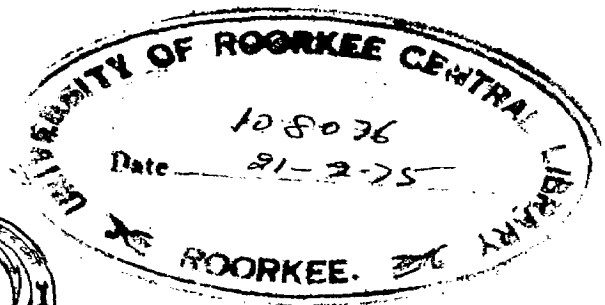
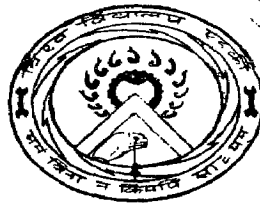


# ARCHITECTURAL EDUCATION IN INDIA

A DISSERTATION  
submitted in partial fulfilment  
of the requirements for the award of the Degree  
of  
MASTER OF ARCHITECTURE  
( DESIGN )

By  
OOMMEN. T.



DEPARTMENT OF ARCHITECTURE  
UNIVERSITY OF ROORKEE  
ROORKEE (U.P.)  
INDIA  
October 1974

**CERTIFICATE**

Certified that the dissertation entitled "ARCHITECTURAL EDUCATION IN INDIA" which is being submitted by Sri. OOMMEN. T. in partial fulfilment for the award of the Degree of MASTER OF ARCHITECTURE (DESIGN) of University of Roorkee, Roorkee is a record of his own work carried out by him under my supervision and guidance. The matter embodied in this dissertation has not been submitted for the award of any other Degree or Diploma.

It is further certified that he has worked for a period of 9 months from 15th January, 1974 to 15th October, 1974 for preparing this dissertation at this University.

Roorkee,

15--10--1974.

VISHWAMITTER  
B.Arch. (Hons)  
M.S.Plg (Urb & Reg) Wisc.U.S.A.  
M.Arch(Urb.Design)Va.U.S.A.  
A.I.I.A.

### ACKNOWLEDGEMENT.

Let me express, with a full heart, my gratitude to my guide who took immense interest and pains in guiding this work.

My heart felt thanks are due to Prof. Rattan Kumar, who was a constant source of inspiration, Prof. R.K. Sahu, whose deliberations on the subject lead me to take up this topic of dissertation, Prof. K.C. Kambo who helped me with valuable informations and materials, Prof. Vijay Kumar and all other teachers in the department.

Thanks are also due to all my classmates and friends in the department and outside it, especially to Mr. Manikantan and Mr. M. Ravikumar for having typed the dissertation.

Thank you,

COMMEN. T.  
M. ARCH. II  
DEPARTMENT OF ARCHITECTURE  
UNIVERSITY OF ROORKEE.

**CONTENTS**

<b>CHAPTER</b>		<b>PAGE</b>
	<b>LIST OF PLATES</b>	
<b>I.</b>	<b>INTRODUCTION, OBJECTIVES &amp; SCOPE</b>	
1.1	Introduction	1
1.2	Education and Societal Conditions	2
1.3	Environmental Problems	3
1.4	Technological Aspects	3
1.5	Scope	5
1.6	Objectives	5
1.7	Prospects	5
	References	7
<b>II.</b>	<b>AN OVER VIEW OF DEVELOPMENT OF ARCHITECTURAL EDUCATION IN INDIA</b>	
2.1	State of Architecture	8
2.2	History of Architectural Education Development	9
2.3	Types of Institutions	11
2.4	Trends of Architectural Education in 70's	12
2.5	Development of Regulatory bodies in Architecture	12
	2.5.1 Indian Institute of Architects	12
	2.5.2 All India Council of Technical Education	13
	2.5.3 The University Grants Commission	14
	References	15

CHAPTER		PAGE
III.	<b>PART I. AN EVALUATION OF THE PRESENT SYSTEM OF ARCHITECTURAL EDUCATION IN INDIA</b>	16
	3.I.1 Introduction	16
	3.I.2 Is our present architectural Education System relevant?	16
	3.I.3 Lack of objectives	19
	3.I.4 Disintegration of Architectural Design and allied subjects	19
	3.I.5 Lack of Scientific attitude	21
	3.I.6 The quality of inputs: Students and teachers	22
	3.I.7 Lack of opportunities for higher and continuing education	23
	3.I.8 Assessment of Student's work	24
	3.I.9 Practical Training	25
	3.I.10 Disparity in the educational pattern of various Institutions	26
	3.I.11 Conclusion	27
	References	29
III.	<b>PART II. A. OBSERVATIONS MADE UNDER OPINION SURVEY CONDUCTED ON FINAL YEAR STUDENTS IN B. ARCH. COURSE</b>	30
	3.II.1 Introduction	30
	3.II.2 Background of students	30
	3.II.3 Facilities and academic aspects	32
	3.II.4 Syllabus and curriculum	33
	3.II.5 Practical Training	35
	3.II.6 Duration of the course	35
	3.II.7 Future plans	36
	3.II.8 The professional scene	37
	3.II.9 History of Architecture	38
	3.II.10 Conclusions	38

CHAPTER		PAGE
III.	<b>PART II. B. AN ANALYSIS OF THE OPINION SURVEY CONDUCTED AMONG PROFESSIONALS AND TEACHERS IN ARCHITECTURE</b>	40
	3.II.11 Competency of the course	40
	3.II.12 Western influence	40
	3.II.13 National Style/character	40
	3.II.14 Reasons for backwardness	41
	3.II.15 Architectural Schools	41
	3.II.16 Fresh graduates	41
	3.II.17 Syllabus and Curriculum	42
	3.II.18 Duration of the course	43
	3.II.19 Practical Training	43
	3.II.20 Teachers	43
	3.II.21 Conclusions	44
IV.	<b>A PHILOSOPHY FOR ARCHITECTURAL EDUCATION</b>	45
	4.1 Introduction	45
	4.2 Liberal versus need-based education	46
	4.2.1 Liberal education	46
	4.2.2 Need-based education	47
	4.3 Pros and cons of liberal and need-based education	48
	4.4 The Indian context	49
	4.5 Goals of higher education with particular reference to architectural education	50
	4.6 Our own solutions for our own problems	51
	4.7 Conclusion	53
	References	55
V.	<b>A SYSTEMS APPROACH TO ARCHITECTURAL EDUCATION</b>	
	5.1 Introduction	57
	5.2 Qualification of product, the architect	57

<b>CHAPTER</b>		<b>PAGE</b>
5.3	The process	60
5.3.1	Curriculum and Syllabus	60
5.3.2	Duration of undergraduate course	61
5.3.3.	Teaching	62
5.3.4	Evaluation of student work	63
5.3.5	Teaching aids	63
5.3.6	Seminars and discussions	64
5.3.7	Teachers	64
5.3.8	Facilities	65
5.3.9	Practical Training	65
5.3.10	Field Liaison	66
5.3.11	Thesis Project	66
5.4	Conclusions	67
	References	68
<b>VI</b>	<b>SUGGESTIONS AND RECOMMENDATIONS</b>	<b>69</b>
	Bibliography	76
<b>APPENDIX.</b>		
<b>I</b>	Questionnaire for students	79
<b>II</b>	Questionnaire for Professionals and Teachers	90
<b>III</b>	The Curriculum	99
<b>IV</b>	Table - Category of Problems, inputs and evaluation parameters	106

LIST OF ILLUSTRATIONS

NUMBER		BETWEEN PAGES
1.	Location: Architectural Institutions in India	15 - 16
2.	General Information on Degree or Equivalent Courses in 16 Institutions in India	15 - 16
3,4,5.	Distribution of marks and hours in the whole span of the courses	29 - 30
6,7,8,9,10.	Bar charts showing observations of the survey conducted among students	44 - 45
11,12,13.	Bar Charts: Certain Observations made under the survey on professional and teachers	44 - 45
14.	Thesis Projects: Comparison - Two London Schools and Two Indian Schools	44 - 45
15.	Curriculum: Kumasi School, Ghana	44 - 45
16.	Employment Pattern of Architecture-Graduates from University of Roorkee During 1963-72	44 - 45
17.	Conceptual Diagram, Ongoing Educational System	57 - 58
18.	Architectural Education, A comprehensive Model	75 - 76
19.	Conceptual Diagram of Input Sequence in Design Education	75 - 76
20.	Break up of the Model Curriculum	75 - 76
21	Model Curriculum	75 - 76
22.	Comparison between Model Curriculum and other ones	75 - 76
	TABLE: CATEGORY OF PROBLEMS, INPUTS AND EVALUATION PARAMETERS (APPENDIX IV)	105



## CHAPTER - I

### INTRODUCTION, OBJECTIVES & SCOPE

#### 1.1 INTRODUCTION

Any educational system should be an inherent product of the society reflecting the dominant themes of the culture<sup>1</sup>. A system of education which is not attuned to the ways and needs of the society has only bleak chances of healthy existence.

"Education cannot come into its own in any country unless the culture of that country has the same aim as education",<sup>2</sup>.

If the aim of the society is to gain prosperity and power through the use of technology the consequences must be as Jacques Ellul sees them.

"Instruction must be useful in life. Today's life is technique. It follows then, instruction must above all else must be technical!"<sup>3</sup>

Evaluating the system of Architectural education, should therefore be in the light of the socio-cultural, economic, and technological trends and aspirations of our own society.

"It is suggested that the starting point for such studies should not necessarily be a review of existing curricula and teaching methods but rather a careful examination of the specific needs of the region expressed through changing cultural patterns and social structures, technological and industrial potential, the capacity of the building industry -whether primitive or sophisticated -the availability of materials and economic conditions!"<sup>4</sup>

A transplanted system may have little to do with our conditions in the country. Our architectural education which started as a product of the colonial power and always was based on Western models needs a thorough reappraisal in the light of our own societal conditions.

## 1.2 EDUCATION AND SOCIETAL CONDITIONS

Just like many other developing countries, one of the most important feature of our country is the socio-economic backwardness. The present urban rural distribution of population is of the order of 80% - 20% which is expected to be 70% - 30% in 2000 A.D. The rural society is going to overweigh even in the immediate foreseeable future. The city, which is the major job producer is going to go on attracting large number of rural population into it. Combined with an explosive overall population growth (20.34 per thousand per annum at present) the urban explosion is destined to continue. The growing towns and the urbanising village communities will pose greater problems in future.

The needs of the rural society is primary-food, clothing and shelter, and will continue to be so far quite some time.<sup>5</sup> Education and health facilities will also become necessary but to a much lesser extent.

The urban society will be experiencing a set of needs which are at the opposite extremes. While the more fortunate classes will require more sophistication, the needs of the slum will be, like that of villages, primary desiderata.

These problems seen in the light of the poverty of our country adds to its graveness, as the per capita income of the people is not adequate enough for a decent subsistence and sustenance of life.

So the goals of education should be the production of such a technology which could, operating within the tremendous economic strain and social limitations, produce a tolerable environment for majority of the people, whose needs is as simple

as primary amenities. Further, the system of education itself should be such that the society could afford, foster and maintain it. Seeing it from the limited circle of architectural education, it should be less expensive, matter of fact, and should aim at producing technologists who can rationally deal with the problems within the limiting situations.

### 1.3 ENVIRONMENTAL PROBLEMS

Housing, water supply, sanitary facilities etc. are common problems affecting environmental qualities in both rural and urban context. The task in front of the country will be to provide for minimal standards and availability of these facilities. The metropolitan city with its slum create major environmental problems which could be solved only by a developed technology. But in the case of smaller towns and urbanising villages which cannot afford neither avail such facilities, the solution depends on simpler and small scale arrangements along with the dwellings. Thus the major problem lies in basic, small scale solutions before the problem gets inflated into a major metropolitan tragedy. Therefore the technical education should specially cater for such a basic technology also. This is in no way, condone the urban problems. The solution for urban problems needs specialised studies and research which should also be taken up by higher education<sup>6</sup>, but the objectives of the basic technical education should be the solution of common and grass-root problems using a basic technology.

### 1.4 TECHNOLOGICAL ASPECTS

It has been already mentioned that even though the door is open to the most sophisticated technology, very few

people can avail it because of the crippling economic limitations. The social attitude to accept and the aptitude to maintain such technology is also lacking in majority of people. While in the case of metropolitan cities, highly developed technology may be the only alternative, in other contexts there should be basic techniques, acceptable and available to all.

The shortage of technical personnel and the inability to afford them also are major problems. The professional who is serving the situation should be equipped to take up wide variety of responsibilities to reduce the expenses and compensate shortage of personnel. It again points to the fact that generalists, with working knowledge is more suitable than specialists, a point which the educational system should take into account.

Even though building construction is one of the major items forming the gross national product of the country, we lack an organised building industry. The building activity is concentrated in the urban centres where better technology, materials and incentives are available and larger capital investment possible. The task is of organising the building industry and distributing its fruits in a more equitable way. For this purpose, we need technical personnel who could work successfully in a wide variety of circumstances, to produce who is one of the major tasks of architectural education.

In the light of the above aspects, a re-evaluation of the present system of architectural education is an immediate necessity of our nation. This dissertation attempts at contri-

buting in its own humble way towards the solution of these problems.

### 1.5 SCOPE

Professional and technological education and thereby architectural education has got an important say on the socio-economic development of the country at present and in future. Recurring efforts should be made to tune the educational process according to the needs of the situation. In this light reevaluating the system of architectural education and giving suggestions for its betterment are considerably important.

The study attempted here confines itself to the undergraduate education in architecture only.

### 1.6 OBJECTIVES

The objective of the study is to evaluate the present system of undergraduate architectural education in India in the light of various societal factors as stated already and bring out a viable philosophy that will help to streamline the architectural educational system and process in the country.

### 1.7 PROSPECTS

Some kind of a guidelines is essential in the field of architectural education so that the wide disparity in the educational pattern in the country is avoided. This is particularly important when undergraduate education is considered as an input to post-graduate education and specialisation because otherwise each institution will have to run their own post-graduate

programmes, which is not feasible in our conditions.

Since education is a dynamic process changes in the approach may become essential. The fact that we have a rural front which ails from lack of change on one side with an urban scene which is rapidly changing on the other also has to be kept in mind.

---

## References

1. But it is naive or even disingenuous to expect an educational system to develop intelligent human beings, if all the forces of culture are directed for example, to developing producers and consumers. Since politics is the architectonic science and educational system must reflect the dominant themes of the culture. Rober, M. Hutchins, 'The Learning Society' P. 36.
2. Ibid P. 38
3. 'The Technological Society' (translated by John Wilkinson Albert A. Knopf, 1964, P. 349
4. Dr. Thomas Howarth. A study prepared at the request of Commonwealth Association of Architects, C.A.A., Hongkong, 1969, P. 7
5. "The urban influence upon village life is discussed and it is suggested that its impact may not be as profound as we sometimes imagine, certainly not over a short term" (from the synopsis of) 'The village Society', K.R. Unni, The Rural Habitat, P. 5
6. This is so (in different degree) in all developing countries" A developing country is a place of extremes. A place of communities in need of the most basic form of shelter and community amenities next to those with the most sophisticated form of accommodation in the modern environment". John Owusu Addo and Max Bond, 'Arena', July-August 1966, P. 7
7. A survey conducted by the author among professionals and teachers in architecture about their opinion on this aspect showed the same.

-----

**CHAPTER - II****AN OVER VIEW OF DEVELOPMENT OF ARCHITECTURAL EDUCATION****IN INDIA****2.1 STATE OF ARCHITECTURE**

In the beginning of 20th century the profession of architecture, as it exists today, hardly existed in India. It was in the age of hereditary master builder and craftsman, starting right from vedic times and continuing as a living force through Buddhist, Jain, Hindu and Muslim history, a period of continuous evolution with a pirit of character essentially Indian<sup>1</sup>, that the tragic decree of Aurangazeb dismissing all Hindu craftsman from the Royal Rolls came as the first blow to this continuity. Later it was administered the death blow by the British domination, except for in certain pockets, where it continued to linger even today, even though to a very small extent.

Towards the second half of 19th century the official and public works were carried out by Royal Engineers, who in some cases showed sufficient Architectural knowledge to bring out good work. The characteristics of the timewas the reflections of the so called 'battle of syles' which was waged in continental Europe and England. Towards the end of the last century provincial Governments began the practice of bringing over from England qualified personnel to act as consulting architects to handle the works of the various public works Departments. This recognition of professional architect had a meek beginning.



By virtue of their knowledge of the structural aspects of building and because of the scarcity of qualified architects, engineers assumed a controlling influence in building. The trend brought about inspired construction in the place of architecture.

## 2.2 HISTORY OF ARCHITECTURAL EDUCATION DEVELOPMENT

In the year 1880, His Highness Maharaja Sayajirao Gackwar III started a polytechnic under the name of Kalabhavan Technical Institute<sup>2</sup> and in 1892 an architecture course was started. In 1949 Kalabhavan Institute was taken over by M.S. University of Baroda and made of department of architecture. In 1959 the degree of B. Arch was awarded to the first batch of students.

In about 1900, on the advice of Mr. John Begg, the first consulting architect to the Government of Bombay, classes in architecture were started in J.J. School of Art. These classes were meant to train draftsman, to fill the vacancies in the offices of the consulting architects. In 1907 the training was recognised by the Government by granting a 'Draftsman's Certificate'.

In 1908, the then consulting architect to the government of Bombay Mr. George Willet organised this into a four year course, with one full time teacher. In 1913, Mr. Robert. W. Cable was appointed to take charge of the school. Architects and assistant architects to Government and private architects served as part time staff. Prof. Cable reorganised it into a five year course. Later Mr. Foster King and Mr. Claude Batley,

took charge of the school. After some time Prof. Cable returned to school again and in 1923 the first qualifying examination for the Government Diploma in Architecture was held.

Afterwards recently the school was affiliated to University of Bombay and the degree (B.Arch.) was instituted.

The teaching of architecture was on the conventional lines in both the schools, giving maximum importance to history of architecture. Architecture was thought to be a composition of established elements, especially Western, like the classical orders. Later the stress had moved over to Indian elements and patterns. In about 1925 onwards there was a revival of Indian architectural elements in Bombay school. Still the design was applying established and accepted 'elements' on the building, with the difference that they were Indian<sup>3</sup>. The typical style of this period is exemplified in the work of Edwin Lutyens in New Delhi (1912 - 1930).

It was Delhi School of Architecture that changed the trend of over-emphasis on 'historical design' to modern design. After independence this trend has become stronger.

The next school of architecture to start in the country was that in the government polytechnic in Nagpur in 1947. Later this school was moved into the Visvesvaraya Regional Engineering College, Nagpur and affiliated to Nagpur University. A full fledged B. Arch. course was also instituted there.

The first degree course (B.Arch.) in the country started by B.E. College of Calcutta in the year 1948 and the

first B. Arch. degree were awarded to its graduates in 1953.  
(see plate No.2 for information about various other institutions).

The first post graduate degree course started in University of Roorkee in 1969, and afterwards in I.I.T., Kharagpur in 1972.

### 2.3 TYPES OF INSTITUTIONS

In administrative and academic set up, there are various kinds of architectural institutions in the country.

The independent schools are one of the leading set. Among them there are schools affiliated to a University only for the purpose of the award of degree, and one which does not have any connection with a University.

Another set is the affiliated colleges of Architecture, which are also in almost the same pattern as affiliated schools.

Some institutions operate as departments of Universities and one as a department of Indian Institute of Technology.

The departments of engineering colleges are another set, the colleges being affiliated to the universities.

It has been found that while independent schools are much better of in educational facilities, the departments of engineering colleges do not enjoy very much by way of facilities, the university departments being in between. These aspects reflect on their standards of education also.

## 2.4 TRENDS OF ARCHITECTURAL EDUCATION IN 70's.

As stated already, the modern education came out of the traditional influence of 'historical design' in late forties and early fifties. Because of the greater cultural ties with the United States of America and opportunities for higher education there, the 50's and 60's saw tremendous American influence on architectural education. Still it continues to grow probably because many of our educators and leading professionals had their higher education in the West. This has led to the idea of liberalisation of architecture courses towards the end of the curriculum, when the student is offered some choices in the subject of studies.

Many of the schools and departments of architecture have practical training included in their curriculum. The courses range between four and a half years to six years of duration.

Architectural institutions, most of them situated in major or medium size cities, seem to have oriented their courses consciously or unconsciously to the urban building scene only; this may be because the city is the main consumer of the products of the architectural schools. There are indications that the awareness of the problems of the country as a whole is gaining momentum and finding its way into the architectural institutions even though little by little.

## 2.5 DEVELOPMENT OF REGULATORY BODIES IN ARCHITECTURE.

### 2.5.1 INDIAN INSTITUTE OF ARCHITECTS.

The Indian Institute of Architects which was formed

1929 was a continuation of the two former organisations - the Architecture Students Association (1917) and the Bombay Architectural Association (1922). The purpose of this professional body is to make available the service of the profession to the country and to safeguard the interests of the profession. Later, a Board of Architectural Education was set up (under the renewed constitution and by-laws of the Institute) to improve the architectural education. They have appointed a syllabus committee and a model syllabus (as a reference) was formulated. The facilities, staff structure, and procedures for those institutions which aspires for recognition of the Institute also were set down by this committee. The graduates from such recognised institutions are eligible for the associate membership of the institute.

The architects Act 1972, by giving the power of recognition of various institutions of architectural education, to the 'Council for Registration of Architects in India', has diluted the authority, the Indian Institute of Architects had on the architectural institutions in the country<sup>4</sup>.

#### 2.5.2 ALL INDIA COUNCIL FOR TECHNICAL EDUCATION (AICTE)

This is an advisory body to the Ministry of Education, Government of India, which is responsible for the upkeep of standards in various fields and institutions of technical education. Under this body there is another board called the All India Board of Technical Education in Architecture and Regional Planning. The AICTE with the recommendation of the Board is responsible for approving any course in architecture

on behalf of the Central Government.

#### 2.5.2 THE UNIVERSITY GRANTS COMMISSION (U.G.C.)

The commission which was inaugurated in 1953, sets its aim as to advise the Central Government on the allocation of grants in aid to various universities and advice the universities on academic matters. 'In the fields of engineering and Technology the commission generally act on the advice of AICTE'. Because the universities are being run on the huge financial aid provided by the central and state governments the U.G.C. weilds some amount of power in the field of education including education in architecture.

-----

**References:**

1. J.B. Fernandes, 'History of Indian Institute of Architects' Souvenir of the Indian Institute of Architects Convention, Roorkee 1970 P. 1
  2. 'Booklet of Dept. of Architecture', University of Baroda.
  3. Information provided by Mr. H.N. Dallas.
  4. 'The Council for Registration of Architects in India' is constituted by representatives of I.I.A., AICTE, State Government architectural departments, the Council for Engineers, the heads of architectural institutions etc.
-



LOCATION OF EDUCATIONAL INSTITUTIONS WHICH AWARD A DEGREE OR EQUIVALENT DIPLOMA IN ARCHITECTURE



PARTICULARS	AMERASAP SCHOOL OF J.C.	BANGALORE M.C.U.	BAKODA M.A.R.C.C.F.	BHOPAL M.A.R.C.C.F.	BOMBAY ACCADHYN.J. COLLEGE	BOMBAY COLLEGE OF ARCHITECTURE	CALCUTTA S.M.H.T. COLLEGE	CALCUTTA S.M.H.T. COLLEGE	CHENNAI S.M.H.T. COLLEGE	DELHI S.M.H.T. COLLEGE	HYDRABAD S.M.H.T. COLLEGE	KANPUR S.M.H.T. COLLEGE	MADRAS S.M.H.T. COLLEGE	MADRAS S.M.H.T. COLLEGE	MADRAS S.M.H.T. COLLEGE	MADRAS S.M.H.T. COLLEGE
YEAR OF INCEPTION	1922	1967	1892	1963	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
DEGREE	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch	B.Arch
ELIGIBILITY FOR ADMISSION	NIL	NIL	MAX-2CYRS	16-21YRS	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
QUALIFICATION	SCIENCE WITH PHYSICS & CHEMISTRY & MATHS	SCIENCE WITH MATHS	EXAM IN SO OR EQUIVALENT WITH HIGHER SECONDARY SCIENCE	INTERMEDIATE WITH SCIENCE	INTERMEDIATE WITH MATHS & CHEMISTRY	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT	ALERT
MINIMUM PERCENTAGE IN MARKS	NIL	NIL	45%	55%	50%	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
ADMISSION METHOD																
ENTRANCE TEST	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ANNUAL INTAKE OF STUDENTS	30	30	40	15	50	50	50	50	50	50	50	50	50	50	50	50
DURATION OF COURSE	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS	3 YRS
COURSE IN YEAR	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS	2 SEMESTERS
SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER	SEMESTER
PROJECT ASSIGNMENT	AT THE END OF COURSE	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
THEORY	WRITTEN & DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	DESIGN

GENERAL INFORMATION ON DEGREE OR EQUIVALENT COURSES IN ARCHITECTURE IN SIXTEEN INSTITUTIONS IN INDIA.

## CHAPTER - III

### PART - I

#### AN EVALUATION OF THE PRESENT SYSTEM OF ARCHITECTURAL EDUCATION IN INDIA

##### 3.1.2. INTRODUCTION

The evaluation of the system of education should be made against various societal factors and needs as to how far it is a success in achieving the requirements of the society. Only when it stands the test of such an evaluation, it can be said to be relevant to the national context.

##### 3.1.2. IS OUR PRESENT ARCHITECTURAL EDUCATION SYSTEM RELEVANT?

Much doubt is not left as to the insufficiency of our present system of architectural education to produce competent professionals who can serve the major causes of the society.

Most of the architectural institutions, situated in cities, are by and large, controlled by the requisites of the private and to certain extent governmental agencies, which deal with a very limited area of construction activity, where architect largely is a conventional form-giver or to certain extent space planner. But in our peculiar circumstances architect has to play a much wider role. Professor John Lloyd who was in charge of organising the architecture course in Kumasi School in Ghana presents the picture in a clear way.

"Ghana has an 80% - 20% rural urban population rapid population growth rapid urbanisation low industrial

and technical resources, a meagre building industry concentrated on urban problems and a minute professional body. The problems of physical environment range from basic survival to sophisticated metropolis with the centre of gravity in rural subsistence. Faced with this challenge, the faculty would have to develop planning and building technology wings ..... I would go further and say that the immediate problems will require these areas of skill to a far greater extent than conventional architectural skills. These conditions reinforce a belief already held that if architecture is not to do without the provision of optimum physical environment, then architectural activities must be quite a different nature than hitherto. Not only, as Banham said, in order to keep up with a technologic nature ('Theory and Design in the First Machine Age', 1960) but in order to make a contribution to the real lives of humanity. 50% of humanity are living at subsistence level, many of the others crowding into megapoli. No one can pretend that either situation is optimal, or that traditional architectural activities are likely to provide solutions to either". (See plate 15 for an undergraduate curriculum emanating from this philosophy).

The conditions prevailing in our country are also similar in many respects. For example, the housing problem is three fold for the urban elite, the urban slum, and the rural people. It could be seen that in many respects the needs and the solutions required in the urban slums and the rural areas are similar, even though in few other respects they are widely varying. In many respects, the solutions required are of basic type and not sophisticated, in these cases. The problem is not of ideal but minimum livable environment. The cultural level and attitude of these people also call for such solutions.

Further, village improvement is often suggested as a step towards reducing urban migration and slum control also. These are arguments for caring more for villages by teaching basic technology also along with a more sophisticated one in architecture.

And this is why planning and building science are more important in our situations.

The shortage of experts and the economic inability to afford them are common problems in both urban and rural building scene. The expert who is best suited in this circumstance is one who can take care of all problems regarding the building - planning, structure, services, construction etc. Again this points to the importance of learning skills than general knowledge in architecture.

Evaluating the existing system of architectural education in this country, it seems that apart from allotting considerable amount of time and some amount of energy to teach subjects like building technology, building construction, structures, services, climatic design, and other utilitarian technological areas in a theoretical way, enough effective effort is not being made to teach the skills connected with these areas. (see plate 10). The complaint about graduates lacking in practical knowledge emanates to a great extent from such a situation (see plate 13).

The term 'basic technology' is intended to represent a technology which is elementary and may be sometimes an improved version of age old technics, which would not require much money, resources and social attitude to install and maintain. Further, it may not need highly specialised experts to establish it. These may be in the field of design, construction, structural engineering, sanitation and hygiene or other fields related to building activity and human environment. Only such a cheap, easy and basic technology can save both the rural scene and to a great extent urbanising villages and the urban slums. This part also is not

properly cared for in our present architectural education.

Going a little further brings out certain other characteristic features of the present system of architectural education.

### 3.1.3 LACK OF OBJECTIVES

Goals and objectives - both long term and immediate-are essentials in an educational system which 'helps to avoid wastage of time and energy by pursuing only relevant objectives'.

"When no clear cut aims are previously agreed upon, enquiry suggests that in any one department, the aims and teaching methods may differ widely".<sup>2</sup>

While the larger goals of the system should emanate from the national needs and objectives, there should be immediate objectives for each subject taught. These should be clearly defined and put down so that it may not lead to controversy. The common belief among many architects that 'Design is never taught'<sup>3</sup> comes out of such situations, where there are no clear-cut objectives, and a systematic effort to achieve it. If design cannot be taught why should we have architectural schools at all?

As for the course, each year, and each course should have well defined objectives in terms of student behaviour which our professional institutions are lacking. On the contrary general declarations of objectives like 'to produce excellent architects' will not suffice, neither will we know whether we produced excellent architects or extra-vagant ones.

### 3.1.4 DISINTEGRATION OF ARCHITECTURAL DESIGN AND ALLIED SUBJECTS

If the function of architecture is also to bring about

an optimal physical environment within the reach of man, then the subject 'Architectural Design' cannot be simply allotting areas and packing them up in a 'form' in a building site. The Western method of treating design as a separate subject and giving some knowledge in the allied design subjects was developed in their special conditions, where specialists are essential and available to any building activity<sup>4</sup>. Our situation is entirely different. At least in the case of basic type of buildings (the lion share of our buildings are such) the Indian architect has almost the same role as the traditional master builder.

To make such an overall approach possible the various allied subjects should find relevant niche in the studio programme. Even some of the institutions in developed countries are successfully experimenting such system<sup>5</sup>. The net result of lack of integration of the technical subjects is wide spread apathy among students, (resulting in a most casual treatment) of these subjects.

An integrated programme, apart from equipping the architect with the ability to design a total environment, will help him to see eye to eye with the specialists if any when required. Above all it will enable him to do away with the misapprehension of architecture as simply 'form building'.

In Indian situation, this disintegration has reached such a point as to create a big cleavage between teachers and professionals, and isolate the teacher completely from the 'realities' of architecture. Most of the complaints about our young architects lacking in 'practical knowledge' spring from this original mistake.

The importance given to allied design subject also have to be enhanced in many cases of architectural institutions. The average allotment of contact hours for structures and services (including most of the technological subjects) is about 18% in 13 institutions in the country. Among these only four institutions allot more than 20% time for these vital subjects, while all these institutions provide between 30 and 52% for architectural design the average being 38%.

### 3.1.5 LACK OF SCIENTIFIC ATTITUDE

Architecture deserves to get the treatment of a technology, not only from those who are outside the field, but more important, from those who preach and practice it, whatever may be the polemics of its definition. The usual architect teacher here cherishes a host of superstitions like 'architecture is not communicable', 'architecture cannot be taught', 'architecture is intrinsic', 'architecture is intuitive' etc. But all over the world, there seems to be a growing belief that architecture should identify itself with 'the science of problem solving and should seek a methodological base for the resolution of technical and social problems'.<sup>6,7</sup>

Such an approach is more conducive to bring about a 'teachable' architecture, and will be far better than half-heartedly teaching the 'unteachable architecture'. Just like any other professional discipline (especially engineering) the air of exactitude and scientific aura should prevail in architectural teaching also. Any doubt about the possibility of this might be emanating from conservativeness and reluctance

to accept challenges. Our architectural schools totally lack this attitude; one reason why we are not able to rise to the occasion and answer the questions.

A scientific attitude and methodology is lacking in the young professional when he leaves the parent institution. So instead of relying upon science, technology and reason as instruments of decision making, he meanders into intuitive aberrations. A much stronger and detailed treatment of applied sciences like, climatology, building services and equipments, building material science, structural engineering etc., will tend to discourage these tendencies, they are well integrated into architectural design.

### 3.1.6 THE QUALITY OF INPUT: STUDENTS AND TEACHERS

In almost all architectural institutions the student input is mediocre in quality. For a good number of students, architecture is a forced option. (See plate 6). Some of them never have any previous knowledge, aptitude or sometimes even information about such a course or its contents. In all the architecture departments connected with a technological college/Institution/University, it has been observed that they mostly get of lower calibre of the whole lot. The most important reasons for this are, lack of vocational training in high school education, lack of popularity of the profession of architecture and its non-acceptance as a technological subject by technocrats. The few people who join out of 'genuine' interest, are mostly attracted by the prospect of money making involved in the profession.



Even teachers with long standing experience are not reluctant to utter 'teachers are those who do not do well in the field; those who do well have no time to teach'<sup>8</sup>. Even though the absoluteness of the statement has to be taken with a pinch of salt, it is an undeniable fact that many an institutions is collecting mediocre teachers and getting into a vicious circle, in which the standard of the institution is progressively brought down.

Those institutions which are enjoying competent hands, rarely provide them with opportunities for refreshing themselves through research and practice, thus curtailing the incentive to be upto date. Barring very few exceptions, most of our institutions have an almost stagnant teaching faculty. The professionals, on the other hand are incompetent or reluctant to offer even occasional services to the teaching institutions, thereby providing little feed back. Instead, most of them satisfy themselves lamenting on the incompetence of the teachers and the standard of the institutions as well as fresh graduates.

### 3.1.7 LACK OF OPPORTUNITIES FOR HIGHER AND CONTINUING EDUCATION

This is one of the major reasons for the mediocrity of architectural staff. The reluctance of the professionals to part their knowledge and experience with educational institutions deny the feed back which would have kept the institutions fresh and competent.

Badly enough, very little of educational research or pedagogical training is provided within or outside the institutions

to brush up the quality of the teachers. Because of frugality of incentives and cumbersome redtape, whatever opportunities may come up also are not often utilised fully well. Most of the fresh teachers are also inexperienced and in most case, never given any instructions or training in teaching and left with the only option of following the good old methods through which they were taught, thus setting the vicious circle.

The social relevance of universities and institutions for higher education can be said to be fully acquired only when these institutions become the harbingers of research in various new fields of technology and bring the fruit of research with in the reach of common man. The universities in highly developed countries play this role successfully. In some of them (eg. U.S.S.R. it is binding on the teachers to do at least some amount of research. Only through proper incentive and persuasion through regulations can this be achieved in our inertia-settled educational institutions. This will probably set aside the draw back of not being in touch with the field through private practice, which everyone may not be able to get a chance to do.

### 3. I. 8 ASSESSMENT OF STUDENTS WORK

"The means of education do more than effect the ends of education. They become ends. If for example the student is selected, placed, promoted and graduated by examinations, the object of the system from his point of view must be to pass examination"9.

Our system of education, whether general, vocational or professional, seems to be largely dependent on examinations. In

fact, architecture is a little less affected by this problem. Still a method of continuous evaluation of the student is lacking.

Another malady is the subjectiveness of the evaluation. As in the case of a design methodology, here also there are very few evidences of a scientific approach.

Student participation in jury system also is weak in most of the schools. Such participation helps to elate the evaluation in to a mutual dialogue. Further it can bring down prejudice and partiality to a certain extent.

The allied design professions are partly or totally neglected in the valuation of architectural design problems. A continuously available jury, with more student participation, and an attempt to evaluate the capacity of the student to integrate the allied skills in design will make the evaluation system much more lively, continuous and scientific.

### 3.1.9. PRACTICAL TRAINING

Practical Training is one of the most sensitive part of architectural education and often discussed among students, teachers, and professionals. Because of factors like lack of facilities, disinterest among professionals and lack of proper follow-up by educational institutions the usual practical training which is included in the course becomes much less desirable than it could have been. Sometimes, the student is flabbergasted to see that whatever he had learned in school has got very little or no relation with the 'realities' in the field. Especially, the training

which is included at the end of the course, fails to feed back these problems to the educational institution. (This is reflected in the opinion of the students and architects that the training should be somewhere in the middle of the course. See plate No. 8 and 13). Any practical training to be successful, there should be proper follow-up by the school and feed back.

The provision for practical training should be available also to those teachers who have no facility or opportunity to do practice while they are teaching.

### 3.I.10 DISPARITY IN THE EDUCATIONAL PATTERN OF VARIOUS INSTITUTIONS

Often the 'Standard' of a student is assessed by the name and fame of his 'almamater', whatever may be the course content and curriculum and his personal abilities.

There are courses of four and a half to six years of duration in various institutions in India. There are also credit system, marks system, grade system, etc. for evaluation. Still further, while sessional marks are important somewhere examinations are important somewhere else. There is wide disparity in the time and marks allocation for various subjects. Often, the subjects which are dealt with are widely varying. (See plate No. 2,3,4 & 5). Under such circumstances, assessing a student according to his school becomes the only possibility. The lack of a common examination by a professional body adds fuel to fire. There is hardly anybody strong enough to check the quality and regulate the course of education.

Such a confusion in the educational pattern, apart from

other difficulties, makes it very difficult to draft and successfully run post-graduate programmes for students from different institutions.

### 3.I.11 CONCLUSION

As a country which is ailing from overall backwardness, we need a more basic technology along with a sophisticated one. Problems of vital national interest, like housing, low cost construction, sanitation, environmental and climatic control, planning and the skills related to these areas should find more place in the architectural curriculum, than conventional architectural skills. The present system of architectural education has yet to realise this vital aspect.

In addition to lacking in purposefulness related to national problems, at microlevel also our education is lacking in scientific methodology, in setting behavioural goals at each level of education.

A more technological approach and attitude to architecture as a profession has yet to be cultivated. A well integrated curriculum for architectural design and allied design professions (In treatment and evaluation) will help to bring about such an attitude. The quality of students and teachers has to be controlled by some effective machinery or device. Practical training for students and even teachers is to be devised so as to increase their touch with field and provide proper feed back to educational institutions, meanwhile not intimidating the faculties of inventiveness and imagination.

Some measures of uniformity should be introduced into the system at a national level taking into account our special problems in educating and building. This will make it easier to tread the path of a more effective higher education in the country without much wastage of energy.

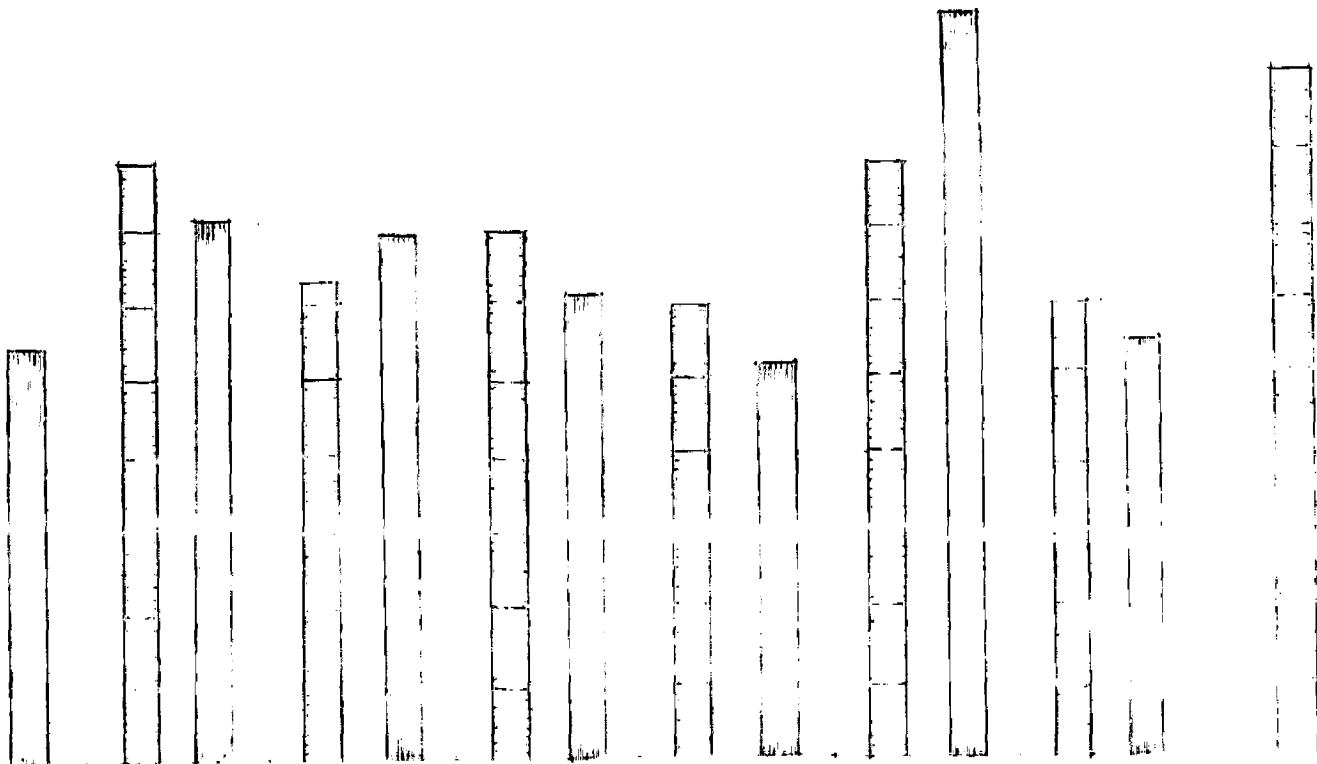
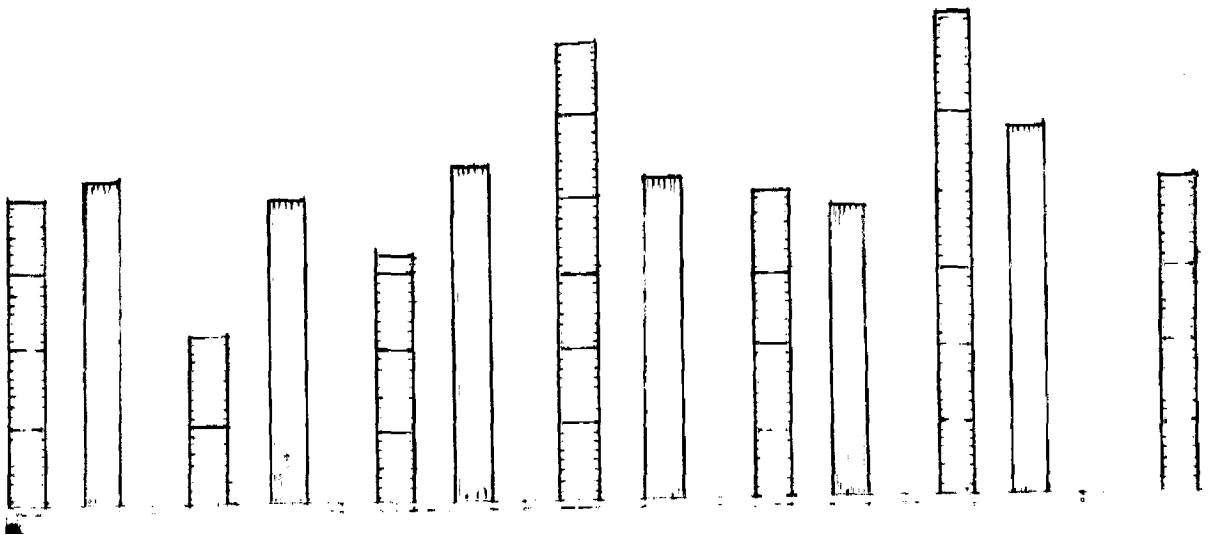
Without such a streamlining of the architectural education system, it will continue to drift aimlessly, producing architects who are unaware and incapable of solving our vital problems.

\*\*\*

\*\*\*

## References:

1. John Lloyd, Principal A.A. School, London; 'Intentions' Arena; July-August, 1966; P.4.
2. Ruth M. Beard 'Seminar on Higher Education', 'A Psychologist's Approach. P.41
3. B.V. Doshi, 'Architectural Education in India' 'Science Today' May 1973 P.30
4. Even this is changing, 'The profession must recognise mutual dependence on all design professions'. Society needs and will demand the highest achievable social and technological solutions. Profession must seek to improve its own technical ability'. 'Creating a Human Environment', A report of the AIA, (University of Illinois Press), P. 280
5. For example, in Architectural Association School in London.  
  
"Both the departments of systems studies and of structures and fabric have moved considerably towards the integration of assessment into studio programmes either by submission of technical reports and / or studies or by an oral examination by a specialists panel on particular aspects of an appropriate studio programme".  
  
John Lloyd (AA School, London), 'Educating for Choice and Change', Arena, July '68, P.1.
6. 'Creating a Human Environment', A report of American Institute of Architects, University of Illinois Press, 1970. P. 280
7. 'Aspirations', John Owusu Addo and Max Bond, 'Arena', July August 1966.
8. Aditya Prakash, 'Architectural Education in India' Science Today May 1973 P. 38.
9. Robert Hutchins, 'The Learning Society', P. 95.





# DISTRIBUTION OF HOURS AND MARKS FOR THE WHOLE SPAN OF COURSE

PERCENTAGE OF TOTAL HOURS

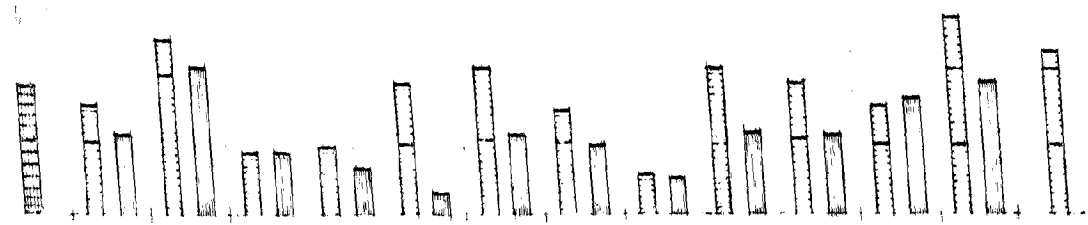
PERCENTAGE OF TOTAL MARKS

MARKS

CLASSIFICATION	AMVEDIYA, BANGALORE	BARODA	BHOPAL	CALCUTTA	CHANDIGARH	DELHI	HYDERABAD	KANPUR	MADRAS	MUMBAI	RAIPUR	TRIPURA	WARRANGAL
	COLLEGE OF ENG. & ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.	DEPT. OF ARCHT.

GENERAL CONSTRUCTION

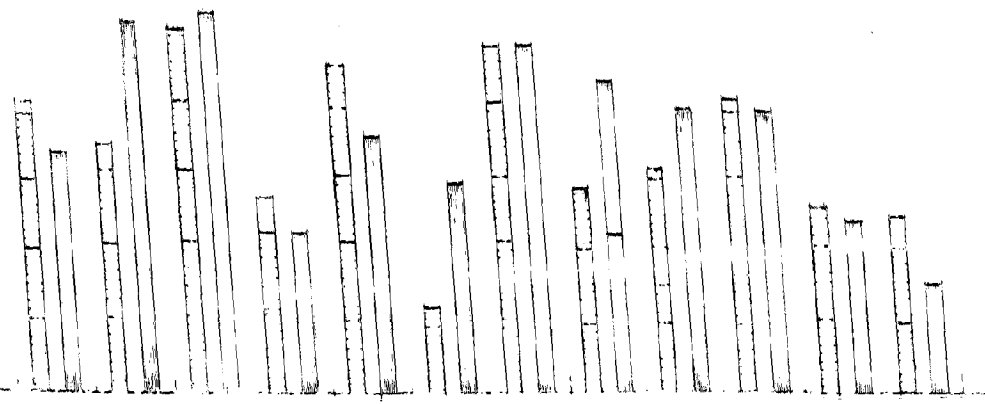
CREDITS



MATERIALS & CONSTRUCTION

MARKS

(INFORMATION NOT AVAILABLE)

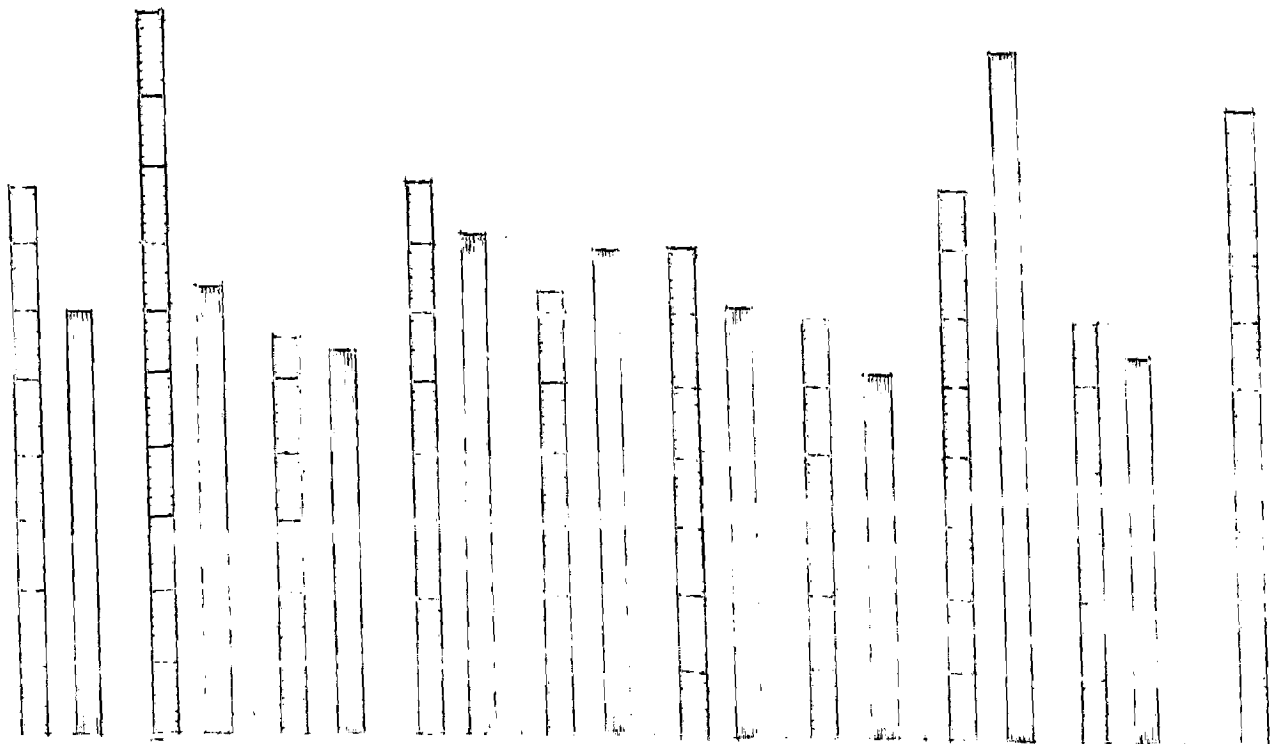
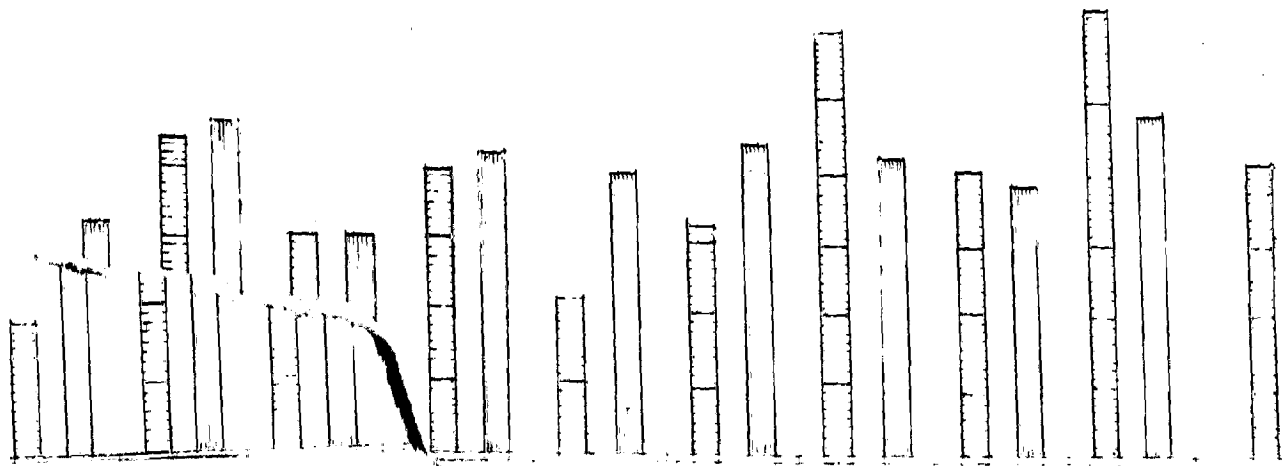


# THE WHOLE SPAN OF THE COURSE

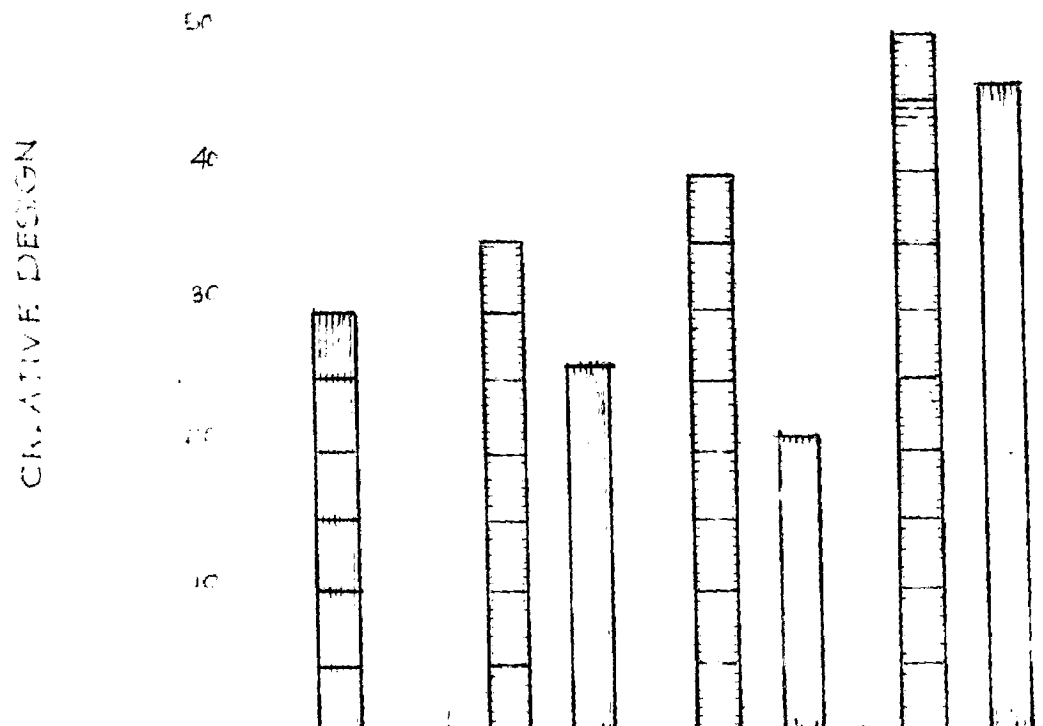
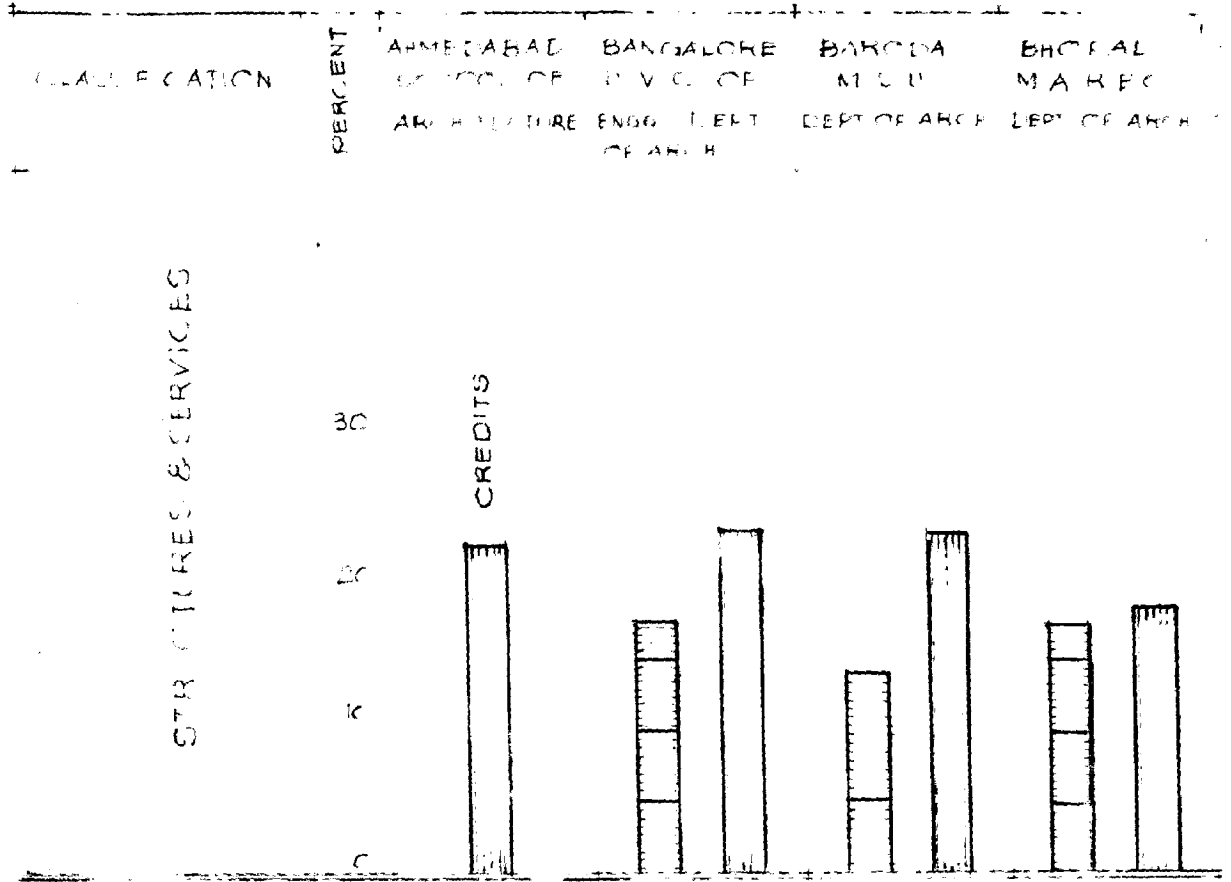
1954

1955

CO. TA. ... ARH ... HYDERABAD ... MA. AA ... ...



# DISTRIBUTION OF HOURS AND MARKS FOR

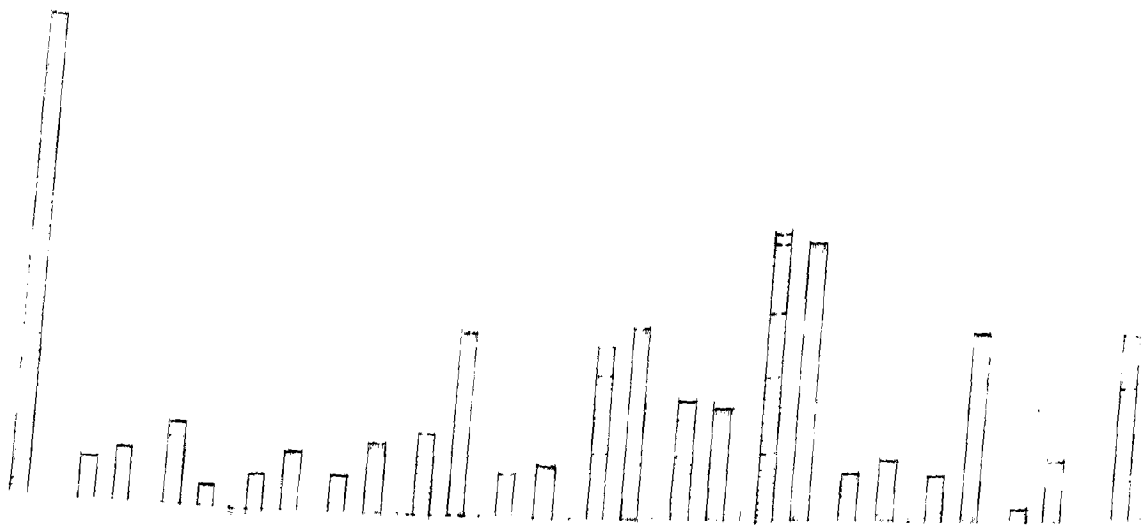
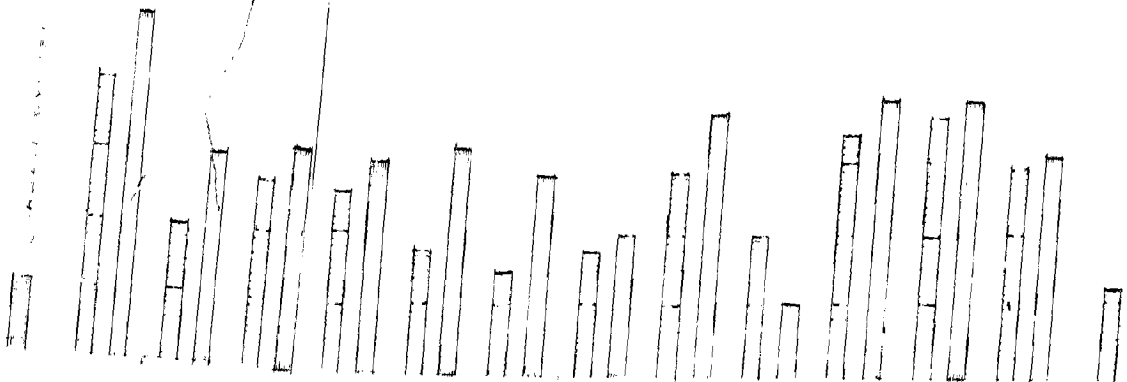


GENERAL INFORMATION AND HOUSE NO. 50

PERCENTAGE OF TOTAL HOURS

PERCENTAGE OF TOTAL MARKS PLATE A

NAME OF STUDENT: \_\_\_\_\_  
 COURSE: \_\_\_\_\_  
 ARCH 6 FJH



## CHAPTER - III

### PART. II. A

#### OBSERVATIONS MADE UNDER OPINION SURVEY CONDUCTED ON FINAL YEAR STUDENTS IN B. ARCHITECTURE COURSE

##### 2.II. 1 INTRODUCTION:

Two sample surveys were conducted, one among final year students in three schools of architecture, which are considered to be above average in their educational standards. About 60% of final year students of each school were served with questionnaires (See appendix I for a sample of questionnaire). Similarly, another questionnaire (appendix II) covered a section of professionals and teachers in architecture. Even though over two hundred questionnaires were distributed only seventy three of them responded. Many of the questionnaires were not filled completely. The observation and interpretations of the two surveys served as an input towards the final goal of the dissertation (See plates No. 6 to 13).

##### 3.II.2 BACKGROUND OF STUDENTS:

The survey made observations about the age of students, their preference for science or arts subjects, the reasons for their opting/being in architecture course and the nature of their background knowledge about architecture.

Most of the students are in 15-17 years of age when they join the course. Whether such an early age is a proper time to make choice of their profession, or to make a judgement on their aptitude is a controversial question. Especially, some of the schools, which

select students only on merit basis do not seem to be handicapped to any more extent, than some other schools where there are tedious entrance tests.

The students are clearly science-biased in all the three schools which were observed while in Chandigarh and Roorkee eighty percent students said their past subjects were sciences, before they joined the course. In Delhi it is about seventy percent. (This to a large extent, depends on the pre requisite for admission to the course also). This again points to the fact that no appreciable difference is found in the aptitude and interest of the students who are selected on 'mark sheet basis' or aptitude basis.

Another observation which was made was that even in one of the best schools as that of Delhi, only a minority (31%) join the course because of their own interest. The other 69% comes because somebody suggested, or by chance, or they passed the aptitude test (to which they were lead by either of the above two reasons). Chandigarh showed as high as 56% joining the course by chance. Roorkee showed a 50-50 ratio between those who were interested and those who came otherwise but the answers in this case did not correlate with other observations made in the survey.

Even in larger cities, a good one third of the students did not have any kind of previous knowledge about architecture. In Roorkee, the percentage of students who did not had any knowledge about architecture is as high as sixty (or even more). The reasons for this may be that architecture has yet to be widely accepted as a

profession, and that it has made practically very little impart on semi-urban and rural areas from where, most of the students come to the schools in smaller towns. The absolute absence of vocational counselling in our basic education even in cities, also contributes to this fact.

Majority of those who had some kind of knowledge about architecture came to know about it from friends and relatives (50-60%) and not through academic sources. The above conclusions are reinforced again through these observations.

### 3.11.3 FACILITIES AND ACADEMIC ASPECTS

More than sixty per cent of all students think that the education they are getting is satisfactory. The students always tend to compare their schools with 'worse Schools' (or which they think are worse). Their lack of knowledge about what is better also contributes to this attitude. A detailed probe into the various facilities in the schools shows that the aspects of dissatisfaction are widely varying. While in Delhi majority consider their library and workshop to be good (75% and 69%) this is 43% and 6% in Chandigarh and 20% and 20% in Roorkee. As to teaching and guidance and the competency of staff majority consider them satisfactory. The general level of dissatisfaction is more in Delhi and Chandigarh (40% each) than in Roorkee. The dissatisfaction shows no correlation with the actual facilities, but only with the awareness. (see page and question No.7).

The survey shows that no deliberate priority or special weightage is being given to the major problems of the nation -

Housing, Health and Education - in setting the problems in Architectural Design. (Housing is catching up importance in Delhi and Chandigarh curriculum). Another area of gross neglect is industrial buildings. All of these students had not done the design of a laboratory during their course. When the students are asked to rate their own capacity in preparing sketch designs for various types of buildings the biggest category came under 'excellent and good' in Delhi, good and fair' in Chandigarh and 'Fair and average' in Roorkee. As far as services and structural design and estimating and specification are concerned Roorkee fared well over the other two schools. On the whole they showed in general a correlation to the weightage given (by way of hours) to these subjects in the course work. (See plate 3, 4 & 5).

In the case of most of the allied subjects and theories only 50% or less people thought they are thoroughly applied to the architectural design. The rest think that they are applied only in a general way. (This attitude was more pronounced in the case of Chandigarh). Of the subjects which are thought to be fairly well applied are structural engineering, services and building construction.

#### 3.11.4 SYLLABUS AND CURRICULUM

It is difficult to find any correlation between the opinions expressed about the adequacy of their syllabus and curriculum with the weightage actually given in their course. For example fifty per cent of people in Roorkee thought Architectural Design is being given too much ('More than adequate')



time; 43% of Delhi students also thought so. While Roorkee gives one of the least weightages (30%) to design in the country and Delhi given the most (52%) in their curriculum.

Again, fifty per cent of students in Roorkee thought structural engineering is too much (they spent 30% of time on the subject) while 56% of students in Delhi also thought the same (with only 22% of time devoted for structures). The only general observation is that in most subjects about or more than 50% of students thought their course contents are adequate.

Even in the case of practical training, while 50% thought it inadequate in Delhi and Roorkee, 75% thought it to be adequate in Chandigarh. In fact all the schools spent equal time on practical training. Vital subjects like housing was thought to be inadequate by students of Roorkee and their opinion is shared to a lesser extent by Delhi students. But probably because of the extensive study in housing taken recently in Chandigarh School, students showed 81% satisfaction in the adequacy of that subject.

The feeling of adequacy or extravagance of a subject depends on how the students enjoy the subjects. Another aspect is their idea of 'usefulness' of the subject in the field or even in the design studio. (compare Roorkee and Delhi opinion about structural engineering). In general, the impression attainable is that these subjects, whether it is theory of architecture, housing, or structures and services, are dealt within isolation, without any connection to the core activity of architectural design. This is one reason why the student develops his own idea of adequacy about each subject.

Proposals for addition of subjects included working drawing as a separate subject (Roorkee and Delhi), environmental design (Delhi, Chandigarh) Psychology (Chandigarh) and Research (Delhi).

Many students were of the opinion that physics and Chemistry should be deleted from the syllabus (Chandigarh 37%, Delhi 25% Roorkee 20%). 50% of Roorkee students opined against History of Architecture.

### 3.II.5 PRACTICAL TRAINING

About practical training, the majority (52% in Delhi) opted for training at the end of every year, for about 3 months, 43% in Chandigarh opted for the same with none in Roorkee. 62% of Chandigarh students opted for training once in the middle of the course for 6 months (their present system), only 31% opted for it in Roorkee and Delhi. Roorkee showed an option for training twice in the whole course. The options shows clear bias to present system in Roorkee and Chandigarh, while in Delhi it shows what is usually practiced by the students.

The largest majority wanted their training to be in an architect's office while more than 50% in all the three schools feel that it should be partly under a construction engineer and a building contractor.

### 3.II.6. DURATION OF THE COURSE

While majority of students in Chandigarh and Delhi (87% and 75% respectively) think that the duration of their course

is satisfactory, only 50% think so in Roorkee. The rest opted for a shorter course mostly of 4 years duration. The fact that no one opted for a longer course was expressive of a feeling that more time is not required for the course. Any how 50% of the students in Roorkee opted for a 4 year course.

Higher education is the major immediate aim of many students (D.62, C.31, R.30) in all the three schools. The next comes the assistantship in a private firm (R.30, C.25, D.19) while 25% in Chandigarh, 20% in Roorkee and 13% in Delhi would like to start their own practice. Only a feeble minority (13% in Chandigarh and 10% in Roorkee 0% in Delhi) opted for government job.

### 3. II.7 FUTURE PLANS:

In bigger cities students think that they should improve their competence before entering the field. There is an amount of disillusionment about private architectural offices also. Some want to get out of the country for better prospects. They know that their prospects of starting their own practice, is bleak. But in smaller cities and towns probably, there is still preference for employment in private firms and seemingly better scope for private practice. This aspect should be particularly taken into account because majority of our architectural schools are in smaller cities and some in towns. Again it is thought provoking that very few people wanted to join government service.

As for their confidence in future, Chandigarh rated the highest with 93% of their students being confident followed by 60% in Delhi and 50% in Roorkee. Such a sharp difference may be

due to many reasons, like better chances of employment-self or otherwise-better exposure to the field and the status of the school. It was observed that the recent studies in housing taken up in Chandigarh College of Architecture, in collaboration with a foreign team, and other studies on slum housing have boosted the morale of the students to a great extent. Team work and interclass collaboration also helped the feeling. In Delhi school, one of the major reasons for their self confidence was given as their belief in the quality of work for which they are trained.

### 3. II. 8 THE PROFESSIONAL SCENE:

The four major reasons for Indians backwardness in architectural field were pointed out as lack of clients with good taste, poverty, lack of technological know how and lack of appreciation of Indian culture and social values.

The ability of architects, the educational training etc. rated low as reasons for this. This is suggestive of the Western ideals of architecture, which lingers on in all the schools. Students are made to think that only given good clients, and large resources, good architecture can happen or the blame of mediocrity may be put on these reasons. Further they thought, appreciation of Indian Cultural and Social Values to be one of the prerequisites for good architecture. This also indicates that special care should be taken by the educational system, to inculcate in to the architect methods for working under economic strain, more of technology and Indian socio-cultural values to improve the architectural scene.

Still the major influence on our students continued to be Western. Especially in Delhi School Western influence seemed to be highest, Chandigarh rating next. Roorkee showed lesser awareness to the leaders in the profession. (A.P. Kanvinde proved to be the Indian Architect who is most popular among students, especially in Roorkee and Chandigarh).

### 3. II. 9 HISTORY OF ARCHITECTURE:

The architecture style which impresses maximum number of students is the Japanese style. Next comes the classical style. While students in Delhi and Chandigarh showed interest in Indo-Islamic style, Roorkee did not show it at all. The way history of architecture is taught in these schools, is reflected in these opinion. (See that 50% of Roorkee students wanted to delete History of architecture totally). The Indo-Islamic monuments they are exposed to might have created the impressions in Students in Delhi. A total reorientation in teaching Indian History of architecture is needed for a better appreciation of our architecture.

By way of suggestions to improve the Indian Architectural scene the opinions that 'we should not imitate the West', 'we should find our own solutions for our own problems', 'we should educate people for a better "architectural consciousness', etc. came up. On the whole Chandigarh students showed a better awareness, and interest in the problems, and their solutions than the other two schools.

### 3.II.10 CONCLUSIONS:

- a. The validity of admitting very young students in architecture even by the help of an aptitude test is doubtful.

- b. Even in the schools situated in cities, only about one third of the total students join the course out of interest.
- c. Majority of the students join the course because their relatives/friends suggested it (as a good profession).
- d. National priorities do not seem to guide the setting of problems in the design studies. The primary architectural needs of housing, health and educational buildings are not specially taken into account.
- e. The ability of the students in architectural and allied designs (services and structure) seems to correlate, in general, with their weightage in the syllabus and curriculum.
- f. There is serious doubt among students whether the allied subjects are 'thoroughly applied' in architectural design.
- g. No correlation could be found in the feeling of adequacy of a subject or its extravagance in the syllabus with its actual weightage.
- h. Many students doubt the relevance of Physics and Chemistry in their course.
- i. They feel the need of more 'working drawings' in the course. Environmental design, and psychology are other interests.
- j. Many of the students want practical training to be well related to the construction field also (under a construction engineer or a contractor).
- k. While majority of the students are satisfied with the duration of their course, quite a few think that it could be curtailed to four years.
- l. Barring higher education, job in a private firm or private practice is the major aim of students.

- m. Majority of students are confident about their future.
- n. They think good clients, and technical and economic resources are essential for good architecture.
- o. They are generally more under Western influence.
- p. Their appreciation of historical Indian Architecture is not very good. It seems to depend on exposure to examples and teaching.

PART II. B.

AN ANALYSIS OF THE OPINION SURVEY CONDUCTED  
AMONG PROFESSIONALS AND TEACHERS IN ARCHITECTURE

3.II.11 COMPETENCY OF THE COURSE:

About 78% of all agreed that the education they have received did not help them to prepare fully for the profession. While 35% think that the educational system has improved, another 35% think that it is the same as what they got (3 to 5 year back). Some even think that standard has fallen lower.

3.II.12 WESTERN INFLUENCE:

As far as influence is concerned while about 35% showed purely Western influence, another 35% showed combined influence of both Western and Indian architects. The senior people are mostly under foreign influence, as could be easily understood.

3.II.13 NATIONAL STYLE/CHARACTER:

Half of all architects who came under the survey thought that we need not have a separate national style or character because, modern architecture is all the same everywhere. About 30% pleaded for a national character.

### 3.II. 14 REASONS FOR BACKWARDNESS:

The reasons for India's backwardness in good architecture was attributed to lack of proper educational training by more than one third of all architects. Poverty and public taste and attitude were pointed out as other major reasons (16% each). More than 35% of all architects think that Indian heritage in a architecture is irrelevant as such in the present conditions while about 30% think that it is strong enough to evoke a national character and style.

### 3.II.15 ARCHITECTURAL SCHOOLS:

Opinions are equally divided as to whether any architectural school in India is giving adequate education or not. Among the good schools, Delhi School of Planning and Architecture rated highest with, Ahmedabad School following (38% and 30%). Further, opinions are widely scattered as to the reason why they are good. Two of the major reasons, cited are the quality of teachers and facilities for research and practice. Better students, better leadership and better location were pointed out as other important reasons.

### 3.II. 16 FRESH GRADUATES:

Most of these people (50%) think that the fresh graduate should be fit to be adopted to a wide variety of roles, practice, research-private or government job, higher education etc. still, very few think that he should become like that without any further training.

The important aspects, which are lacking in fresh



graduates are practical knowledge, originality, lack of a methodology for solutions of problems etc., according to many. (There are general complaints which are too vague to relate it to the curriculum-hard work, sincerity, attitude etc.).

### 3.II.17 SYLLABUS AND CURRICULUM

As for the adequacy of the Syllabus and curriculum, majority of opinions show that the syllabus content is adequate. Among the subjects which are thought to be inadequate by more than 1/3 of the architects are, climatology, air-conditioning, lighting, philosophy and theory of architecture, housing, landscape architecture and environmental design, and estimating and specification. 25% opined that Physics, Chemistry and Mathematics should be deleted from the architectural curriculum. The opinions that climatology, services, housing landscape architecture, estimating and specification are not adequately included is specially important. This shows that scientific, economic and environmental aspects are not given enough importance, resulting in a superfluous architectural design education.

The same opinion reflects in the demand for including practical structural design, practical construction, environmental design and computer programming in the syllabus. This is a clear indication that the scientific content of the course should be enhanced.

Fifty five per cent are of the opinion that the architectural course should have emphasis on practical aspects of the profession. The next come science and technology and environmental design. This also fits well with the previous observations.

The comment on the statement 'Our young architects are trained to serve only the pseudo-western urban culture and the needs of urban elite in the country' by 35% was that it is true and about 40% said it is partially true. About 15% accepted the fact with the comment, that they have no other choice. This shows an almost consensus, on the fact that the educational system is not trying to answer the socio-economic needs of the country.

Many people think that there is very little scope for specialisation in undergraduate course in the present situation.

### 3.II. 18 DURATION OF THE COURSE:

As to the duration of the course, fifty per cent of the subjects thought that the duration of the course can be 4 years or less. Another 38% thought it should be five years. The opinion, probably emanates from the thought that the present duration is not being fully made use of.

### 3.II.19 PRACTICAL TRAINING:

About 1/3 of all expressed the opinion that there should be practical training after every year. Opinions that it should be twice during the course and once in the middle of the course is almost equally strong. This showed in general that most of them would like to have some sort of practical training sandwiched in between the course rather than at the end of it.

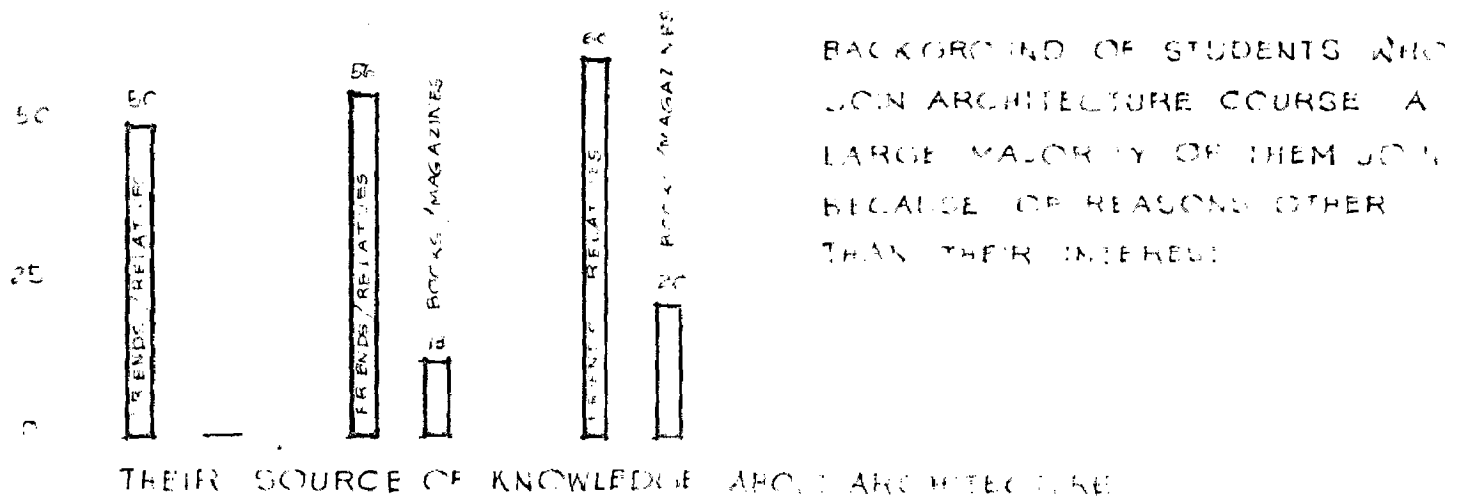
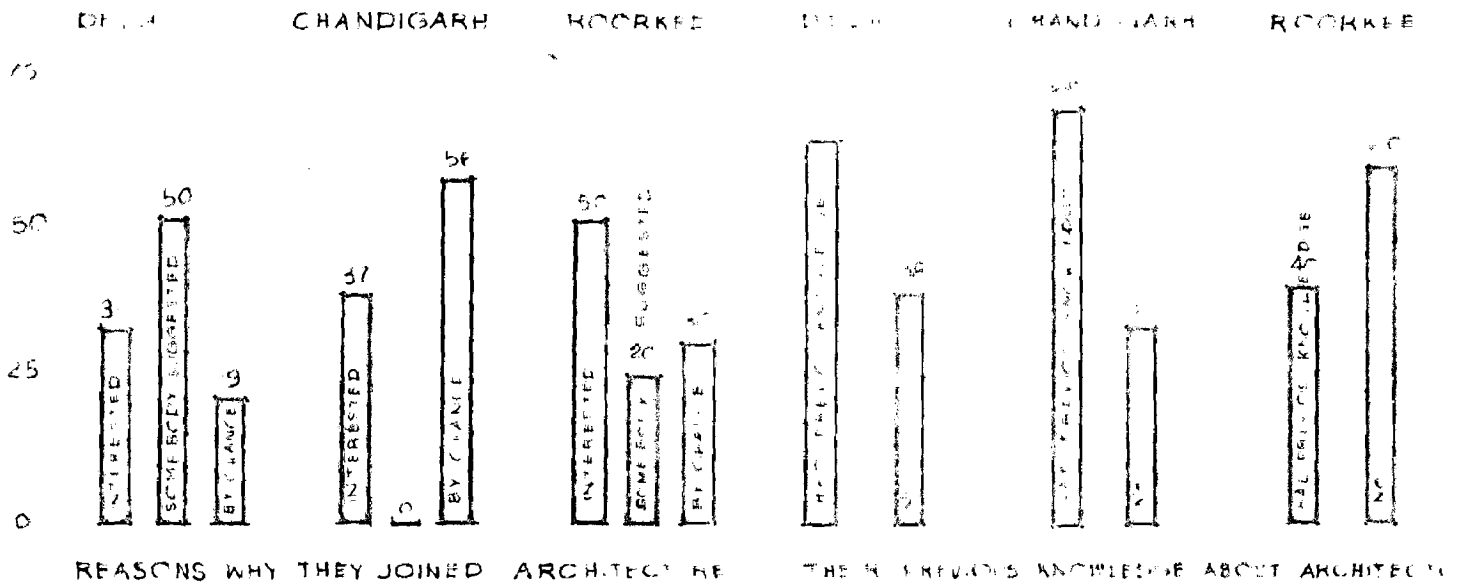
### 3.II.20 TEACHERS:

The opinion of 40% of architects is that all the staff

members should be practicing architects. 36% said that atleast some of them should be practitioners. Only 20% considered it unnecessary to have such people as teachers.

### 3.II.21 CONCLUSIONS:

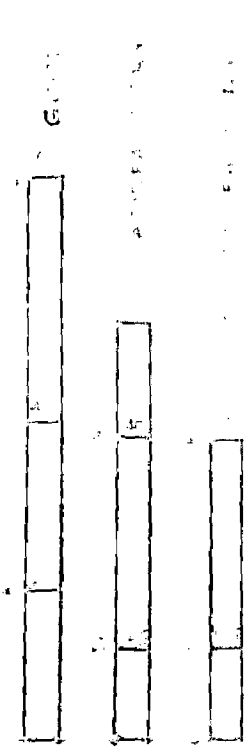
- a. The course as such is inadequate in the eyes of architects. Opinions are divided as to whether it is improving in last few years.
  - b. Western influence is still a leading phenomenon among professionals and teachers.
  - c. Quality of teachers and facilities for research and practice were indentified as the major aspects behind the success of a school. Majority thought that teachers (all of them or a good percentage) should be practicing architects.
  - d. The syllabus and curriculum and the course content are considered impertant by most of them.
  - e. 'Practical knowledge' is of greatest concern among architects.
  - f. Majority thought that the duration of the course can be reduced.
-



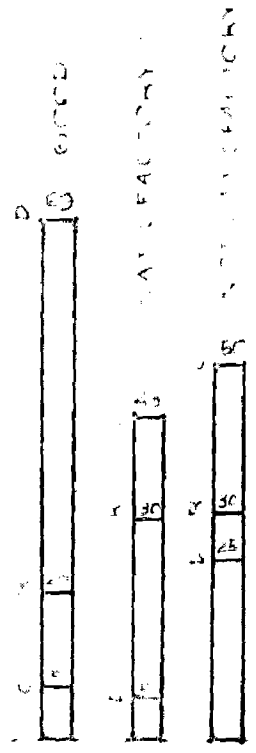
SAMPLE SURVEY CONDUCTED AMONG FIVE YEAR STUDENTS IN THREE INSTITUTIONS OF ARCHITECTURE IN CHANDIGARH DELHI AND ROORKEE.

TOTAL NUMBER OF COLLEGE/UNIVERSITY STUDENTS

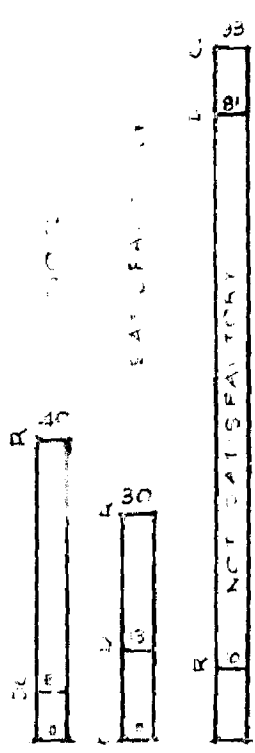
Institution	Delhi	Chandigarh	Roorkee
ROORKEE	100	100	100
CHANDIGARH	100	100	100
DELHI	100	100	100



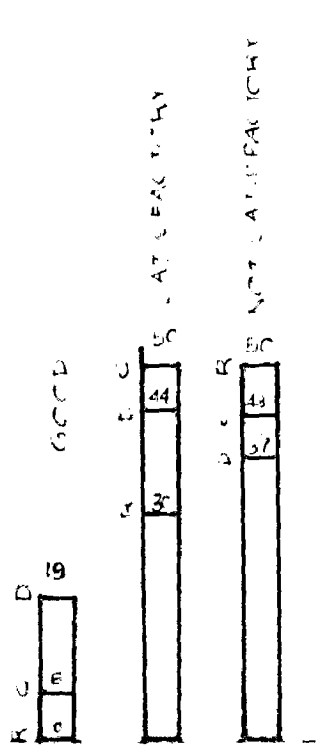
FACILITIES



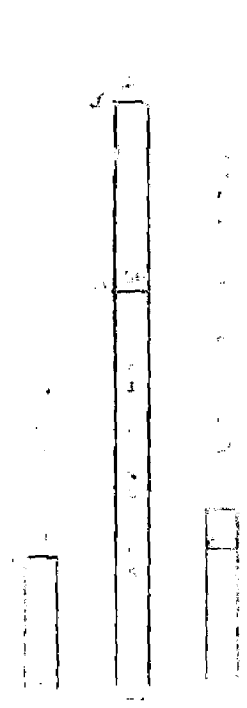
TEACHING STAFF



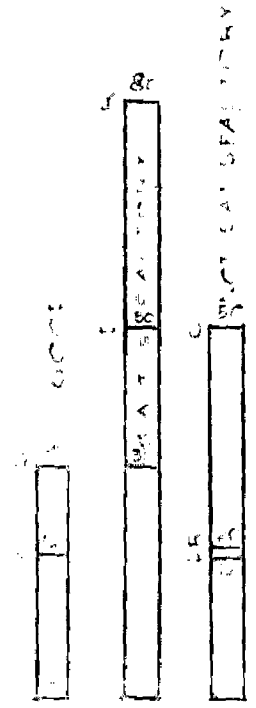
HOBBY ACTIVITIES



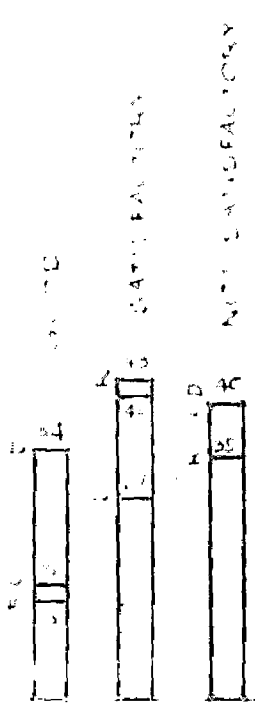
AUDIO VISUAL AIDS



LIBRARY



CONTENT OF COURSE



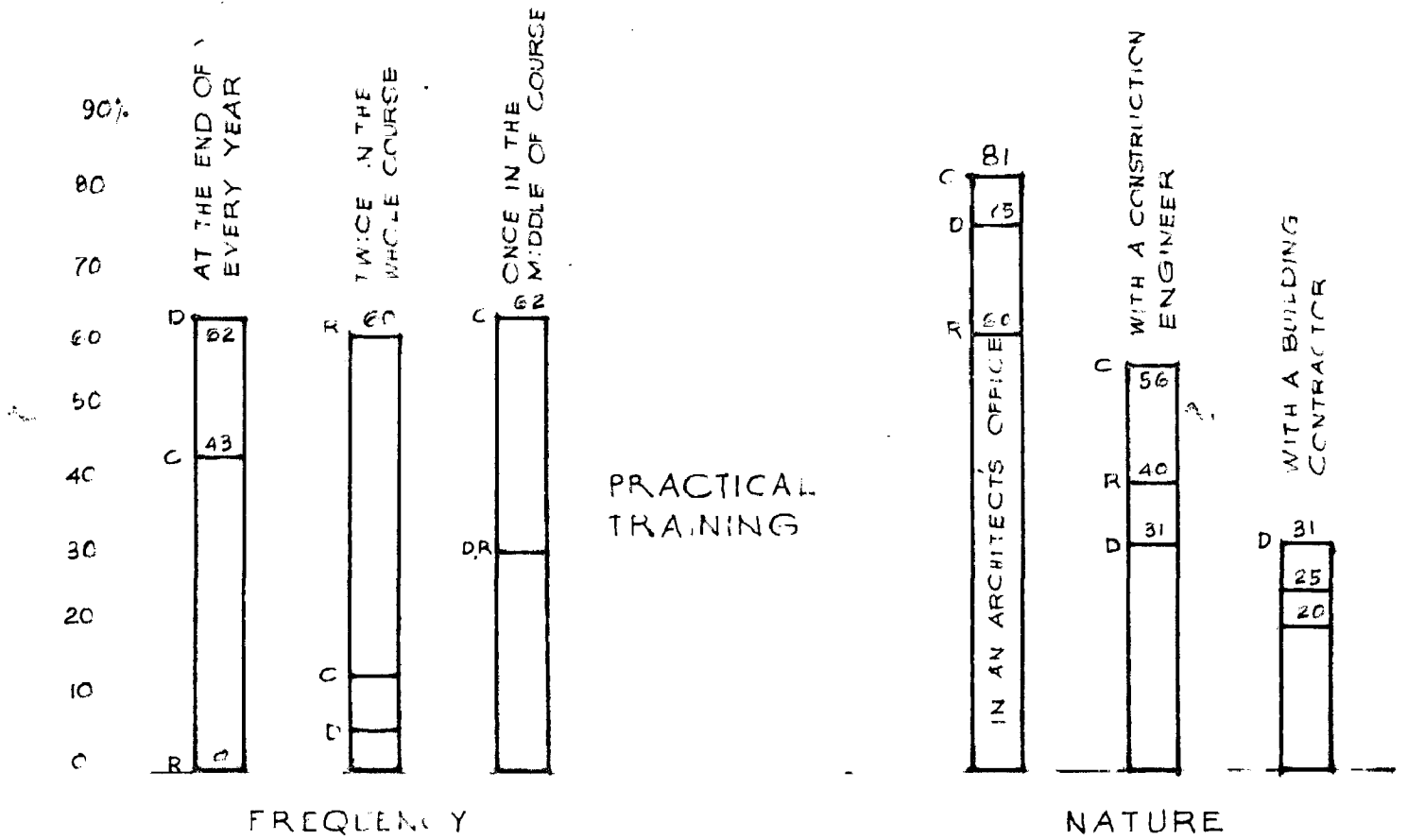
AVERAGE

FACILITIES, TEACHING & TEACHING STAFF

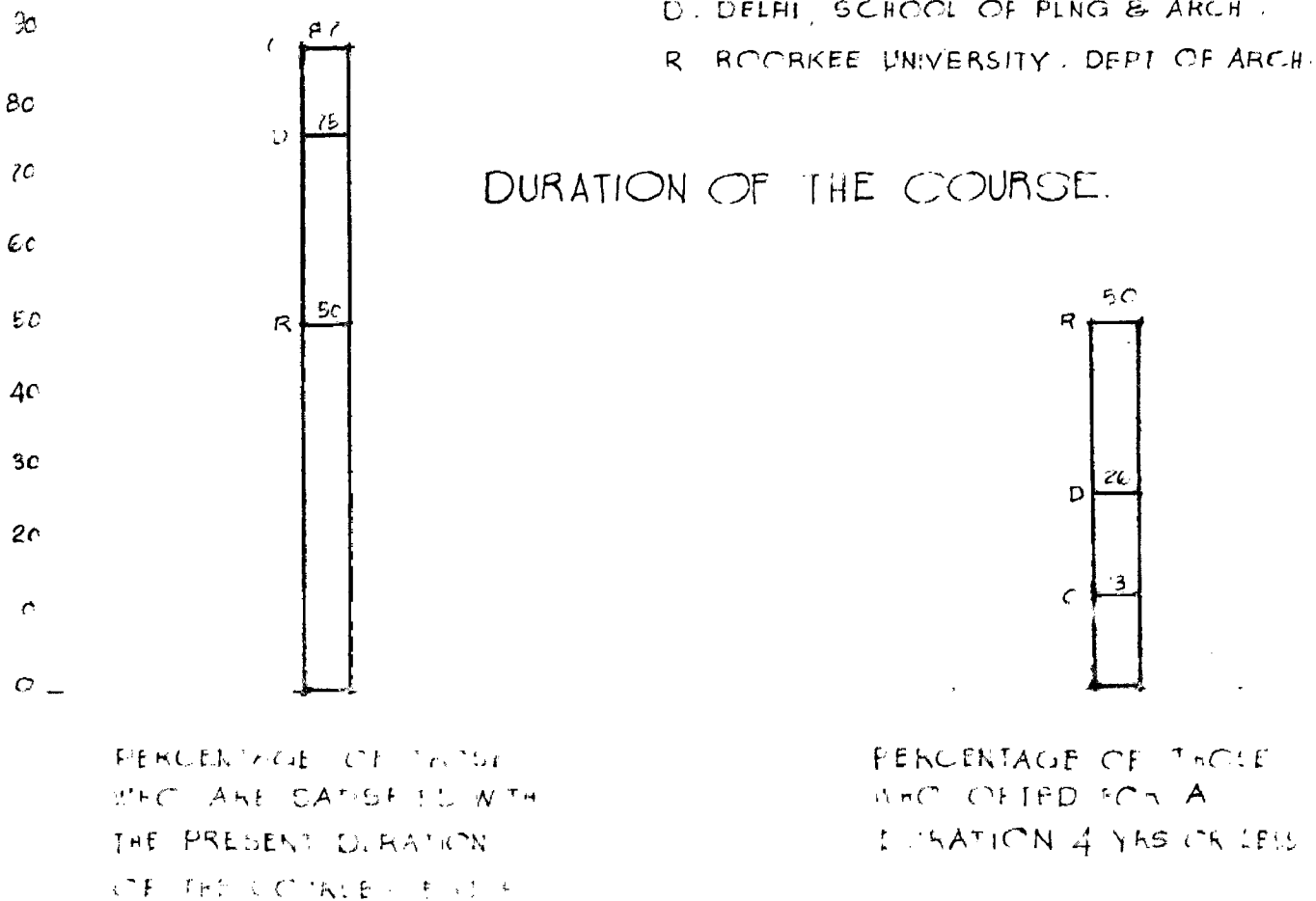
C CHANDIGARH COLLEGE OF ARCHITECTURE

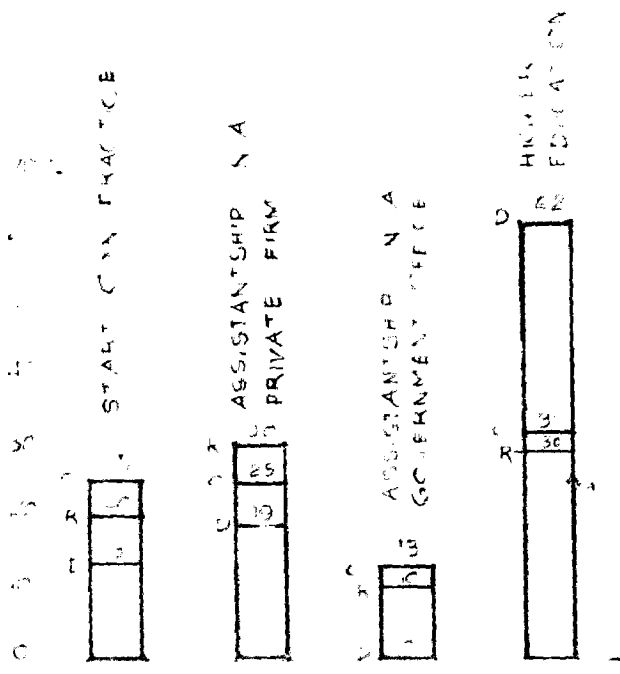
D DELHI SCHOOL OF PLANNING & ARCHITECTURE

R ROORKEE UNIVERSITY, DEPT. OF ARCHITECTURE

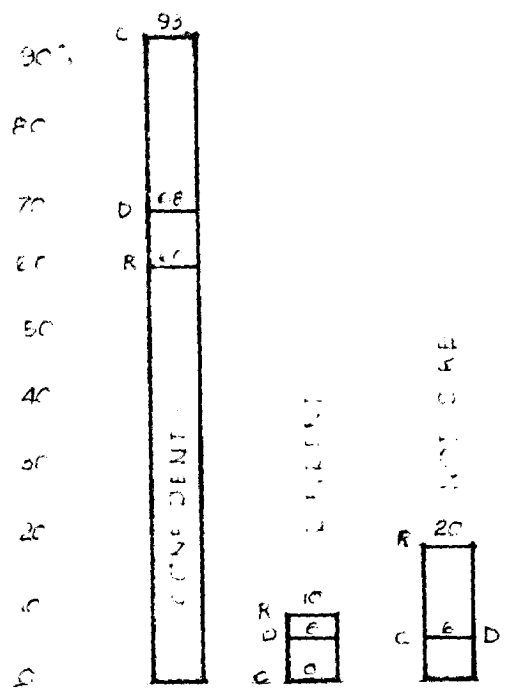


C. CHANDIGARH COLLEGE OF ARCH.  
 D. DELHI, SCHOOL OF PLNG & ARCH.  
 R. ROORKEE UNIVERSITY, DEPT OF ARCH.

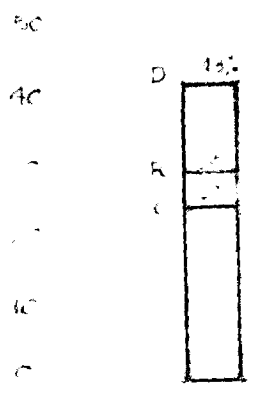




FUTURE PLANS OF STUDENTS

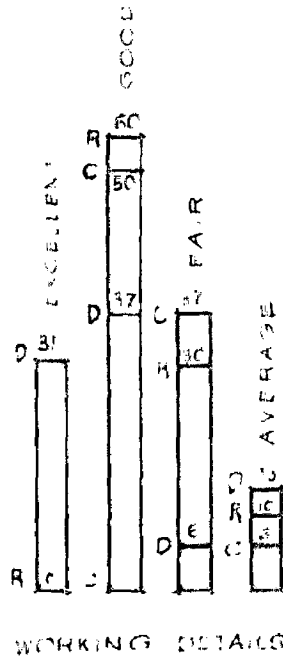
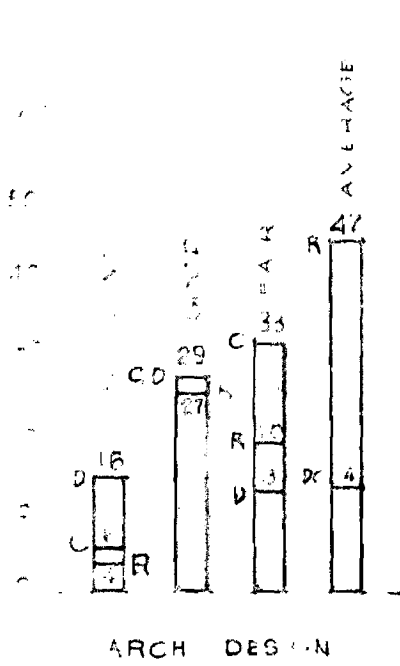


CONFIDENCE IN THEIR FUTURE



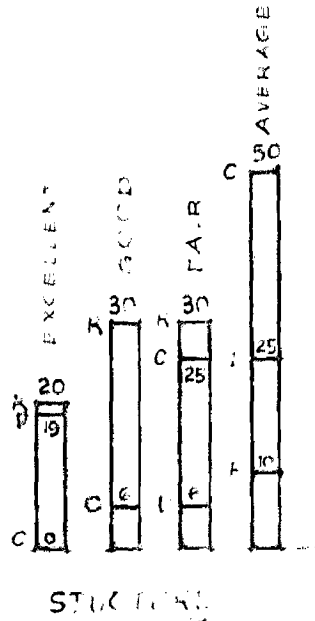
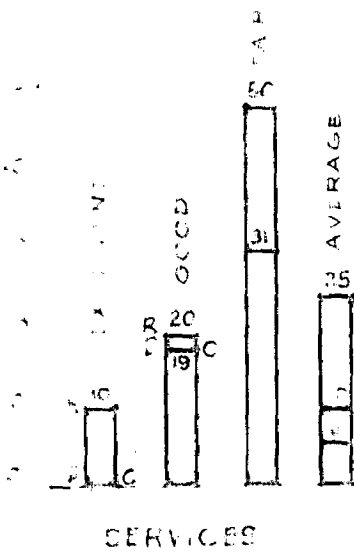
D DELHI SCHOOL OF PLNG & ARCH  
 C CHANDIGARH COLLEGE OF ARCH  
 R ROORKEE DEPT. OF ARCH.

THOSE WHO ARE PREDOMINENTLY UNDER THE INFLUENCE OF WESTERN ARCHITECTS

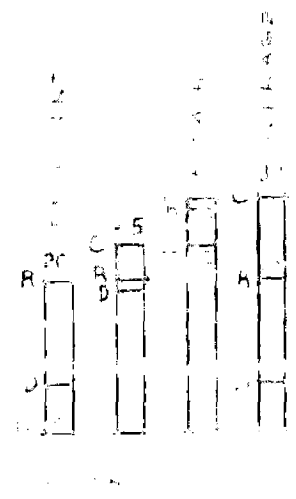
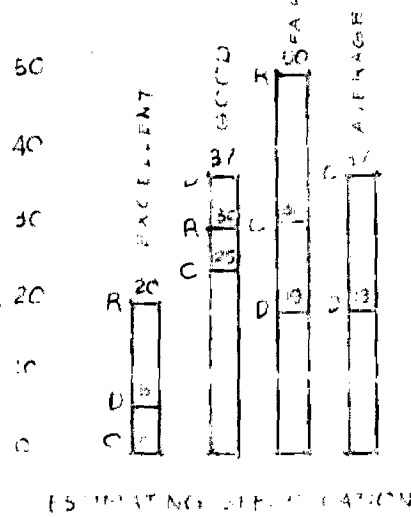


SELF EVALUATION OF STUDENTS ABILITY IN DESIGN, CONSTRUCTION & SUPERVISION

- C CHANDIGARH COLLEGE OF ARCH
- D DELHI SCHOOL OF PLANNING & ARCH
- R ROORKEE DEPARTMENT OF ARCH



THE STUDENTS WHO ARE CONFIDENT ABOUT ALL ASPECTS OF DESIGN & CONSTRUCTION OF EVEN SIMPLER BUILDINGS ARE VERY FEW EVEN IN REPUTED INSTITUTIONS OF ARCHITECTURE

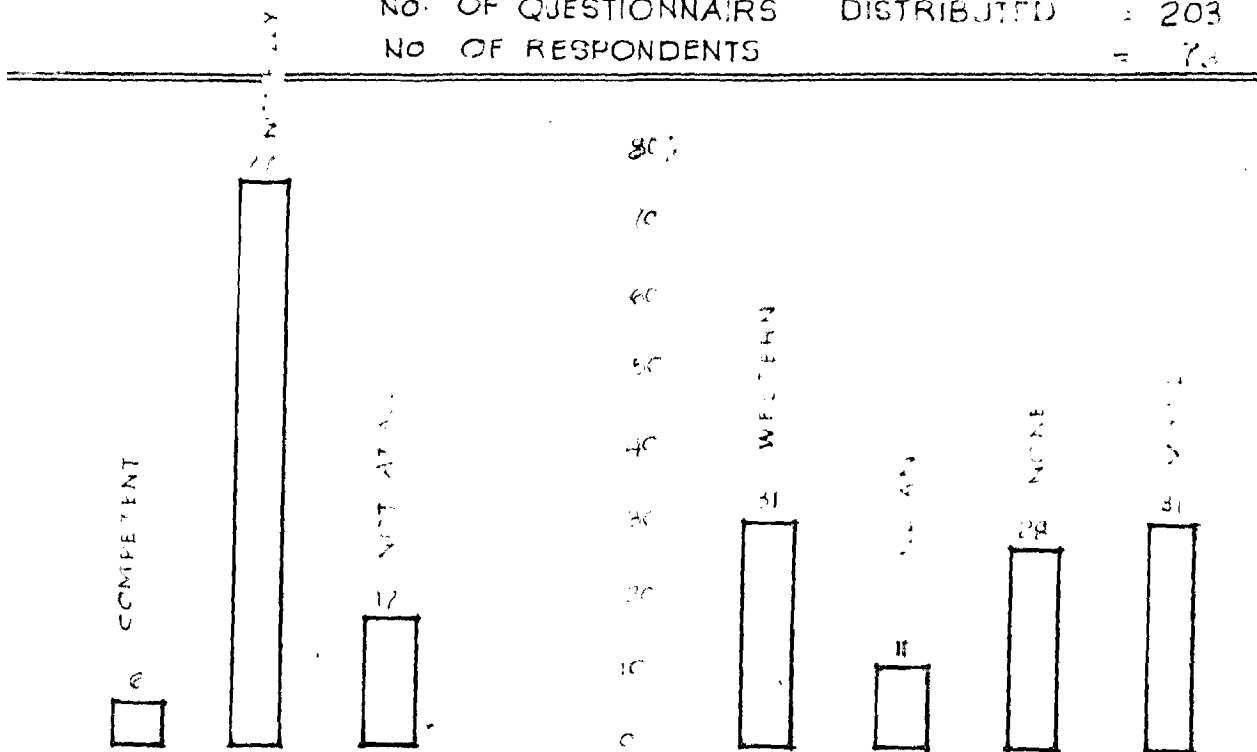


ESTIMATING & SPECIFICATION



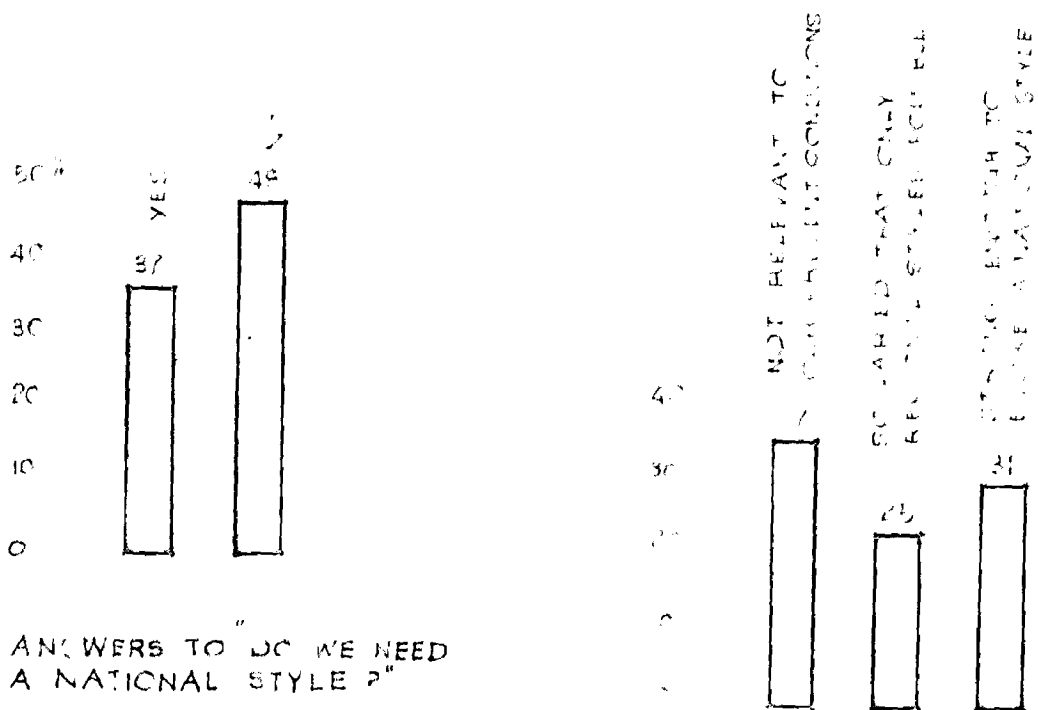
SAMPLE SURVEY CONDUCTED AMONG PROFESSIONALS AND TEACHERS IN ARCHITECTURE.

NO. OF QUESTIONNAIRES DISTRIBUTED = 203  
 NO OF RESPONDENTS = 73



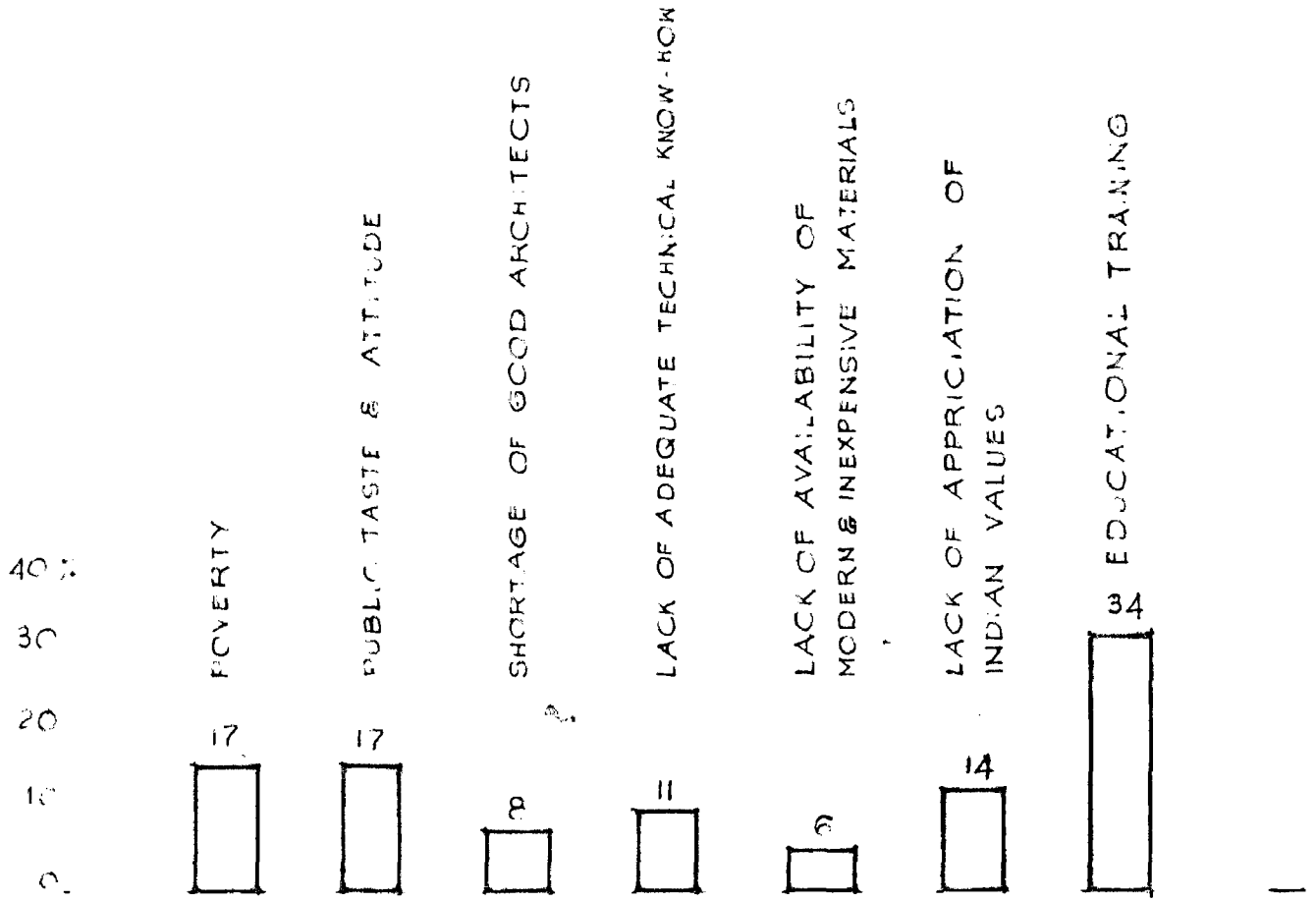
OPINIONS AS TO WHETHER THE PRESENT EDUCATION IN ARCHITECTURE IS COMPETENT ENOUGH

INFLUENCE OF MODERN ARCHITECTS ON THE SUBJECTS

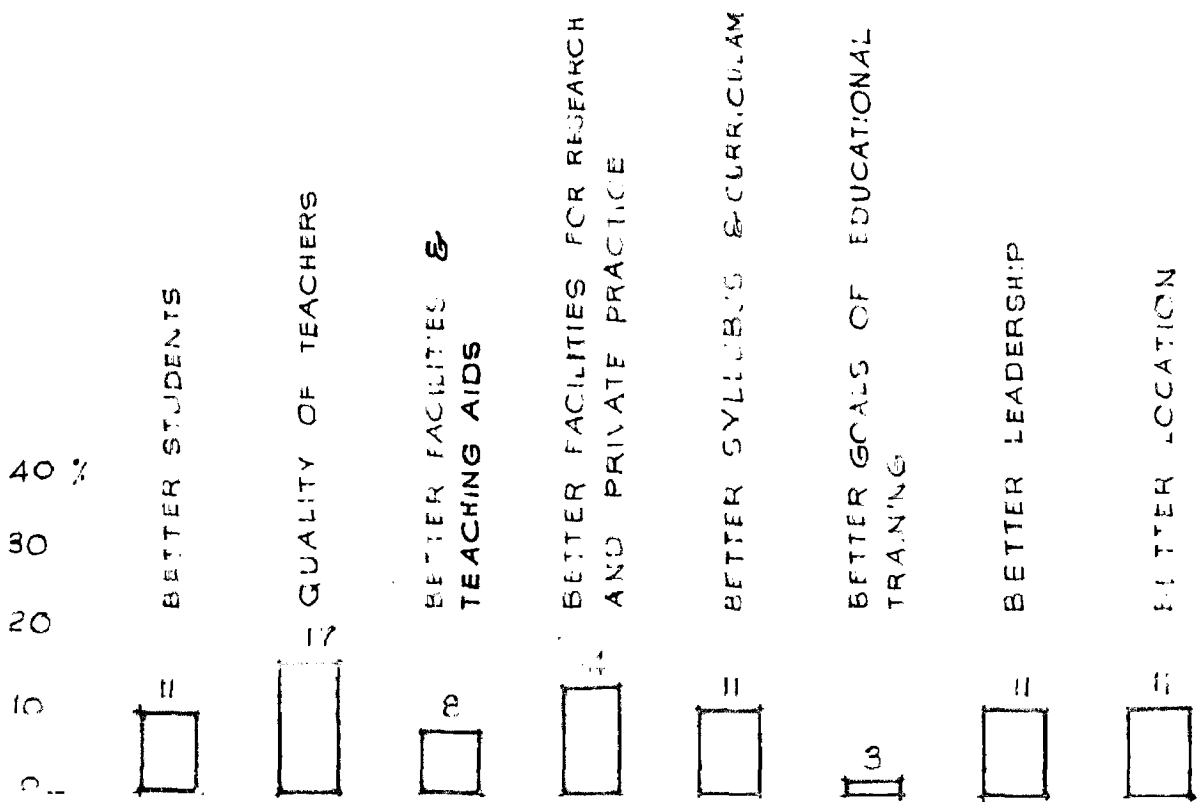


ANSWERS TO "DO WE NEED A NATIONAL STYLE?"

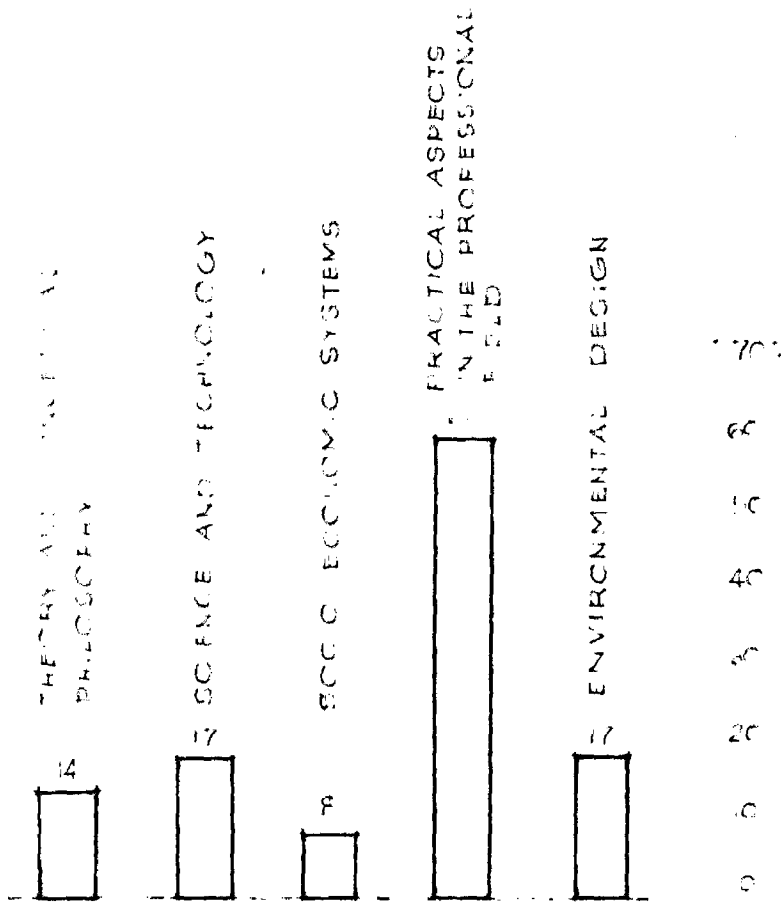
INDIAN HERITAGE



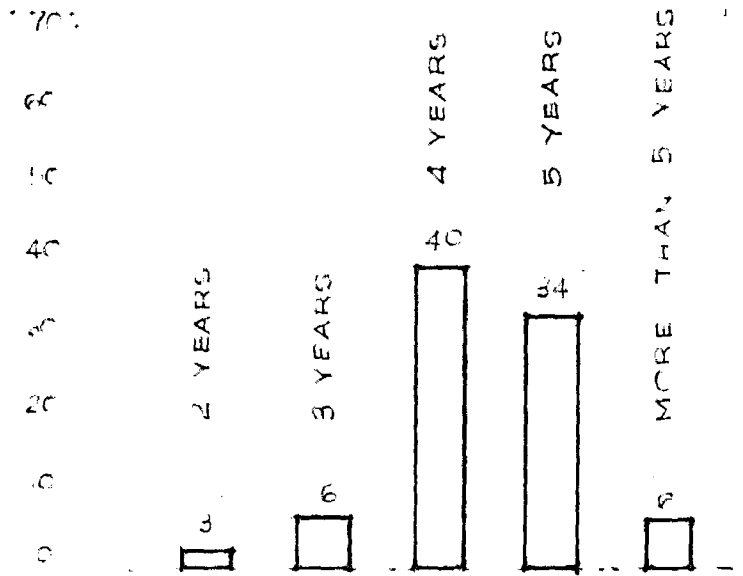
REASONS WHY OUR ARCHITECTURE IS BACKWARD



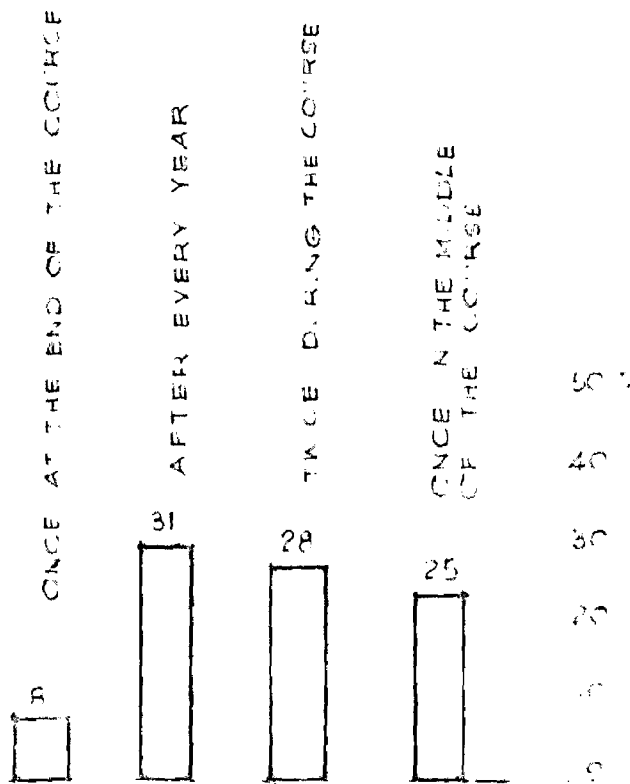
REASONS FOR THE ACADEMIC MERIT OF ARCHITECTURAL INSTITUTIONS



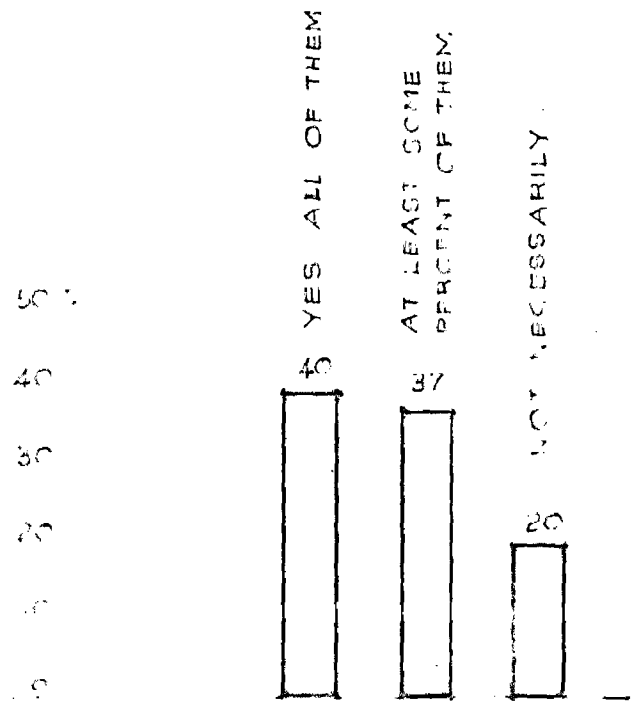
ASPECTS WHICH SHOULD BE GIVEN SPECIAL EMPHASIS IN THE COURSE



DURATION OF UNDERGRADUATE COURSE IN ARCHITECTURE

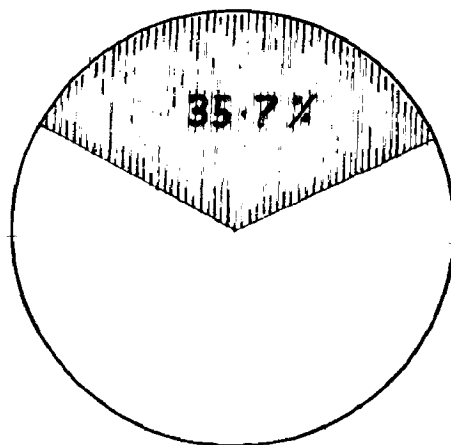
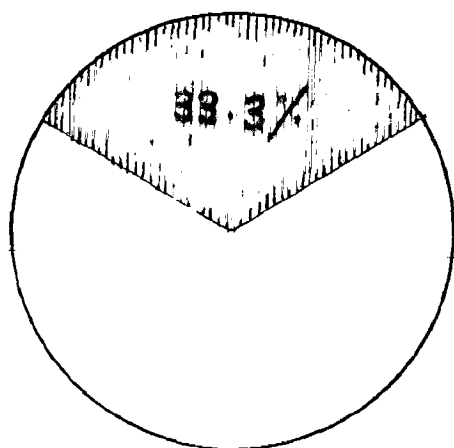


FREQUENCY OF PRACTICAL TRAINING



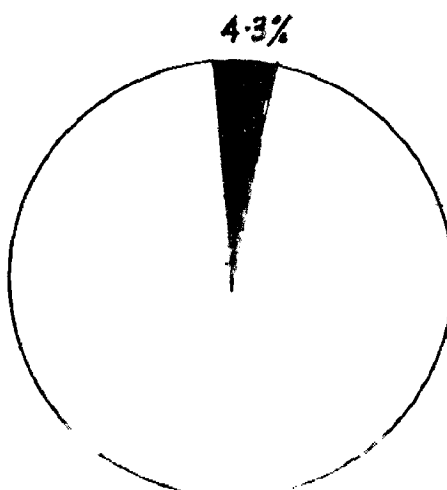
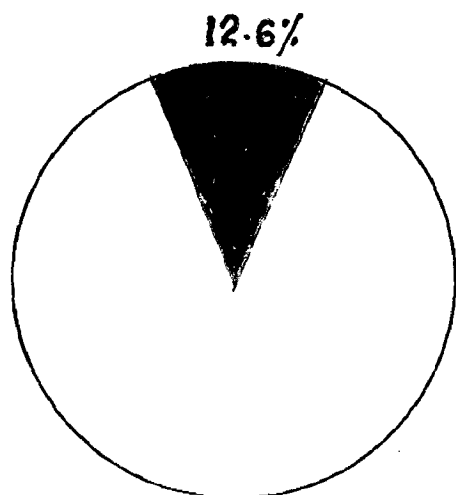
TEACHERS AND PRIVATE PRACTICE

IMPORTANCE GIVEN TO PROBLEMS IN HOUSING  
A COMPARISON BETWEEN TWO SCHOOLS IN INDIA AND  
TWO SCHOOLS IN ENGLAND WITH RESPECT TO  
THEIR UNDERGRADUATE THESIS PROJECTS



ARCHITECTURAL ASSOCIATION SCHOOL 1967

REGENT STREET POLYTECHNIC 1967



DELHI SCHOOL OF PLANNING AND ARCHITECTURE 1966-72

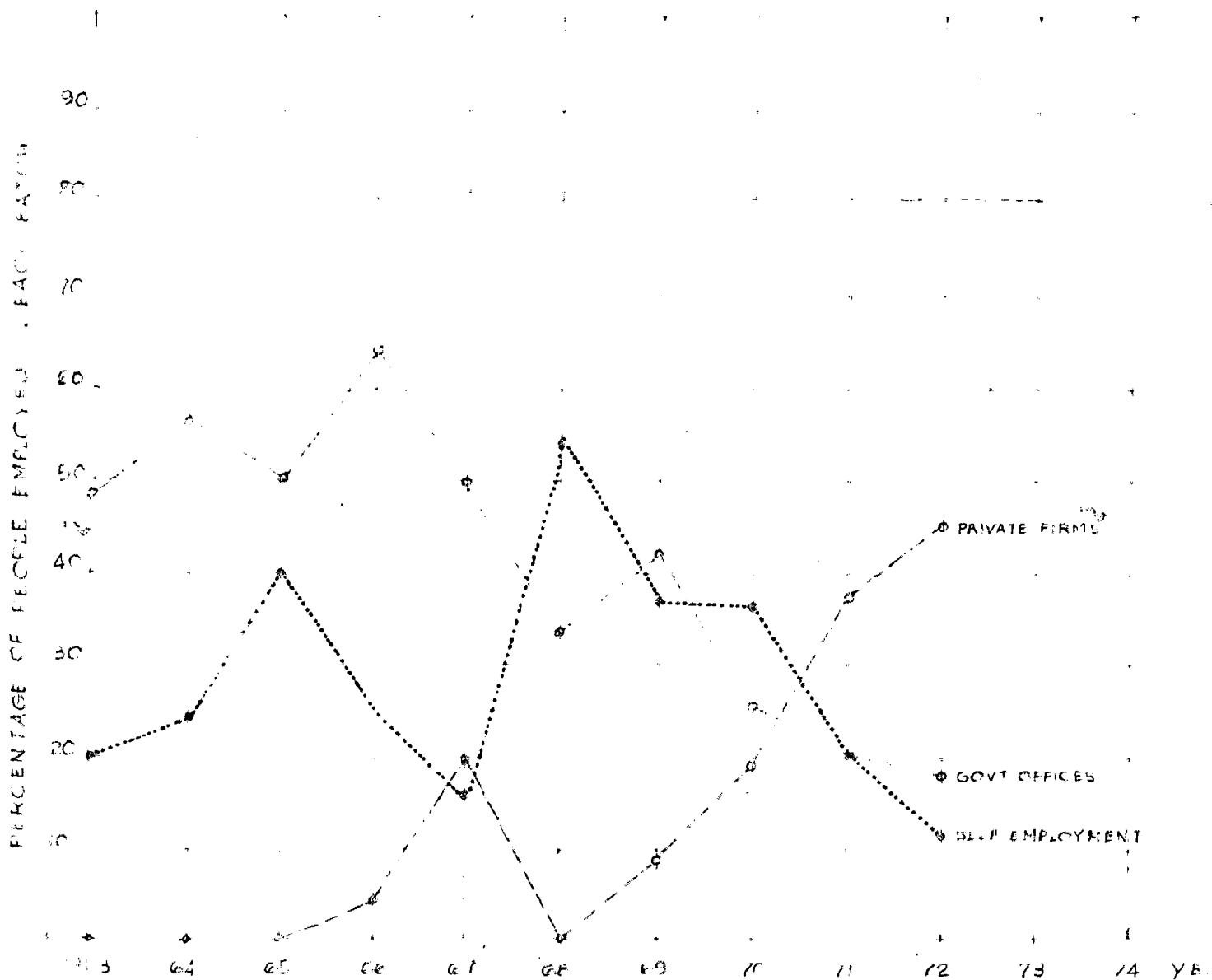
DEPT OF ARCHITECTURE, UNIVERSITY OF NEWCASTLE 1966-72

FACULTY OF ARCHTECURE , UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI ASHANTI, GHANA THE CURRICULAM

1	2	3	4	5	6
GENERAL	TECHNOLOGY			CONSTRUCTION	
				MANAGEMENT	
				INDUSTRIAL DESIGN	
				ARCHITECTURE	
				URBAN PLANNING	
				REGIONAL PLANNING	
				300	INTO
					MIS

REF. ANNA THE ARCHITECTURAL ASSOCIATION OF GHANA  
JULY 4 1966 KUMASI SCHOOL OF ARCHITECTURE

EMPLOYMENT PATTERN OF ARCHITECTURE GRADUATES FROM UNIVERSITY OF ROORKEE DURING 1963 TO 1972.



511 STUDENTS EMPLOYMENT BEARING ALL DEPARTMENT OF ARCHITECTURE, UNIVERSITY OF ROORKEE

## CHAPTER - IV.

### A PHILOSOPHY FOR ARCHITECTURAL EDUCATION.

#### 4.1 INTRODUCTION:

Professional education in a country should possess a philosophy in conformity with the culture, conditions and aspirations of the country. Although much random declarations are made about policies related to technological improvement and thereby technical education in the political level, our technocrats have not come forward with any comprehensive thought on it. Recently, there are signs that they have started thinking on it on a national level, under bodies like the U.G.C. Architecture, an amphibian at times living on the hard grounds of technology and mostly wading in the waters of art has still to fall in line with these programmes. Neither has any educationist nor professional leader taken pains to go into the grass root problems in architectural education in the country, not denying the fact that collective attempts are made at times, but without much effect.

By and far architectural education is one of the most disorganised and unguided branch of professional education in the country, beyond some uniformity, it has inherited from its western counterpart. One of the main reasons for this is the lack of any kind of authoritative agency, powerful enough to guide its growth and check degeneration. The only professional body, the Indian Institute of Architects is not powerful enough to play the role.

Under these circumstances there is little wonder if architectural education drifts almost aimlessly. It is worth searching out a philosophy that can guide the education in architecture.

#### 4.2 LIBERAL VERSUS NEED-BASED EDUCATION:

These being the two major schools of educational philosophies, it could be examined to understand their implications and suitability in our context.

#### 4.2. LIBERAL EDUCATION:

Under this view, education leads to understanding; it has no more practical aim

"It does not have its object, the production of christians, democrats, communists, workers, citizens, Frenchmen, or businessmen. It is interested in the development of human beings through the development of their mind. Its aim is not manpower, but *manhood*" 1.

To a great extent this explains the attitude of those who argue for liberal education. The same idea is expressed in the statement that

"We have forgotten to look upon education as the widening of the horizons of cultural phenomenon" 2.

The reason for such an attitude is further explained by Hutchins.

"The more technological the society the less adhoc education can be. The reason is that the more technological the society is, the more rapidly it will change and less valuable adhoc instruction will be. It now seems safe to say that the most practical education is the most theoretical one" 3.

Further, some of these thinkers hold that science,



systematic attempt to understand the world, is likely to dry up if it is directed to more immediate practical objectives.

Liberal education that widens the horizon's of culture takes the attitude that education aimed at power and prosperity is antihuman. It professes that it is the best suited one for a democratic set up of political authority because it develops the faculties of the individuals best.

Even communist philosophy, to start with, advocated such a liberalization<sup>4</sup>. But later on they had to abandon the idea in favour of vocational and job-oriented education.

If the philosophy of liberal education is extended to professional education - in fact there is very little in common with the two - it can be argued that professional education should be the most theoretical to be the most practical. An architectural education which is more oriented to theoretical knowledge, philosophy, hypothetical and idealistic design and aesthetics, then to practical skills, technology and economy is in essence liberal because it exists despite the more pressing needs of the nation and expectations of the architects.

#### 4.2.2. NEED BASED EDUCATION

The philosophy which argues for the training of each citizen to play his role in the society is known by many a name - need based, role based, job-oriented etc. In alternate terms it is a part of man power planning. Here education is considered as a means to an end. Educational system is a 'knowledge industry' engaged in the manufacture and distribution of trained personnel in each vocation.

A need based architectural education should be one which produces architects of such quality that the nation needs. As has been seen already, a nation which experiences acute shortage of experts in various aspects of building design construction and services, and the major problem of which is to provide shelter (along with other primary necessities) should have an education, training architects to solve these problems.

An educational system which is oriented such presupposes the specific needs of the country in concrete terms, specifies the quantity and quality of the personnel and tries to produce them. By and far too much of predictions and projections are involved in this, reducing considerably the accuracy of the total operation.<sup>6</sup>

#### 4.3 PROS AND CONS OF LIBERAL AND NEED-BASED EDUCATION:

The decision as whether to accept a liberal or a need based philosophy in education depends much on the socio-economic and political conditions of the country.

Countries which are highly developed socially and economically and lead by ideals of free economy and democracy, often set their ideals in liberal education. The society should be interested in pursuing an education which is primarily interested in knowledge and not in economic production for liberal education to become feasible.

In developing countries job-oriented and need based education is more argued for because economic uplift is one of the primary aims of education. In socialistic countries also, a strictly need-based education is followed as a part of man-power

planning. Further there are countries which follow both the philosophies as expressed in vocational training in technical institutes and liberal education in universities<sup>7</sup>.

#### 4.4 THE INDIAN CONTEXT:

Our architectural or engineering colleges are mostly under autonomous universities. But what they aim at - whether a purely knowledge and research oriented course or a job oriented one - is not clear. This mixing up of objectives seems to be a widespread phenomenon even among knowledgeable people. Many even forget that liberal education and need-based education are two opposing thoughts and try to mix them up inadvertently<sup>8</sup>.

As has been pointed out already a society cannot maintain successfully an education, which is not in sympathy with its culture and immediate needs. The most important aim of education in India - professional or otherwise - is economic uplift (a job, a promotion, for instance). Even the sociomotive phenomenon in rural India like 'Sanskritisation' and urbanisation are motivated by economic goals<sup>9</sup>. As long as the priorities of our community are bread and butter, clothes and shelter, it cannot afford to house a purely liberal education. It needs an education aimed at economic development, and so need-based.

Further, our political goal of egalitarianism and socialism and our national aspirations for planned growth are arguments in favour of a need-based educational philosophy.

A highly liberalised and sophisticated educational system which is beyond the scope of the social and techno-economic capabilities of the nation is a total wastage of energy. It is

under such conditions that the much complained-against brain drain takes place. Many time professionals with highly specialised education are working under conditions where these skills are underutilized if not totally unutilized<sup>10</sup>.

Job-oriented education is not free from the uncertainties and errors which are inherent in man-power planning which may sometime s result in large scale unemployment. Further, there should also be an effective system of continuing education to keep the professionals upto date.

The obvious hint here is that at least undergraduate professional education should be strictly need-based. In course of time this may be complemented by a more liberal post graduate education which in turn will feed back the liberal elements to lower levels, as the society approaches higher levels of development and starts needing liberal elements introduced in to the system.

This gives that at present we need the educational institutions imparting professional education to act in two capacities - one as institutes giving a strictly job-oriented undergraduate education and the other as imparting a more liberal post graduate education (open to a very limited number) oriented at pure knowledge and research.

#### 4.5 GOALS OF HIGHER EDUCATION WITH PARTICULAR REFERENCE TO ARCHITECTURAL EDUCATION:

Even though it may be accepted that the ultimate aim of higher education is the development of the human faculties, in the most wider sense of it, professional education devoid of its social purpose, cannot be thought about, however liberal

108076

the approach to it might be. The objective of all professions may be doubtlessly defined as creating a conducive environment to human society on earth. But it is an inbuilt dichotomy that where as man has become highly scientific and technic-oriented in solving his problems of production and consumption, he has not yet reached a level of solving his human environment which is one of his most prime needs. The challenge in front of architecture and other allied design professions presently is how to provide a physical environment which is at least livable if not optimum. Higher education - particularly in these professions - is one of the major hopes of humanity, in solving the problem, through research and development. Much liberlization and specialisation in the systems, instruments and subjects of study is highly essential for this.

But the immediate goals of professional education is the effective use of man's achievements and technics developed thereby, in the service of the immediate problems of man kind. It will be unwise to wait for the ideal and ultimate solution to come and save us. Societies have to proceed, each according to their capacity to solve their immediate problems with the available technics. According to the capacity and available technics, the various professions have to tune themselves. And professional education should be an improtant instrument in doing so.

#### 4.6 OUR OWN SOLUTIONS FOR OUR OWN PROBLEMS:

Passing on to the profession of architecture in particular there is no concurrence in the opinion among professionals that

we should have our own special kind of architecture as an answer to our special problems.

The ideals of 'international architecture' (under the guide of which professionals can imitate and at the same time pose to be logical) is often misunderstood and contradicted.<sup>11</sup>

It seems-at least in theory-that some of the well known architects and educators in our country argue for sensitiveness to our own culture and problems. 'Architecture expresses away of life', we have a way of life distinct from others. If 'architecture should be' more or problem solving than following styles' our solutions should be different.<sup>12</sup> If 'it should be our challenge to create beauty from the limitations we have' we cannot go totally 'International'<sup>13</sup>. If our architecture must be 'an architecture of poverty, we should have a special architectural character'<sup>14</sup>. But still we seem to have doubt about trying logically to develop an identity for ourselves. Beyond declarations, what we need is a true scientific perspective to achieve this.

Doubts remain always, whether architecture could be scientific. Even after architecture accepted applied sciences and technology through its acceptance of the forces of industrialisation, it has largely remained to be an applied art rather than a science. The impending influence of services and equipments and the innovations in structural engineering and building materials, have made architect more an organiser and coordinator than an artist. Programming and development became more and more methodological than intuitive. Architect at times use to be reduced to one among several experts in a construction team,

a far cry from the role of the conventional master builder, In the west 'as the design professions during 60's became aware of the tremendous and almost helplessly complex problems of the environment, their reaction was to adjust the schools to meet this new complexity with all-embracing courses of environmental design and a concentration on sophisticated problem solving techniques.....A change has occurred in the past two or three years. (after 1970) There now seems a turning away from social activism to a demand for practical knowledge - more towards the acquisition of skills and less towards the critical social and economic problems" .

Architecture has to come to a day of realisation when it accepts the role of a technology in the service of man, rather than an intuitive exercise of individual builders, because human problems have grown into tremendous complexity which intuitive design can little cope with. This historical transition in the role of architecture and architect has made very little impact on our educational philosophy. A scientific revitalisation of attitude should be achieved through our educational institution.

#### 4.7 CONCLUSION:

We should follow a need-based philosophy which aims at solving our immediate as well as future problems. Our major problem is to build efficiently and economically to provide a livable physical environment to people, whether in urban, semi urban or rural areas. Practical skills and technology in design, construction and services, to suit a wide variety of situations including the most limiting ones are of greater importance than pursuing architectural idealism. For this the undergraduate education should be need-based and job-oriented. It may be complemented by a more liberally oriented post graduate education aiming at 'expansion of the horizons of knowledge' and available to a limited number of deserving people. Such a system will, in time, feed back to the lower levels

enough liberal elements, as is suitable to the society according to its level of development.

-----



## Reference

1. Robert M. Hutchins, 'The Learning of Society' Introduction, P. vii - viii.
2. B.V. Doshi, 'Architectural Education in India', 'Science Today', May 1973, p.36
3. Robert M. Hutchins, Op cit, P.19.
4. "The social management of production cannot be effected by people as they are today, when each individual is subordinated to a branch of productions chained to it, exploited by it, developing only one side of their capacities at the expenses of all others, knowing only one branch or part of some branch of his own production. Even today industry is becoming less and less able to use such people.  
Quoted from Marx in 'Polytechnical Education in U.S.S.R.', ed S.G. Shapovalenko, (UNESCO, 1963), P.29.
5. Robert M. Hutchins, Op cit, P.135
6. This has been found true even in a controlled economy as U.S.S.R. Khrushchev remarked in 1959. "We do not have any scientifically reliable knowledge how many and what kind of specialists we need in different branches of national economy, what the future demand for a certain kind of specialists and when such a demand will arise". Nicholas Dewill, 'Education and Professional Employment in the U.S.S.R.'
7. Robert M. Hutchins, Op. cit, P.141  
According to British scheme the universities which now include the colleges of advanced technology will now continue to be autonomous, but parallel with them will be what is called polytechnics in public sector meeting the demands for vocational, professional and industrially based courses in higher education.
8. B.V. Doshi; 'Architectural education in India', 'Science Today', May 1973, P.37  
"We have forgotten to look upon education as the widening of the horizons of cultural phenomena. Present educational standards do not have clear cut objectives. They lack 'need - based philosophy".

9. Dr. Srinivas M.N. 'Modernisation of Religious Beliefs' 'Voice of America Forum Lectures', Ed. Myron Weiner, P.31.
  10. This is a conspicuous phenomenon in India. Many a time for example, a highly qualified engineer does only routine office work.
  11. For example, Walter Gropius explains that he never argued for such an international architecture unaffected by traditions and other local conditions. 'Tradition and continuity in Architecture' Journal of Student Society of Architecture and Town Planning (S.S.A.T.), B.E., College Howrah. (10th issue).
  12. B.V. Doshi, Op. cit. P.39.
  13. Aditya Prakash, 'Architectural Education in India', 'Science Today', May 1973, P.39
  14. A.P. Kanvinde, from a lecturer delivered in the Department of Architecture, U.O.R., Roorkee.
  15. Forrest Wilson, 'The Education of an Interior Designer', Progressive Architecture, Nov. 1973.
-

## CHAPTER - V

### A SYSTEMS APPROACH TO ARCHITECTURAL EDUCATION

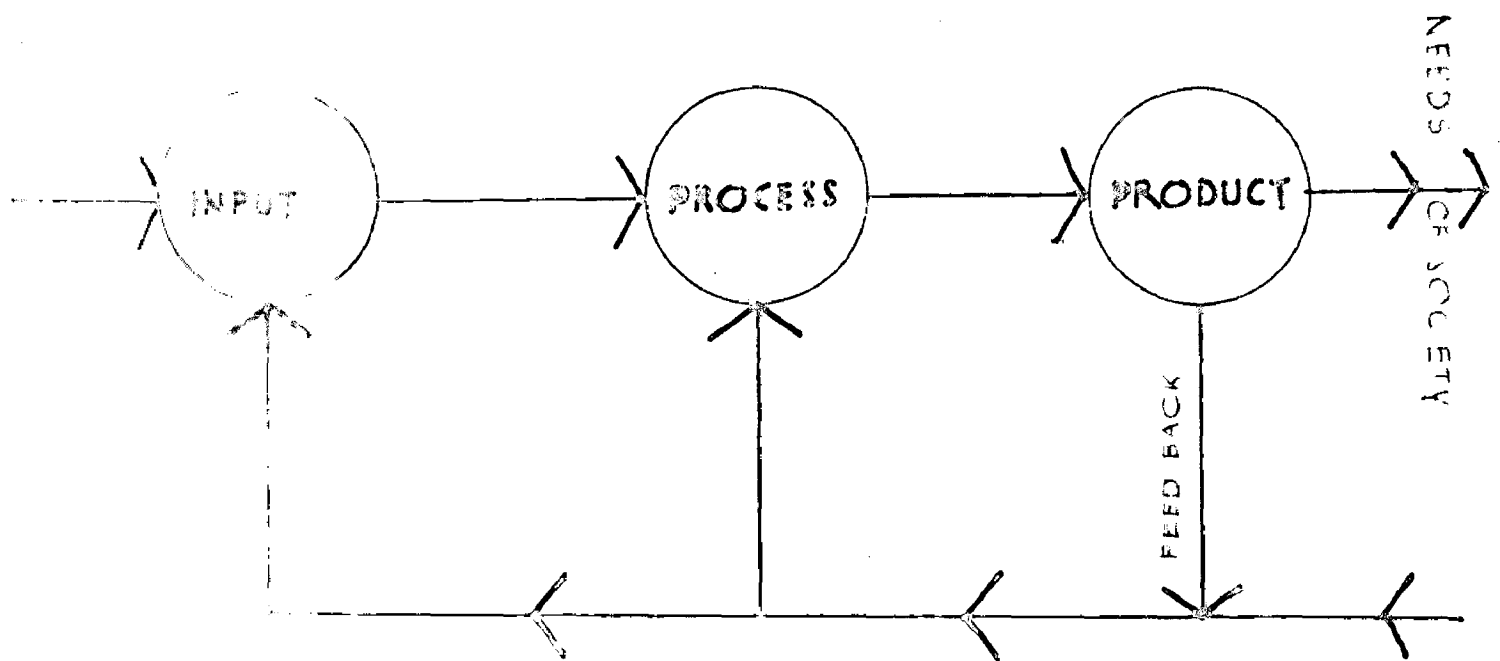
#### 5.1 INTRODUCTION:

Considering professional education as 'Education Industry' producing professionals, it may be approached just like any other production system. The three essential elements in any production system are input, process and product. With a specific quality of input and for a specified quality of product, the process has to be suitably oriented. (A general evaluation of the input raw material - the students-and the pit falls of the present process of education has already been dealt with). To design any ideal process the instrumental facilities and the specification of the product has to be set down in clear terms. Education being an on going process these will need timely modifications. (See plate 17)

Architectural education, in particular, intends at producing suitable architects who could carry out the various responsibilities and duties which are expected of them. Indirectly these responsibilities and duties provide us with the specifications of the quality of the product. So it becomes imperative to examine these aspects before organising the process of architectural education.

#### 5.2 QUALIFICATION OF THE PRODUCT, THE ARCHITECT

The survey conducted among professionals and teachers brought to light that most of them want the fresh graduates to be fit for professional practice after a short duration of



ON GOING EDUCATIONAL SYSTEM

practical training. Further, it shows that the present system of education, by and large, produces architects with very little practical knowledge. The indication is that above all other qualities of the professional, the most essential is the working knowledge in design and construction of building.

It is interesting to examine the qualification of an architect envisaged by a committee appointed by the American Institute of Architects in the 50's to evaluate their architectural education system.<sup>1</sup> They have put down those as follows:-

- i. Analysis - Programming, research, evaluation, definition of fundamental conditions and elements.
- ii. Design - Functional, structural, equipment, aesthetic synthesis and the integration of all sorts of problems in harmonious and purposeful unit.
- iii. Communication - Graphics: sketching, rendering, instrumental drawing, modelling.
- iv. Executive activities - promotion, finance estimates, costs, accounting, business, law supervision and administration.

In the ultimate development of an architect, the functions of an architect are similar in our context also, even though it will be too much to expect all these qualifications in a fresh graduate. We have to set priorities in these specifications to make it more practical and specific in our context.

Considering the fact that a lions share of architectural graduate are trained and employed in private offices, and that a good

number of them start their own offices within a few years of their acquiring a degree, it becomes more important to go into the nature of work they handle in these capacities (See plate 16). Equally important is what they are expected to perform in creating a livable environment, particularly taking into account our limited resources and availability of technical personnel even in the allied fields.

The nature of work entrusted to young architects within a few years after their training is limited to comparatively smaller design projects, in most cases. In private offices, for a few years they may be engaged in drafting, preparing working details and doing a limited amount of supervision. What they need immediately beyond the ability to design spatially and aesthetically is how to incorporate environmental design, services, structural design etc. into the building. Under our special circumstances it is highly desirable, that they may, to a limited extent know how to design, and construct the simpler of these systems.<sup>2</sup> These skills are vitally important to those who start their own private practice. This means, beyond the conventional architectural and spatial planning, Indian architect has to be trained in probably more essential skills of construction and environmental technology.<sup>3</sup>

Another specification for the young architect is that he should be a potential raw material for higher education in architectural as well as in the allied fields. (One of the major draw backs of the profession in India is that we don't have many architects, who have received specialised training

in allied disciplines of sciences and technology. As a result the input from those disciplines could hardly be assimilated and documentation of relevant data effected and used). Many a time the present education leaves the student in partial darkness and apathy towards these disciplines. Other aspects like analysis, presentation, supervision etc. also have to be taken into account. Some of these are given fairly good treatment even in the present system.

### 5.3 THE PROCESS

In the process of educating for these roles all the various elements of institutionalised education have to be given consideration to.

#### 5.3.1 CURRICULUM AND SYLLABUS.

The syllabus and curriculum should act as the objective and scheme in time of the process of education. An evaluation of the syllabi of thirteen institutions giving undergraduate degree or equivalent in architecture shows that most of the essential subjects are dealt with in most of them (see plates 3, 4, & 5). Still the sequence and applied nature of many subjects are lost because of the casual treatment they are enjoying. Even those institutions which form part of a major technological institutes and devoting considerable time and energy in teaching these allied subjects, fail to integrate them into the main stream of design. The written syllabi of architectural design in most of the institutions lack direction, sequence and purposefulness. The most vital problems of the nation like housing, low cost construction, rural and farm

architecture etc., are not given any particular mention or priority (See plate 14).

Subjects like housing, climatology tropical design and planning, which were missing in at least some of these syllabi are gradually finding their way in. Even the model syllabus published by I.I.A. given very scanty importance to subjects like building materials and construction (See plate 3).

The syllabus contents should include all important subjects related to the skills and specifications discussed hence before. There should be common tutorial and practical hours for them along with the major stream of architectural design. The subjects may be divided into various groups and given an integrated and interrelated treatment (See plate 18).

The weightage given to a subject by way of contact hours should be related to that given by way of examinations and sessional marks. A credit system may be more useful in this case<sup>4</sup>.

Another major effort should be to define the objectives of the syllabus in terms of student behaviour during the whole course and each year or semester. What is expected from a student in terms of his skill and capacity, at the end of each course, should be defined. This helps even in evaluating the student and reducing the importance of written examinations.

### 5.3.2 DURATION OF UNDERGRADUATE COURSE

The duration of the undergraduate course should be decided with respect to our requirements and economic condition. It is a



plain fact that we need the course to be as short as possible on economic grounds. Meanwhile we need all aspects of the education to be fulfilled satisfactorily. With the advent of the twelve year schooling system envisaged throughout India by Central Government by the 5th Five Year Plan, some of the pure science subjects like Physics, and Chemistry, a part of mathematics etc. could be kept out of architectural curriculum, since enough fundamental knowledge would be gained in these at the end of this course<sup>5</sup>. This will help the architecture course to cut short its duration. A more intensive course, modern teaching methods and specification of objectives at each level should be able to further reduce the length of the course. This will be a great economic boon to the government and the students and according to the wishes of many architects. (See plate 13 for opinions on duration of the course).

### 5.3.3. TEACHING

As has already been stated an interdisciplinary treatment of architectural design is most essential to create the type of architect we need. It will also help to cultivate a scientific attitude in the students of architecture. According to the level reached in the allied design professions, the architectural design should include allied designs also - like structural, services, tropical design etc. This will necessitate the inclusion of specialists from other branches in the studio team of teachers.

#### 5.3.4 EVALUATION OF STUDENT WORK

The process of evaluation should be a continuing and all pervading one to keep any system from successive deterioration. In the process of education also there should be methods devised for evaluating all elements like, students, teachers, teaching methods, facilities, course content etc.

Once the objectives of any process or work is set down precisely, and understood clearly, it could be easily evaluated against the effectiveness with which the goals are attained. This is equally true in the case of architectural design also. The student attainment in each problem, in each aspects and at each level should be set down clearly, without which the evaluation process is bound to be superfluous, subjective and unjust.

Further, the evaluation of architectural design should be interdisciplinary to assure the effective integration of other related fields like structures, services, air conditioning etc. Even the evaluation of student work in these subjects may partially be done along with architectural design.<sup>6</sup>

Student participation, both horizontal (within the same level) and vertical (inter level) will make the process of evaluation more useful and lively.

#### 5.3.5 TEACHING AIDS

To make easy the teaching of many subjects, modern methods of slide and film shows, video tapes, tape records etc., should

be used. Coloured charts diagrams graphs etc. may also be used. Subjects like sun control etc. may be best taught by using models and slides. History of architecture is another subject which could be taught with much less effort if the help of slides and films is sought.

### 5.3.6 SEMINARS AND DISCUSSIONS

Seminars and group discussions are another most effective method of education. Apart from learning the subjects, the students get experience in communicating their ideas better. All applied subjects should have seminar hours set apart for them in the curriculum.

Learning by seeing is most effective, more than any other method. Frequent visits to construction sites and other places where the student could see and learn things should be carried out even though allotting regular hours for this may be ineffective.

### 5.3.7 TEACHERS

Heretofore, architects considered themselves to be the whole and sole authority of teaching architecture. All the allied disciplines were treated and taught separately, sometimes even considering them as necessary evils. It has to be doubted that the attitude and approach have alienated them and their students from the essential needs of our time. The product as envisaged here could be moulded only by a better understanding and collaboration between teachers of various disciplines. The success of the effort depends only on the team work of the teachers.

There should be a regular scheme by which teachers of all disciplines, who are connected with the teaching of architecture is kept in contact with latest practices, research and development, by arranging training for them in private offices and research institutes frequently. Specialised higher education should be made a prerequisite for grading and promotion of architectural staff.

### 5.3.8 FACILITIES

There is a wide disparity in facilities among various schools and departments of architecture in India, some of them being extremely poor in this respect. Minimum facilities like library, workshop, modelling and art rooms, audio-visual aids, duplicating equipments, building materials museum etc. should be taken care of right from the starting of the institution. There should be provision by which these facilities are kept upto date and available.

Library facilities are comparatively poor in most of the institutions, the weeding out and adding of books and magazines being unsatisfactory. It is high time that we start documentation of research and design data to make easy the work of staff and students, and avoid duplication of effort.

### 5.3.9 PRACTICAL TRAINING

For better integration with theoretical studies and practical training, and feed back from the profession, practical training should be located right within the curriculum at a proper level. This level should be such that by that time the

student should have acquired enough skills to do remunerative work and attained enough maturity to imbibe the inputs from the profession without being prejudiced by it. There should be provision for proper evaluation of the training and the employer as well as the teachers should share the responsibility of it. There should also be reports on the training which will serve as documented data in the school.

The students should generally be encouraged to work during the vacations. It is desirable to have a field liaison machinery in every institution to list the prospective employers of students, and to help the students to find them out. Care should be taken to assess his field experience immediately after he returned to the school.

#### 5.3.10 FIELD LIAISON:

It is of particular importance for all architectural institution to keep close liaison with the professional field, because give and take between them is essential to foster a healthy profession. Architectural schools have a way of going for only leading figures in the profession (and often getting disappointed). The institutions, instead, should depend more on their own alumni, young or old, with whatever field experience they have acquired. The relationship in which the young professional seeks inspiration from his 'alma mater' and in turn she seeks field experience from him is ideal for formal and continuing education.

#### 5.3.11 THESIS PROJECT:

Thesis project should be envisaged as the first chance for the student to programme and work out a fairly large complex

of building by himself. The numerous formalities connected with the project work in many an institution should be diluted and made extremely flexible. Students should be encouraged to take up problems related to the pressing needs of the society rather than imaginative and monumental type of buildings. The evaluation should cover all aspects of his work including programming, costing, analysis, communicating and management, beyond his skill in designing alone.

#### 5.4. CONCLUSIONS:

In the education system as envisaged here the process should depend on the specification of the product and these specification in turn on national and social needs.

Each element in the process, should be directed to cultivate and satisfy these specified qualities and skills in the product in a sequential and planned way. The course content, duration of course, teachers, teaching methods and aids, facilities practical training and field liaison, thesis projects etc. should be vectors acting at a point-the student-so that it may move in a resultant direction which is towards the desired final product.

-----

**Reference:**

1. 'Architect at Mid Century, Evolution and Achievement' edited by Turpin Banister, P. 76.
2. T. Common and S. Shivakumar;  
  
'From Technology Towards an architecture' Paper presented in the seminar conducted by Dept. of Architecture, VRCE Nagpur. The paper promulgate this attitude.
3. Probably the same attitude is common in all developing countries. See the considered opinion of Prof. John Lloyd', Intention's, Arena, July August, 1968 P.4.
4. This system is adopted for advantage in Ahmedabad School of Architecture. See information booklet of the school.
5. (Provided it is properly organised). For example the two year pre-degree course by Kerala University covers as much or more physics and chemistry as included in any of the twelve syllabi which were studied and the model syllabus by I.I.A.
6. Such a system is followed in the Architectural Association School, London. See 'Arena', June July, 1958, P.4.  
  
"Both the departments of system studies and the structures and fabric have moved considerably towards the integration of assessment in the studio programme either by submission of technical report and studies or by oral examination by a special panel on particular aspect of an appropriate studio programme."

-----

**CHAPTER VI****SUGGESTIONS AND RECOMMENDATIONS**

(Please see plates 18 - 22 and appendix III and IV for concept and details of course curriculum etc.)

**General:**

1. The immediate and important problems of the nation should reflect in the syllabus and curriculum of the course.
2. Indian societal conditions should find study, interpretation and solutions in the educational system.
3. The education in architecture as a whole must be more oriented to technology than it is now (see plate 20 and 22).
4. A basic technology, economic design and construction etc. should also be an essential and important part of the education in architecture.
5. Modern methods of teaching - techniques and equipments should be made use of.

**Admission to the Courses:**

6. In general, a uniform pattern of prerequisites should be stipulated for admission to undergraduate degree course in architecture throughout the country.
7. The admission may be based only on the amount of marks scored in the qualifying examination (and an I.Q. test if needed).

**Method of teaching:**

8. The teaching of architectural design should be interdisciplinary.



9. Each architectural design studio teaching team should consist of at least an architect and a civil engineer.
10. In the upper levels of the course the number of experts in the studio team should be increased according to the needs.
11. The role of these experts should be clearly defined and confined to their own respective fields only.
12. Audio-visual aids should be used for effective teaching of various subjects.
13. There should be frequent seminars and discussions connected with all subjects.
14. Site visits should also be a regular feature of the course.

**Allied design subjects:**

15. These subjects should be taught in relation to studio programme.
16. Therefore the teachers who are taking these subjects should be included in the studio team or kept in contact with the studio programme.

**Evaluation:**

17. Clear cut parameters for evaluation of all studio programmes should be established at the beginning of the programme. This should be done for each problem.
18. These parameters should be made known to the students at the starting of the problem.

19. The jury should consist of as many experts as needed from inside or outside the studio team or even the teaching staff.

20. Student participation (both horizontal and vertical) in July should be encouraged to elate the evaluation to the status of discussion.

21. At least part of the evaluation of assignments in allied design subjects also may be brought into the evaluation of studio problems.

(These suggestions pertaining to method of teaching and evaluation with accent on interdisciplinary teaching is to enable the young architect to be able to apply his technological knowledge in his designs. His capacity in design should be assessed as to its effectiveness in applying these skills and knowledge in his design also.)

22. A continuous evaluation in all subjects should be insisted. (This may be done weekly or fortnightly, based on the student performance, presence, understanding etc. assessed through tests, seminars, consistency of work, attendance and/or any other suitable method). This will, to sound extent, reduce the subjectiveness of a last minute assessment of student performance.

**Sequence of input:**

23. The problems given in the designs studio should be carefully examined to see that enough theoretical input is already given by way of theory of design and allied subjects. (See conceptual diagram on plate 19).

24. The design problems in the early semesters should be very simple and as far as possible, strictly objective, not involving too many design parameters and complex functions. Gradually towards the end of the course the complexity of design should be increased in a sequential order.
25. Each studio programme should give its objectives, both general and particular (See appendix IV for suggestions)

**Contact hours and marks:**

26. The contact hours allotted to architectural design should not be too much to avoid wastage of time. In this connection, the hours allotted for architectural design studio may not exceed 9 hr/week for a five-day week.
27. There should be direct relationship between contact hours (lecture, practical, workshop, etc.) and the marks allotted for them. A unit system/credit system, allotting units to each subjects according to contact hours and equal amount of marks to each unit/credit will reduce the disparity between contact hours and marks (for suggestions see plate 21).

**Duration of the Course and expenditure on education:**

28. Since one of the most effective possibilities to reduce the expenditure on undergraduate education is to reduce its duration, the duration of the course should be a minimum possible one.

29. As discussed earlier, the duration of the course may be reduced to four years, inclusive of thesis and practical training.

**National priorities and job orientation:**

30. The studio programmes should as far as possible give maximum weightage to problems of national importance (For example, rural and urban housing, health and education buildings etc.)
31. Further the types of problems as far as possible should be live ones and such which the young architect may very often come across in the early stages of his career.

**Syllabus and Curriculum:**

32. Behavioural objectives should be detailed out in the case of all subjects at each level to evaluate effectiveness of teaching.
33. The syllabus should be precise and clear.
34. Separate allotment of time should be there for seminars and discussions. These hours should increase towards the end of the course.  
(For suggested curriculum see appendix III and for suggestions on architectural design see appendix IV).

**Thesis Project:**

35. The thesis project should be on a comparatively small complex of buildings.

36. A detailed solution including all aspects of the building - architectural design, structural design, services and equipments, working details, climatic design, estimates etc. - should be worked out along with the project.

**Practical training:**

37. Practical training must be in between the course and not at the end of it. It may be towards the end of the third year for the four year course or even twice during the course.
38. A minimum period of about 6 months should be spent on practical training.
39. The training should include, beyond office experience, site experience also. It may be gained through site inspection, supervision and collaboration with a construction engineer.
40. There should be proper evaluation of the practical training during and immediately after it. The responsibility should be shared by the employer and the teacher. (See appendix III for suggestions) The student should be asked to submit written reports on his training which could be later used as documented data.

**Teachers:**

41. Only those who have meritorious, academic standing should be selected as teachers.

42. There should be frequent practical training / refresher courses for teachers. This should be followed irrespective of whether the teacher is dealing with architecture, engineering or building science.
43. There should be some machinery to evaluate the work of teachers and their teaching methods.
44. Teachers should be encouraged to take up specialised studies in architecture and allied fields.
45. At least a small percentage of teachers should be practicing architects and construction engineers to ensure lively contact with construction field.

**Facilities:**

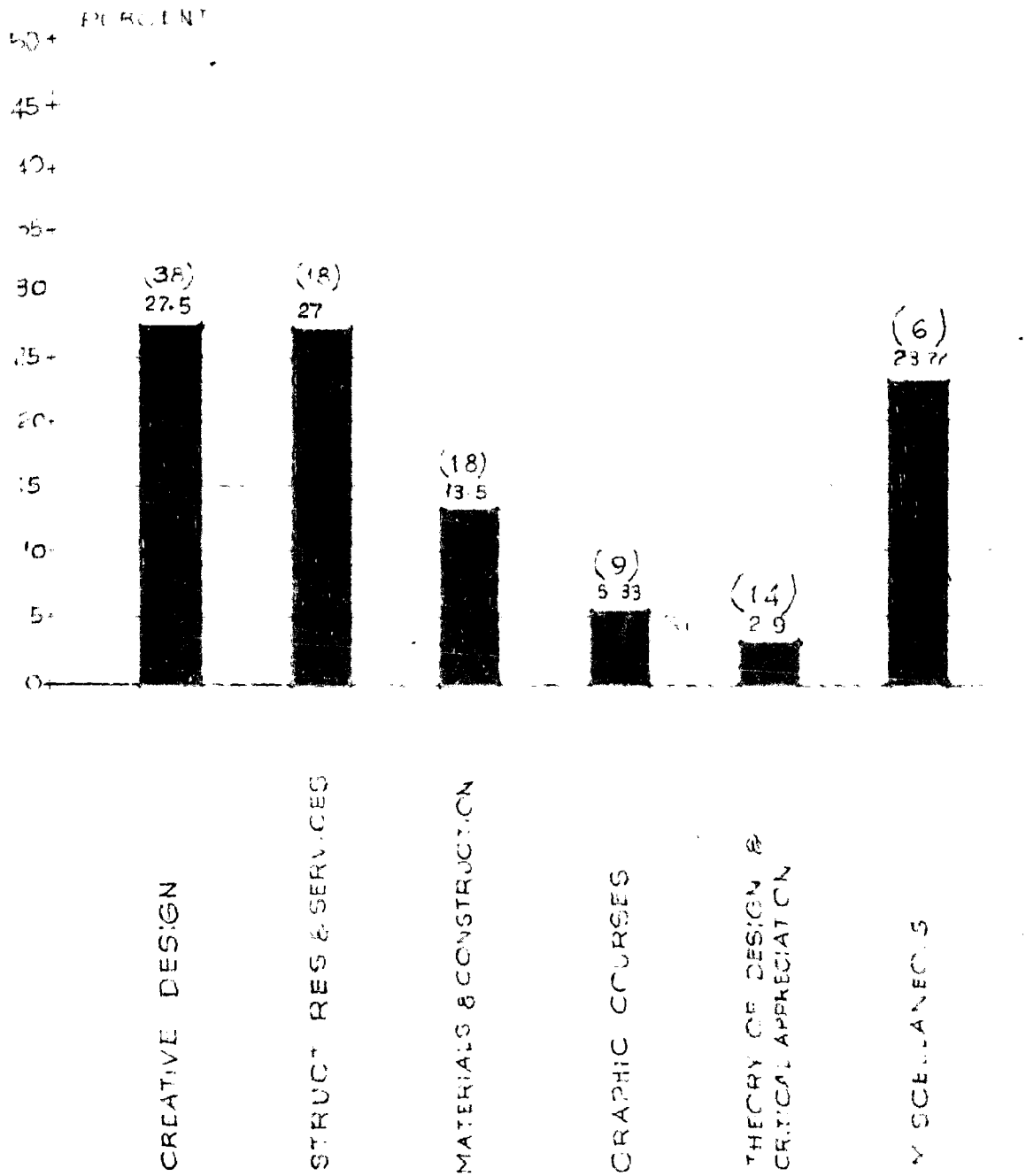
46. The minimum facilities (library, laboratory, workshop, printing facilities, audiovisual aids, art and painting studio etc.) and their quality and contents should be specified by some regulatory body as a pre-requisite to starting architectural institutions.
-

PLATE-19



TYPE A SEIPSTER UNIT





COMPARE WITH PLATES 3, 4 & 5.

PERCENTAGES GIVEN IN BRACKETS IN THE DIAGRAM ARE AVERAGE OF INSTITUTIONS TAKEN FROM PLATE 3, 4 & 5.

### BREAK-UP OF MODEL CURRICULUM

WE CHOSE TO LIST BY WAY OF CONTACT MORE FOR EACH GROUP OF SUBJECTS



1. Aber Crombie, M.L. Johnson. Anatomy of Judgement, A Pelican Publication, 1960.
2. Adiseshaih, Dr. Malcom. S. Education in India and the Fifth Plan Needs, the Education Quarterly, January, 1973.
3. Addo, John Owusu; Bond, Max. Aspirations, Arena, the Architectural Association Journal, 1966.
4. Analysis of Curriculum of ten architectural Institutions in India prepared by M. Arch II year students under Prof. R.K. Sahu, Department of Architecture, University of Roorkee. (1972-73).
5. Architect At Mid Century, Evolution and Achievement, Editor Turpin G. Banister, Reinhold publishing corpn. 1954
6. 'Architectural Education' Science Today, May, 1973.
7. Architectural Education, Time out for reexamination, Editorial, Architectural Record 1973.
8. Beard, Ruth. M., Head-by, F.G., Holloway, P.J. Objectives in Higher Education University of London Institute of Education, 1969.
9. Chhaya, Himanshu. D. Changing Pattern of Architectural Education at the Indian Institute of Technology, Kharagpur.
10. Damodaran, B.R. Technical Education in India, Looking Back and Forward, the Education Quarterly January 1973.
11. Dutta, K.L., Kumar, Vijay. Questionnaire on Architectural Education and profession, 1962 University of Roorkee.

12. **Fernandes, J.B. History of Indian Institute of Architects,  
Souvenir of the Indian Institute of Architects Convention,  
Roorkee, 1970.**
13. **Goldman, J.E. Towards a National Technology Policy,  
Science Today November, 1972.**
14. **Gropius, Walter, Tradition and Continuity in Architecture,  
Journal of student society of Architecture and Town  
Planning, B.E. College, Howrah. (10th issue)**
15. **Hutchins, Robert, M. The Learning Society, New American  
Library, New York, 1968.**
16. **Iengar, K.N. National Character in Architecture,  
Symposium at V.R. College of Engineering, Nagpur, 1974.**
17. **Image of the Future Architect, Answers by sixteen heads  
of Institutions in architecture to a questionnaire sent  
by the Architectural Record. 1958.**
18. **Karapetian, Prof. Dr. S.V., Das, P.R. Architectural  
Education in India: Problems and Prospects, Symposium  
at V.R.C.E. Nagpur, 1974.**
19. **Lloyd, John, Intensions, Arena, The Architectural  
Association Journal July - August 1966.**
20. **M.S. University of Baroda, Information booklet.**
21. **Malken, J.C. Importance of Practical Training to students  
of Architecture, Symposium at V.R. C.E. Nagpur, 1974.**
22. **Mc cue, Gerald. M., Ewald Jr, William, R. and Mid west  
Research Institute, Creating the Human Environment,  
University of Illinois Press, Chicago 1970.**

23. Mitter, Vishva, Architectural design education, Symposium, V.R. C.E. Nagpur, 1974.
  24. Nervi, P.L. Structures, F.W. Dodge Corporation, New York, 1966.
  25. Oakley, David. Address to Polytechnic school of Architecture, Architectural Design (AD), March 1969.
  26. Gommen, T. Shivakumar, S. From Technology Towards an Architecture, Symposium, V.R.C.E., Nagpur 1974.
  27. Prakash, Aditya. Education in Architecture, Symposium V.R. C.E., Nagpur.
  28. Reuben, S.S. Architectural Education in India, Golden Jubilee Souvenir of Indian Institute of Architects, 1967.
  29. Srinivas, Dr. M.N. Modernisation of Religious beliefs, V.O.A. Lectures, Edited by Myron Weiner.
  30. Third Asian Regional Conference, Commonwealth Association of Architects, 1969 (Report).
  31. Wilson, Forrest. Education of an Interior Designer, Progressive Architecture, Nov. 1973.
-

APPENDIX - IQUESTIONNAIRE FOR STUDENTS.

## GROUP 'A' (BACK GROUND)

1. Please give your year of passing and the division you obtained in each

Year	Division		
	1st	2nd	3rd
Matriculation	_____	_____	_____
Inter Science	_____	_____	_____
B.A./B.Sc.	_____	_____	_____
Any other (P.specify)	_____	_____	_____

2. Your favourite subjects in the above courses (Pl. give numbers according to priority)

_____ Mathematics	_____ History
_____ Physics	_____ Languages
_____ Chemistry	_____ Social Studies
_____ Biology	_____ Any other (Pl.specify)
_____	_____
_____	_____

3. Why did you opt for architecture course? (Please check)

_____ You were interested
_____ You had aptitude
_____ Somebody suggested
_____ No other choice
_____ By chance

4. Have you had any kind of knowledge about architecture before you joined the course?

\_\_\_\_\_ Yes \_\_\_\_\_ No

5. If the answer of the above question is 'Yes' how did you come to know about architecture?

\_\_\_\_\_ Through books / Magazines

\_\_\_\_\_ Through friends/relatives

\_\_\_\_\_ Through any other means (Pl. Specify).

\_\_\_\_\_  
\_\_\_\_\_

**GROUP 'B' (ACADEMIC)**

6. What is your opinion about the education you are getting here?

\_\_\_\_\_ Very Good \_\_\_\_\_ Satisfactory \_\_\_\_\_ Not  
satisfactory

7. Are you satisfied with the following facilities/aspects of your school/college/department?

\_\_\_\_\_  
\_\_\_\_\_ Good Satisfactory Not satisfactory

1. Library

\_\_\_\_\_

2. Workshops

\_\_\_\_\_

3. Hobby facilities

\_\_\_\_\_

4. Audio-visual aids for teaching

\_\_\_\_\_

5. Teaching and guidance

\_\_\_\_\_

6. Competency of staff  
(Qualifications, experience  
and ability

\_\_\_\_\_

7. Practical orientation in curriculum

8. Did you do the following type of designs at least once in your course?

Types	More than once	Once	No
A block of flats			
A multistoreyed office			
A housing colony			
A shopping centre			
A village layout			
A low-cost house			
A cinema			
An auditorium			
A library			
A hospital			
A college			
A factory			
A laboratory			
A hostel			

9. How could you rate your own capacity in the following?

\_\_\_\_\_  
 Excellent      Good      Fair      Average      Don't know  
 \_\_\_\_\_

i) Preparation of sketch designs of

a) Residential building (single or multiple types)

b) Recreational building (Cinema, Cafeteria, auditoria, hostels, etc.)

c) Civic buildings (Offices, Colleges etc.)

d) Educational buildings (Schools, Colleges etc.)

e) Health buildings (Hospitals, health centres, clinics, etc.)

f) Building complexes (Community centres, University, CBD etc.)

g) Large-scale problems (village layout, housing colony township etc.)

ii) Preparation of working drawings and construction details of all the above mentioned types of buildings and their accessories.

\_\_\_\_\_  
 Excellent      Good      Fair      Average  
 \_\_\_\_\_ Don't know

iii) Design and detailing of watersupply, sanitation, lighting and ventilation of all the above mentioned types of buildings (excluding multistoreyed and other very complex type of buildings) (If you think this is not an architect's job please check unnecessary)

\_\_\_\_\_  
 Excellent      Good      Fair      Average      Don't know  
 \_\_\_\_\_

iv) Structural designs of simple types of foundations/footings, columns, beams, slabs, and cantilevers.

\_\_\_\_\_ Excellent \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Don't know  
 \_\_\_\_\_ Unnecessary.

v) Estimating, specifications of all the materials and construction methods involved in the above buildings.

\_\_\_\_\_ Excellent \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Average  
 \_\_\_\_\_ Don't know \_\_\_\_\_ Unnecessary

vi) Setting out of building on the site and supervision of construction.

\_\_\_\_\_ Excellent \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Average  
 \_\_\_\_\_ Don't know \_\_\_\_\_ Unnecessary

10. How far do you think the following allied subjects are made use of in Architectural design in your institution?

	Thoroughly applied	Applied in a general way	Seldom applied	Not applied
Theory of architecture				
Architectural Philosophy				
Structural engineering				
Service systems and equipments				
History of architecture				
Sociology and civics				



Fine arts

---

Climatology

---

Estimating

---

Specification

---

Building construction  
(details)

---



---

GROUP 'C' (SYLLABUS/CURRICULUM)

11. What do you think about the adequacy of your syllabus and curriculum from the weightage and importance point of view regarding the following subjects?

---

More than adequate	Adequate	Inadequate	Don't know
-----------------------	----------	------------	---------------

---

Architectural design

---

Theory of architecture

---

History of Architecture  
Western

---

Oriental

---

Structural Engineering

---

Watersupply & Sanitation

---

Building materials

---

---

**Building Construction**

---

**Housing**

---

**Planning and Urban design**

---

**CLimatology**

---

**Accoustics**

---

**Llghting**

---

**Airconditioning and  
ventilation**

---

**Geometrical drawing,  
Sciography, perspective etc.**

---

**Drawing and painting**

---

**Sculpturing**

---

**Sociology**

---

**Economics**

---

**Civics**

---

**Language**

---

**Profesional practice**

---

**Physics**

---

**Chemistry**

---

**Mathematics**

---

**Landscape architecture**

---

**Environmental design**

---

---

Practical training

---

Estimating and costing

---

Specification

---

12. Would you like to add any new subject in the syllabus?

\_\_\_\_\_ Yes, I would like to add \_\_\_\_\_ No proposal

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

13. Would like to delete any?

\_\_\_\_\_ Yes, I would like to delete \_\_\_\_\_ No proposal

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

14. What is your opinion about practical training (its frequency and duration).

Duration

1 Year	9 months	6 months	3 months	any other (specify)
-----------	-------------	-------------	-------------	------------------------

\_\_\_\_\_ At the end of  
every year

---

\_\_\_\_\_ Twice in the  
whole course

---

\_\_\_\_\_ Once in the  
middle of the  
course

---

- \_\_\_\_\_ Once at the  
end of the  
course
- \_\_\_\_\_ No practical  
training is  
needed
- \_\_\_\_\_ Any other  
Opinion (Pl.  
Sepecify

14. What type of practical training would you like?

- \_\_\_\_\_ In an architect's office
- \_\_\_\_\_ With a construction engineer (in the field)
- \_\_\_\_\_ With a contractor

15. Are you satisfied with the present duration of the course?

- \_\_\_\_\_ Yes \_\_\_\_\_ No

If 'No' what should be the optimum duration? \_\_\_\_\_ Years

GROUP 'D' (FUTURE)

16. What would you like to do after completing the course?

- \_\_\_\_\_ Start your own practice
- \_\_\_\_\_ Assistantship in a private firm
- \_\_\_\_\_ Assistantship in a Government office
- \_\_\_\_\_ Higher education
- \_\_\_\_\_ Not decided
- \_\_\_\_\_ (Any other, pl. specify) \_\_\_\_\_

17. Are you confident about your future in the profession

- \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Not sure

Please give reasons for your answer in brief.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

## GROUP 'E' (MISCELLANEOUS)

18. What do you think are the reasons why modern Indian Architecture is below expectations? (Please give number according to priority)

- \_\_\_\_\_ Poverty
- \_\_\_\_\_ Lack of clients with good taste
- \_\_\_\_\_ Lack of Technological know-how
- \_\_\_\_\_ Lack of Modern building materials
- \_\_\_\_\_ Lack of able architects
- \_\_\_\_\_ Lack of proper training for architects
- \_\_\_\_\_ Lack of appreciation of Indian culture and social values
- \_\_\_\_\_ Any other (pl. specify \_\_\_\_\_  
\_\_\_\_\_

19. Who are your favourite modern architects?

1. \_\_\_\_\_ 3. \_\_\_\_\_
2. \_\_\_\_\_ 4. \_\_\_\_\_

20. Which is the architectural style other than "Modern" in history which impresses you most?

- \_\_\_\_\_ Classical (Greek, Roman)
- \_\_\_\_\_ Medieval European
- \_\_\_\_\_ Renaissance
- \_\_\_\_\_ Colonial
- \_\_\_\_\_ Egyptian
- \_\_\_\_\_ Babylonian
- \_\_\_\_\_ Indo-Aryan
- \_\_\_\_\_ Indo-Dravidian
- \_\_\_\_\_ Indo-Islamic

- \_\_\_\_\_ Japanese
- \_\_\_\_\_ None
- \_\_\_\_\_ Any other (Pl. specify)

(You may pin-point a particular period if you wish so).

21. If you have any suggestion regarding the improvement of Indian architectural scene, please write down briefly.

GROUP 'F' (PERSONAL)

22. Can you throw some light into your cultural background regarding family, religion, ethnic group or any other point you feel relevant.

(This question is strictly optional. We would be keen to know some details about this question, but if you do not feel like answering it, you may choose to ignore this question).

---

APPENDIX - IIQUESTIONNAIRE FOR PROFESSIONALS AND TEACHERS

1. (Please mention your name on the separate slip provided)

2. Professional qualification                      Year of graduation                      Institution

_____	_____	_____
_____	_____	_____
_____	_____	_____

3. Nature of work (Pl. check the relevant column)

Present engagement

Previous engagement

Private Practice

\_\_\_\_\_

\_\_\_\_\_

Employment in Private architectural firm

\_\_\_\_\_

\_\_\_\_\_

Government/Semi Govt. Service

\_\_\_\_\_

\_\_\_\_\_

Teaching/Research

\_\_\_\_\_

\_\_\_\_\_

Any other (Please specify)

\_\_\_\_\_

\_\_\_\_\_

4. Do you think the (undergraduate) architectural education you have received was competent enough and stood in good stead through your career?

\_\_\_\_\_ Yes

\_\_\_\_\_ Not fully

\_\_\_\_\_ Not at all

5. a) What do you think about the present system of undergraduate education in India in general (Please check).

\_\_\_\_\_ Better than what you could get.

\_\_\_\_\_ Same as what you got.

\_\_\_\_\_ Worse than what you got

\_\_\_\_\_ Don't know.

\_\_\_\_\_ Any other (Please Specify) \_\_\_\_\_

b) In the light of the above, do you think the present Architectural Education is helping in creating competent architects for professional career?

\_\_\_\_\_ Yes \_\_\_\_\_ Not fully \_\_\_\_\_ No

6. Who are/is the modern architect/s who has/have impressed and/or influenced you most?

1. \_\_\_\_\_ 4. \_\_\_\_\_  
 2. \_\_\_\_\_ 5. \_\_\_\_\_  
 3. \_\_\_\_\_ 6. \_\_\_\_\_

7. Do we need a 'National style of Architecture' in our country?

\_\_\_\_\_ Yes

\_\_\_\_\_ There is no need for a separate 'National Style' because modern architecture is tending to be the same every where

\_\_\_\_\_ Any other opinion (Please specify)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

8. What do you think is the reason why our country is not producing many good examples of architecture. (If you think there are more than one reason please use numbers according to priority in the space given).

\_\_\_\_\_ Poverty

\_\_\_\_\_ Public taste and attitude

\_\_\_\_\_ Shortage of good architects

\_\_\_\_\_ Lack of adequate technical know-how.

\_\_\_\_\_ Lack of availability of modern and inexpensive materials.

\_\_\_\_\_ Lack of appreciation of Indian values.



- \_\_\_\_\_ Educational training.
- \_\_\_\_\_ Beaucrocratic and/political set-up
- \_\_\_\_\_ Any other (Please specify)
- 

9. How do you evaluate Indian heritage in architecture, in the light of present needs and developments in the field?

Indian heritage is

- \_\_\_\_\_ Strong enough to evoke a national style.
- \_\_\_\_\_ So varied that only regional styles are possible.
- \_\_\_\_\_ Not strong enough to inspire a modern style.
- \_\_\_\_\_ Not relevant to our present conditions
- \_\_\_\_\_ Any other (Please specify)
- 

10. Do you think any school/s of architecture in our country is/are giving adequate education to their undergraduate students?

\_\_\_\_\_ Yes, the following are giving adequate education \_\_\_\_\_ NONE

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

11. If the answer to the above question is 'Yes' what do you think is/are the reasons for their academic merit (Please use priority numbers)

- \_\_\_\_\_ Better students.
- \_\_\_\_\_ Quality of teachers
- \_\_\_\_\_ Better facilities and teaching aids.
- \_\_\_\_\_ Better facilities for research and private practice  
for teachers and students
- \_\_\_\_\_ Better syllabus and curriculum.
- \_\_\_\_\_ Better goals of educational training
- \_\_\_\_\_ Better administration
- \_\_\_\_\_ Better leadership
- \_\_\_\_\_ Better location
- \_\_\_\_\_ Any other (Please specify) \_\_\_\_\_  
\_\_\_\_\_

22. What is your concept of an ideal fresh graduate:

- \_\_\_\_\_ He will be fit for the professional office without  
any further training.
- \_\_\_\_\_ He will be fit for the profession with a short-term  
training (less than one year)
- \_\_\_\_\_ He will have good grounding in theory of a Architecture  
but can learn profession through long training.
- \_\_\_\_\_ He will be scientifically oriented so as he can be  
adapted to any of the different lines (Practice,  
research, service in private or Govt. offices,  
building industry etc.).
- \_\_\_\_\_ Any other \_\_\_\_\_

22. With your experience in the field and contact with the fresh  
graduates, what specific aspect do you think they are deficient  
in? (Please write down briefly in order of priority )

1. \_\_\_\_\_
2. \_\_\_\_\_

3. \_\_\_\_\_
4. \_\_\_\_\_
14. What do you think (in the light of your own experience) about the weightage given to the following subjects in the present system of (under graduate) architectural education. You may please base your answers on the architectural school you know best and mention the name of the school here \_\_\_\_\_

(Please check)

Subjects	Too much	Adequate	Less than required.
Architectural design			
Materials and construction			
Structural engineering			
Watersupply and sanitation			
Climatology and tropical design			
Air-conditioning, lighting			
Accoustics			
History of architecture			
Philosophy and theory of architecture			
Drafting and presentation			
Fine arts (Painting, sculpture etc.)			
Housing			

\_\_\_\_\_  
**Planning**

\_\_\_\_\_  
**Landscape architecture**

\_\_\_\_\_  
**Environmental design**

\_\_\_\_\_  
**Estimating and specification**

\_\_\_\_\_  
**Professional and office practice**

\_\_\_\_\_  
**Pure science - Physics**

\_\_\_\_\_  
**Chemistry**

\_\_\_\_\_  
**Maths.**

\_\_\_\_\_  
**Sociology, Civics, Economics**

\_\_\_\_\_  
**15. a) Would you like to add any new subject to the syllabus?**

\_\_\_\_\_ **Yes , the following** \_\_\_\_\_ **No proposal**

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

**b) Would you like to delete any?**

\_\_\_\_\_ **Yes, the following** \_\_\_\_\_ **No proposal**

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

16. What do you think the architecture courses in general should have emphasis on? (Please check only one aspect which you think is most important).

\_\_\_\_\_ theory and conceptual philosophy.

\_\_\_\_\_ Fine arts and visual design

\_\_\_\_\_ Science and technology

\_\_\_\_\_ Socio-economic systems

\_\_\_\_\_ Practical aspects in the professional field.

\_\_\_\_\_ Environmental design

\_\_\_\_\_ Any other (Please specify) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

17. 'Our young architects are trained to serve only the pseudo-western urban culture and the needs of the urban elite in the country'. What is your comment?

\_\_\_\_\_ True

\_\_\_\_\_ Partially true

\_\_\_\_\_ They have no other choice

\_\_\_\_\_ Not true

\_\_\_\_\_ Any other opinion (specify) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

18. What do you think is the ideal method of selecting good students for architectural education?

\_\_\_\_\_  
\_\_\_\_\_

19. Do you think there is scope and viability for specialisation (e.g., low cost buildings, urban renewal, industrial architecture, prefabrication etc.) within the under graduates course? What would you suggest by way of proposals?
- 
- 

20. What do you think should be the duration of the undergraduate course in architecture?
- 

21. What do you think should be the duration and nature of practical training?

a) Practical training should be in the field (site) \_\_\_\_\_

Practical training should be in an architects' Office \_\_\_\_\_

Practical training should be with a building Contractor \_\_\_\_\_

Any other ( Pl. Specify) \_\_\_\_\_

---



---

b) Frequency

duration

_____	Once at the end of the course	_____
_____	After every year	_____
_____	Twice during the course	_____
_____	Once in the middle of the course	_____
_____	Any other opinion (P. specify)	_____

22. What do you think is the role of professionals in improving the architectural education? Please give briefly your suggestion.

---

---

---

23. Do you think the teachers should be practicing architects also?

\_\_\_\_\_ Yes, all of them

\_\_\_\_\_ Yes, at least \_\_\_\_\_ of them

\_\_\_\_\_ Not necessarily

24. Any other suggestions (course contents, process of teaching, quality of teachers, practical orientation, etc.) to improve architectural education.

-----

APPENDIX - III

## THE CURRICULUM

Semister - 1

Subjects	Hours			
	L	T	P	D
1. Basic Design & Theory	2	-	-	6
2. Freehand drawing	-	-	-	3
3. Descriptive Geometry	1	-	-	3
4. Mathematics	3	2	-	-
5. Building materials & construction	2	1	-	3
6. Workshop practice	-	-	3	-
7. Water Supply	2	1	-	-
8. History of Culture	2	1	-	-
(An additional optional courses may be run for English if required)	12	5	3	15

Total 35 Hrs.



Semister - 2.

Subjects	Hours			
	L	T	P	D
1. Arch, Design & Theory	1	-	-	6
2. Freehand drawing	-	-	-	3
3. Descriptive geometry	-	-	-	3
4. Mathematics	2	1	-	-
5. Building Materials and construction	2	1	-	3
6. Sanitation	2	1	-	-
7. Structures	2	1	2	-
8. Surveying & Levelling	2	1	2	-
	11	5	4	15

Total 35 Hrs.

Semister - 3.

Subjects	Hours			
	L	T	P	D
1. Architectural Design and Theory	1	-	-	9
2. Structures	2	1	1	-
3. Building materials and construction	1	1	-	3
4. Lighting and Ventilation	2	1	-	-
5. Climatology & Tropical	2	1	-	2
6. Accoustics	2	1	-	-
7. History of Architecture	2	1	-	-
	12	6	1	14

Total: 33 + 2 = 35 Hrs.

(2 Hrs/ week allotted for seminars and discussions etc.)

Semister - 4.

Subjects	Hours			
	L	T	P	D
1. Architectural Design and Theory	2	-	-	9
2. Structures	3	1	-	-
3. Building Construction	1	-	-	3
4. Air conditioning, Lifts, Fire Protection	2	1	-	-
5. Landscape Architecture & site planning	2	1	-	3
6. Estimating	2	1	-	-
7. Economics	1	1	-	-
	13	5	-	15

Total: 33 + 2 = 35 Hrs.

(2 Hrs. / Week allotted for seminars discussion etc.)

Semester - 5.

Subjects	Hours			
	L	T	P	D
1. Architectural Design	-	-	-	9
2. Working Drawing	-	-	-	3
3. Structures	3	1	-	-
4. Specifications	2	1	-	-
5. Housing	2	1	-	3
6. Interior Design	1	-	-	3
7. Ecology	2	1	-	-
	<hr/> 10	<hr/> 4	<hr/> -	<hr/> 18

Total 32 + 3 = 35

(3 hrs. / week allotted for seminars discussions etc.)

## Semester - 6

Practical Training - 6 months.

Semester - 7.

Subjects	Hours			
	L	T	P	D
1. Architectural Design	-	-	-	9
2. Working Drawing	-	-	-	3
3. Structures	3	1	-	-
4. Urban Design	1	-	-	3
5. Planning	2	1	-	3
6. Professional Practice	2	1	-	-
7. Sociology	2	1	-	-
	10	4	-	18

Total: 32 + 3 = 35

( 3 hrs / week allotted for seminars and discussions).

Semister - 8.

Subjects	Hours			
	L	T	P	D
Thesis	-	-	-	15
Low cost building Techniques	2	-	-	3
Electives				
Modular Co-ordination system building	2	3	-	-
OR				
Pre-fabrication				
OR				
Building Industry and Profession				
	4	6	-	18

Total: 28 + 7 = 35 hrs.

( 7 hrs. / week allotted for seminars discussions etc.)

Notes:

- Credit = 1. Hour of lecture  
or = 2 - 3 Hours of workshop  
or = 1 - 2 Hours of laboratory or studio work.
- Each credit should be allotted equal marks divided between theory, practical, workshop or studio according to their credit value.
- The marks may be divided between sessionals and examinations into 50% - 50 % ratio in all theory subjects and 75% - 25% in architectural design.  
'Working Drawing' may not have examinations and 100% of marks allotted to it may be considered sessional marks.
- Four credits may be allotted to practical training. 50% of marks should be awarded by the employer and 50% for viva-voce examination and report.

-----