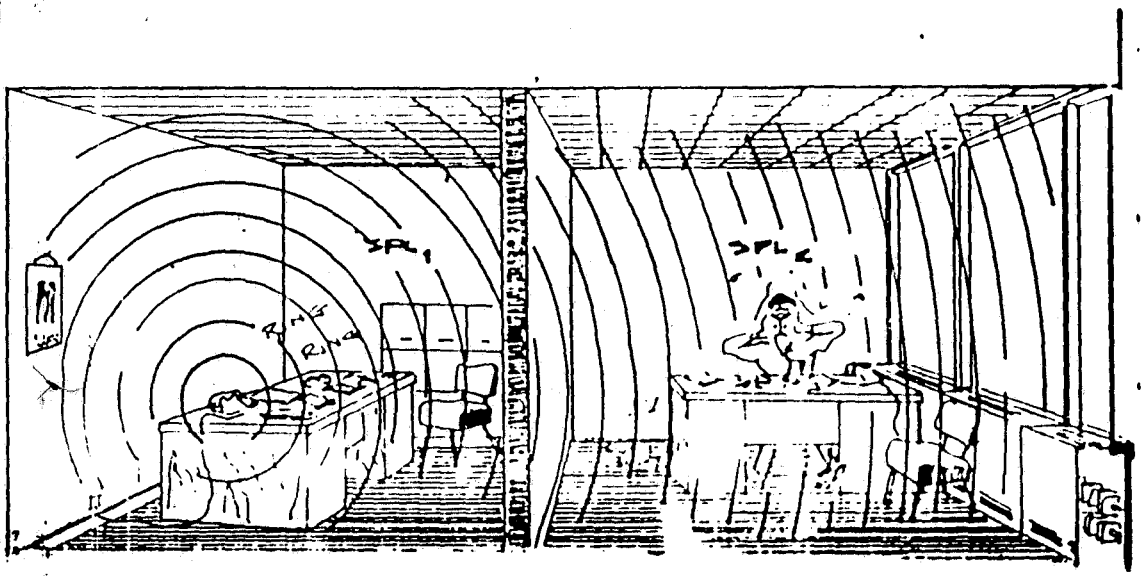




thinous floated floor slab on resilient material. typical corrective measures sound structure borne problems involving direct impact and vibration inducing sources.



schematic representation of constructions required to control the transmission of high levels of air-borne and structure-borne sound



simple illustration of air-borne transmission between rooms of common barrier.

CHAPTER 4.0

CASE STUDY.

Like other forms of Architecture, churches through out history has been shaped by their purpose specially by the forms of worshipers that are meant to house. While churches do provide for individual and private devotion, their chief purpose is to accommodate the congregation worship. Thus the expected size at the design consideration of churches.

In this chapter, the appraisals of some catholic cathedrals in Nigeria that were chosen for my case study and visited will be studied and evaluated for their functional performance as regard the adequacy of the building. The proposed cathedral in Abuja will improve on the inadequacies or planned cathedral will take the place of the present pro-cathedral.

4.1 HOLY CROSS CATHEDRAL LAGOS.

LOCATION: The church is located in the heart of Lagos along Oil-mill Street; it is also opposite the city hall on catholic mission street and Lagos police station on the opposite side of catholic mission street.

4.2 DESIGN AND PLAINING.

DESIGN AND PLAINIG.

The church was built in the early 1940's and it has been in existence since then other features of the church were constructed years letter which make the planning system of the church disorganized. And dies-oriented entrance to the main church is through the oil mill street the church is in the form of the Latin cross and it can seat about 1,500 people in a full capacity. And this capacity is distributed along 4 different rolls of seat and each seat is about 2m long.

The alter steps higher than the normal floor this gives a better view of priest during mass celebration.

The main structure of the church is carried by or rather rested on large column with pointed arches connecting them the columns are about 1.2m diameter. The ceiling of the church is made of pointed arches at interval and this vault are punctured to allow for expansion and contraction also to allow escape of hot air.

The sacristy which is the rest room of the bishop spent and were he stays to prepare himself for the mass, it also house most of the item use for the celebration of the mass is located at apse of the church at the rear end of the lotion.

The other feature of the church is the stature of Maria grotto which is right in front of the church so people can easily make their devote to the blessed virgin with –out entering the church at anytime of the dau.

The parch house which is located at the back of the church is a '3' story building i.e. the first floor, ground floor and the second floor on that contains the following

Ground floor:-This contains the parish offices i.e. were general record of the church are kept. This record include the different activities of the church i.e. Baptism, Confirmation, records of transaction, registration.e.t.c.

The ground floor also contains the parish office were people are attended to by the parish fathers (priest) and his assistance also we have Administrative office, printing presse.t.c.

Computer room:- Were the edition work for the catholic newspaper is being carried out and information about the church can be retrieve

2nd floor:- Presently the 2nd floor is not being used by the parish and it has been left like that for some time before the present renovation work.

3rd floor:- The 3rd floor houses the priest the floor contains room for the visiting priest and they'll share acommon sitting room.

The building call so contains the kitchen, laundry facilities, Bookshop, and also an social centre attached to it were different societal meeting are done.

Bishop residence

The bishop resident is on the otherside of the mission street, it a duplex which contains the bishop official residence and has office. The bishop of Lagos is the heads of the ecclesiastical province. He also does counseling and he is the over administrator of the church even though is not directly involve with the parish house, he sees to its administration.

4.3 MATERIALS AND FINISHES

The church and most building is constructed of cement and block, The building is properly plastered and painted. The church is roofed presently with the long span aluminum roofing shed and it is being supported at both side with flying buttress.

The main entrance to the door is finished with hard wood timber door and the windows are made of stained glasses. The floor of the church

made of granite. The re are ornamental decoration on the flying buttress and on the features of the churches.

4.4 Disadvantages

(1) The interior of the church is not properly treated and as a result there is a lot of acoustic problem.

(2) The number of columns are far too many and as a result one cannot get a better view of the alter during mass.

(3) For a population like along the capacity of the church (1500capacity) is far too small this as resulted to people longing out –side during mass.

(4) The overall planning of the site is dis-organised and ids-oriented and the safety of the public is not properly considered.

ADVANTAGES.

-The use of the traditional stain glass added beauty to the church.

-Adequate lighting and ventilation system is archived through large windows and doors.

- The church is easily accessible in the main land.

ST MICHAEL'S CATHEDRAL MINNA.

4.2.1 LOCATION : This cathedral is located along Bosso road on the left and side of as on approaches Bosso from mobile round about . It is adjacent to government secondary school (G.S.S) Minna and opposite Habib bank Minna branch.

4.2.2.

PLAINNING AND DESIGN:- The planning of the site of this cathedral faces the major Bosso road and entrance to the cathedral premises is well defined with a sold steel gate and it has a prepared parking space in its front. The block Rosary Bookshop is right at the gate of the premises, the sister's convert is by the right together with the cemetery. All these are in front of the church as one enters the premises. Behind the church is the 'Bishop' office the parish house and the seminarian quarters also behind the church is the resource center, the primary school, pastoral center and the proposed hall or youth center.

DESIGN:- The shape of the church is hexagonal and there are three entrance i.e. one major and 2 sub-entrances. The floor 'is made' of terrazzo and the seating arrange is fairly okey because evently one get to see the alter from their seat. Although the column which are purely meant to support the roof and not aesthetically beautifully tend to obstruct the views of some people.

The altar is step higher than the normal floor and the door are place at the projected balconings.

The sacristy is just behind though attached to the main church. The church is large enough to seat a congregation of about 200 people. The windows are made of plain glass while the doors are hardwood timber.

4.2.3. MATERIAL AND FINISHES.

The structure of the main church is built of stone and concrete. The roof is made of steel trusses with the interior space manipulated aesthetically by the rise and fall patter used by the Architect.

The roof height is about nine (9) meters with the cathedral raising to the height of about (23) meters above ground level.

The wall are finished with plaster and painted the floor of the church is finished with terrazzo. While that of the altar is finished with marble.

Advantages

(1) Adequate natural highly and artificial lighting control due to the large window and perforated walls

(2) Effective circulation system around the church and within the church. People could move round or work freely in the isle without colliding.

(3) The column are well space for clearer visibility even though they are not ornamentally decorated.

(4) The re is better accessibility to the site from the main road.

Disadvantages.

(1) The shape of the roof aesthetically okey but has contributed to the linkages experience in the church which has resulted to damages of the cellotex ceiling board.

(2) The artificial electrification is and eye sour i.e. it is not properly planned. The light are hanging from chains attached to the ceiling.

(3) The maintenance system in the church is very poor as a result of dilapidation.

(4) Sound distribution system is not very effective

(5) The planning of the site was not very properly done as the building are some how scattered all over the site.

CASE STUDY

LOCATION:-The cathedral of our lady queen of Abuja is located in Area 3 in Abuja metropolis. Though the cathedral is not very visible from the road,access is not very difficult. The cathedral of our Lady of peace is the arch dioceses of Abuja Ecclesiastical provinces.

DESIGN AND PLANNING.

The cathedral is a long rectangular building without a well defined space most of the other feather are scattered in and around the site. Which makes the planning a failure and the building to access

Entrance to the church is basically from the side because of the orientation. The building has 5 major entrances for congregation too from each sides and one from the front elevation or view.

The roof of the church is supported by column evenly distributed. With an arch linking the columns. The cathedral also has a projected balcony at the top of the front entrance were the choir stays during mass. The windows are in from of arches, glasses and there are also high level windows to aid ventilation.

The alter is about four steps higher above the normal floor level. The alter is also clearly defined by a large central arch and two smaller arches, at the sides. The pews are arrange in one direction facing the alter. And the speakers are left handling from the wall.

The parish house which also double as the parish office is a duplex with the ground floor purchy for official administrative duties while the appear floor are residence accommodation for the priest. Though it is not really on the same site as the cathedral but it is close by.

The bishop house is along orlu street and it is adjacent to the Appear court. The bishop office is also in the office being presently use as a book shop . The bishop residence is a duplex which I wasn't allowed to enter.

Materials and finishes.

The cathedral is build of concrete and block and well plastered the aching is finished with laminated timber. The roof is properly finished using text-coat paint. Part of the Marina grotto which is outside the building is

finished with excavated stone which added natural beauty to he structure. The floor is made of concrete slab which is not a better finish because of the durability.

ADVANTAGES

- easy access to the church because of the number of door i.e. there is no need for rushing.
- The finishes are inter of the church are interesting especially that of the ceiling that was done with wood.
- The use of stain glass in some beauty to the church.
- Adequate lighting and rertilation both natural and artificial because of the number of windows provide.
- Provision of welfare facilities (Ray care and maternity home)

Disadvantages.

- the arch in front of the alter may obstruct the views of the congregation and may also cause some serious acoustic problem.
- The is echo and reverberation during mass i.e. the orall is not properly treated to take care of the acoustic problem.
- The entrance to the church is from the side because the main entran ce is not defined and bad orientation.
- The church is difficult to access from the main road in area 3 and the layout of the site is not properly planned because the structures are scattered around the site.
- There is no property planned car-park as a result of which both human and cars has to compete for space.

CHAPHER 5.0 CLIMATIC CONDITION.

A comfortable living environment will depend on maximizing the aspects of the environment which reduces heat and the effect of humidity, any protection from rain dust. Planning with climatic should take place at all scales. Which detailed climatic information is not yet available extrapolation from existing airport meteorophogical stations have been used to develop the basic description of climatic paramedics presented in the site selection report. There conditions and their planning implication are discussed below.

RAINFALL.

The start of the raining season in north-eastern F.C.T is around the 10th of April. The rain tapers off very rapidly after the 20th of October . Thus the duration of the rain season is between 180 days to 190 days .In the Abuja area,. 60 percent of the annual rainfall is in the mouths of July, August and September. The concentration, shows the need for drainage system that can handle large volume of water very quilty.

The F.C.T has frequent occurrence of squall line, which begins with dense, dark, cumulo-n imbues clouds which thunder and lighting, followed by strong wind and intense rainfall. The intense rainfall . The intense rain may last for up to one & half hours and is the followed by drizzle of several hours duration. Thus, the condition is the replace by a few days of bright, clear, skies . It is thought to originate from the Jos. plateau region and to travel from east to west across the site. It is most common in the afternoon at the beginning and end of rainy season. And often causes serious property damage

PRESSURE

Pressure is the barometric reading on a graduated scale or the amount of force being exerted by the air on the air on the site due to the action of gravity. It is affected by temperature wind and altitude. Pressure does not have a pronounced influence on architectural design of a project. However, the pressure in Abuja is moderate all the year round.

DRY SEASON

This starts in October and ends in late march. The prevailing wind during this period is the dust – laden North- East blowing from the Sahara desert. The dasscating wind called Harmattan has dehydrating effect on the skin.

WIND

Strong wind associated with squalls and storm often occur at the on set but destructive wind are not common. Direction and persistence of wind are however of paramount importance for building design. The movement of the inter-tropical convergence zone over west Africa in October to April makes wind blow consistently from the North –West . The exposes the area to dry wind or Harmattan resulting into haze of wind starts and lasts for about 200 days.

5.1.0 **Temperature.**

Temperature in the area is usually at its high-ever during the dry season when there is no cloud ever. For a such a period, diviner temperature difference of up to 17i is recorded when the key is clear. However, during

the raining season, temperature is low due to thick cloud formation. For this period diviner temperature month of July and August.

Air temperature and thermal comfort are generally influenced by all climate factor viz. sun, wind, and precipitation. The impacts of these on the building are tremendous and therefore of great importance to the Architect.

5.2 Humidity

Relative humidity falls in the afternoon is as low as 20% during dry season, this cause desiccation effect. During the wet season, relative humidity goes up as 95% causing heat-trap.

5.3 SUNSHINE

The capital city is usually expose to over 2000 hours of sunshine annually. This figure even rises higher in the month of November to March.In the rainy season, there is the usual cloud there by reducing the sunshine hour to minimum especially in August.

The design factor to consider here include

(a) The sun is the source of solar radiation heat gain and natural light.

(b) The thermal comfort in any building is determined by the amount and duration of sunshine .

5.4 GEOLOGY AND TOPOGRAPHY.

The main geological formation of the site are fine to medium grained biotic granite and magnetite. The terrain is gentle with relatively

uniform slopes to reduce erosion to the minimum. The variation between two heights is just about 50meters, producing in the immediate surrounding short view if less than one kilometer.

For the purpose of design and construction of building, the type of soil affects:-

(a) the type and size of a building's foundation system

(b) the drainage of ground and surface water.

(c) The type of vegetation it will support for Lands caping scheme.

ABUJA- ORIGIN

The geopolitical entity known today is ABUJA came into existence by Decree No.6 of February 5th 1976. Until the creation of the new. Federal Capital Territory (F.C.T), Lagos had remained the Capital of Nigeria.The ownership, control responsibility of the government.

The increased tempo of economic activities and the efflux of people into Lagos were not matched with corresponding increase in the level of infrastructural development and services necessitated the movement to Abuja. In 1975, the then Federal Military Government under the Late General Murtala Mohammed. Set up a panel to look into the issue of relocation of the federal capital. The panel submitted its report, recommending Abuja for its centrality with easy accessibility from other part of the country.

The name "Abuja" was derived from two princes of the Zazzau Emirate known as soleja and Abuja today a satellite town known as suleja in Nigeria state is an important part of the Federal Capital. Abuja was created

from Niger, Kwara and Plateau state with a total land areaof about 8,000 square kilometers.

SOCIO- CULTURAL BACKGROUND.

Abuja is a city whose creation was achieved by a people who longed for unity. It is owned not by individuals, or group of individual, ethnic group or state but by all Nigerians. The various participating ethnic group from allover the country attest to the fact that it is a cultural melting point p period of a distinct customer tradition.

Culturally, one can safely say Abuja has no specific culture because it is a "NO MAS LAND" The cultural hentage of this great nation is adequately represented.

PEOPLE OF ABUJA

The main indigenous ethnic group are the gwaaris with gade, karo, and gwandara, forming the minority. With its new status on the nation meeting point, immigrants from far and near of the of the country. The ethnic composition and socio-economic characteristic of Abuja have been affected tremendously. All Nigerian language are spoken especially the three major ones (Hausa, Ibo, Yoruba) and the lingua Frank (English). The is why Abuja is known as the "center of "Nigeria Unity"

ECONOMY AND COMMERCE.

The ministry for federal capital territory (M. F. C .T) in lonjuction with the federal government is vigorously pursuing the commitment toward commercial and industrial development by providing necessary inbfrastractural facilities and services and incentives. This is to promote

private participation in commerce and industry and there by enhancing the economic power of residents of Abuja.

Commercial enterprises, mainly retail outlet, for manufactured goods are bound in the Neighborhood centers, Districts and markets. There are also Small Scale industries and real estate enterprises

DEMOGRAPHIC DATA.

Before the creation of Abuja as the nations new capital city, the area was sparsely populated. As at 1963 population census, the number was put at 109,000 and in 1977, the number rose to 125,000 respectively. But with the commencement of the physical development and movement of people began in 1982, the population has continued to rise. The international planning Association (I.P.A), designer of the master plan of the city, projected the population of the territory to 3.1million mark after the completion of the final development phase.

However, as at 1991 National population census released in march 1993, presently stood at 378, 671.

TRANSPORTATION AND TRAFFIC FLOW.

In area of transportation services for the territory. These facilities include good road network, traffic light and efficient mass transits bus service. Private transporters have also contributed their quota for efficient transportation system which include the motor-cyclist popularly known as "kabu-kabu" or "Express".

The provision of the aforementioned facilities and services will make accessibility to and from the site or location easy as the project will be located in a central area of the federal capital territory.

EXISTING LAND USE AND FUTURE TRENDS.

The existing land use is mainly forming or farmland characterize about 60% of the site environment. The remaining 40% consist of total bush area that is probably used for grazing of cattle by herdsmen.

But the future trend according to the master plain have been earmarked for institutional Building And the project falls into that category.

PLANNING REGULATION IN ABUJA .

(1). Accessibility in term of the following

a- Traffic

b- Harmony of building with the site and surrounding eviroment.

c- Proper and effective land scalping.

d- Parking

e- Pedestrian movement

(2) -Harmony of building with the site and surrounding evrinoment.

(3) - Proper and effective landscaping

(4) - The design project should take into consideration the existing building in that area with respect to linkage with following network.

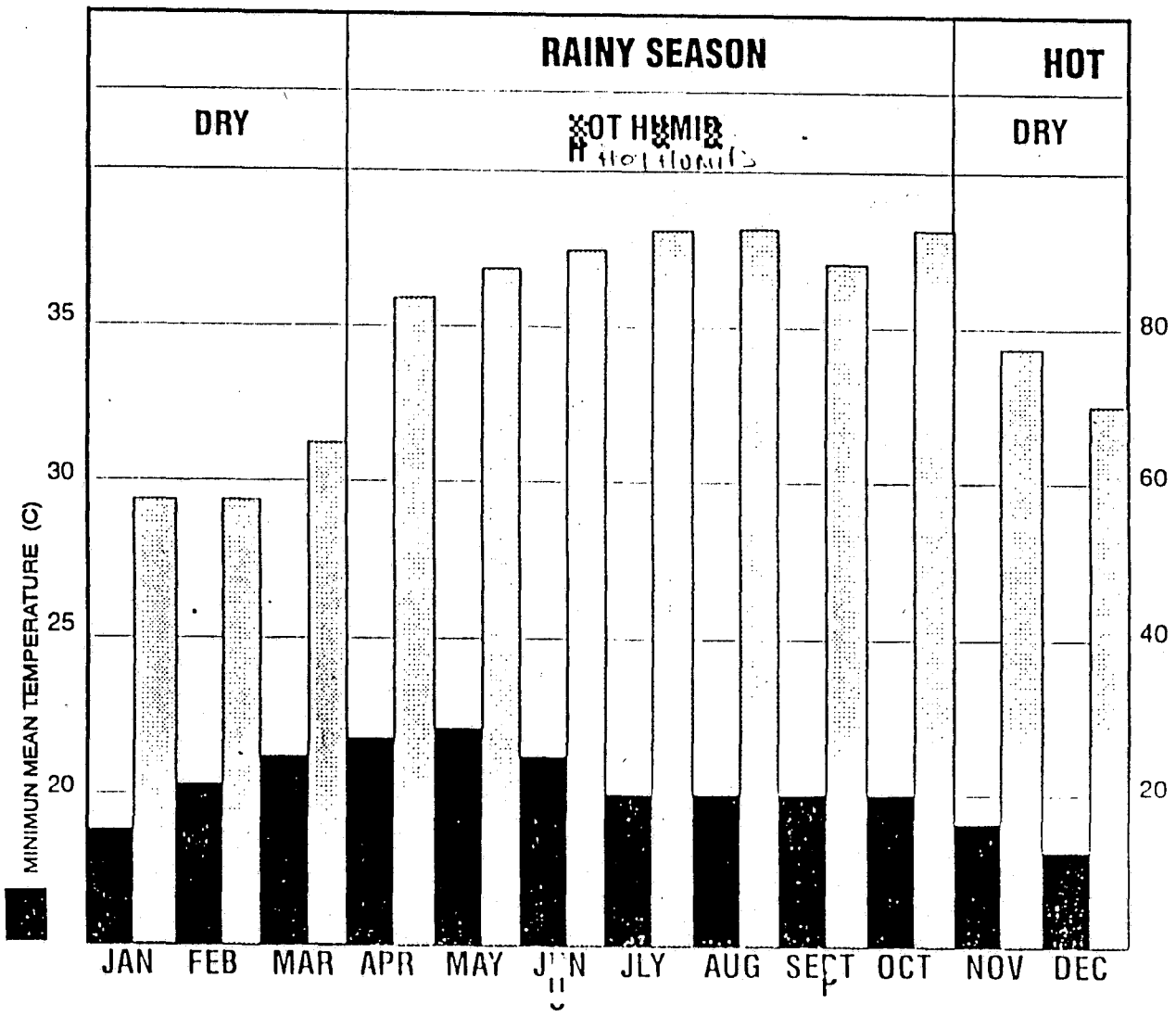
a- Electricity supply in consultation with N.E.P.A supply grid.

b- Water supply in collaboration with water board.

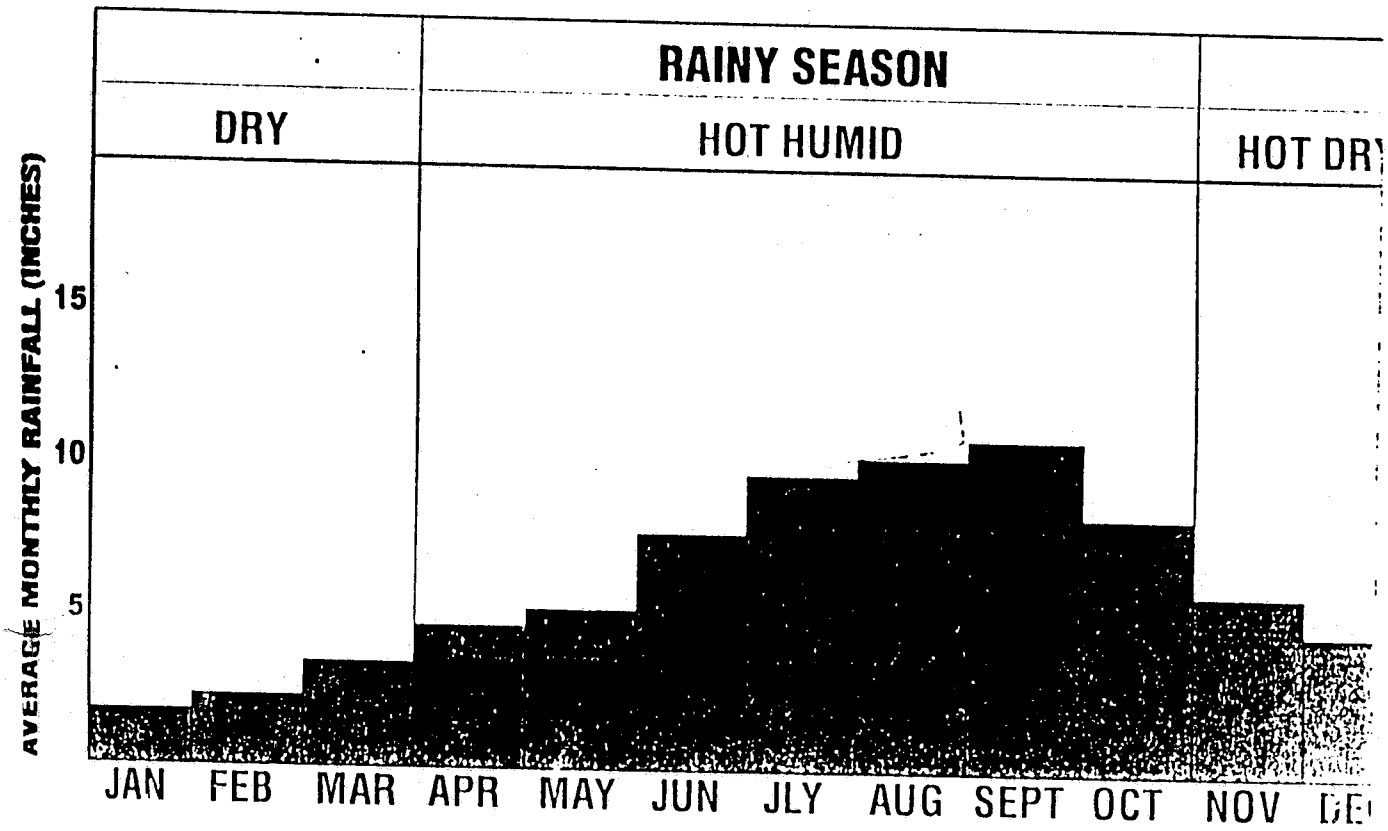
c- Drainage of rain –water and waste complying with laid down roles and regulation by Abuja Environmental projection Board (A.E.P.B)

(5) - Fire security for the area involved

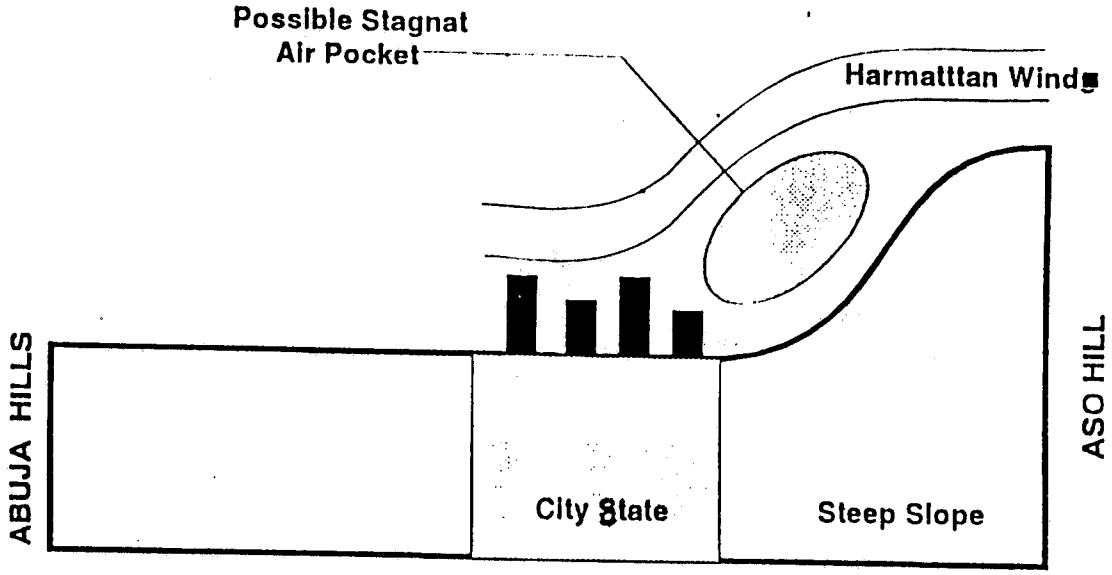
MEAN MONTHLY HUMIDITY



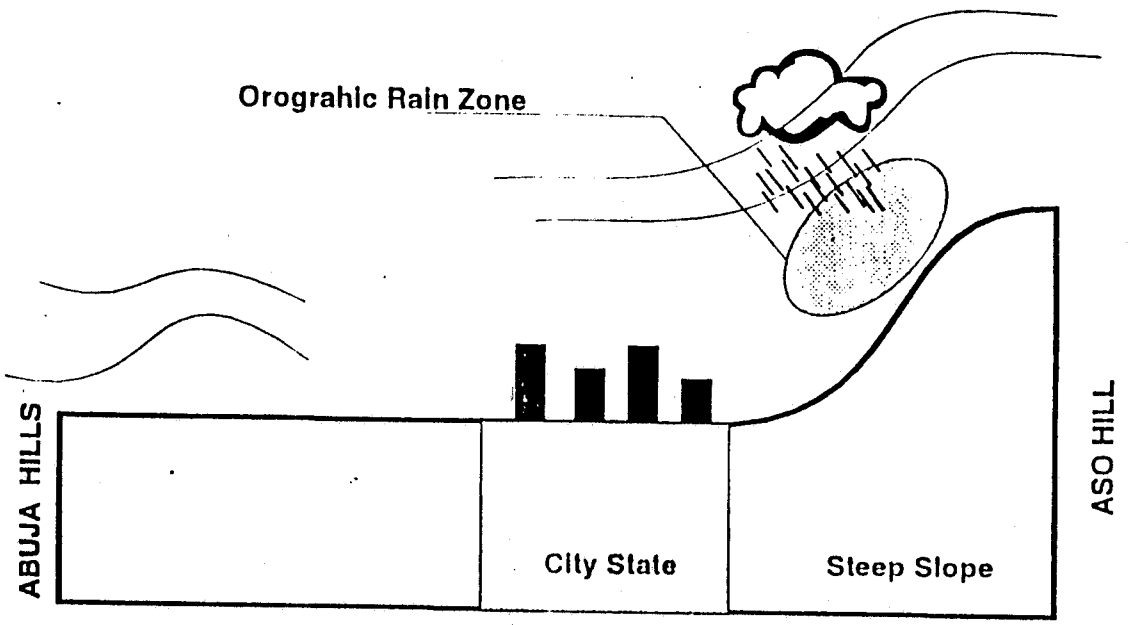
MEAN MONTHLY RAINFALL



SEASONAL WIND PATTERN

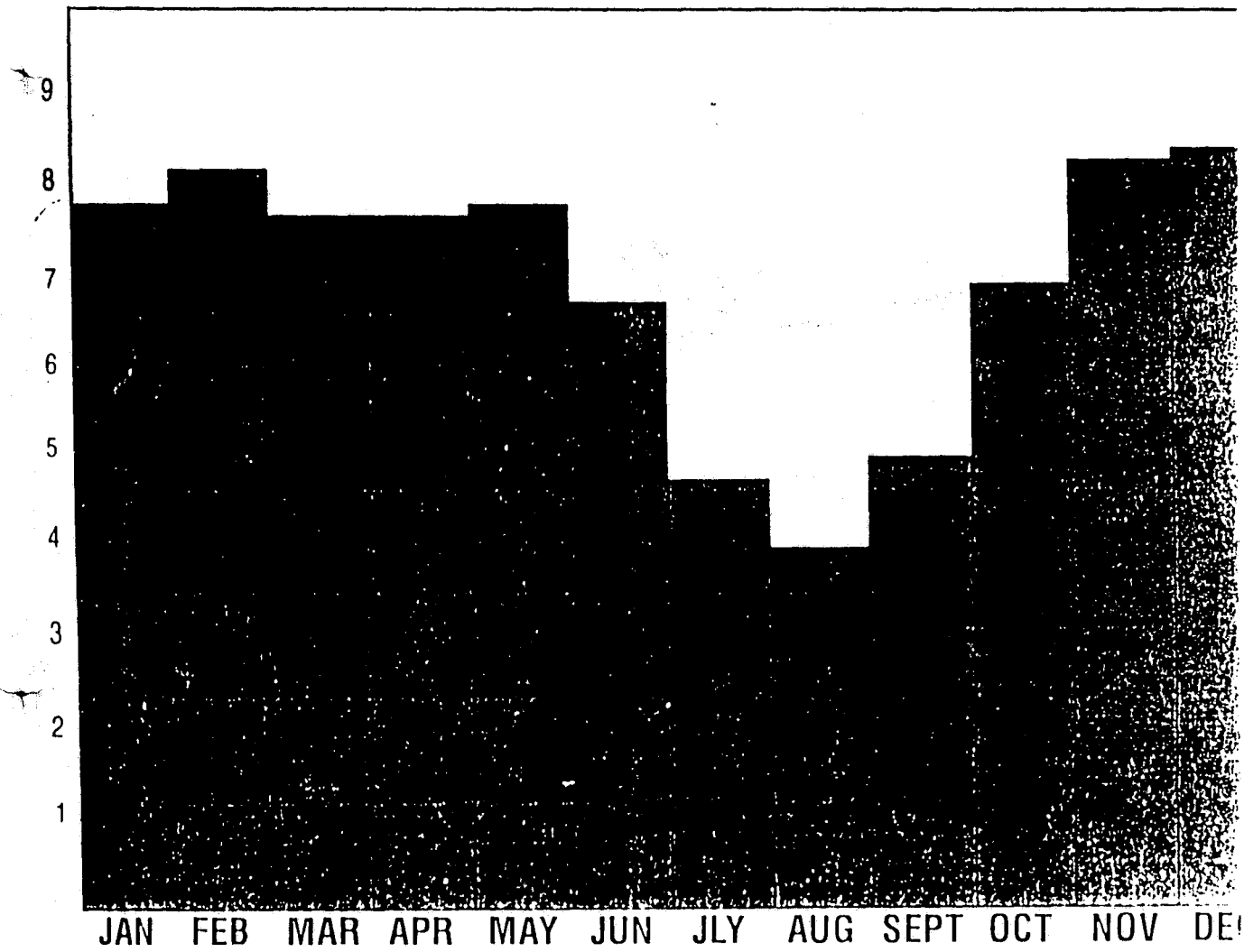


DRY SEASON 6 - 5 MONTHS

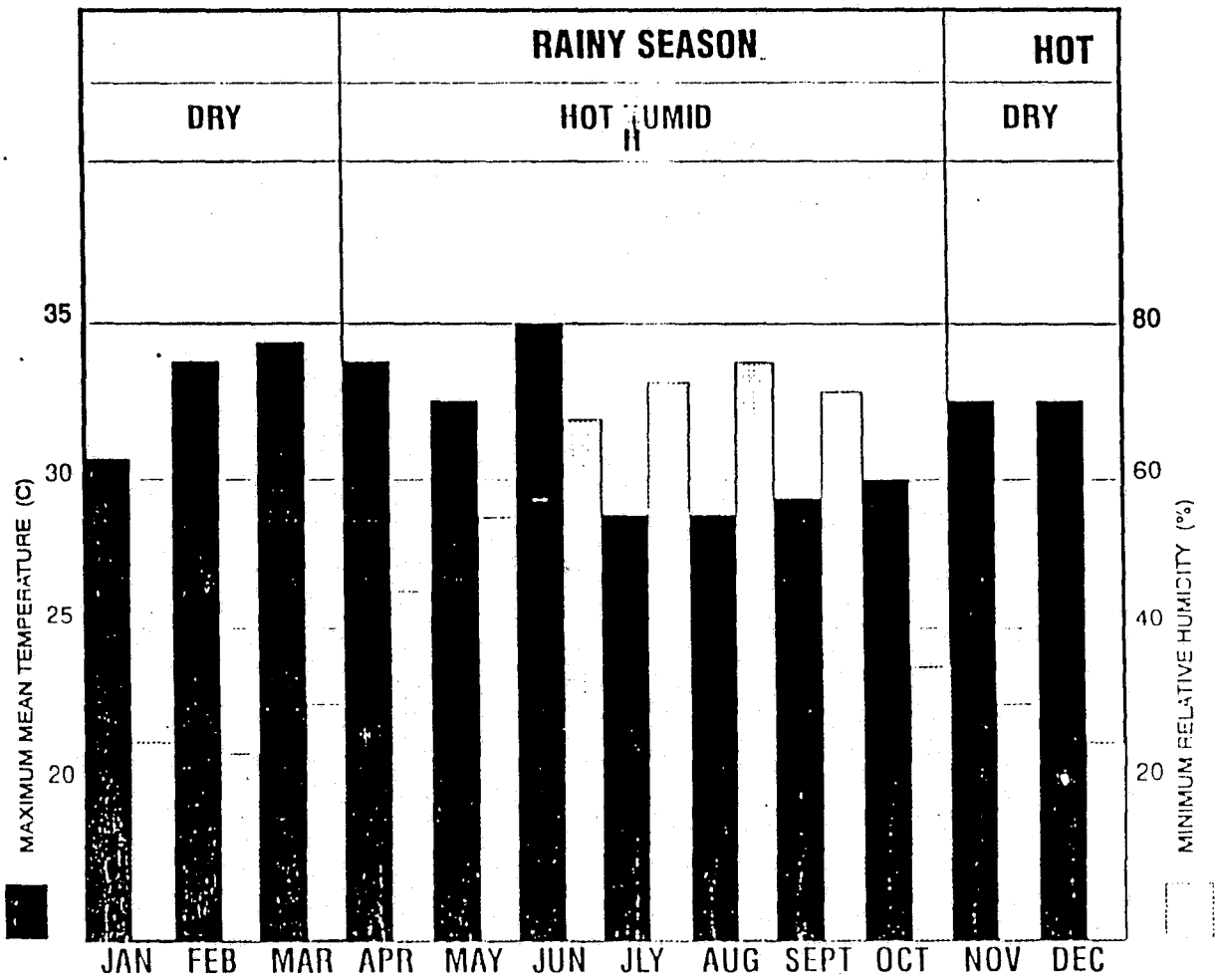


WET SEASON 6 - 7 MONTHS

MEAN MONTHLY SUNSHINE DURATION



MEAN MONTHLY TEMPERATURE



(6) - Proper zoning in compliance with federal capital Development Authority (F.C.D.A).

(7) - Good building orientation for minimum glare and effective air circulation.

(8) The F.C.D.A. Must approve all the parameters prior to the design and constructure of any project.

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6.0 SITE ANALYSIS

CLIMATE CONDITION OF ABUJA

A comfortable living environment will depend on maximizing the aspect of the environment which reduces heat and the effect of humidity, and projectfrom rain and dust. Planning with climate should take place at all scales.

While detailed climate information is not yet available, extrapolations from existing airport meteorological stations have been used to develop the basic description of climate parameters presented in thesis selection Report. These conditions and their planning implication are discussed below:

6.01 RAINFALL.

The start of the raining season in north-eastern F.C.T. is around the 10^{th} of April. The rain tapers off very rapidly after the 20^{th} of October. Thus, the duration of the rainy season is between 180 days to 190 days. In the Abuja are 60 percent of the annual rainfall is in the month of July, August and September. This concentration of rainfall shows need for adequate drainage system that can handle large volume of water quickly.

The F.C.T. where my site is located, has frequent occurrence of squally lines, which begin with dense, dark, cumulo- nimbus clouds

with thunder and lighting followed by strong winds and intense rainfall. The intense rainfall may last for up to one and half hour and is then followed by drizzle of several hours duration.

Thus condition is then replaced by a vary days bright, clear skies. It is thought to originate from the Jos. Plateau region and to travel from east to west across the site. It is common in the late afternoon at the beginning and end of raining season and usually cases property damage.

6.02 HUMIDITY.

During thr dry season, related humidity falls in the afternoon to as low as 20percent in the city site zone. This low relative humidity couple for the dissecting effect of the dry season. In the rainy season, the relative humidity higher, especially in the morning hours when it can reach as high as percent 95percent. Even though the temperature is slightly lower, the effect is to create a heat trap. When this occur the general feeling is usually uncomfortably hot.

6.03. SOLAR DATA.

In Nigeria, there is general increase in the total hours of sunshine further north from the Atlantic cost. The amount of sunshine in the site area, ranges from 1,300 hours in the Niger Delta to over 3,200 hours in the extreme north of the country. The new federal Capital City where my site is located is expose to 2,500 sunshine hours annually (Mabogunje, 1977).

During the dry month (November to April), the monthly variation in the amount of sunshine follows the general trend of

an increase from over 275 hours on the city site. As the season approaches, the trend is to increase cloudiness. The decline in sunshine hours become more intense as the rainy season progresses and reaches its lowest values in the month of August At this time, there is actually an inversion in the city area where there is less sunshine hours than in the southern part of the F.C.T.

6.03 PRESSURE

Pressure is the barometric reading on a graduated scale or the amount of forces being exerted by the air on the site due to the action of granty. It is affected by temperature, wind and altitude. Pressure does not have a pronounced influence on architectural design of a project. However, the pressure in Abuja is moderated bale the year round the Atlantic ocean to the south of the country and is therefore worm and moist. It moves inland in a southwest to Northeast direction. The tropical continental air mass is developed the Sahara desert and therefore is worm and dry and blows the opposite between these two air masses produces the highly seasonal char acteristics of weather condition in the country. The maritime mass creates the wet season.

6.04 VEGETATION.

Generally, the vegetation of the capital city site is characterized by park savannah. Revering depressions are typical skirted by fringes of thickets and high trees. In addition to the coverage of park savannah vegetation, the cover type most abundant through the F.C.T, smaller

Areas or riverine forest, rain forest and savannah woodland occurs along the streams and in steeper areas, and those flat and undulating areas not recently used for agriculture where land use has not been formed recently a shorn Savannah occurs. Most of the trees could serve as a sun shading device for the areas i.e. the will be retain in the course of planning.

6.10. SITE CHARACTERISTICS

The site is presently a virgin land and it has never been used for any development. There are quite a number of trees of different species on the site, some of them may retain to act as sun shading devices and obstruct the forceful wind. The site, as said is covered by grass that weather away during the dry season. The site slops to the west and this will result to a forceful movement of water across the site during rainy season. However, because of the soil texture, it may be able to hold water for a longer period. The soil is a compact of latent and alluvial soil and this will go a long way in determing the type of foundation to be used on the site. The existing land use and circulation pattern will play a major roll indeterming how building can be organized on the site to synthesize with the existing landscape and circulation configuration.

6.20. CRITERIA FOR SITE SELLECTION.

The selection of the site was based on its central location. The nature of the site and accessibility of the site. The site is in an exclusive reserved zone i.e. the area reserved for diplomatic building. The site is also alarge enough to accommodate all

anticipated facilities, interms of parking, provision of a social center e.t.c.The site is not very close to any industrial zone that could facilitate noise pollution. The site also offers good view from different area of Abuja. The traffic to that area is not very busy which makes easy for vehicle conveying people to move easily

6.30 SITE LOCATION

The site is located in plot 227, phase ii city center, Abuja Road B-12 Garki District-Abuja.The location of the site provide room for better accessibility so that people from different Area of could worship in the church when they usually cluster of activities and since the church does not only operate on Sundays, people could live their working place and attend afternoon mass during their lunch period.

6.3.1 TOPOGRAPHY AND GEOLOGY.

GEOLOGY:-The major rock units underlying the federal capital city itself are described in three categories and they are (a) metamorphic Rock, (b) Igneous Rock and (c) sedimentary Rock.

6.3.2

METAMORPHIC ROCK:- This include Biotic Muscovite Schist, limited to four narrow out crop bands along ridge tops at the eastern edge of the site. Migmatite, under the usuman River valley in the north west portion of the city: and Granite Gneiss.

(b) IGNEOUS ROCK;- Include Biotic Granite large intrusive masses commonly elliptical in shape forming dissected zones of the Zuma- Bwari-Asohills and outcrops of the Gwagara plains.

(c) SEDIMENTARY ROCK:- Including Alluvium, Location in stream beds throughout t tentory consisting of largely sand with rare gravel beds and local deposit of latrine the above rock structure has not presented any major geotechnical constraint to the proposed new site, majority of the city site are rocks of present a high strength. The rock are expected to present a minimum of engineering problem and should provide locations for engineering structure during construction.

6.05 TOPOGRAPHY

The area i.e. the site is typified by gently undulating terran. This produces, in the immediate vicinity of some one on the ground, rather short views of a mile or less. These view are made even shooter by the typical part savannah vegetation of the site. This visual environment will no doubt be the clearing and so southern area including the city site, consist of uplands and plains.

The gentle sloppiness nature of the site reduces the erosion to the minimum though water is expected to drain from the main road and more at a faster velocity, this will be gather that will be connected to the main drainage system of the District.

6.40 ACCESS AND CIRCULATION.

The dominate structure element of the capital city plan is the transport system.The major element of this system consist of a series of

peripheral and transverse freeways and parkways forming a highway grid system bounding the major development sector and four radial transit spines connecting the centers of all development sector to the central Area, as well as to each other. This combine action of peripheral roadways and penetrating transit is directed towards the achievement of several specific objectives. This bring us to the issue of my site accessibility and location. As stated above the access to the existing land use and features in other to determined how the building will be properly organized and synthesized with the side. Though the traffic around the site is not heavy. This will reduce the accident race of member who are expect to come there by foot. A proper parking space will be proposed so that there is direct conflict between motorist and pedestrian.

6.5.0 UTILITIES/ SERVICE.

WATER SUPPLY:-Water is need for a lot of activities within the church being that dozen's of people will be expected to trop in at the same time. Abuja already has a net-work of water pipe line underground. In the site area a main of 600mm that is around the site will be tapped to provide water for the church.

Electricity supply:- An 11 kilovolt power line passes along the highway presently, electricity will be supplied to the site from the 11 kilovolt power line.

6.5.1 SEWAGE NETWORK

Waste water from the site will be drain through the main network drainage system under ground and this will prevent the construction of manual means to drain the waste. A properly method of collection of the waste before the are discharge to the mainunderground drainage system will be proposed. These are existing 600mm diameter main along Obasanjo road. This main usually drain a sewage treatment plant of daily capacity of 425,00m3

6.5.2. DRAINAGE NETWORK

The rain water that is expected to settle on the site need to be properly drain and as expected gutter will be dug and covered with concrete slab to prevent people from falling in. This gutter will be connected to the ground for onward discharge in to the near by stream.

6.6 SCENERY/ MANMADE FEATURES:- There are no very interesting scenery part from the gentle stop of the site. The only man made feature close to the site presently are the Nigeria Port Authority building (ship house) which is some distance away and some diplomatic building under construction, there is also an automobile assemble center close to the site.

6.7 ENVIRONMENTAL POLUTION:- Presently there are no factory producing any waste in form of sold or gaseous sub stance around the

site and also the traffic is not very heavy around the site this automatically reduces any noise pollution in that area.

6.8 DEDUCTION:- The site experience eight solar radiation. Direct solar gain in the interior of building will raise the temperature level and cause glare. A combination of these will affect the comfort of the worshippers in the cathedral.

(1) Landscaping with tress and utilization of reflector glazing will drastically reduces the a mount of solar gain in the interior of the cathedral.

(2) The action of driving rain is pronounced in the month of August and September. Rainbows a damaging effect on the building in the following ways.

(a) Absorption of moisture by wall plaster produces a chemical reaction due to the presence of sulphates in the cement. This cause the plaster to lose strength and fall off. Moisture also aid attack in the building by biological agencies which could cause building decay.

(b) Wind aided rain can erode soft materials and also even remove all rending in solution.

(c) Water can get into the interior of buildings through joints marshy walls. This can create dampness that could aid the growth of fungi.

(d) Rain accompanied by storm can cause roof of building to be blown off if the roof structure is not adequately secured and protected.

The use of water repellant walling materials like highly stabilized bricks of glazing can reduces our eliminate the

possibility of moisture penetrating to the interior of a building. The use of special class of water resistant Portland cement for exterior wall fine sheds can also reduces moisture absorption by walls.

(3) The location enjoys adequate sunshine throughout the year with intermittent interruption during the wet season.

Designing for maximum utilization of delighting factors will reduces the percentage of dependence on artificiallighting by electricity leading to energy conservation.

Glazing of the external walls and introduction of high level windowsstainned glasses will improved the level of day lighting in the interior of the cathedral especially at the altar

(iv) Temperature figures are always high in Abuja and the ventilation or the use of air conditioners.

CHAPTER 7.0

DESIGN CONCEPT AND CONTRUCTION.

The church design, which for many years followed long-established rules governing the organization of the space has been affected by the liturgical renewal.

The church is essentially a gathering place for worship and other congregational activities. There is a functional need not to provide a comfortable environment but a special quality that makes worship possible

as well as meaningful. It is precisely this search for quality that influence my choice of cathedral as my m-tech thesis.

SITE SELECTION AND DEVELOPMENT.

The 'house of worship' is by its very nature an important public building, it speaks to the entire community about the belief and aspiration of the congregation. The church position on the site will most important be determined by "public image" among all other things. Various factors or requirement for a successful church design will also be generally considered. Such as entry and the egress. The parking area is also of prior importance even if majority of the congregation walk also to be considered in my design are the possibility of pulling wedding and funeral cars out of the stream of street traffic as well as dropping off worshipers during inclement weather is what investigating.

Another very important factor to be considered in my site and development is the, entrance relationship with the parking area and drive ways coming as regard the street. The success of my design will determine my knowledge of the relationship discuss above i.e. most congregation always come in through the back door. The ideal of out door worship and out door activities will be considered very thoroughly.

SELECTION OF THE SITE.

The selection of the site is going to be an important decision to be made since it sets limitations for the potential area and volume of the proposed church structure and profoundly shapes its character and determine its future growth development and importance to the community.

My site is in plase II Garki district of Abuja is the site allocated to the cathedral community of Abuja for building there proposed cathedral. That

will be represent the catholic faith in Nigeria being the federal capital Territory. The site happens to posses all those quality listed above the major factors that were considered are

1- The character and stability of the membership
2- Accessibility to the site for the membership.
3- Relationship to high ways and secondary roads .
4- Provision of ample parking to the ration of the propose capacity
5- General contour of the site.
6- Soil characteristics
7- Presence of water supply.
8- Availability of utilities.

CONCEPT AND DESIGN.

The basic determinate of the plain is the programmed relationship between the congregation and the alter area. The emphases of this design is on the involvement of the congregation in the action of worship service. The main importance of the choice of the 'T' shape deign or the Latin cross, is the ability of the priest to maintain eye contact with the congregation.

The cruciform plan forms which have symbolic significance are not unusual. The altar area is often in the head of the cross or at the crossing. Depending on the seating arrangement within the arms of the cruciform plan, there may be a loss of a sense of congregational unity. That is why reeking of the pews will be dominant in my design. The main idea behind the choice of this form is the fact that the space can be tailored to the number of participants. The ceiling height, floor and wall finish, and lighting of the expansion space will be in harmony to reduce the feeling of being an outsider when you sit in the overflow space (transept).

CONCEPT.

The aim and choice of myconcept form is to reflect the progress of catholic liturgical convention towards a less rigidly formal spirit of worship and in the process retain the medieval form of design.

The new proposed church exposes the nature of modern sacred space and monumental architecture in an urban context. Church going is declining in France and it was hoped that the propose design for Abuja diocese would stimulate congregation number, especially among the youth.

Concept may be defined as an ideal or thought.

In philosophical term a concept is an ideal that includes everything characteristically associate with or suggested by a class o9f logical spaces.

Many contemporary learning theorist and educators view the process of creativity. Most of the concepts that people learn and use are these they on call from the culture in which they are brought up.

I have chosen a ciborium and a goblet as my concept. The two object are use for the liturgical celebration of the Eucharist which is the most important part of the was. The goblet is used for water and wine transformation into the blood of Christ in the doctrine of "transubstantiation" in the catholic church. While the ciborium is used for distributing the communion that is share to all who are eligible. The realization of the conceptual development was based on careful analysis of the aesthetic standard of the design of a catholic church to attract, especially the youth back into the celebration of the mass which they should be part off. The concept metamorphosis still reflect a combination of the ciborium and the goblet in other to reflect the original idea that prompted the choice of the cathedral as my project.

DESIGN CONSIDERATION

In designing a cathedral of the this magnitude a number of factor will have to come into play and those factor will have to compliment the design in other to arrive at an appropriate and appreciable design in terms of circulation within the church, highways, ventilation, priest accommodation, parish office accommodation and above all a pleasant environment.

The main cathedral body is divided into :

(a) Entry

(b) Pew – arrangement and setting

(c) Resting room or sacristy

(d) Work sacristy.

(e) Optional support facilities.

Entry: The minimum function of the entry area is as a vestibule from the out-of doors. However, this space must be sized in relation to the number of occupants, as it will often times act as a lobby. Bulletin boards, and memorial plaques or books are wisely located here.

The entrance to the propose cathedral will be like a tunnel and the feeling one get when they are I a tunnel brings out the fear of the sprit being and the idea of using a tunnel is to bring out that sprit nature of a man in other to trace himself back to God. Other entrances will be provided in other to reduce the rush when coming out of the church after mass. Those entrance will come from the sides. The entrance to the church will be located in the best possible view of the cathedral site.

PEW ARRANGEMWNT & SITTING.

The capacity of the church is also a major consideration in the design of a cathedral of this magnitude presently the population of catholic Nigeria is about 14.5million and Abuja happens to be the center or rather the capital of Nigeria and representing the catholic faith in Nigeria is the " head quarters After due consideration capacity of 7,500 was aimed at and this capacity has to be distributed so that the least person could at least have the best possible view of the alter. This influence the introduction of projected balconies and reeking them. Also stepping the pews on the ground level . All is aimed at improving the view of the congregation.

Circulation within the church is also very important during orphatory and communion. A lot of consideration will be given to the allocation of space for the aisles in other to avoid human traffic within the church.

VESTING ROOM OR SACRISTY:

The celebrant requires a room for robbing and the storage of vestments and the ceremonial utensils with a toilet connected to it . This room will be meant to accommodate a guest speaking or another dergyman. A space for vestment to be place either stored flat or hung no tighter them three per foot. It is important that this room be located through fully in relation to both entry and worship space. While it is convenient to consider a position close to the after platform it will work at a disadvantage if the worship ceremony involves procession through the congregation. In the course of this design a procession room will be located close to the entrance as possible to take care of the problem mention above.

Acolytes or alter boys requires a vesting space, which should be near the vesting room for supervision.

WORK SACRISTY: This room may also have many different names, but its function is to provide space for flower arranging, the storage of altar cloths (sometimes also their washing and pressing). Ceremonial utensil storage, and cleaning and candle and candle stick storage. A sink is required, as well as a storage cupboards or closets. This room is best located near the alter platform if at all possible.

CHOIR ROBING ROOM.

Depending on the size of the choir this room may have to be very spacious closet space for robes is essential. And it will serve the cloths of the choir also choir robes should not be stored more densely than four pre foot of hanging. Provided a lockable closet for women's handbags.

The choir room can also serve as a rehearsal room if acoustic solution from the balance of the building is provided. A piano or small electrical organ would be necessary.

CHURCH MEETING ROOM: Depending on the congregation the requirement for a meeting or conference room will vary. A small kitchen. Netted is also desirable.

Function require / space requirement of the church.

SPACE DESRIPTION	FLOOR AREA (M)
ENTRANCE	
CATHEDRAL TOWER	
NAVES AND ISLES	
ALTER	
GALLERY	
SACRISTE	
STORE	

W.C.

PARISH OFFICE/ BISHOP OFFICE

This is were all administrative activities that concern the church and all other dioceses of the ecclesiastical province attached to it, will be carried out. The design is more of an open space design to take care of regular inflow of visitors seeking to see the priest and the bishop.

The administrative building or rather the parish house is a two floor design semi-detached the only connecting link is the stair cases and the external lobby. This is to break the which people tend to move into single building. The large open space in center of building is like a decision point . Were people decide who and who they need to see.

Aesthetically, the façade of the cathedral and the element used will have to be in harmony with that use in the design of the parish house.

The design been it necessary to provide a count- yard is to serve ventilation purposed because of the climatic condition of Abuja.

The building is also expected to house the book shop for sale of catholic and religious material. Space description for parish office.

SPACE DESRIPTION	FLOOR AREA (M)
Entrance	
Reception	
Direction of Works office.	
Secretary's office	
Director of Health's office	
Library.	
Vocations Director's office.	

Diocesan lawyers office.

Communication Direction office

Publication unit.

Audio- visual section

Wick and conveniences

General store.

Cashier's office

Accountant's office

Finance Director's office

Archives

Bishop's chapel

Bishop office

Conference room

Vicar General's office

V.G secretary's office

Sport Director's office

Sport store

Flower Gardens

Commodes

Court yard.

PARISH HOUSE:-

The accommodation for the priest and guest priest has been taken care off in the cause of this design. A priest do not need to leave out-side the cathedral and come every morning for mass. The accommodation is take care of their basic requirement. A bed room and a leaving room were they can entertain their guest, a general dining, kitchen, laundry, public lounge

and a chapel for their morning devotion has been provided for them I the building.

Also to be provided for them in the site plan are court for out door games and exercises .

The space description for the accommodation provided are as follows:-

SPACE DESCRIPTION

Entrance (Receptionist).

Bedroom 1

Bedroom 11

Bedroom 111

Bedroom 1v

Bedroom v

Bedroom v1

Cathedral administrator Bedroom

Cathedral living room

Cath. Admin. Living room

Cath. Vicar. Bedroom

Ass. Cath. Living room

Ass. Bedroom

Kitchen

Laundry service

Public lounge.

MATERIALS AND CONSTRUCTION.

In the design of a cathedral various materials and technique of construction are expected to be employed not only as building materials, but also as fire

preventive or sustaining method. In terms of the origin, composition and basic nature of the expected material. Some of the material expected to be used in this cathedral are block steel, concrete, glass, and of course wood and of they would be employed in area like Roof, doors , windows, Floor, walls, foundation e.t.c. All this material mention above and their application will be briefly discussed.

STEEL.

Steel used in the building industry can be classified according to their quality, manner of manufacture and treatment structural steel are generally worked by hot willing, cold draining, pressing forging and some combriation method. It involves various shapes for instance joist, beams, channels, angles, box, section, rails shell, plate and turbing. The steel most use for reinforce concrete comes in form of bars and wires. Reinforcing steel is place where concrete is executed to suffer consider tensile and yielding strength.

Steel material will basically be used as the roofing and said panels steel also as door panels or frame As regard the properties steel offers interm of high strength, durability, rapid application, and when purposely finished, good appearance. It will be extensively used

CONCRETE: Concrete is a composite, stone- like material formed by binding together particulate material with a paste of cement and water. Concrete set, or become hand. The rate of hardening can also be appreciably increased by using steam curing, auto clearing or electrical heat.

For reason not well understood, the strength of concrete seems to relate directly to most of it's other properties concrete which is stronger is also more durable more water resistant and so on it has compressive strength, Tensile strength and of course shear strength.

Steel reinforcement in concrete lessens shrinkage but too much reinforcement restrains shrinkage to the point that tensile stress can cause crack. But today reinforce concrete is the most windily used structural material for building. Any reinforced materials consist of matrix and the reinforcement of concrete take care of the tensile load. As regards in project design (cathedral) Adequate specification will be provided for the steel reinforcement to be used in the concrete.

GLASS (SHINDED)

Stained glass or colored glass is made by the introduction of impurities into the molten glass mix oxides are used to give the desired colors in modern manufacturing. One part in 50,000 of nickel oxide will produce colors from yellow to purple depending on the other ingredients, one part cobalt oxide in 10,000, gives an intense blue color, Gold, copper or selenium oxide give red color.

Stained glass has windows of church but it is often used in other building as well .It is appreciated for its artistic beauty as well as accent.

Glass is generally a building material that can be but described as an organic product of tension which has been cooled to a rigid condition without aystallization. As regard this project i.e. the propose cathedral, much of stain glass as mentioned above will be use for door and windows with this will be more for doors and windows. This will be more for lighting and athletics and the use of stained glass reduces the light intensity.

BLOCKS.

Blocks are molded with mixture of water fine aggregate and cement. There are two main sizes of blocks there is the inches long blocks which are used for external walls while 6 inches long blocks are used for internal walls.

Block are used erect walls and create space for different enclosure for security and privacy.

WALLS.

This generally define the out side and the inside space of a building structure. They contribute more then any other element to the image and appearance of a building. It's primary is to is to enclose or divide space, offer privacy and to protect against wind, dust rain, heat and athletic provision in terms of finishers.

For wall to function efficiently then it must posses adequate strength, stability resistance to dam press, thermal insulation and fire resistance. Wall can be categorized into load-bearing and non-load bearing walls.

Walls also need treatment to prevent echo and reverberation and this will be taking care of by perforating the block used for the walls and also providing large openings as shown in below.

DOOR.

Steel frame glass door made of stain glass will be most appropriate for the design of a cathedral of this nature.

For adequate movement in and out of the building the required type of door, the required number and specification is what investigating. The number of door to be provided should be to the ratio of people in the building so when there is stampede people could be more out as fast as possible. All so wooden doors or flush doors finished with timber tiles will be used for other supporting facilities that will be provided for the cathedral and that is the parish office land the priestly accommodation.

- To with stand the load that will be imposed up if .

- To be reasonably durable and thus reduce the amount of maintenance or replacement lost to the minimum.
- To meet the prescribed heat and sound insulation standard.
- To withstand the load that will be imposed up it.
- To provide an acceptable floor finish to meet the needs of the user with regards to appearance, comfort, safety and cleanliness.

German flooring with be use for the construction of most of the unit in the site. The German floor is a 150mm slab "thickness" laid on a hard core of concrete 300m which is compacted in layers. The compacting provide good and solid base for concrete floor. Reinforced concrete floor consist of concrete and steel reinforcement the combination of these two material produces an effective structure that is able to resist tensile, compressive and shear stress with knowledge of concrete floor , the main cathedral will be constructed with concrete floor and this will help withstand the myriad deterioration of the floor.

BITUMENOUS FELT/ ASPHALT:

Bituminous felt is a black sticky mixture of hydrocarbons completely soluble in carbon-disulfide, while asphalt is a mixture black mineral hydro-carbons containing bituminous substances. The most useful properties of these materials are it's impermeability to water resistance to acids and other corrosive liquids or gases and it's ability to withstand heat would be employed in the construction of roof gutters and roofing material sealant.

FOUNDATION:

A foundation is that the part of a building which is in direct contract with the ground and it's primary aim is to transmit and spread live loads and dead

loads from the building over a sufficient area of soil. A good foundation is thus one that would be able to safely sustain and transmit, to the ground the combined dead load and live load in such a way as not to cause damage to the whole or any part of the building or any adjoining building or both. Also, the material used should be able to resist any attack by acids, sulphate or other chemicals present in the subsoil.

There area many type of foundation but the choice of foundation depends on the soil types, site conditions, the type of construction and the magnitude of load and intensity .After carefully considering these factors, the choice for the design is pad foundation. This is an isolated foundation constructed of reinforced concrete to support columns. To withstand the vibration generated by the movement of people considering the large mass of people expected to attend mass at full capacity.

9.0 CHAHER 8.

DESIGN SEVICE.

Engineering service within and around a building is needed for both the health safety and comfortability of the people in and around the building. This allow people to carry out their day to day activities without any physiological stress i.e. when the services are properly planned. A successful design Service in an environment require a careful planning system and a proper specification in other to satisfy the people that is being provided for, is the Occupant of the building.

The provision of engineering design service is one of the most important aspect of a church design. And as far as this project is concern, the confortability, safety, security in other to create an atmosphere of

harmony is of paramount importance. This service to be provided include electricity, lighting, ventilation water supply and fir protection.

9.1.1 ELECTRICITY SERVICE CABLE

(a) The Service cable should be run underground through the church yard to a suitable termination point in the church. Runs of Service cable within the church must be as short as possible, fixed preferable on brick or stone walls.

(b) The service cable should terminate in a separate room which can be looked, or in a hardwood or metal cupboard provided with a lock.

(c) Overhead cables or lines will be permitted only in exceptional circumstance.

If such exceptional permission is granted the over head line should not be fastened to pinnacles or attached near the apex of a gable. The service cable may be run under the caves and over the wall plate into the church but not along the wall plate or rafter feet or other wood work.

Should it be essential to pierce a wall, wall plate or roof timber e.t.c. the cable or cable must be protected at the point of entry by a single porcelain lead in tube or galvanized conduit suitable brushed with the been vertically down to prevent ingress of moisture. In no circumstance may a service cable be taken through the glass or stone

work of a window, nor should it be attached to or passed through any carried or molded stone or woodwork.

9.1.2. ELECTRICAL INSTALLATION.

All electrical work that will be carried out in this proposed cathedral shall be in accordance with the current edition of the IEE Regular and where recreation or entertainment of a licensable nature is envisaged the appropriate authorities must be consulted to ascertain their requirements.

The whole installation shall be earthed in accordance with Installation of Electrical Engineers (I.E.E).

9.1.3 METERING MAIN SWITCH GEAR AND DISTRIBUTION BOARDS.

(a) Metering of the supply will depend on the particular traffic adopted and this should be ascertained before work is commence. The arrangement of the main switch gear shall conform to the metering required.

(b) All main control switchgear shall be mounted adjacent to the service position in some room or cupboard. If there western tower to be provided will enable a neat division of the cable to the North and South wall.

(c) All over-current protective switch and distribution board be of ample rating and substantial construction, total enclosed metal-clad, of a type approved.

(d) Distribution board shall be provided with a chart giving clear and permanent indication of the points and outlets protected by each individual protective device.

(e) All switch and distribution gear shall be painted before and after erection with corrosion resisting paint.

(f) All cables and meter bights shall be totally enclosed in trucking or other suitable non-combustible enclosure.

9.1.4 PROTECTION AGAINST VOLTAGE SURGES.

Where there may be a risk of high voltage surges in the supply cable for instance, from lighting strikes, trical intake position to protect internal wiring. This precaution is especially desirable where mineral insulated cable are used for internal wiring.

9.2.0 LIGHTING.

The first purposed of lighting is to provide adequate light for the clergy and congregation to se clearly those things They wish to se. There will include prayer books and for the choir, music. At the same time it is important that the congregation and clergy can see each other in order to participate fly in the service. Visibility is the basic requirement but lighting which makes things visible does not by itself determine the appearance of a church, which mainly on that walls, roof and similar surface. The basis of good design consist not only in satisfying the requirements for visibility but also in achieving appropriate emphasis and modeling. This does not mean that the additional equipment will be installed purely for special effects, but

even in the smallest building, much can be done simply be choosing the right equipment and locating it carefully.

This lighting should emphasize the proper points of regard within the building, drawing attention to the altar and sanctuary, revealing effectively any ceremonial, and showing clearly the occupant of the pulpit and his facial expression. In this project I intend to display naturally, not in such a way as to distract attention from the service but so that it can play its proper part, along with the music and liturgy in aiding the service. Visible lighting equipment should be of a design with harmonies with the interior both by day and by night.

METHOD OF LIGHTING.

COMBINATIONOF LIGHTING BY VISIBLE FITTING AND LIGHTING BY INCONSPICUOUS SOURCES.

It is frequently desirable to use both methods in one building, for instance to suspend attractive pendants in the body of the church and to bring out particular features by means of concealed or inconspicuous fittings. Alternatively, one method may be applied in one part of the building, and the other else where; for example in the nave and chancel.

In the course of my research and case study I have discovered that existing pendent which are considered quite satisfactory from the point of view of appearance do not give light for the congregation to read their books. So, I intent to introduced large lamps or special type of lamp such as atlight to upgrade the pendant.

Alternatively, I intend to retain such pendent as they are and ent them with inconspicuous source, to be mounted at high level. t may then make only a minor contribution to the light of reading

but may still remain an important feature of the furnishing of the church and may assist in softening shadows.

HEATING, COOLING AND VENTILATION.

The Heating cooling and ventilation system of a building plays a very significant role in the design considered of the building as regard the provision of service facilities. The proportion of building (surface area to volume area) size and location of window, massiveness and colour of the building materials plays a tremendous role in the design criteria and consideration. Those factors should be properly considered in the early stage of design.

The mechanical equipment required for heating, cooling and ventilation is often quite bulky and because it requires access to out side air, it is frequently visible on the exterior. Thus for several reason, the heating, cooling and ventilation system ae integrally interconnected with the architecture, and as such must be considered at the earliest stages of the design process.

The people that are going to live and work in the cathedral are expected to be providedwith comfortable condition. Although the requirement can very greatly depending on occupancy, out door climate, the season and geographic location. Acomplete system of indoor comfort ontrol demand may desirable characteristics. These could include.

(1) Maintaining a uniformly worm temperature during the cooled weather temperature.

(2) Controlling the speed of recalculated air, fast enough to provide freshness and slow enough to avoid draft.

(3) Providing in a uniformly cold interior during the hot weather climate.

(4) Exhausting odour laden air from room such as kitchen.

(5) Percirculation interior air and filtering out air borne dust.

HEATING.

The thermal transmittance or u-value of a wall, floor of a building, is measured by its ability to conduct heat out of the building, the greater the u-value, the greater the heat loss through the building. There are various system of heat but as regard this project, two factors will be considered to arrive at a proper specification for the project. This factor are, the source of the energy and the method of distribution within the building. The choice of the fuel is usually determined on what is available and economic factor. The other alternatives which is most preferable are gas, oil, electricity, solar energy and waste heat recovery. Electricity is popularly used because of its great convince of use. Solar energy is the only renewable source in the list.

Since distribution system has a great effect on the design of the building, A must be selected with care. Heat can be distribution in a building by air, water or electricity.

For the purpose of this project, electricity heating system will be specified.

Electric Heating: Although there are may different type of electric heating derails, most use are resistance heating element to convert electricity directly into heat. The exception are "The heat pump" and heat from "light system".

COOLING SYSEM.

Cooling is the removal of heat. This can better be understood by water andogy, Usually in building are surrounded by heat in the hot season . These

are always trying to get out just as water tries to get out of a submerged building.

The water in the analogy is gained both though the eurelop and also from internal source. The natural by pumping it uphill can it be removed.

In the same way, it is a natural tendency for heat to flow into a building when the out door temperature is higher than the indoor temperature. Only a machine that pumps heat or refrigeration machine, that can remove the heat.

COOLING SYSTEM:- The choice of heat system transfer method depends on building type and size. Cooling system are often classified by the fluid that are used to transfer the heat from the habitable space to the refrigeration machine.

In the cause of the project, I have carefully thought out various ways in which cooling can be achieved on this project.

(1) the airflow at night must be directed over the mass to ensure good heat transfer.

(2) Window are between 15-20% of the floor area.

(3) Window and fans will be used. Ceiling or other indoor fans should be used during the dawn.

(4) A centrally controlled A/C system will be placed at every entrance to prevent cool air escaping also preventing hot from coming in.

(5) To minimize heat gain the walls the roof should be well insulated and the outside surface should have light colours.

VENTILATION.

We have two type of ventilation the natural and artificial(mechanical).

The natural ventilation of a building depends on the pressure of the wind ad the stack effect, or on both. But before I considerthose factor I will like to explain what ventilation is all about and why we need to ventilate our building.

Ventilation in a building are carried out for the following reason.

(1) To control air borne contamination.

(2) Ventilation promotes and direct air movement in the space, this being one of the environment comfort factors.

(3) The air act as a dilettante, the amount of air required depends on the permissible contaminant present in the room.

(4) And of course oxygen is needed for normal human life process.

THERMAL COMFORT.

s the condition of the mind which express satisfaction nvironment. Air passing over the skin creates a g effect than can create thermal comfort when the air what above the normal comfort zone.

uman requirement for fresh air in order to gain an adequate n is well know. In building generally this never form a tilation since their will be acute discomfort long before any

principal factors which trouble ventilation rate in various ces and provide criteria for the performance for ventilation e(1) Airmovement (2) Body odour (3) Fumes, smells and products stion (4) Bacteria (5) Exercise heat.

In modern building there is an increase of cases where natural ventilation does not give satisfactory condition and mechanical ventilation will be required.

In the cause of this of the design, the ventilation derbies (to material) will be place at strategy end in other is perform the function it is meant to perform. As the cathedral the main objective will be to maintain a proper cooling effect to that the congregation will be comfortable. The mechamial dries will be place at the major entrances of the cathedral and it is going to be an underground installation. This derbies will prevent hot air from coming in an at the same time the temperature in the building could be maintain at a reasonable temperature.

REFAUSE DISPOSAL.

There is a well – defined chain of event in the refuse system generation – storage –ousite treatment- collection – intermediate processing – disposal . The design of a rule handling system involves selecting for each of these of these link a solution that is comparable to the neighboring storage.

The major composition of refuse at the center will include paper, leather, plastic, food and grass. The use of compactors will be necessary and vehicles suitable for sack and bin collection will be well equipped with auxiliary lifting derbies for emptying packed containers and incinerator for bin some of unwanted refuse. The propose of church is going to be provided with effective cleaning machine.

WATRE SUPPLY.

An adequate supply of water is a basic requirement of most public building for reason of personal hygiene or for activities such as cooling, washing and

gardening . In most area a piped supply of water is available from a public water Board main supply system.

Water for the service of the cathedral is expected to be tapped from the Abuja water and sanitation board. The water has been screen, the sediment filtered out and chlorinated, accretion and plondation that will make the water fit or suitable for drinking would have taken place their in the Abuja water board.

The pipe for the supply of water to the cathedral will be careful though of and the plain drawn out in the cause of the design of the cathedral. The is to prevent a situation where it can be adversely affected by heavy traffic or building load. A minimum depth of 750mm is generally recommended for supplies of 750mm is generally recommended for supplies to domestic properties while public place like the cathedral it's self should be about 900mm.

In designing a cathedral it is imperative include the provision of hot and cold water services which will go a long way in attaining a high samtary standard of the cathedral. In the supply of the hot water system, it is convenient to consider extending it to provide hot water central heating

.

ACOUSTICS.

The acoustical environment refers to within and around the building. This influence by numerous interrelated and inter dependent factors associate with the building planning- design- construction process from the outside of any building development. The selection of the site, the location of building on the building can and arrangement of space within the building can often does, influence the extent of the acoustical problems envolved.

The materials and construction element that shape the finished spaces will also determine how sound will be perceived in that space as well as how they will be transmitted to the adjacent spaces. The architect, the engineer, the building technologist and the constructor all play a part in the control of the acoustical environment.

Church like any other building, all of the basic requirements for good hearing must be met particularly in the church, but there are a number of specific matters peculiar to this building type that the designer must take peculiar to this building type that the designer must take into account. Usually the form of the church itself will not be governed quite so much by acoustical consideration as would a school auditorium.

Another important acoustic problem in the church is the placement of the choir and the organ and their relation the congregation. All this will be taken into consideration in the grave of my design. An important function, mutually rerforceing reflection of the congregation. This gives every member of the congregation the sense of being part of a group of people singing and praying. And encourages participation in the common worship.

FIRE SAFETY.

Fire in building are nearly always man-made i.e. resulting from error or negligence with the development of habitation to fine protection /fire precaution also developed sometimes sadly, but mostly from bitter experience.

The principal aim of fire precautions are simply to safe guard life and property and are achieved by .

1- Reducing fire incidence.

2- Controlling fire propagation and spread.

3- Providing adequate means of escape for occupants of the building.

4- In only fire out- break. The early detection and successful exinguishment of a combustion process is highly desirable –there are many practical ways by which this can be achviered. All ready centred on the reduction of the flame temperature.

In trying to protect the built area from fire out-break, the ideal thing to do is install fire detector which will solely select fire but to discriminate reliably between the absence and presence of a fire .

For the purpose of the project, there will be fire points hydrant and detector to help manage the fire out-break to be located at strategic point and also fire extinguishers. The rapid extingushment of an unwanted fire a absolutely essential in modern society. Man discovered fire by accident also method of extinguishing it.

NOISE CONTROL.

The essence of studying acoustics is that one should be equipped with answers to question as how can we make a place less noisy that is, it help us to deal with control of noise.

Noise control can be broadly divided into 3 part that is source, sound path and revere. Noise control should by design because prevention is better then cure.

As regard this cathedral, the center of attention will be as follows.

1- Planning stage.

2- Scheme design stage.

3- Detail design and supervision.

At the planning stage, the selection ariteria of the site was a paramount importance and a24 how noise pattern of the site was taken. The

noise source that may be encountered in the course of the projected are mostly vehicle propagated by wind and human noise level. Taking into cognizance that there will be office complex that is expected to carry out the administrative duties of the cathedral.

For the scheme design the choice of material are given the consideration such as sound absorbing material, double gluing and use of sound (acoustic) proof doors where necessary. Also given consideration were mechanical device and installation such as ventilation and lighting schemes.

At the detail design stage, external noise have been kept to the minimum by ensuring that opening are limited toward external noise source have also been avoided.

In applying all the above principle, care has been taken to ensure that are do not have too quite a situation.

AESTHETICS AND GENERAL APPRAISAL.

Aesthetics is the branch of philosophy that deals with the nature of beauty andante. The words "esthetics" was coined from the Greek word aesthetics (meaning "perceptible by the senses"). So beauty could be said to be a sensuous of serious knowledge, whose goal was beauty.

Aesthetics is concern with such problems as the nature of beauty, while beauty is the quality that is present in an object or in the eye of the beholder.

This section of my thesis will explain the propagation of beauty in construction in other to achieve an acceptable international style interms of function, standard and otherwise.

Architectural expression otherwise called style, varies with the character of culture and place. It also varies with the state of the mind as regard individual perception of beauty. Style in design communicates the out look of culture and perception and the concept of its architects. The style every Architect employs is composed of concept and forms but the two are united and expressed by the form. The content of this project, through composition of form expresses the kind of use and the traditions and custom of the users.

The architect is solely responsible in the style we chooses to adopt. The pattern of his culture is one hand and to the pattern of technology adopted for the project on the other, in the expression of form. The architect is free to communicate his personal and concepts. The Architects principal responsibility, is the formation of style in the creation of meaning form.

The basic formal element of architecture is this sense are space and mass. The ordered composition of these elements tells the quality of the architecture and its attribute of beauty. On these premises the aesthetic appraisal of the cathedral of the twelve Apostle is justified.

The unique fact about the design of this thesis is the absence of the various ancient Roman columns of different sizes i.e. the Ironic, Corinthian, Doric and others. This is done because of the need to provide clear visibility to the vision and as such, it has to give way for the new method of spanking long distances with out the use of thesis column. This is achieved by the use of lattice section. This method also has its own architectural beauty.

The use of stained glasses brings back the memories of the medieval period or aesthetics. Since it could be use to reflect on the past with he images specially decorated on it.

The imposing size of the building is deliberately design to create the consciousness in the minds of the faithful as they approach it. This present the greatness of God.

The interior of the building is also revolutionize by the introduction of different levels on the nave and aisle. In other to improve on the beauty of the interior as regards perception.

GENERAL APPRASAL.

This project proposal has been accomplished with conscious effort and architectural design elegance. The structure co-ordination, the unique methods of roof construction; the achievement of solidity and balance, the reflection of uniformity in the punctuation and representation of spiritual elements on the elevations of the cathedral and realization of general church Architecture harmony.

The project encompasses different design components which on their own could capture the imagination mind of the laity. This component are initially architectural problems but architectural solution has been provided. The church it expected to effectively cater for 7,500 people seating and it is expected to be the largest catholic church in Nigeria and also it is expected to perform its primary function of bringing people back to God.

CONCLUSION.

The design of the cathedral of the twelve Apostle in Abuja has been a challenge to my self as an architect to be.

Various factors has been taken into consideration in the cause of the this project so has to achieve a comfortable environment for worship. The architecture of this project is base on the responsiveness to micro-climate in away which achieves comfort and also bring the use of acoustic in other to improve the construction of the people and general life of the community.

Day light, cost efficiency and general convenience for spiritual activities both inside and outside the church.

The design clearly express their functions of the people. The main cathedral church expresses clearly the architectural purpose and systems. The ideas though a little bite complex, but are straight forward.

The interior planning and design is sensible and spirit invoking the use of materials rational and economical, while the architectural effects are created by the external expression of interior; conveniences and by reference to appropriate precedence.

Above all, by the cheerful acceptance of unavoidable irregularity, by justification variation of forms and by creating and intimate mixture of new and old with catholic spirituality status, portraits, symbols e.t.c. This cathedral adds to the tradition of functional and spiritual need that makes it rank among the best cathedral in the world.

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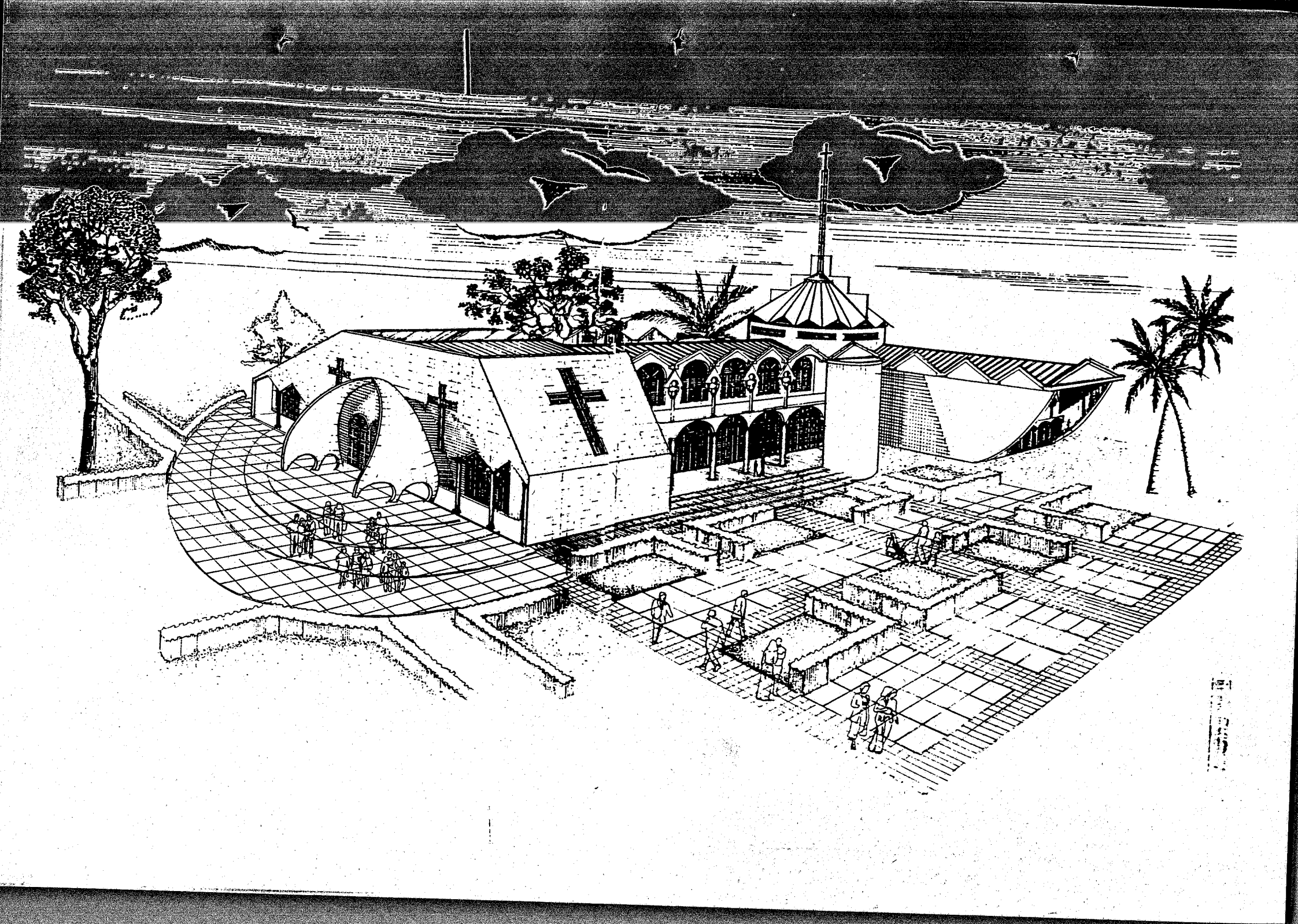
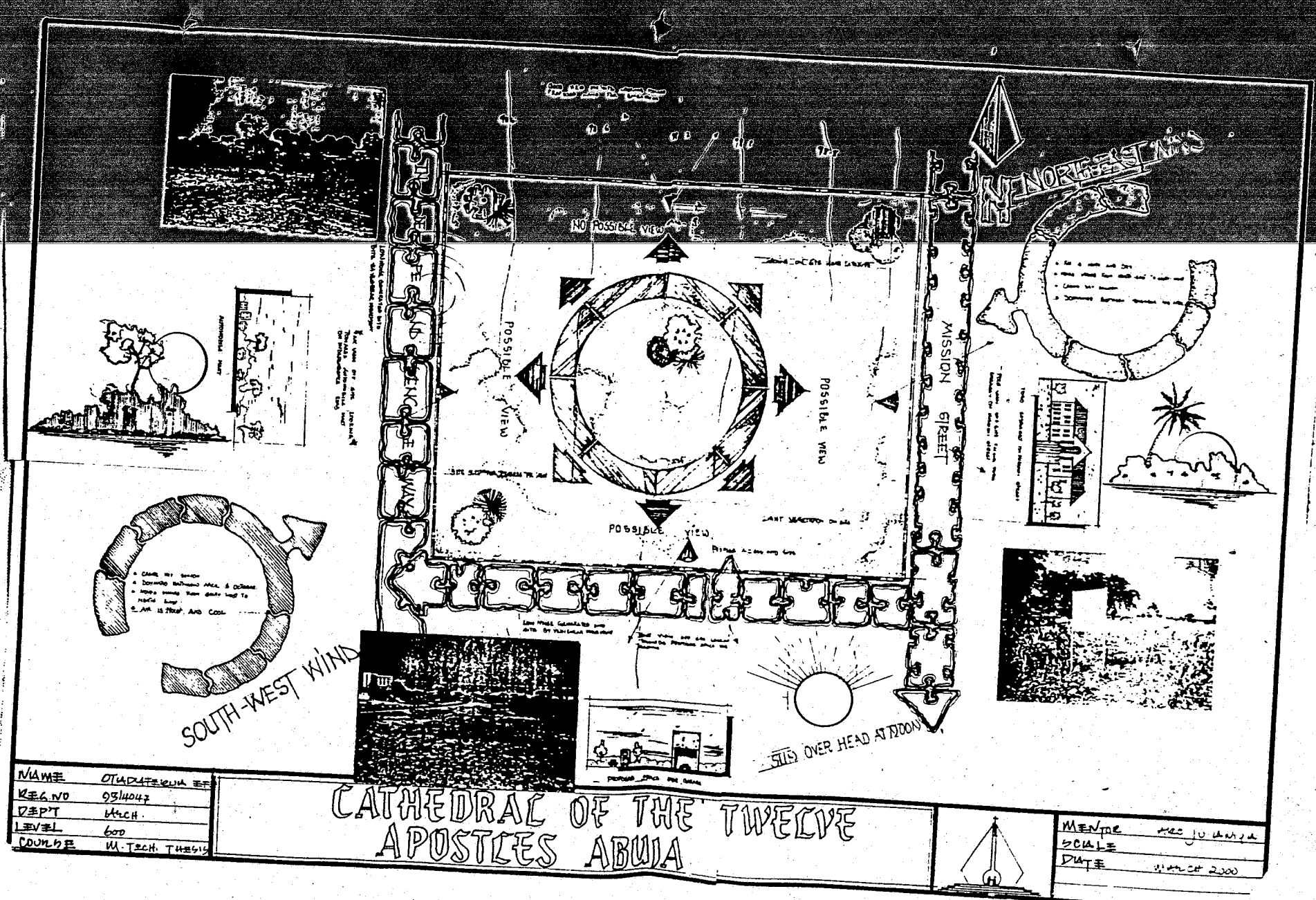
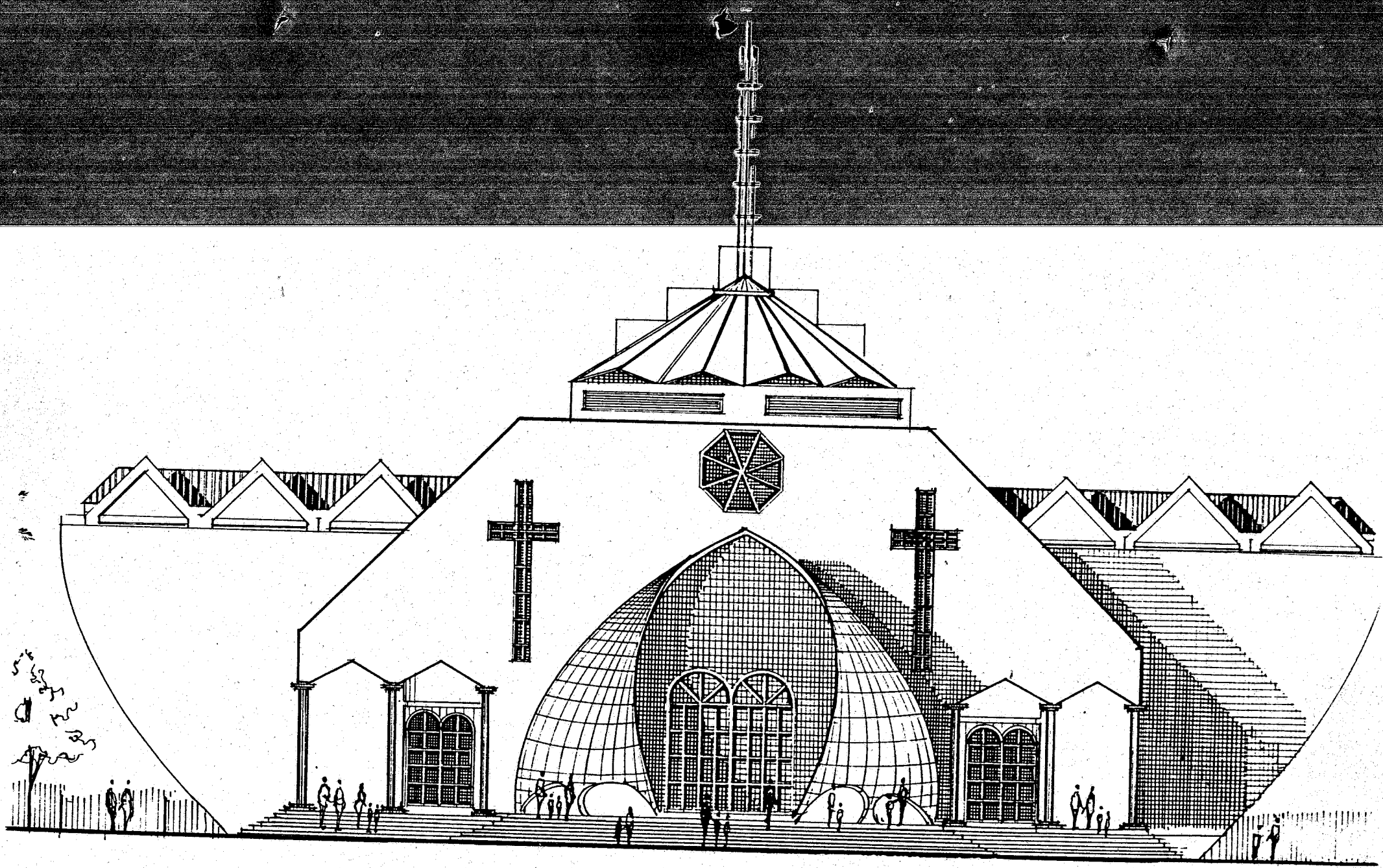
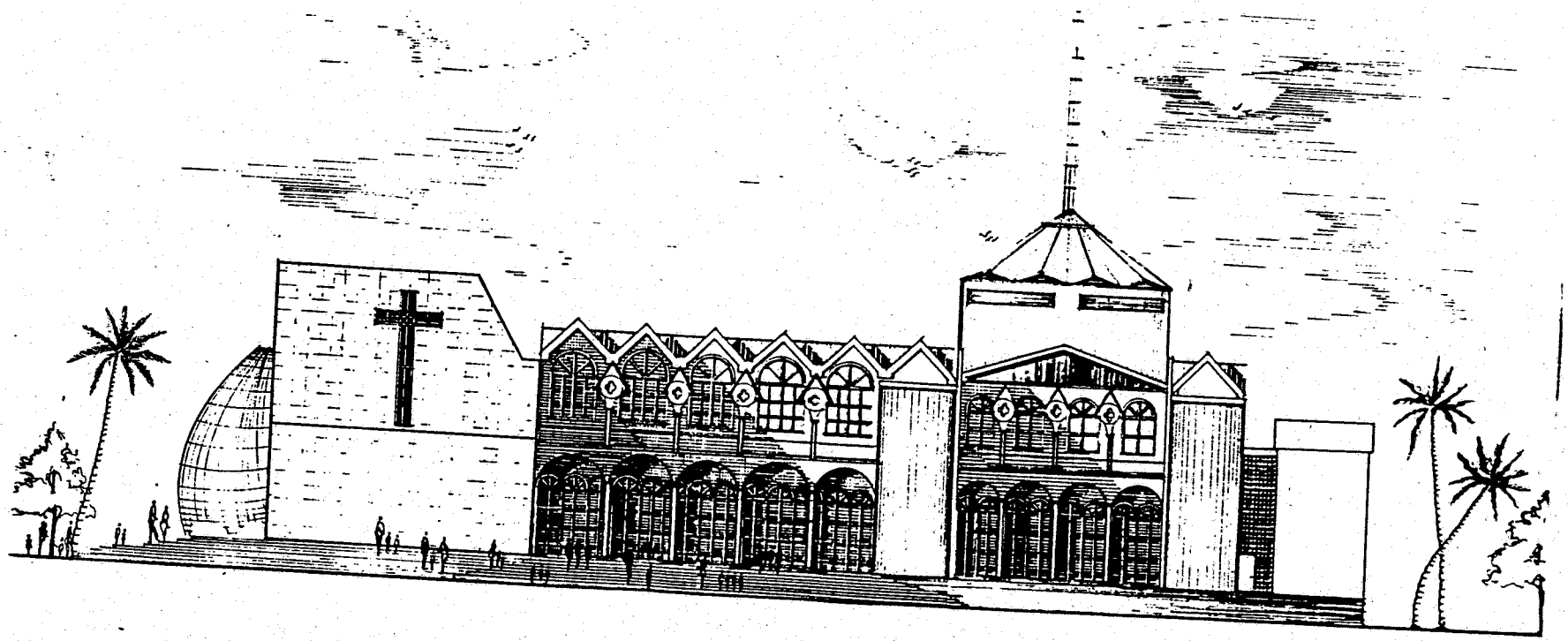



NO POSSIBLE VIEW
POSSIBLE VIEW
POSSIBLE VIEW
POSSIBLE VIEW
MISSION STREET
SOUTH-WEST WIND
SUN OVER HEAD AT NOON
NAME
REG NO
DEPT
LEVEL
COURSE
M.TECH. THESIS
CATHEDRAL OF THE TWELVE APOSTLES ABUJA
SCALE
DATE
MARCH 2000





RIGHT SIDE ELEVATION