



Dr D Y Patil Pratishthan's

**PADMASHREE DR. D Y PATIL COLLEGE OF ARCHITECTURE**

Sector No. 29, B/h. Akurdi Railway Station, Nigdi Pradhikaran, Akurdi, Pune - 411044

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## **CRITERIA 1**

### *CURRICULAR ASPECTS*

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#### *1.3.1 Curriculum Enrichment*

### **1.3.1**

**Criteria 1- Curricular Aspects**

**Key indicator - 1.3.1 Curriculum Enrichment**

<b>1.3.1</b>	<b><i>Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the curriculum.</i></b>
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<b>Sr. No</b>	<b>Contents (Documents)</b>
<b>A)</b>	<b>List of B. Arch courses which addresses crosscutting issues (as per Syllabus Pattern 2019,2015,2008)</b>
<b>1</b>	<b>Syllabus details of 2019 pattern</b> 1. Letter of implementation 2. Course structure of Syllabus which addresses crosscutting issues. 3. Course details of Syllabus which addresses crosscutting issues
<b>2</b>	<b>Syllabus details of 2015 pattern</b> 1. Letter of implementation 2. Course structure of Syllabus which addresses crosscutting issues. 3. Course details of Syllabus which addresses crosscutting issues
<b>3</b>	<b>Syllabus details of 2008 pattern</b> 1. Letter of implementation 2. Course structure of Syllabus which addresses crosscutting issues. 3. Course details of Syllabus which addresses crosscutting issues
<b>B)</b>	<b>List of M. Arch courses which addresses crosscutting issues (as per Syllabus Pattern 2019 and 2017)</b>
<b>1</b>	<b>Syllabus details of 2019 pattern</b> 1. Course structure of Syllabus which addresses crosscutting issues. 2. Course details of Syllabus which addresses crosscutting issues
<b>2</b>	<b>Syllabus details of 2017 pattern</b> 1. Course structure of Syllabus which addresses crosscutting issues. 2. Course details of Syllabus which addresses crosscutting issues
<b>C)</b>	<b>B. Arch students work which addresses crosscutting issues.</b>
<b>D)</b>	<b>B. Arch Faculty Lectures which addresses crosscutting issues.</b>
<b>E)</b>	<b>List of topics Architectural Design Project course in B. Arch Program which addresses crosscutting issue. (AY 2021-22)</b>



## CRITERIA 1

### *Curriculum Enrichment*

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#### *1.3.1 B. Arch courses which addresses crosscutting issues*

### **1.3.1 Syllabus details of 2019 pattern**

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Sr. No.	Content
1	Letter of implementation
2	Course structure of Syllabus which addresses crosscutting issues.
3	Course details of Syllabus which addresses crosscutting issues



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

### ***2019 Pattern Syllabus Letter of implementation***



सावित्रीबाई फुले पुणे विद्यापीठ  
(पूर्वीचे पुणे विद्यापीठ)

शैक्षणिक विभाग

गणेशखिंड, पुणे-४११ ००७

दूरध्वनी क्र. : ०२०-२५६०१२५७/५८/५९

ई-मेल : boards@pun.unipune.ac.in

संकेतस्थळ : www.unipune.ac.in

Savitribai Phule Pune University  
(Formerly University of Pune)

Academic Section

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E-mail : boards@pun.unipune.ac.in

Website : www.unipune.ac.in

संदर्भ क्र : CB/525/631

दिनांक : 04/07/2019


परिपत्रक क्रमांक. १४५ / २०१९

विषय :- विज्ञान व तंत्रज्ञान विद्याशाखेअंतर्गत वास्तुशास्त्र पाच वर्ष बी.आर्च (२०१९ पॅटर्न) चा सुधारित आराखडा व प्रथम वर्ष अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून सुरू करणेबाबत...

विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार सर्व संबंधितांस या परिपत्रकाद्वारे कळविण्यात येते की, विज्ञान व तंत्रज्ञान विद्याशाखेअंतर्गत वास्तुशास्त्र पाच वर्ष बी.आर्च (२०१९ पॅटर्न) चा सुधारित आराखडा व प्रथम वर्ष अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून सुरू करण्यास मान्यता देण्यात येत आहे.

सदर अभ्यासक्रम सावित्रीबाई फुले पुणे विद्यापीठाच्या [www.unipune.ac.in](http://www.unipune.ac.in) या वेबसाईटवर Syllabi - Academic Year 2019 - Faculty of Science and Technology (Architecture) या शीर्षकाखाली उपलब्ध आहे.

मा. प्राचार्य, सर्व संलग्नित वास्तुशास्त्र महाविद्यालये यांना विनंती की, सदर परिपत्रकाचा आशय सर्व संबंधितांच्या निदर्शनास आणून द्यावा.

  
उपकुलसचिव  
(शैक्षणिक विभाग)

Dr. D.Y. Patil Pratihthan's  
Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



D.Y.P.C. ARCH

Inward No.: 258-1

Date : 5/07/2019



सावित्रीबाई फुले पुणे विद्यापीठ  
(पूर्वीचे पुणे विद्यापीठ)

**Savitribai Phule Pune University**  
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शैक्षणिक विभाग

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दिनांक : 12/02/2020

परिपत्रक क्रमांक. ४१ / २०२०

विषय :- विज्ञान व तंत्रज्ञान विद्याशाखेंतर्गत वास्तुशास्त्र द्वितीय व तृतीय वर्ष बी.आर्च (२०१९ पॅटर्न) चा अभ्यासक्रम शैक्षणिक वर्ष २०२०-२१ पासून सुरू करणेबाबत.....

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*Dalvi*

उपकुलसचिव  
(शैक्षणिक विभाग)

Dr. D Y Patil Pratishthan's

Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

D.Y.P.C. ARCH

Inward No.: 286

Date : 12/2/2020





## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

#### ***2019 Pattern Syllabus*** **Course structure of Syllabus which addresses crosscutting issues.**

# SAVITRIBAI PHULE PUNE UNIVERSITY

[Formerly the University of Pune]



## COURSE STRUCTURE

FIVE YEAR DEGREE COURSE IN ARCHITECTURE

[B.ARCH.]

TO BE IMPLEMENTED FROM 2019-20

BOARD OF STUDIES IN ARCHITECTURE  
FACULTY OF SCIENCE AND TECHNOLOGY



**COURSE STRUCTURE**  
**BACHELOR OF ARCHITECTURE [B.Arch.]**

The syllabus structure is based upon 28 clock hours per week for 1<sup>st</sup> to fourth year. Additionally 2 clock hours per week are assigned for utilisation for the lectures / allied activities focussing on the individual philosophy of the institute in form of audit courses / site visits / special lectures / workshops / seminars etc offering choice based activities for the institutes / students. The periods considered for calculating the teaching load are of 60 min duration. The architectural design / architectural design project and building construction studio credits are calculated as 1 hour = 1.5 credits, allied studios/labs/workshops are calculated as 1 hour = 0.5 credits and theory lectures are calculated as 1 hour = 1 credit. The detail structure of the syllabus for the ten semester course is given below.

(Note: SS= Sessional work; In Sem = In Semester exam; End Sem = End semester exam; SV= Sessional and Viva voce; L= Lecture, S=Studio, T=Total; Theory Paper -P

**FIRST YEAR B.ARCH. SEMESTER I**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
1201901	Basic Design	1	6	7			250		250	10
1201902	Building Construction & Materials I[P]	2		2	30	70			100	2
1201903	Building Construction & Materials I[SV]		3	3				100	100	5
1201904	Theory of Structures I	2		2	30	70			100	2
1201905	Architectural Graphics and Drawing I	1	4	5			100		100	3
1201906	History of Arch & Culture I	1	2	3			50		50	2
1201907	Communication Skills	2	1	3			50		50	2
1201908	Workshop I	1	2	3			100		100	2
		10	18	28					850	28
1201917	Audit Course									

**FIRST YEAR B.ARCH. SEMESTER II**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
1201909	Architectural Design I	1	6	7				250	250	10
1201910	Building Construction & Materials II[P]	2		2	30	70			100	2
1201911	Building Construction & Materials II[SV]		3	3				100	100	5
1201912	Theory of Structures II	2		2	30	70			100	2
1201913	Architectural Graphics and Drawing II	1	4	5			100		100	3
1201914	History of Arch & Culture II	1	2	3			50		50	2
1201915	Fundamentals of Architecture	2	1	3			50		50	2
1201916	Workshop II	1	2	3			100		100	2
		10	18	28					850	28
1201918	Audit Course									

**SECOND YEAR B.ARCH. SEMESTER III**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
2201917	Architectural Design II	1	6	7				250	250	10
2201918	Building Construction & Materials III[P]	2		2	30	70			100	2
2201919	Building Construction & Materials III[SV]		3	3				100	100	5
2201920	Theory of Structures III	2		2	30	70			100	2
2201921	Computer Aided Drawing and Graphics	1	3	4			50		50	2
2201922	History of Arch & Culture III	1	2	3			50		50	2
2201923	Building Services I[P]	2	0	2	30	70			100	2
2201924	Building Services I[SS]	0	2	2			50		50	1
2201925	Climatology	1	2	3			50		50	2
		10	18	28					850	28
2201935	Audit Course									

**SECOND YEAR B.ARCH. SEMESTER IV**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
2201926	Architectural Design III	1	6	7				250	250	10
2201927	Building Construction & Materials IV[P]	2		2	30	70			100	2
2201928	Building Construction & Materials IV[SV]		3	3				100	100	5
2201929	Theory of Structures IV	2		2	30	70			100	2
2201930	Environmental Science	1	2	3			50		50	2
2201931	History of Arch & Culture IV	1	2	3			50		50	2
2201932	Building Services II[P]	2	0	2	30	70			100	2
2201933	Building Services II[SS]	0	2	2			50		50	1
2201934	Site Survey and Analysis	1	3	4			50		50	2
		10	18	28					850	28
2201936	Audit Course									

**THIRD YEAR B.ARCH. SEMESTER V**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
3201935	Architectural Design IV	1	6	7				250	250	10
3201936	Building Construction & Materials V[P]	2		2	30	70			100	2
3201937	Building Construction & Materials V[SV]		3	3				100	100	4
3201938	Theory of Structures V	2		2	30	70			100	2
3201939	Landscape Architecture	1	3	4			100		100	3
3201940	Elective I [Contemporary Architecture]	1	2	3			100		100	2
3201941	Building Services III[P]	2	0	2	30	70			100	2
3201942	Building Services III[SS]	0	1	1			50		50	1
3201943	Working Drawing I	1	3	4			100		100	2
		10	18	28					1000	28
3201953	Audit Course									

**THIRD YEAR B.ARCH. SEMESTER VI**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
3201944	Architectural Design V[SV]		5	5				250	250	8
3201945	Architectural Design V*[P]	2		2		100			100	2
3201946	Building Construction & Materials VI	2	3	5				150	150	6
3201947	Theory of Structures VI	2		2	30	70			100	2
3201948	Research In Architecture I	1	2	3			50		50	2
3201949	Elective II	1	3	4			100		100	3
3201950	Building Services IV[P]	2		2	30	70			100	2
3201951	Building Services IV[SS]		1	1			50		50	1
3201952	Working Drawing II	1	3	4			100		100	2
		11	17	28					1000	28
3201954	Audit Course									

\*The Architectural Design V [Paper] will be of 12 hours duration spread over two days of 6 hours a day. The first day will be 6 hours without break. The second day will be 6 hours with a break after 3 hours.

**FOURTH YEAR B.ARCH. SEMESTER VII**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
4201953	Architectural Design VI	1	7	8				300	300	11
4201954	Advanced Building Construction & Services I	1	2	3				150	150	4
4201955	Urban Studies I	2	2	4				100	100	3
4201956	Research In Architecture II	1	2	3				50	50	2
4201957	Elective III	1	2	3				50	50	2
4201958	Quantity Surveying & Specification Writing I	2	2	4	30	70			100	3
4201959	Professional Practice	2	1	3	30	70			100	3
		10	18	28					850	28
4201967	Audit Course									

**FOURTH YEAR B.ARCH. SEMESTER VIII**

Course Code	Course Title	L	S	T	Theory		Sessional and / Viva		Total Marks	Credits
					In Sem	End Sem	SS	SV		
4201960	Architectural Design VII	1	7	8				300	300	11
4201961	Advanced Building Construction & Services II	1	2	3		100		150	150	4
4201962	Urban Studies II	2	2	4				100	100	3
4201963	Elective IV	1	2	3				50	50	2
4201964	Elective V	1	2	3				50	50	2
4201965	Quantity Surveying & Specification Writing II	2	2	4	30	70			100	3
4201966	Project Management	2	1	3	30	70			100	3
		10	18	28					850	28
4201968	Audit Course									

**FIFTH YEAR B.ARCH. SEMESTER IX**

Course Code	Course Title	L	S	T	In Sem	End Sem	Sessional and / Viva		Total Marks	Credits
							SS	SV		
5201967	Practical Training							250	250	14

**FIFTH YEAR B.ARCH. SEMESTER X**

Course Code	Course Title	L	S	T	In Sem	End Sem	Sessional and / Viva		Total Marks	Credits
							SS	SV		
5201968	Architectural Design Project	3	10	13				550	550	18
5201969	Entrepreneurship Development	2	2	4			100		100	3
5201970	Elective VI*	1	3	4			100		100	3
		6	15	21						24

\*Elective VI is preferably offered as an open elective. In case it is not possible to offer open elective colleges should offer any elective from the list of electives which the student has not undertaken earlier.



Dr. D.Y. Patil Prashthan's  
Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

***2019 Pattern Syllabus***  
**Course details of Syllabus which addresses crosscutting issues.**

**1.3.1. Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and sustainability into the Curriculum.**

**B) List of B. Arch courses which addresses crosscutting issue and syllabus details.**

<b>(Syllabus Pattern – 2019, 2015, 2008) B. Arch Syllabus 2019 Pattern</b>						
<b>Sr. No.</b>	<b>Year of introduction</b>	<b>Class</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Issues Addressed (Gender, Human Values, Environment and Sustainability, Professional Ethics)</b>	<b>Detail Description</b>
1	2019-20	1 <sup>st</sup> Year	1201906 (SS)	History of Architecture and Culture I	Human Values	To gain an integrated understanding of settlements, landscape, and architecture as a manifestation of culture and geography.
2			121915 (SS)	Fundamental of Architecture	Professional Ethics	Introduction to the profession of Architecture and its distinguishing characteristics with respect to other professions.
3			1201907 (SS)	Communication Skills	Professional Ethics	Enhance skills required for effective communication in Architectural education and practice.
4			1201909 (SS) (SV)	Architectural Design I	Environment and Sustainability, Human Values	Study and analyses small scale settlement and its built, un-built spaces, context, climate, lifestyle etc. Architectural design in the context of the settlement study.
5	2020-21	2 <sup>nd</sup> Year	2201917 (SS) (SV)	Architectural Design II	Human Values, Environment and Sustainability	To make student's understand the sociocultural elements such as lifestyle, culture, traditions, and how they influence architectural design, etc. to comprehend the concept and principles of universal designs. To come up with design solutions equipped with climatic aspects, outdoor and indoor space considerations, light and ventilation, weather protection, shading devices, active and passive cooling techniques, etc. such design strategies.
6			2201921 (SS)	Computer Aided Drawing and Graphics	Professional Ethics	To enable the students to communicate an architectural idea / proposal in a legible and effective manner through various architectural presentations and rendering techniques.
7			2201922 (SS)	History of Architecture and Culture II	Human Values	To understand the relationship of religion and society with architecture and to understand the drivers of change, revival, and evolution of architecture
8			2201925 (SS)	Climatology	Environment and Sustainability	To understand climate as a determinant of architectural design and to enable the students to evolve climate responsive design.



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9			2201926 (SS) (SV)	Architectural Design III	Human Values, Environment and Sustainability	To introduce students to socio-cultural aspects like lifestyle, culture, traditions, and their effect on architectural design etc. To make them understand the concept and principles of universal design.
10			2201930 (SS)	Environmenta l Science	Environment and Sustainability	Basic introduction to Multidisciplinary nature of environmental studies.
11			3201935 (SS) (SV)	Architectural Design IV	Environment and Sustainability, Human Values	<ul style="list-style-type: none"> <li>To introduce students to socio-cultural aspects like lifestyle, culture, traditions, and their effect on architectural design etc.</li> <li>To make them understand the concept and principles of universal design</li> <li>To understand the Climatic aspects, those have a bearing on architectural design and address climatic concerns like adequate light, ventilation, protection from rain, insulation, shading, heat gain, through passive strategies.</li> </ul>
12			3201939 (SS)	Landscape Architecture	Environment and Sustainability	Creating awareness about using Landscape design as a tool to address environmental concerns in Architecture.
13			3201940 (SS)	Elective I (Contemporar y Architecture)	Professional Ethics	To analyze the contemporary trends/approaches in architectural production in terms of design, practices, its perception, appreciation and critical discourses.
14	2021 -22	3rd Year	3201942 (SS)	Building Services III	Environment and Sustainability	To understand the principles of working of natural ventilation, heating, cooling and HVAC systems, components, materials and provisions in architectural design
15			3201943 (SS)	Working Drawing I	Professional Ethics	To enable the students to prepare working drawings of an architectural project and imbibe the significance of working drawings from the point of view of execution of the work on site and as important component of tender documents.
16			3201944 (SS)	Architectural Design V	Human Values, Environment and Sustainability	<ul style="list-style-type: none"> <li>To introduce students to socio-cultural aspects like lifestyle, culture, traditions, and their effect on architectural design etc.</li> <li>To make them understand the concept and principles of universal design.</li> <li>To understand the Climatic aspects, those have a bearing on architectural design and address climatic concerns like adequate light, ventilation, protection from rain, insulation, shading, heat gain, through passive strategies.</li> </ul>
17			3201952 (SS)	Working Drawing II	Professional Ethics	<ul style="list-style-type: none"> <li>To Introduce idea of Design Development and detailing and its relevance in converting 'concept design' to working drawing and hence the realization of design on site.</li> <li>To imbibe further the importance of working drawings as an essential tool for effective site execution and execution of a building contract.</li> </ul>





18	2022 -23	4th Year	4201953 (SS) (SV)	Architectural Design VI	Environment and Sustainability	To develop to Develop Architectural programming of the entire project for housing including the process of generating a design brief, developing design iterations based on issues involved and taking design decisions based on the following aspects
19			4201955 (SS)	Urban Studies I	Environment and Sustainability	To enable students to understand the urban context of an Architectural Project beyond the site and understand the implications of various factors (such as traffic-transportation, socio economics, urban landscape, spatial and visual aspects etc.) influencing the development of an urban area.
20			4201957 (SS)	Elective III	Environment and Sustainability, Human Values	To allow the students to study a subject of their interest and develop theoretical as well as practical understanding of the same. As mentioned in the course structure of 2019 pattern syllabus [Appendix B] a student may adhere to a particular stream of elective of his/her choice and nurture his/her area of interest and develop his/her expertise.
21			4201958 (Theory)	Quantity Surveying and Specification Writing I	Professional Ethics	<ul style="list-style-type: none"> <li>To Introduce Estimation as an important Subject for Architecture.</li> <li>To Understand Different methods of Computing Quantities for items of work in a structure.</li> <li>To acquaint students with methodology of writing specifications with reference to building trades, materials, workmanship &amp; performance of different items of work.</li> </ul>
22			4201959(S S)	Professional Practice	Professional Ethics	To acquaint the student with the role & stature of the Architect in the society and understand duties, liabilities, responsibilities & ethics as a professional.
23			4201960(S V)	Architectural Design VII	Environment and Sustainability Human Values	<ul style="list-style-type: none"> <li>To evaluate socio-cultural aspects like lifestyle, cultural beliefs and practices, traditions, and their effect on urban spaces and architectural design etc</li> <li>To understand and apply information about the site, its scale, location, topography, context- both, immediate and wider, and complexity of existing functions, and understand the potentials, challenges, and future requirements of the site to take decisions of design-brief development in terms of types of buildings in urban complexes, multiple functions, multifunctional space typologies, area requirements</li> </ul>
24			4201962 (SS)	Urban Studies II	Environment and Sustainability, Human Values	Identification of urban issues related to various aspects such as environment, society, traffic and transportation, hills and hill slopes, riverfront development.

25	2022-23	4th Year	4201963 (SS)	Elective IV	Environment and Sustainability, Human Values	To allow the students to study a subject of their interest and develop theoretical as well as practical understanding of the same.
26			4201964(S S)	Elective V	Environment and Sustainability, Human Values	To allow the students to study a subject of their interest and develop theoretical as well as practical understanding of the same. As mentioned in the course structure of 2019 pattern syllabus [Appendix B] a student may adhere to a particular stream of elective of his/her choice and nurture his/her area of interest and develop his/her expertise.
27			4201966 (THRORY)	Project Management	Professional Ethics	<ul style="list-style-type: none"> <li>• Students need to understand reality of modern-day Project environment which is getting more complex and more collaborative due to ever demanding requirements of creative and unique design concepts and importance of Project Management to manage this dynamic environment.</li> </ul>
28			4201965 (Theory )	Quantity Surveying and Specification Writing II	Professional Ethics	<ul style="list-style-type: none"> <li>• To enable students in preparation of rate analysis &amp; indent preparation along with the concepts.</li> <li>• To enable students in working out quantities of various items of work for an Industrial structure</li> <li>• To acquaint students with methodology of writing specifications with reference to service installations of different items of work in construction.</li> <li>• To enable students in different building trades &amp; content, checklist.</li> </ul>
29	2023-24	5th Yr	5201967 (SV)	Practical Training	Professional Ethics	<ul style="list-style-type: none"> <li>• To undertake practical training under the guidance of experts / professionals.</li> <li>• To Learn about architect's office management and learn about the process of design, execution, and management of a project.</li> </ul>
30			5201968 (SV)	Architectural Design Project	Environment and Sustainability, Human Values	To provide an opportunity to the students to apply the knowledge and skills gained in earlier years to a full-fledged Architectural Design project of student's choice with a holistic approach including background research, program formulation, site selection investigations and design demonstration.
31			4201957(S S)	Elective VI	Environment and Sustainability	<p>Students have to take any elective topic from the following and do the thorough study of the topic.</p> <ol style="list-style-type: none"> <li>1. Project Management</li> <li>2. Construction Management</li> <li>3. Environment and Energy Management</li> <li>4. Architecture Design Management</li> </ol> <p>They can also think of taking any topic as their specialization after graduation.</p>



Dr D Y Patil Pratishthan's

**PADMASHREE DR. D Y PATIL COLLEGE OF ARCHITECTURE**

Sector No. 29, B/h. Akurdi Railway Station, Nigdi Pradhikaran, Akurdi, Pune - 411044

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## CRITERIA 1

### *Curriculum Enrichment*

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#### *1.3.1 B. Arch courses which addresses crosscutting issues*

### **1.3.1 Syllabus details of 2015 pattern**

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Sr. No.	Content
1	Letter of implementation
2	Course structure of Syllabus which addresses crosscutting issues.
3	Course details of Syllabus which addresses crosscutting issues



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

### ***2015 Pattern Syllabus Letter of implementation***

# सावित्रीबाई फुले पुणे विद्यापीठ

मुख्यानी क्रमांक  
०२०-२५६९१२३३  
२५६०१२५८  
२५६०१२५९



शैक्षणिक विभाग  
माणेशखिड पुणे-४११ ००१९  
मॅलबॉक्स "युनिपुणे"  
फोन : ०२० २५६९१२३३  
वेबसाईट : www.unipune.ac.in  
ई-मेल : boards@pun.unipune.ac.in  
दिनांक : २५/०२/२०१५

संभ. क्र. सी.सी./इंज./१७३

परिपत्रक क्र. १५/२०१५

**विषय:-** अभियांत्रिकी विद्याशाखेअंतर्गत B. Arch. and M. Arch. (Credit System) च्या नवीन अभ्यासक्रमास व आरखडयास शैक्षणिक वर्ष २०१५-१६ पासून मान्यता देण्याबाबत.....

विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार सर्व संश्लिष्टांय या परिपत्रकाद्वारे कळविण्यात येते की, अभियांत्रिकी विद्याशाखेअंतर्गत B. Arch. and M. Arch. (Credit System) च्या स्वात्कीक नवीन अभ्यासक्रमास व आरखडयास शैक्षणिक वर्ष २०१५-१६ पासून मान्यता देण्यात येत आहे.

1. B. Arch. (2015 Course)
  - First and Second Year B. Arch.
2. M. Arch. (2015 Course):
  - M. Arch. (Landscape); M. Arch. (Environmental Architecture); M. Arch. (Digital Architecture); M. Arch. (Architectural Conservation) and M. Arch. (Computer Applications)

पुणे विद्यापीठाच्या सर्व संलग्न वास्तुशास्त्र महाविद्यालयांचे मा प्राचार्य यांना विनंती की, सदर परिपत्रकाना आशय सर्व संबधित प्राध्यापक व विद्यार्थ्यांच्या निदर्शनास आणून द्याता.



संचालकाकारिता  
(सि.वि.सि.)  
Dr. D.Y. Patil Prashikhan's  
Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune

**D.Y.P.C. ARCH**

Inward No.: 019

Date: 5/2/15

# सावित्रीबाई फुले पुणे विद्यापीठ

(पूर्विले पुणे विद्यापीठ)

दूरध्वनी क्रमांक :  
०२०-२५६९१२३३  
२५६०१२५८  
२५६०१२५९



शैक्षणिक विभाग  
मणोरसिंह, पुणे-८११ ००३  
टेलिग्राफ : 'शुनिपुणे'  
फोन : ०२०-२५६९१२३३  
वेबसाइट : [www.unipune.ac.in](http://www.unipune.ac.in)  
ई-मेल : [boards@pun.unipune.ac.in](mailto:boards@pun.unipune.ac.in)

संदर्भ क्र. सी.बी./इंजि. १३४

दिनांक : १०/१०/२०१७

परिपत्रक क्रमांक. १० /२०१७

विषय :- तृतीय, चतुर्थ व पंचम वर्ष बी.आर्च २०१५ पॅटर्न अभ्यासक्रम  
शैक्षणिक वर्ष २०१७-१८ पासून लागू करण्यासंदर्भात.

विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार सर्व संबंधितांस या  
परिपत्रकाद्वारे काळीघण्यात येते की, तृतीय, चतुर्थ व पंचम वर्ष बी.आर्च २०१५  
पॅटर्न अभ्यासक्रमास शैक्षणिक वर्ष २०१७-१८ पासून मान्यता देण्यात येत आहे.

सदर अभ्यासक्रम सावित्रीबाई फुले पुणे विद्यापीठाच्या [www.unipune.ac.in](http://www.unipune.ac.in)  
या वेबसाईटवर Syllabi-Engineering या शीर्षकाखाली उपलब्ध आहे.

सावित्रीबाई फुले पुणे विद्यापीठाच्या सर्व संलग्न वास्तुशास्त्र महाविद्यालयांने  
मा. प्राचार्य यांना विनंती की, सदर परिपत्रकाचा आशय सर्व संबंधित प्राध्यापक व  
विद्यार्थ्यांच्या निदर्शनास आणून द्यावा.

संचालकाकरिता:

(म.वि.वि.न.)

Dr. D Y Patil Pratishthan's

Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

D.Y.P.C. ARCH

Inward No.: 019

Date : 11/11/17





## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

***2015 Pattern Syllabus***  
**Course structure of Syllabus which  
addresses crosscutting issues.**

# SAVITRIBAI PHULE PUNE UNIVERSITY

## COURSE STRUCTURE

FIVE YEAR DEGREE COURSE IN ARCHITECTURE

[B.ARCH.]

TO BE IMPLEMENTED FROM 2015-16

BOARD OF STUDIES IN ARCHITECTURE

FACULTY OF ENGINEERING



## COURSE STRUCTURE FIVE YEARS DEGREE COURSE BACHELOR OF ARCHITECTURE

As per the Council of Architecture guidelines approx. 75% course curriculum is prescribed. While remaining may be as per the individual philosophy of the institute. A total of 40 periods (45 min duration) per week per term shall be conducted for the course. Out of these 36 periods are specified below. 4 periods per week are given to the institutions to orient the course as per their own philosophy. Intensive study as per the institution's philosophy may also be done in addition to the detail syllabus in each subject.

The periods considered for calculating the teaching load are of 45 min duration. The credit calculation is based upon 60 minutes amounting to one credit.

Considering the peculiarity of Architecture Education, the studio load is considered equal to the lecture load as one to one contact with the students is desirable and hence credits are calculated by considering full load of lecture and studio periods.

The detail structure of the syllabus for the ten semesters course is given below.

(Note : SS= Sessional work ; PP=theory Paper ; SV = Sessional + Viva voce)

### FIRST YEAR B.ARCH. SEM. I

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
1201501	Design I	3	7	--	200	50	--	250	7
1201502	Building Technology & Materials I (SV)	3	4	30			70	200	5
1201503	Building Technology & Materials I (PP)				50	50			
1201504	Theory of Structures I (PP)	1	2	30			70	100	2
1201505	Arch Drawing & Graphics I	2	5	--	100	--	--	100	4
1201506	Humanities	2	1	--	50	--	--	50	2
1201507	Introduction to Architecture	2	1	--	50	--	--	50	2
1201508	Workshop I	1	2	--	50	--	--	50	2
		14	22					800	24

**FIRST YEAR B.ARCH. SEM. II**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
1201509	Design II	3	7	--	200	50	--	250	7
12015010	Building Technology & Materials II(SV)	3	4	30			70	200	5
12015011	Building Technology & Materials II (PP)					50	50		
1201512	Theory of Structures II	1	2	30			70	100	2
1201513	Arch Drawing & Graphics II	2	5	--	100	--	--	100	4
1201514	History of Architecture I	2	1	--	50	--	--	50	2
1201515	Climatology	2	1	--	50	--	--	50	2
1201516	Workshop II	1	2	--	50	--	--	50	2
		14	22					800	24

**SECOND YEAR B.ARCH. SEM. III**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
2201517	Design III	3	8	--	200	50	--	250	7
2201518	Building Technology & Materials III(SV)	3	4	30			70	200	5
2201519	Building Technology & Materials III(PP)					50	50		
2201520	Theory of Structures III	1	2	30			70	100	2
2201521	Building Services I (SS)	2	2		50			150	3
2201522	Building Services I (PP)			30			70		
2201523	History of Architecture II	2	1	--	50	--	--	50	2
2201524	Arch Drawing & Graphics III	2	3	--	100	--	--	100	3
2201525	Surveying & Levelling	1	2	--	50	--	--	50	2
		14	22					900	24

**SECOND YEAR B.ARCH. SEM. IV**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semest er	Sessional	Oral	End Semester		
2201526	Design IV	3	8	--	200	50	--	250	7
2201527	Building Technology & Materials IV(SV)	3	4	30			70	200	5
2201528	Building Technology & Materials IV (PP)				50	50			
2201529	Theory of Structures IV	1	2	30			70	100	2
2201530	Building Services II (SS)	2	2		50			150	3
2201531	Building Services II (PP)			30			70		
2201532	History of Architecture III	2	1	--	50	--	--	50	2
2201533	Technical Communication	1	2		50			50	2
2201534	Working Drawing I	2	3		100			100	3
		<b>14</b>	<b>22</b>					<b>900</b>	<b>24</b>

**THIRD YEAR B.ARCH. SEM. V**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semeste r	Sessional	Oral	End Semester		
3201535	Design V	3	8	--	200	50	--	250	7
3201536	Building Technology & Materials V(SV)	3	4	30			70	200	5
3201537	Building Technology & Materials V (PP)				50	50			
3201538	Theory of Structures V	1	2	30			70	100	2
3201539	Landscape Architecture I	1	3		50			50	2
3201540	Building Services III (SS)	2	2		50			150	3
3201541	Building Services III (PP)			30			70		
3201542	History of Architecture IV	2	1	--	50	--	--	50	2
3201543	Working Drawing II	2	2		100			100	3
		<b>14</b>	<b>22</b>					<b>900</b>	<b>24</b>

THIRD YEAR B.ARCH. SEM. VI

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
3201544	Design VI (SV)	3	8	--	200	50	100	350	7
3201545	Design VI (PP)			--	--				
3201546	Building Technology & Materials VI(SV)	3	4	30	50	50	70	200	5
3201547	Building Technology & Materials VI (PP)			--		--			
3201548	Theory of Structures VI	1	2	30			70	100	2
3201549	Landscape Architecture II	1	3		50			50	2
3201550	Building Services IV(SS)	2	2		50			150	3
3201551	Building Services IV (PP)			30		70			
3201552	Contemporary Arch Seminar	1	3	--	50	--	--	50	3
3201553	Elective I	1	2		50			50	2
		12	24					950	24

FOURTH YEAR B.ARCH. SEM. VII

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
4201554	Design VII	3	9		200	50		250	8
4201555	Advanced Building Technology and Services I	3	4		150	50		200	5
4201556	Professional Practice I	1	2	30			70	100	2
4201557	Urban Studies I	1	2		50			50	2
4201558	Research in Architecture I	1	2		50			50	2
4201559	Quantity Surveying and Estimation I	1	2	30			70	100	2
4201560	Specification Writing I	1	2	30			70	100	2
4201561	Elective II	1	1		50			50	1
		12	24					900	24

**FOURTH YEAR B.ARCH. SEM. VIII**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
4201562	Design VIII	3	9		200	50		250	8
4201563	Advanced Building Technology and Services II	3	4		150	50		200	5
4201564	Professional Practice II	1	2	30			70	100	2
4201565	Urban Studies II	1	2		50			50	2
4201566	Research in Architecture II	1	2		50			50	2
4201567	Quantity Surveying and Estimation II	1	2	30			70	100	2
4201568	Specification Writing II	1	2	30			70	100	2
4201569	Elective III	1	1		50			50	1
		12	24					900	24

**FIFTH YEAR B.ARCH. SEM. IX**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
5201570	Practical Training	--	--	--	150	50	--	200	8
		--						200	8

**FIFTH YEAR B.ARCH. SEM. X**

Code	Subject	Teaching Scheme Periods/Week		Examination Scheme				Total Marks	Credits
		Lecture	Studio	In Semester	Sessional	Oral	End Semester		
5201571	Architectural Design Project	4	16	--	350	100	--	450	12
5201572	Elective IV	1	2		50			50	2
		5	18					500	14



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

***2015 Pattern Syllabus***  
**Course details of Syllabus which  
addresses crosscutting issues.**

B. Arch Syllabus 2015 Pattern						
Sr. No.	Year of introduction	Class	Course Code	Course Name	Issues Addressed (Gender, Human Values, Environment and Sustainability, Professional Ethics)	Detail Description
1	2015-16	1 <sup>st</sup> Year	1201506	Humanities	Human Values	To introduce the students to the study of humanities and its importance in understanding of human settlements and architecture.
2			1201507	Introduction to Architecture	Professional Ethics	Introduction to the profession of architecture and its distinguishing characteristics with respect to other professions, trades and businesses.
3			1201501	Design I	Environment and Sustainability	<ul style="list-style-type: none"> <li>To comprehend various design alternative processes like binary, cyclic, intuitive, bio-mimicry etc. and the importance of literature, humanities and case studies in the design process.</li> <li>To comprehend the symbiotic relationships between creativity, arts, crafts, environment, human spatial experience, structure with Design.</li> </ul>
4			1201509	Design II	Human Values	<ul style="list-style-type: none"> <li>To comprehend various design alternative processes like binary, cyclic, intuitive, bio-mimicry etc. and the importance of literature, humanities and case studies in the design process.</li> <li>To comprehend the symbiotic relationships between creativity, arts, crafts, environment, human spatial experience, structure with Design.</li> </ul>
5			1201515	Climatology	Environment and Sustainability	To understand climate as a determinant of architectural design and to enable the students to evolve climate responsive design.

6			2201517	Design III	Environment and Sustainability	To comprehend Design as iterative process at various scales/ levels To comprehend relationship between design, visual arts, building construction, climatology, Building materials, structure etc and evolve a design solution.
7			2201521 (SS) 2201522 (PP)	Building Services I	Human Values	To introduce students to following Building Services in low, medium and high rise buildings and inculcate in them the integration of services in architectural design. This term aims at following two services: Commonly used systems for Sewage, Sullage & and Garbage disposal Systems for hot and cold water supply in a building premises:
8	2016 -17	2 <sup>nd</sup> Year	2201526	Design IV	Environment and Sustainability, Human Values	- To comprehend site specific stimuli through responses to physical, climate, visual, cultural contexts through indigenous construction, technology, building materials, structure etc.
9			2201530 (SS) 2201531 (PP)	Building Services II	Human Values	To introduce students to following Building Services in low, medium and high rise buildings and inculcate in them the integration of services in architectural design. This term aims at following two services: - Lighting and electrification, - Introduction to rainwater harvesting and alternative energy sources
10			2201534	WD I	Professional Ethics	- To enable the students to prepare working drawings of an architectural project and imbibe the significance of working drawings from the point of view of execution of the work on site and as important component of tender documents
11			3201535	Design V	Human Values	Designing in a different socio geographic context [other than where the institute is located]
12	2017 -18	3 <sup>rd</sup> Year	3201939 (SS)	Landscape Architecture I	Environment and Sustainability	Creating awareness about using Landscape design as a tool to address environmental concerns in Architecture.



13	2017 -18	3 <sup>rd</sup> Year	3201942 (SS)	Building Services III	Environment and Sustainability	Technical and environmental aspects as principles of working, components, construction and materials of natural ventilation and HVAC system
14			3201543 (SS8)	Working Drawing II	Professional Ethics	• To imbibe further the importance of working drawings as an essential tool for effective site execution and execution of a building contract.
15			3201544 (SV), 3201545 (PP)	Design VI	Human Values Environment and Sustainability	• Designing a building by stacking of different functions vertically and addressing various concerns. • Exposure to Universal Design or Accessible Design concept.
16			3201549 (SS)	Landscape Architecture II	Environment and Sustainability	Creating awareness about using Landscape design as a tool to address environmental concerns in Architecture.
17	2018 -19	4 <sup>th</sup> Year	4201554 (SV)	Design VII	Environment and Sustainability	Students to handle complex architectural issues at this stage addressing various challenges in terms of scale, complexity of functions, social economic context, traffic and vehicular movement and so on. Along with the challenges of physical issues, students are also now expected to address spatial and visual language of their project with reference to the urban context and setting of their site.
18			4201556 (PP)	Professional Practice I	Professional Ethics	To acquaint the Student with the Role and Stature of an Architect in Society, and understand the duties, responsibilities, liabilities and ethics as a professional.
19			4201557 (SS)	Urban Studies I	Professional Ethics	To enable students to understand the urban context of an Architectural Project beyond the site and understand the implications of various factors.
20			4201560 (PP)	Specification Writing I	Professional Ethics	To acquaint students with methodology of writing specifications with reference to building trades, materials, workmanship & performance of different items of work.

21	2018 -19	4 <sup>th</sup> Year	4201562(SV)	Architectural Design VII	Environment and Sustainability, Human Values	Along with the challenges of physical issues of the site, students are also now expected to address spatial and visual language of their project with reference to the urban context and setting of their site.
22			4201564 (PP)	Professional Practice II	Professional Ethics	To acquaint the Student with the Role and Stature of an Architect in Society, and understand the duties, responsibilities, liabilities and ethics as a professional.
23			4201565 (SS)	Urban Studies II	Environment and Sustainability, Human Values	<ul style="list-style-type: none"> <li>• Study of planning process in detail (Survey, analysis, proposals and development)</li> <li>• Conservation and related Urban Design controls.</li> </ul>
24			4201568 (PP)	Specification Writing II	Professional Ethics	To acquaint students with methodology of writing specifications with reference to service.
25	2019 -20	5 <sup>th</sup> Yr	5201570 (SV)	Practical Training	Professional Ethics	<ul style="list-style-type: none"> <li>• To undertake practical training under the guidance of experts / professionals.</li> <li>• To Learn about architect's office management and learn about the process of design, execution, and management of a project.</li> </ul>
26			5201968 (SS) (SV)	Architectural Design Project	Environment and Sustainability, Human Values	Architectural Design project of student's choice with a holistic approach including background research, program formulation, site selection investigations and design demonstration.
27			5201572 (SS)	Elective IV	Environment and Sustainability, Human Values	The subject of Electives has also introduced Environment and Energy Management in syllabus with specific intention of study of a particular subject of student's liking in greater detail but in the larger context of overall scope of Architecture syllabus at undergraduate level.



## CRITERIA 1

### *Curriculum Enrichment*

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#### *1.3.1 B. Arch courses which addresses crosscutting issues*

### **1.3.1 Syllabus details of 2008 pattern**

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3	Course details of Syllabus which addresses crosscutting issues



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

### ***2008 Pattern Syllabus Letter of implementation***

## पुणे विद्यापीठ

दूरध्वनी क्रमांक :  
०२०-२५६९१२३३  
२५६०१२५८  
२५६०१२५९



शैक्षणिक विभाग  
गणेशखिंड, पुणे-४११ ००७  
टेलिग्राफ : 'युनिपुणे'  
फॅक्स : ०२०-२५६९१२३३  
वेबसाइट : [www.unipune.ac.in](http://www.unipune.ac.in)  
इ-मेल : [boards@unipune.ac.in](mailto:boards@unipune.ac.in)  
दिनांक : २८-०९-२०१४

संदर्भ क्र. :सी.बी./इंजि / १३२

परिपत्रक क्र. ११/२०१४

विषय:- अभियांत्रिकी विद्याशाखेअंतर्गत Fifth Year B. Arch. (2008 course)  
अभ्यासक्रमाबाबत.....

विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार सर्व संबंधितांस या परिपत्रकाद्वारे कळविण्यात येते की, अभियांत्रिकी विद्याशाखेअंतर्गत Fifth Year B. Arch. (2008 course) अभ्यासक्रमास जून २०१४ पासून मान्यता देण्यात येत आहे.

सदर अभ्यासक्रम पुणे विद्यापीठाच्या [www.unipune.ac.in](http://www.unipune.ac.in) या वेबसाईटवर Syllabi-Engineering या शीर्षकाखाली उपलब्ध आहे.

पुणे विद्यापीठाच्या सर्व संलग्न वास्तुशास्त्र महाविद्यालयांचे मा. प्राचार्य यांना विनंती की, सदर परिपत्रकाचा आशय सर्व संबंधित प्राध्यापक व विद्यार्थ्यांच्या निदर्शनास आणून द्यावा.

संचालकांकरिता २४/१/१४  
(म.वि.वि.मं)



Dr. D.Y. Patil Pratishthan's  
Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune

D.Y.P.C. ARCH

Inward No.: 013

Date : 29/1/14



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***

***2008 Pattern Syllabus***  
**Course structure of Syllabus which  
addresses crosscutting issues.**

# UNIVERSITY OF PUNE

## SYLLABUS

FOR

Five years Degree Course  
of  
**BACHELOR OF ARCHITECTURE**  
And  
**BACHELOR OF ARCHITECTURE**  
( INTERIOR DESIGN)

And

Three Years Degree Course  
of  
**BACHELOR OF BUILDING SCIENCES**  
( Stage I of B.Arch.)

(to be implemented from 2008-09)

**FACULTY OF ENGINEERING**

**BOARD OF STUDIES IN ARCHITECTURE**



Dr. D.Y. Patil Pralishthan's  
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Akurdi Pune

## COURSE STRUCTURE

**FIVE YEARS DEGREE COURSE  
BACHELOR OF ARCHITECTURE & BACHELOR OF ARCHITECTURE ( INTERIOR DESIGN)  
And  
THREE YEARS DEGREE COURSE - BACHELOR OF BUILDING SCIENCES ( Stage I of B.Arch.)**

A total of 40 periods per week per term shall be conducted for the course. In addition to the 36 periods specified below, 4 periods per week are given to the institution to orient the course as per their own philosophy. Intensive study as per the institution's philosophy may also be done in addition to the detail syllabus in each subject.

### STAGE I

Legend : SV = Sessional & Viva-voce, SS = Sessional.

### FIRST YEAR B.ARCH, FIRST YEAR B.ARCH ( I.D.), FIRST YEAR B.B.S.

Sr. No.	Subject Code	Name of Subject	Head	Teaching Scheme			Examination Scheme		
				Lecture Periods	Studio Periods	Total Periods	Term I Marks	Term II Marks	Total Marks
1	113421	Basic Design I	SV	1	5	6	150	150	300
2	113422	Architectural Design I	SS	1	5	6	150	150	300
3	113423	Arch. Drg. & Graphics I	SS	1	5	6	100	100	200
4	113424	Bldg. Tech. & Materials I	SV	2	4	6	150	150	300
5	113425	Bldg. Tech. & Materials I	Theory				--	100	100
6	113426	Theory of Structures I	SS	2	2	4	50	50	100
7	113427	Theory of Structures I	Theory				--	100	100
8	113428	H.A. & H.S. I	SS	3	--	3	50	50	100
9	113429	H.A. & H.S. I	Theory				--	100	100
10	113430	Design Fundamentals of Arch I	SS	2	--	2	100	100	200
11	113431	Design Fundamentals of Arch I	Theory				--	100	100
12	113432	Workshop and Model Making	SS	--	3	3	50	50	100
<b>T O T A L</b>				<b>12</b>	<b>24</b>	<b>36</b>	<b>800</b>	<b>1200</b>	<b>2000</b>



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SECOND YEAR B.ARCH, SECOND YEAR B.ARCH ( I.D.), SECOND YEAR B.B.S.

Sr. No.	Subject Code	Name of Subject	Head	Teaching Scheme			Examination Scheme		
				Lecture Periods	Studio Periods	Total Periods	Term I Marks	Term II Marks	Total Marks
1	213421	Basic Design II	SS	1	4	5	150	150	300
2	213422	Architectural Design II	SV	2	5	7	150	150	300
3	213423	Arch. Drg. & Graphics II	SS	1	4	5	100	100	200
4	213424	Bldg. Tech. & Materials II	SV	2	4	6	150	150	300
5	213425	Bldg. Tech. & Materials II	Theory				--	100	100
6	213426	Theory of Structures II	SS	2	2	4	50	50	100
7	213427	Theory of Structures II	Theory				--	100	100
8	213428	H.A. & H.S. II	SS	3	--	3	50	50	100
9	213429	H.A. & H.S. II	Theory				--	100	100
10	213430	Building Services I	SS	2	--	2	100	100	200
11	213431	Building Services I	Theory				--	100	100
12	213432	Building Sciences	SS	1	3	4	50	50	100
<b>T O T A L</b>				<b>14</b>	<b>22</b>	<b>36</b>	<b>800</b>	<b>1200</b>	<b>2000</b>

THIRD YEAR B.ARCH, THIRD YEAR B.ARCH ( I.D.), THIRD YEAR B.B.S.

Sr. No.	Subject Code	Name of Subject	Head	Teaching Scheme			Examination Scheme		
				Lecture Periods	Studio Periods	Total Periods	Term I Marks	Term II Marks	Total Marks
1	313421	Architectural Design III	SV	4	6	10	250	250	500
2	313422	Architectural Design III	Theory				--	100	100
3	313423	Bldg. Tech. & Materials III	SV	2	5	7	150	150	300
4	313424	Bldg. Tech. & Materials III	Theory				--	100	100
5	313425	Theory of Structures III	SS	2	1	3	50	50	100
6	313426	Theory of Structures III	Theory				--	100	100
7	313427	Building Services II	SS	2	2	4	100	100	200
8	313428	Building Services II	Theory				--	100	100
9	313429	Landscape Architecture & Environmental Sciences	SS	1	2	3	50	50	100
10	313430	Seminar on Contemporary Arch	SS	2	--	2	50	50	100
11	313431	Working Drawing	SS	2	3	5	100	100	200
12	313432	Technical Communication	SS	1	1	2	50	50	100
<b>T O T A L</b>				<b>16</b>	<b>20</b>	<b>36</b>	<b>800</b>	<b>1200</b>	<b>2000</b>



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Akurdi Pune

**STAGE II**

Legend : SV = Sessional & Viva-voce, SS = Sessional.

Intensive Study of the subjects of Interior Design for B.Arch ( I.D.) shall be carried out additionally under the subjects having heads of SS or SV as per the curriculum framed by the affiliated institution offering the course after the approval of the University.

**FOURTH YEAR B.ARCH AND FOURTH YEAR B.ARCH ( I.D.)**

Sr. No.	Subject Code	Name of Subject	Head	Teaching Scheme			Examination Scheme		
				Lecture Periods	Studio Periods	Total Periods	Term I Marks	Term II Marks	Total Marks
1	413421	Architectural Design II	SV	2	10	12	300	300	600
2	413422	Adv. Bldg. Tech. & Services	SV	2	5	7	150	150	300
3	413423	Design & Tech. Elective	SS	1	1	2	50	50	100
4	413424	Quantity Surveying and Est.	SS	1	3	4	50	50	100
5	413425	Quantity Surveying and Est.	Theory				--	100	100
6	413426	Specification Writing	SS	2	-	2	50	50	100
7	413427	Specification Writing	Theory				--	100	100
8	413428	Town Planning	SS	1	3	4	50	50	100
9	413429	Town Planning	Theory				--	100	100
10	413430	Professional Practice	SS	2	-	2	50	50	100
11	413431	Professional Practice	Theory				--	100	100
12	413432	Dissertation & Architectural Project Part I	SS	1	2	3	100	100	200
T O T A L				12	24	36	800	1200	2000

**FIFTH YEAR B.ARCH AND FIFTH YEAR B.ARCH ( I.D.)**

Sr. No.	Subject Code	Name of Subject	Head	Teaching Scheme			Examination Scheme		
				Lecture Periods	Studio Periods	Total Periods	Term I Marks	Term II Marks	Total Marks
1	513421	Practical Training	SV	--	--	--	100	--	100
2	513422	Architectural Project Part II	SV	2	10	12	--	400	400
3	513423	Management Elective	SS	1	1	2	--	50	50
4	513424	Allied Elective	SS	1	1	2	--	50	50
T O T A L				4	12	16	100	500	600



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## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 B. Arch courses which addresses crosscutting issues-***


***2008 Pattern Syllabus  
Course details of Syllabus which  
addresses crosscutting issues.***

B. Arch Syllabus 2008 Pattern						
Sr. No.	Year of introduction	Class	Course Code	Course Name	Issues Addressed (Gender, Human Values, Environment and Sustainability, Professional Ethics)	Detail Description
1	2008	1 <sup>st</sup> Year	113421(SV)	Basic Design I (SV)	Environment and Sustainability	Study of lines and forms: lines (Their Visual Qualities). Composition of two dimensional forms, Forms in nature(Animate and inanimate)
2			113422 (SS)	Architectural Design I (Term I)(SS)	Environment and Sustainability	To gain an integrated understanding of settlements, landscape, and architecture as a manifestation of culture and geography.
3				Architectural Design I (Term II)(SS)	Human Values	Study of settlement environment visit to nearby settlement to study's paces in the cluster environment. Study of Life style, climate and sociocultural.
4				113430	Design Fundamentals in Architecture	Environment and Sustainability
5	2009	2 <sup>nd</sup> Year	213421	Basic Design II	Environment and Sustainability	This subject aims to provide the students with a sound background in design skills by treating Design as a basic creative activity.
6			213422	Architectural Design II (SS & SV)	Environment and Sustainability	To introduce the students to various approaches to design process and to impart understandings of various design parameters related to climatic sustainability.
7					Human Values	
8			213428	H.A. & H.S. II	Human values	Architectural History is the manifestation of the socio-cultural, intellectual and other factors of the specific time, space and people. It is necessary for students to develop interest in understanding styles, buildings, construction, and special attributing features in those contexts.

  
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9			213430	Building Services I	Environmental and sustainability	To introduce students to the concepts of water supply, sanitation, electrification and equip them in its application to architectural design, so as to create hygienic and comfortable living conditions.
10			213432	Building Sciences	Environmental and sustainability	To help students understand the methods of passive climatic control of the surrounding and energy efficiency in habitable spaces and integrating this in their architectural design process.
11			313421(SS)	Architectural Design III	Human Values	Designing in a different socio geographic context [other than where the institute is located]
12			313422 (THEORY)		Environment and Sustainability	Undertake programming research to understand the socio-cultural patterns, geographic context and address the needs of the users and the site and evolve a sustainable design.
13			313429	Landscape Arch. and Environmental Sciences	Environment and Sustainability	To introduce the students to landscape design and site planning and imbibe importance of integrated design of built & open spaces and evolve understanding of sustainable site development addressing the functional, aesthetic and environmental issues.
14	2012	3rd Year	313427(SS)	Building Services II	Environment and Sustainability	To introduce students to the concepts of indoor environmental quality control and providing ambient / comfortable habitable conditions, by integrating the knowledge of active as well as passive methods, in architectural design aimed at environmental sustainability.
15			313430 (SS)	Seminar on Contemporary Architecture	Human Values	Modern architecture is the synthesis of a series of progressive movements since post-industrial period. It is necessary for students to understand these movements, styles, buildings, construction, and contribution of masters in a wider context.
16			313431(SS)	Working Drawing	Professional Ethics	To imbibe the significance of working drawings from the point of view of execution of the work on site and as important component of tender documents.





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Sector No. 29, B/h. Akurdi Railway Station, Nigdi Pradhikaran, Akurdi, Pune - 411044

17	2013	4th Year	413421 (SV)	Architectural Design II	Environment and Sustainability	To introduce students progressively to designing for larger environmental contexts preferably Indian
18			413430(SS)	Professional Practice	Professional Ethics	Nature of profession, difference between trade, business and profession. Accounts system and taxation- Code of conduct, Introduction to valuation of properties. Tenders. Articles of agreement and conditions of contract. Introduction to Arbitration.
19			413428 (SS)	Town planning	Professional Ethics	Introduction to Planning Legislation. Introduction about professional bodies in planning profession. Urban redevelopment and renewal Study of existing town and town planning proposals.
20			413424 (SS)	Quantity surveying and estimating	Professional Ethics	To train students in computing quantities of various buildings items. Acquainting them with rates of various building items
21			413430 (SS)	Professional Practice	Professional Ethics	To acquaint the Student with the Role and Stature of an Architect in Society, and understand the duties, responsibilities, liabilities and ethics as a professional.
22			413423 (SS)	Design and Tech Elective	Environment and Sustainability, Human Values	Term II Elective topics include Non-conventional Technologies, Rural (Vernacular) Architecture, Energy efficient and ecofriendly construction.
23	2014	5th Yr.	513421 (SV)	Practical Training	Professional Ethics	<ul style="list-style-type: none"> <li>To undertake practical training under the guidance of experts professionals.</li> <li>To Learn about architect's office management and learn about the process of design, execution, and management of a project.</li> </ul>
24			513422 (SV)	Architectural Design Project	Environment and Sustainability	Full-fledged large scale Architectural Design with holistic approach including site investigation, program formulation, and design demonstration
25			513424 (SS)	Allied elective	Environment and Sustainability, Human Values.	Study of a particular subject of student's liking in greater detail but in the larger context of overall scope of Architecture syllabus at undergraduate level.

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## CRITERIA 1

### *Curriculum Enrichment*

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#### *1.3.1 M. Arch courses which addresses crosscutting issues*

## Syllabus details of 2019 pattern

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2	Course details of Syllabus which addresses crosscutting issues



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 M. Arch courses which addresses crosscutting issues-***

***2019 Pattern Syllabus***  
**Course structure of Syllabus which  
addresses crosscutting issues.**



**SAVITRIBAI PHULE PUNE UNIVERSITY**  
**(FORMERLY UNIVERSITY OF PUNE)**



**SYLLABUS FOR**  
**MASTERS IN ARCHITECTURE**  
**M.ARCH. (CONSTRUCTION MANAGEMENT)**  
**(To be implemented w.e.f. A.Y. 2019-20)**

**BOARD OF STUDIES IN ARCHITECTURE**  
**FACULTY OF SCIENCE AND TECHNOLOGY**

  
Dr. D.Y. Patil Pratishthan's  
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Akurdi Pune

For Semesters I MARCH. (CONSTRUCTION MANAGEMENT)												
Course Code	Course Title	Course Type	Contact Periods (60 mins)	Teaching Scheme			Examination Scheme				Marks	
				Theory/week	Studio/week	Credits	SS	SV	Th			
									In Sem	End Sem		
2019CM101	Construction Management - Planning and Scheduling	C1	10	2	8	10	-	400	Nil	Nil	400	
2019CM102	Elective I	EL	3	2	1	3	100	Nil	Nil	Nil	100	
2019CM103	Introduction to Construction Management	C2	4	2	2	4	200	Nil	Nil	Nil	200	
2019CM104	Building Construction Technology and Services	SP1	3	2	1	3	Nil	Nil	30	70	100	
2019CM105	Contract management and Building Construction Laws	SP2	3	2	1	3	Nil	Nil	30	70	100	
2019CM106	Softlab I	L	2	1	1	2	100	Nil	Nil	Nil	100	
			25	11	14	25	400	400			1000	

For Semesters II MARCH. (CONSTRUCTION MANAGEMENT)												
Course Code	Course Title	Course Type	Contact Periods (60 mins)	Teaching Scheme			Examination Scheme				Marks	
				Theory/week	Studio/week	Credits	SS	SV	Th			
									In Sem	End Sem.		
2019CM201	Construction Management - Risk Communication and Resource	C1	10	2	8	10	-	400	Nil	Nil	400	
2019CM202	Elective II	EL	3	2	1	3	100	Nil	Nil	Nil	100	
2019CM203	Real Estate Development & Facilities Management	C2	4	2	2	4	200	Nil	Nil	Nil	200	
2019CM204	Advance Building Construction Technology & Services	SP1	3	2	1	3	Nil	Nil	30	70	100	
2019CM205	Research I	SP2	3	2	1	3	Nil	Nil	30	70	100	
2019CM206	Softlab II	L	2	1	1	2	100	Nil	Nil	Nil	100	
			25	11	14	25	400	400	60	140	1000	

  
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For Semesters III MARCH. (CONSTRUCTION MANAGEMENT)											
Course Code	Course Title	Course Type	Contact Periods (60 mins)	Teaching Scheme			Examination Scheme				Marks
				Theory/week	Studio/week	Credits	SS	SV	Th		
									In Sem	End Sem.	
2019CM301	Construction Management - Integration, Handover, Stakeholder Management, Ethics	C1	10	2	8	10	-	400	Nil	Nil	400
2019CM302	Research II	C2	3	2	1	3	100	Nil	Nil	Nil	100
2019CM303	Managing Large Projects - Construction Management Framework at Sites. Practical Training **	C3	4	2	2	4	-	200	Nil	Nil	200
2019CM304	Financial Appraisal and Project Funding	SP1	3	2	1	3	Nil	Nil	30	70	100
2019CM305	Procurement, Quality and Safety Management systems	SP2	3	2	1	3	Nil	Nil	30	70	100
2019CM106	Softlab I	L	2	1	1	2	100	Nil	Nil	Nil	100
			25	11	14	25	200	600	60	140	1000

\*\* - This includes Professional Training (40 full working days) to be undertaken during intermediate time between II & III Semester, details of which are mentioned in the detailed syllabus. The Oral Assessment of the same will be held at the end of Semester III. The subject is included as core subject and will have both sessional and viva assessment.

For Semesters IV MARCH. (CONSTRUCTION MANAGEMENT)											
Course Code	Course Title	Course Type	Contact Periods (60 mins)	Teaching Scheme			Examination Scheme				Marks
				Theory/week	Studio/week	Credits	SS	SV	Th		
									In Sem	End Sem	
2019CM401	Project	C1	20	16	4	20	-	800	Nil	Nil	800
2019CM402	Elective III*	EL	5	4	1	5	200	Nil	Nil	Nil	200
			25	20	5	25	200	800			1000

\*Elective III can be offered as an open elective. In case it is not possible to offer open elective, colleges should offer any elective from the list of electives which the student has not undertaken in any previous semester

  
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 Akurdi Pune



## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 M. Arch courses which addresses crosscutting issues-***

#### ***2019 Pattern Syllabus***

#### **Course details of Syllabus which addresses crosscutting issues.**

M. Arch Syllabus- 2019 Pattern						
Sr. No.	Year of introduction	Class	Course Code	Course Name	Issues Addressed (Gender, Human Values, Environment and Sustainability, Professional Ethics)	Detail Description
1	2019-20	SEM I	2019CM101	Construction management I - Planning and scheduling (SS) (SV)	Professional Ethics	<ul style="list-style-type: none"> <li>To develop understanding about Project Scope and its effect on Schedule and cost.</li> <li>To obtain knowledge of tools for project scheduling, templates for managing a project, and an in-depth knowledge of techniques to control cost and schedule.</li> </ul>
3			2019CM102	ELECTIVE I	Environment and Sustainability	<ul style="list-style-type: none"> <li>To make students aware of importance of pre-documentation in a project and different practical aspects of project management.</li> </ul>
4			2019CM103	Introduction to construction management	Professional Ethics	<ul style="list-style-type: none"> <li>To make students fully acquainted with the fundamentals of project management.</li> </ul>
5			2019CM104	Building Construction Technology and Services	Environment and Sustainability	<ul style="list-style-type: none"> <li>The importance of building services. Building services are the systems installed in buildings to make them comfortable, functional, efficient and safe.</li> <li>To expose students to Building Services. Design, installation and maintenance of essential services and equipment found in any building.</li> <li>To give coverage on aspects of construction technologies related to building projects and sustainable building materials.</li> <li>To introduce the structural system concepts and design processes &amp; methodology in relation to architectural and structural systems of building projects.</li> </ul>
6			2019CM105	Contract management and Building Construction Laws.	Human Values and Professional Ethics	The objective of the course is to expose students to project contract management and legalities. To provide an overview of all laws and regulations related to construction projects in the various stages of the project cycle.
7			2019CM106	Softlab I	Professional Ethics	The course is to introduce application software and their usage in different phases of construction.

8	2019-20	SEM II	2019CM201	Construction management - risk, communication and resource	Human Values and Professional Ethics	<ul style="list-style-type: none"> <li>• Importance of Project communications amongst Project Stakeholders and Project Teams.</li> <li>• Project Information Management System - Unified communication for better Project Control.</li> <li>• It covers resource planning: identifying resources, including subcontracted resources, and querying historical information regarding various types of resources. Finally, organizational policies and procedures are reviewed and the plan is made consistent with them.</li> </ul>
9			2019CM202	Elective II	Human Values and Professional Ethics	<p>Student should be made aware of different practical aspects of project management along with new technologies in construction industry. Student can choose from the below any one topic for elective.</p> <ul style="list-style-type: none"> <li>• Construction technologies for Affordable Housing Projects.</li> <li>• Integrated Project Management Information System.</li> <li>• Design detailing and Management for Aluform Shuttering in High rise Towers.</li> <li>• Labour laws and compliance system in Construction.</li> <li>• Environmental Clearance for Large Building Projects - critical appraisal.</li> </ul>
10			2019CM203	Real estate development & facilities management	Human Values and Professional Ethics	<ul style="list-style-type: none"> <li>• To develop students understanding on Facilities Management for large Projects and its importance in operations of an operational Building.</li> <li>• To develop students capability to manage various building services and to increase safe and healthy utilization of buildings and properties with minimal breakdown time.</li> </ul>
11			2019CM205	Research I	Professional Ethics	<p>The objective of the course is to impart knowledge about the various processes undertaken in research, through quantitative and qualitative methods and to create an appropriate capability for the students to conduct academic research,</p>
12			2019CM206	Softlab II	Professional Ethics	<p>The course is to introduce application software and their usage in different phases of construction and rigorously impart training for using the project management software by ongoing projects</p>





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Sector No. 29, B/h Akurdi Railway Station, Nigdi Pradhikaran, Akurdi, Pune - 411044

13	2020 -21	SEM III	2019CM301	CONSTRUCTION MANAGEMENT - Integration, Handover, Stakeholder Management Ethics	Professional Ethics	• In real life for all projects there will be known and unknown STAKEHOLDERS and one is expected to manage their aspirations/ needs and requirements related with Project Charter. While managing projects right from initiation to handover one needs to uphold high level of ETHICS and focus will be to first understand what is ETHICAL and how does one uphold high values of ETHICS.
14			2019CM302	Research II	Professional Ethics	The objective of Research II is to train the students to prepare state of art report by assimilation of concepts / ideas on a chosen topic in the area of Construction Management through an extensive literature study and data collection from the field.
15			2019CM303	Managing Large Projects - Construction Management Framework at Sites. Practical Training	Professional Ethics	Student should be fully acquainted with the functioning of project sites and fundamentals of construction management applied on sites from conception to closing.
16			2019CM305	Procurement, Quality and Safety Management systems	Professional Ethics	Procurement Management covers both Men/ Material and services required for successful execution of project. This module includes identifying project needs by using techniques such as a make-or-buy analysis, solicitation planning, and determining vendors through the bidding process.
17			2019CM106	Softdab I	Professional Ethics	The course is to introduce application software and their usage as integration tool in construction and rigorously impart training for using the project management software by ongoing projects.
18	2020 -21	SEM IV	2019CM401	Project	Professional Ethics	To have in-depth knowledge in the field of interest related to construction industry and encourage research at basic level.
19			2019CM302	Elective III	Professional Ethics	To expose the students in interdisciplinary area of their interest and impart them with theoretical knowledge and practical understanding of the subject offered in the elective.

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## CRITERIA 1

### *Curriculum Enrichment*

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#### *1.3.1 M. Arch courses which addresses crosscutting issues*

## Syllabus details of 2017 pattern

Index	
Sr. No.	Content
1	Course structure of Syllabus which addresses crosscutting issues.
2	Course details of Syllabus which addresses crosscutting issues





## **CRITERIA 1**

### *Curriculum Enrichment*

---

#### ***1.3.1 M. Arch courses which addresses crosscutting issues-***

***2017 Pattern Syllabus***  
**Course structure of Syllabus which  
addresses crosscutting issues.**

**SAVITRIBAI PHULE PUNE UNIVERSITY**  
**COURSE STRUCTURE MASTER IN ARCHITECTURE (Construction Management)**  
**[TO BE IMPLEMENTED W.E.F.ACADEMIC YEAR 2017 - 2018]**

CREDIT STRUCTURE FOR M. ARCH (CONSTRUCTION MANAGEMENT)					
Course work	Semester I	Semester II	Semester III	Semester IV	Total
Core Courses	17	17	17	-	51
Elective Courses	2	2	2	-	6
Lab Courses+ Supportive Courses	6	6	6	-	18
Seminar	-	-	-	5	5
Project Work	-	-	-	20	20
<b>Total</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>100</b>

SEMESTER I M. ARCH (CONSTRUCTION MANAGEMENT)													*1 period = 45 min duration		
Sub. Code	Subject	Course	Teaching Scheme				Examination Scheme						Credits		
			Hrs./week	Period/week	Lect./week	Studio/week	Term work	PP	SS		Oral			Total	
								Int	Ext	Int	Ext				
CM101	Construction Management I	Core	9	12	7	5	0	100	100	100	25	25	350	9	
CM102	Advanced Construction Technologies and Material I	Core	4	5	2	3	0	0	75	75	0	0	150	4	
CM103	Advanced Building Services I	Core	4	5	2	3	0	0	50	50	25	25	150	4	
CM104	Law & Legal Aspects in Construction	Supportive	3	3	2	1	25	100	0	0	0	0	125	3	
CM105	Software lab I	Lab/Supportive	3	3	1	2	125	0	0	0	0	0	125	3	
CM106	Elective I	Elective I	2	2	1	1	0	0	50	50	0	0	100	2	
<b>Total (Semester I)</b>			<b>25</b>	<b>30</b>	<b>15</b>	<b>15</b>	<b>150</b>	<b>200</b>	<b>275</b>	<b>275</b>	<b>50</b>	<b>50</b>	<b>1000</b>	<b>25</b>	

  
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SEMESTER II M. ARCH (CONSTRUCTION MANAGEMENT)														*1 period = 45 min duration	
Sub. Code	Subject	Course	Teaching Scheme				Examination Scheme						Credits		
			Hrs./ week	Period/ week	Lect./ week	Studio/ week	Term work	PP	SS		Oral			Total	
								Int	Ext	Int	Ext				
CM107	Construction Management II	Core	9	12	7	5	0	100	100	100	25	25	350	9	
CM108	Advanced Construction Technologies and Material II	Core	4	5	2	3	0	0	75	75	0	0	150	4	
CM109	Advanced Building Services II	Core	4	5	2	3	0	0	50	50	25	25	150	4	
CM110	Research I	Supportive	3	3	2	1	25	100	0	0	0	0	125	3	
CM111	Software lab II	Lab/Supportive	3	3	1	2	125	0	0	0	0	0	125	3	
CM112	Elective II	Elective I	2	2	1	1	0	0	50	50	0	0	100	2	
Total (Semester II)			25	30	15	15	150	200	275	275	50	50	1000	25	

SEMESTER III M. ARCH (CONSTRUCTION MANAGEMENT)														*1 period = 45 min duration	
Sub. Code	Subject	Course	Teaching Scheme				Examination Scheme						Credits		
			Hrs./ week	Period/ week	Lect./ week	Studio/ week	Term work	PP	SS		Oral			Total	
								Int	Ext	Int	Ext				
CM 201	Construction Management III	Core	9	12	7	5	0	100	100	100	25	25	350	9	
CM 202	Advanced Equipment and Material Management	Core	4	5	2	3	0	0	75	75	0	0	150	4	
CM 203	Advanced Building Services III	Core	4	5	2	3	0	0	50	50	25	25	150	4	
CM 204	Real Estate and Facilities Management	Supportive	3	3	2	1	25	100	0	0	0	0	125	3	
CM 205	Professional Practice & Training**	Lab/Supportive	3	3	1	2	25	0	0	0	50	50	125	3	
CM 206	Elective III	Elective I	2	2	1	1	0	0	50	50	0	0	100	2	
Total (Semester III)			25	30	15	15	150	200	275	275	50	50	1000	25	

\*\*This includes Professional Training (40 full working days) to be undertaken during intermediate time between II & III Semester, details of which are mentioned in the detailed syllabus.

The Oral Assessment of the same will be held at the end of Semester III.



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SEMESTER IV M. ARCH (CONSTRUCTION MANAGEMENT)														*1 period = 45 min duration	
Sub. Code	Subject	Course	Teaching Scheme				Examination Scheme							Credits	
			Hrs./ week	Period/ week	Lect./ week	Studio/ week	Term work	PP	SS		SV		Total		
								Int	Ext	Int	Ext				
CM 207	Construction Management Project	Project Work	20	22	5	17	0	0	300	300	100	100	800	20	
CM 208	Research II	Seminar	5	8	1	7	0	0	100	100	0	0	200	5	
Total (Semester IV)			25	30	6	24	0	0	200	200	300	300	1000	25	



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## **CRITERIA 1**

### *Curriculum Enrichment*

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#### ***1.3.1 M. Arch courses which addresses crosscutting issues-***

***2017 Pattern Syllabus***  
**Course details of Syllabus which addresses crosscutting issues.**

M. Arch Syllabus- 2017 Pattern						
Sr. No.	Year of introduction	Class	Course Code	Course Name	Issues Addressed (Gender, Human Values, Environment and Sustainability, Professional Ethics)	Detail Description
1	2017-18	SEM I	CM101	Construction Management I (SS) (SV)	Professional Ethics	To expose students to framework of project management as define in PMBOK (PMI USA) with emphasis on following core knowledge areas <ul style="list-style-type: none"> <li>• Project Scope Management</li> <li>• Project Resource management</li> <li>• Project Communications Management</li> <li>• Environmental Management</li> </ul>
2			CM102	Advanced Construction Technologies & Materials I	Environment and Sustainability, Professional Ethics	• To give a coverage on aspects of construction technologies related to building projects and sustainable building materials
4			CM103	Advanced Building Services I	Environment and Sustainability, Professional Ethics	• Help them learn how various services work, need and co-ordination in space planning and selecting right services.
5			CM104	Law and Legal Aspects in Construction	Professional Ethics	• The objective of the course is to provide an overview of all laws and regulations related to construction projects in the various stages of the project cycle.
6			CM105	Software lab I	Professional Ethics	The course is to introduce application software and their usage in different phases of construction and rigorously impart training for using the project management software by ongoing projects.
7			CM106	Elective I	Professional Ethics	<ul style="list-style-type: none"> <li>• Design management using Building information modeling (BIM)</li> <li>• Green building certification - Process and Management</li> <li>• Building modeling for energy efficiency</li> <li>• MOEF approval – Process and Management</li> </ul>



8	2017-18	SEM II	CM107	Construction Management II	Professional Ethics	<ul style="list-style-type: none"> <li>• Project time management</li> <li>• Project cost management</li> <li>• Project quality management</li> <li>• Project risk management</li> <li>• Project stakeholder management</li> <li>• Project finance management</li> </ul>
9			CM108	Advanced Construction Technologies & Materials II	Professional Ethics	The focus is on imparting knowledge and skills required for planning, management and effective delivery of large scale projects
10			CM110	Research I	Professional Ethics	The objective of research methodology is to impart knowledge about the various processes undertaken in research, through quantitative and qualitative methods.
11			CM111	Software lab II	Professional Ethics	The course is to introduce application software and their usage in different phases of construction and rigorously impart training for using the project management software by ongoing projects.
12			CM112	Elective II	Professional Ethics	<ul style="list-style-type: none"> <li>• Fire safety in high rise building</li> <li>• Critical appraisal of building services in hotel/hospital projects</li> <li>• Services for mixed used development project</li> <li>• Facility planning and management for township project</li> </ul>
13	2018-19	SEM III	CM 201	Construction Management III	Professional Ethics	<p>To expose students to framework of project management as define in PMBOK (PMI USA) with emphasis on following core knowledge areas</p> <ul style="list-style-type: none"> <li>• Project Procurement and Contracts Management</li> <li>• Project Integration Management</li> <li>• Project Claims Management</li> <li>• Project Safety Management</li> </ul>
14			CM 203	Advanced Building Services III	Environment and Sustainability, Professional Ethics	To enable students to handle various services in landscape, energy management and audits, and criterion for selecting the right services for High Performance Buildings



15	2018-19	SEM III	CM 204	Real Estate and Facility Management	Environment and Sustainability, Professional Ethics	<ul style="list-style-type: none"> <li>• Intent of the course is to impart detailed knowledge of all aspects related to management of Real Estate projects to train the students as Real Estate Project Managers.</li> <li>• To develop students capability to manage various building services and to increase safe and healthy utilization of buildings and properties with minimal breakdown time.</li> </ul>
16			CM 205	Professional Practice & Training	Professional Ethics	The objective of professional practice is to acquaint students to professional ethics and code in industry along with hands on training at any MNC or PMC firm.
17			CM206	Elective III	Professional Ethics	<ul style="list-style-type: none"> <li>• Project Schedule, Monitoring and Controlling using MSP, Hit Office, etc.</li> <li>• ERP Systems</li> <li>• Project Documentation Management</li> <li>• Mega Project Design Evaluation</li> </ul>
18	2018-19	SEM IV	CM 207	Construction Management Project	Environment and Sustainability, Professional Ethics	<ul style="list-style-type: none"> <li>• The objective of the thesis is to provide an opportunity to the students to prepare independent and original study of special project of his own choice</li> <li>• The subject for special study may be conceptual or practical but pertaining to Building Design and Construction Management.</li> </ul>
19			CM 208	Research II	Professional Ethics	<ul style="list-style-type: none"> <li>• The objective of the seminar work is to train the students to prepare state of art report by assimilation of concepts / ideas on a chosen topic in the area of Building Engineering and Management through an extensive literature study and data collection from the field.</li> </ul>





## CRITERIA 1

### *Curriculum Enrichment*

***1.3.1 B. Arch students work which addresses crosscutting issue relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability***

### 1.3.1

Index		
Sr. No.	Content	Cross Cutting Issues
1	HOAC III	Human Values
2	BS II	Environment and Sustainability
3	AD I	Human Values, Environment and Sustainability
4	AD IV	Human Values, Environment and Sustainability
5	Landscape Architecture	Environment and Sustainability
6	Elective III	Environment and Sustainability
7	Professional Practice	Professional Ethics
8	Research II	Gender Equality
9	Thesis	Human Values



# CRITERIA 1

## *Curriculum Enrichment*

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***Subject- History of Architecture and Culture III***

***Issue Addressed- Human Values***

***Description-***

Greek, Roman, Early Christian, Byzantine, Romanesque, Renaissance, and Gothic Architecture has had a profound impact on human values throughout history and continues to influence architectural principles and design today. They reflect the cultural, social, and religious contexts of their respective time periods.

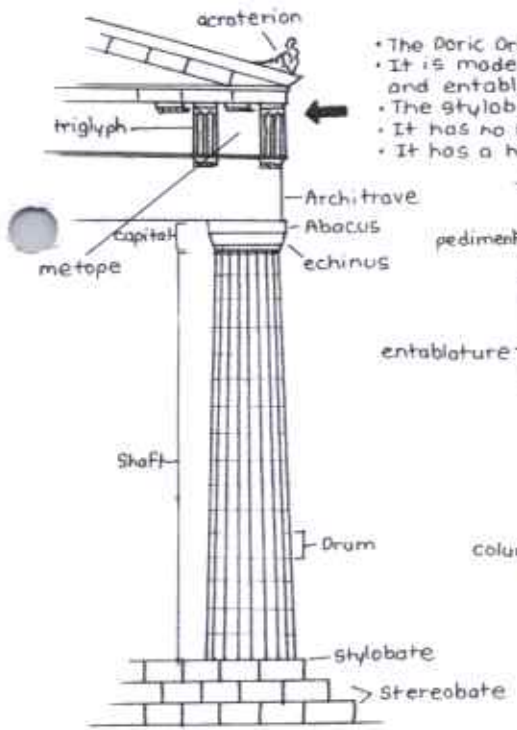
Some of the ways such styles of architecture contributes to human values include:

1. Beauty and Aesthetics
2. Perfection and Idealism
3. Human Scale
4. Connection to Nature
5. Intellectual and Philosophical Influence
6. Endurance and Timelessness
7. Symbolism and Meaning
8. Inspiration and Creativity
9. Democracy and Civic Values

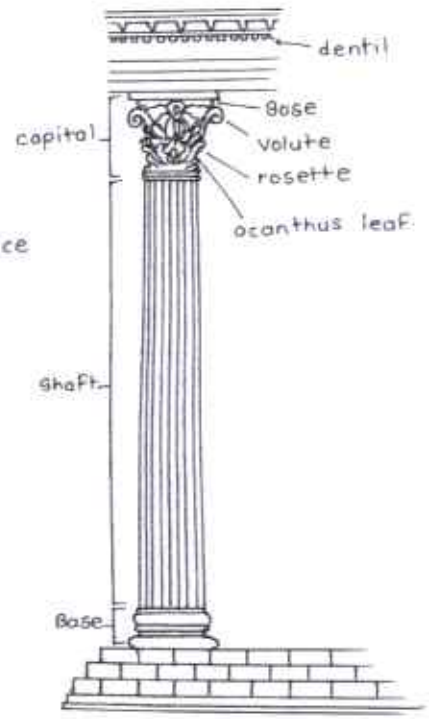
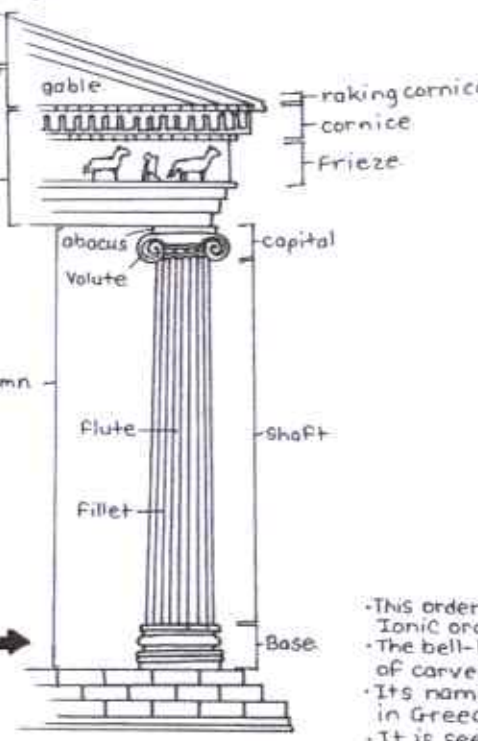
Students have demonstrated these attributes in their assignments.

### DORIC ORDER

- The Doric Order was the earliest to be developed.
- It is made up of 3 elements, stylobate, column and entablature.
- The stylobate is a podium raised three steps.
- It has no base.
- It has a height of about 5 and 6 times its dia.



- ### IONIC ORDER
- The name is taken after the Ionians of ancient Greece.
  - column has base.
  - height is 3 to 10 times of its diameter.
  - The flutes were rounded at the top and bottom.
  - It seen on the erectheion temple.



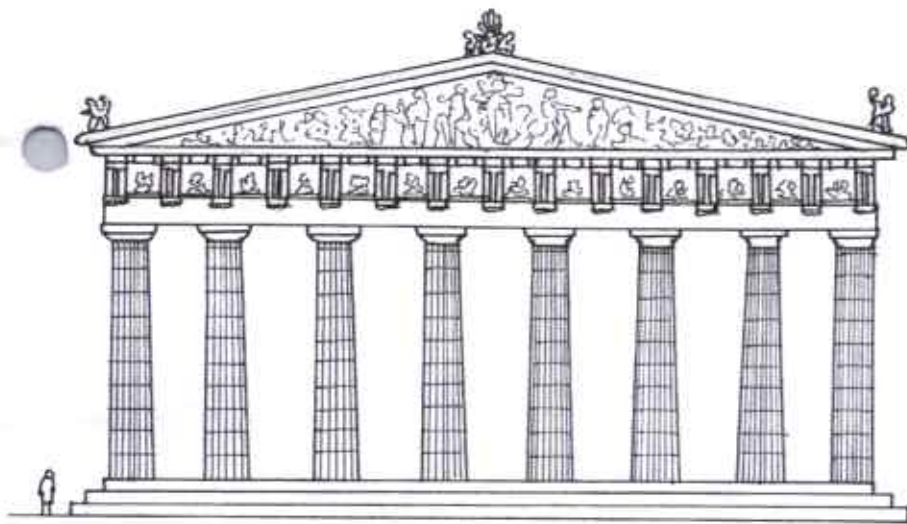
- ### CORINTHIAN ORDER
- This order is similar in its proportions to the Ionic order but its capital is different.
  - The bell-like capital is decorated with rows of carved acanthus leaves.
  - Its name is taken from the city of Corinth in Greece.
  - It is seen in chorgic monument of Iysicrates.

## CLASSIC ORDERS OF GREEK ARCHITECTURE

PADMASHREE DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	SIGN	NAME	ASSIGN No.	STAMP	
11-08-21		SHREYAS VENKAY BHATKAR	1-1		
		SUBJECT: SPAAC - 1B	SCALE		
		CLASS: 2ND YEAR (B)	ROLL NO: 222		
		ACADEMIC YEAR: 2020-2022	TERM: 1		

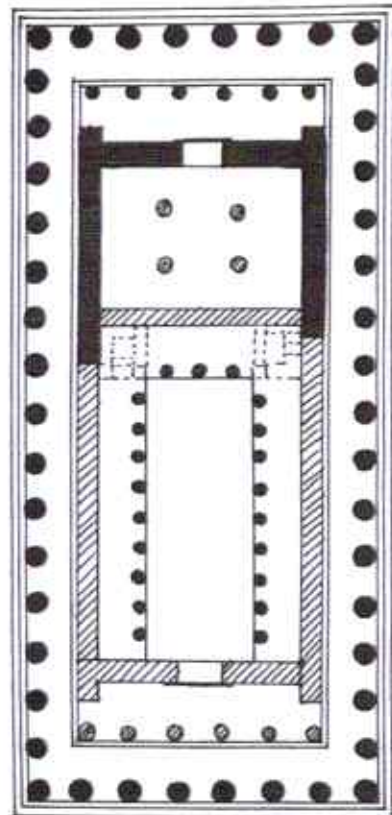
*Shreyas*  
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 Akurdi Pune

## TEMPLE OF PARTHERNON, ATHENS



ELEVATION


- It is built entirely in pentelic marble on the high ground of Acropolis and dedicate to Athena Parthenos the virgin Athena.
- It has Rectangular plan with dimensions 71m x 32m
- THE temple is constructed facing east so that the first rays of the rising sun should fall and illuminate the statue of Athena.
- The architrave of temple was ornamented with bronze shields.
- It has doric order columns with 10.6m height.



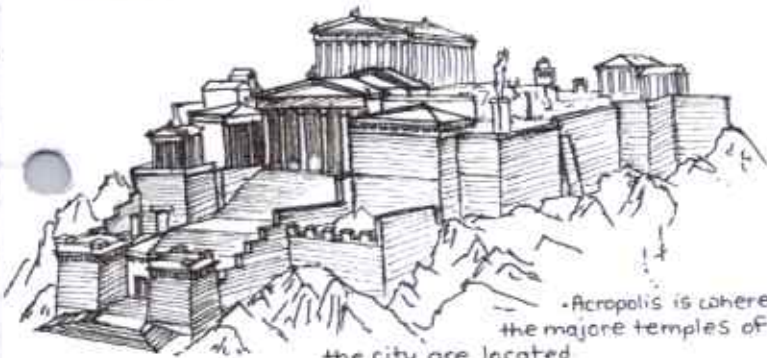
PLAN

TEMPLE OF PARTHERNON

PADMASHREE DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI				
DATE	ENR	NAME	ASSIGN No.	STAMP
11-09-21		SUREKASH WIPKLY PATIL	1	
		SUBJECT: ARCHITECTURE		
		CLASS: 2ND YEAR (B)	ROLL NO: 002	SCALE
		ACADEMIC YEAR: 2021-2022	TERM: 1	

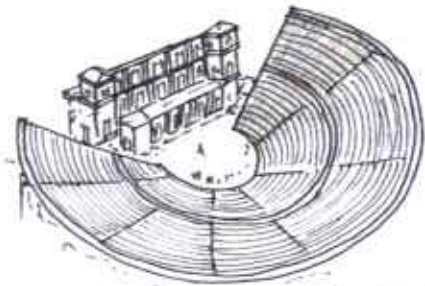
  
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## ACROPOLIS



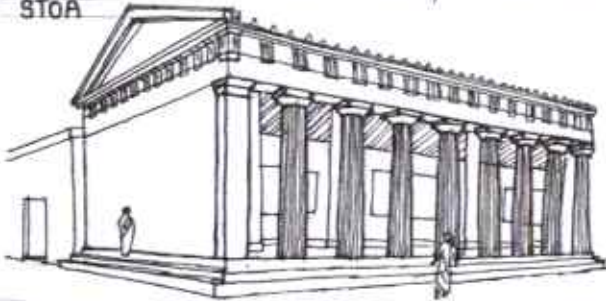
- Acropolis is where all the major temples of the city are located
- It was built to glorify the gods
- It is usually located in the highest ground
- It is usually attached to the lower ground

## GREEK THEATRE



- Every important Greek city had a theatre.
- Their theatre was built into a hilly landscape.
- It had a bank of seats, steps created from landscape
- It usually commands a view of landscape
- In plan, more than semicircle are get seen.

## STOA



- Stoa is a Greek architectural term that describes a covered walkway or colonnade.
- It is usually designed for public use.
- It served to embellish the boundary of agora.

## AGORA

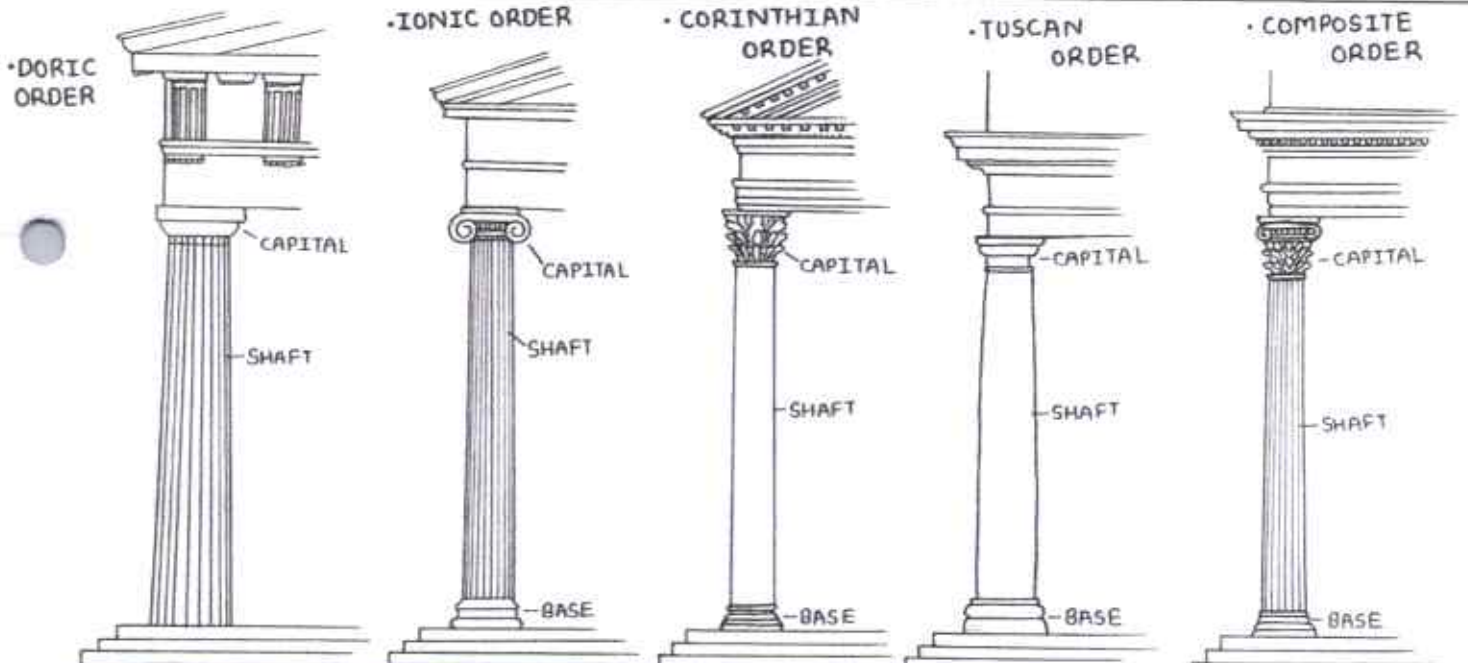


- The agora is the most important gathering place in a Greek city.
- It is a place for combined social, commercial, political acts.
- It is usually located on flat ground.
- In many cities, it is placed close to the acropolis.
- It is placed so it can be accessed by any direction.

GREEK ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI				
DATE	SIGN	NAME	ASSIGN No.	STAMP
10-3-21		SHREYAS VINAY DUTAN	5-3	
		SUBJECT: HISTORY		
		CLASS: 3 <sup>RD</sup> YEAR (B)	ROLL NO: 372	SCALE
		ACADEMIC YEAR: 2021-2022	TERM: 3	

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• DORIC ORDER

• IONIC ORDER

• CORINTHIAN ORDER

• TUSCAN ORDER

• COMPOSITE ORDER

CAPITAL

SHAFT

CAPITAL

SHAFT

BASE

CAPITAL

SHAFT

BASE

CAPITAL

SHAFT

BASE

CAPITAL

SHAFT

BASE

• It has plain unadorned column capital.  
 • Columns that rests directly on stylosate.  
 • It has vertical flanges.

• It has narrow columns.  
 • It is use of volutes.  
 • It has spiral scroll.  
 • Its columns stands on base.

• It has slender fluted columns.  
 • It is most ornate in all orders.  
 • It is elaborate capital decorated of leaves.

• It is simple, unadorned entablature.  
 • Column also tend to wider, squatter.  
 • This is similar to Doric.

• The columns are combination of ionic and corinthian.  
 • Some ornament placed centrally bet<sup>n</sup> volutes.

• Difference of Roman order and Greek order.

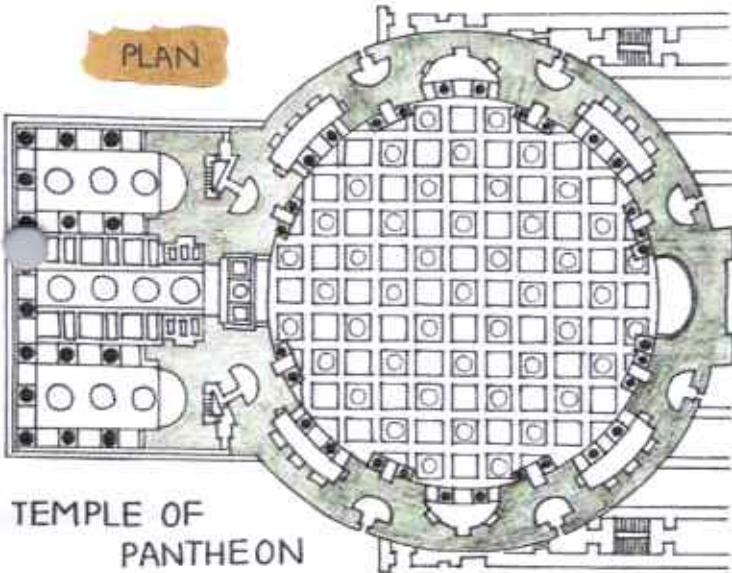
- 1) Greek's preferred a post lintel construction method while Roman favoured arch construction.
- 2) Greek's commonly constructed their buildings from marble, lime stone but Romans preferred the concrete.
- 3) Greek's prefer the use of Doric and Ionic orders, whereas the Roman preferred more Corinthian order.
- 4) Greek's designed art of Honour their gods, which resulted in ornate interior as compare to Roman.

# ROMAN ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	SIGN	NAME	ASSIGN NO.	STAMP	
		SHREYAS VENKATRAO	72-1		
		SUBJECT: 110PC	SCALE		
		CLASS: 3RD YEAR 2021-22	ROLL NO: 222		
		ACADEMIC YEAR: 2021-22	TERM: 5		

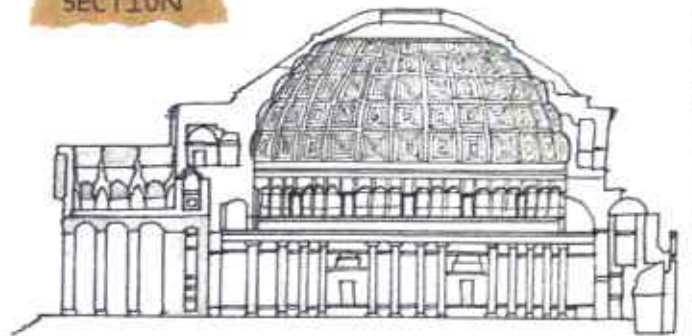
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 Akurdi Pune

PLAN

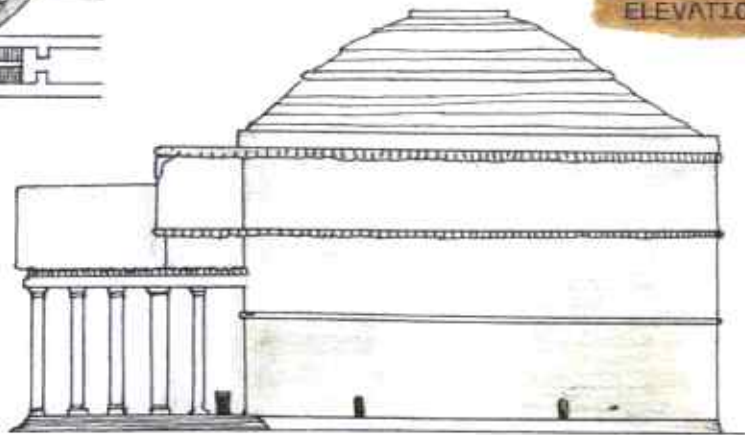


TEMPLE OF PANTHEON

SECTION



ELEVATION



- The temple of Pantheon is made of primarily from brick and concrete.
- It consist of three sections, a portico with granite columns, a massive domed rotunda and a rectangular area connect the other two sections.
- It have 142 feet diameter
- Its domed ceiling was largest of its kind.

# ROMAN ARCHITECTURE

PADMASHREE DR. D. Y. PATIL COLLEGE OF ARCHITECTURE AKAJAC					
DATE	SIGN	NAME	SHREYAS VENAY DHATAS	ASSON NO	STAMP
		SUBJECT	HDAC	2.2	
		CLASS	2ND SEMESTER	SCALE	
		ACADEMIC YEAR	21-22	TERM	1

*Shreyas*

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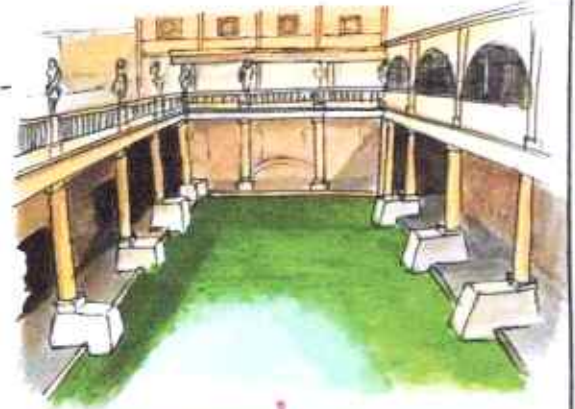
- COLOSSEUM AT ROME



- The Colosseum was famously used for gladiatorial combat
- It is an elliptical structure made up of stone and concrete
- It is a freestanding structure stands for stories tall at its highest point
- It measures 620 by 513 feet.

- The aqueducts are made from a series of pipes, tunnels, canal and bridges
- Gravity and natural slope of the land allowed them water from source
- The bridges of it are constructed by using round stone arch

PUBLIC BATHS-



- Most Roman cities had at least one common bath
- It is not only used for bathing but also for socializing.
- Public bath was built around tepidarium (warm room), Caldarium (hot room) and Frigidarium (cold room).

AQUEDUCTS -



# ROMAN ARCHITECTURE

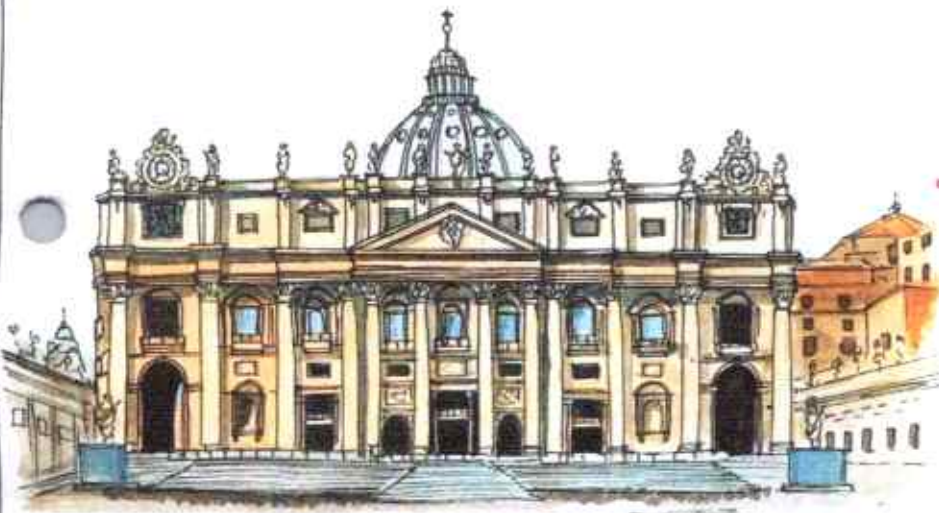
PDMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI				
DATE	SIGN	NAME SHREYAS VINAY BHATAK	ASSGN NO	STAMP
		SUBJECT HDAC	03	
		CLASS 1 <sup>ST</sup> YEAR (ROLL NO 128)	SCALE	
		ACADEMIC YEAR 21-22 TERM 2		

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## BASILICA

- St Peter's basilica was the 6<sup>th</sup> century church begun by the Emperor Constantine the Great between 318 to 333.
- It was of typical basilica form, a wide nave and two aisles on each side and an apsidal end, with the addition of transept, giving the building the shape of a tau cross.
- The form of Latin/tau cross is adopted from original greek cross by successive architects.




- The forum of Trajan is elegant.
- It is rife with signs of top-level architecture and decoration.
- All of the structure were built in stone except two libraries which were built in bricks.
- There is a great deal of exotic imported marble and many statues, including gilded examples.

## FORUM OF TRAJAN

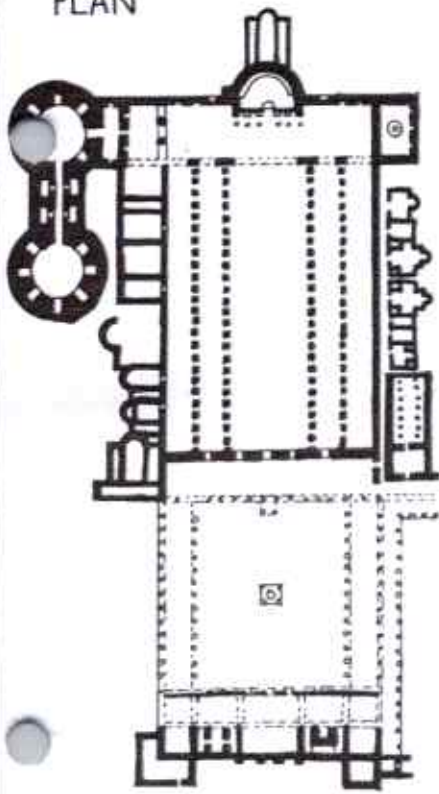


## ROMAN ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI				
DATE	SIGN	NAME	ADDER No.	STAMP
		SHREYAS VENERY BHATAV	22G	
		SUBJECT: HISTORY		
		CLASS: 5 <sup>TH</sup> SEM (61)	ROLL NO: 222	MARK
		ACADEMIC YEAR: 2021-2022	TERM: 1	

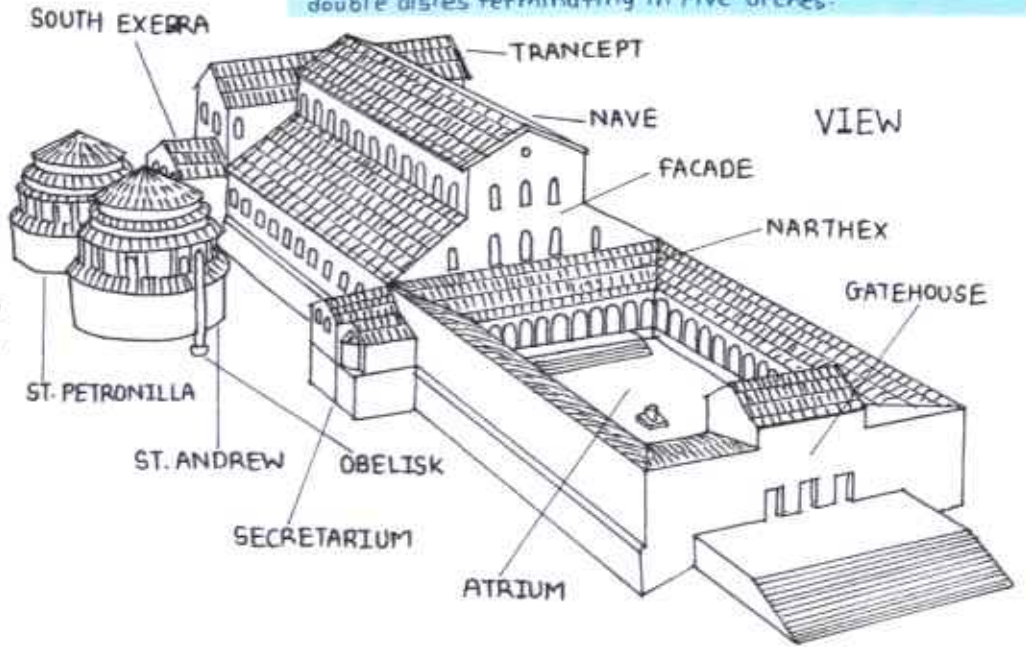
  
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PLAN



S. PETER'S  
- ROME

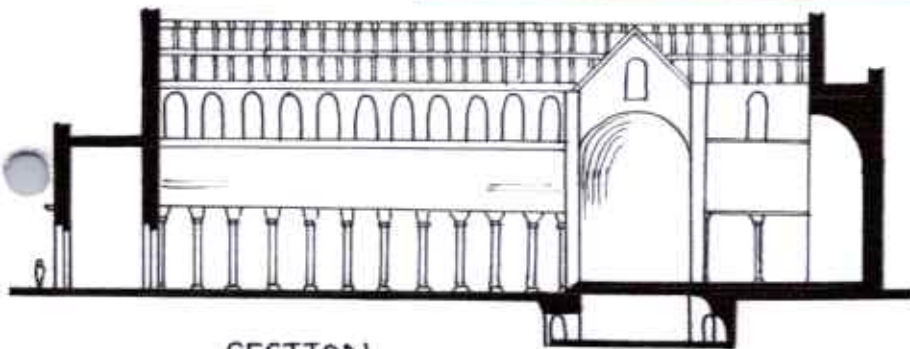
- It was built by Constantine in 300 AD, near the site of the martyrdom of St. Peter in the circle of Nero.
- The ground plan is a form of a cross. The sign under which he had conquered: a atrium of open rectangular court formed an imposing approach.
- Beyond was the bema and the sanctuary of semi-circular apse with the pop's seat against the centre of the wall.
- The atrium led through the narthex to the gate nave with double aisles terminating in five arches.



EARLY CHRISTIAN AND BYZANTINE ARCHITECTURE

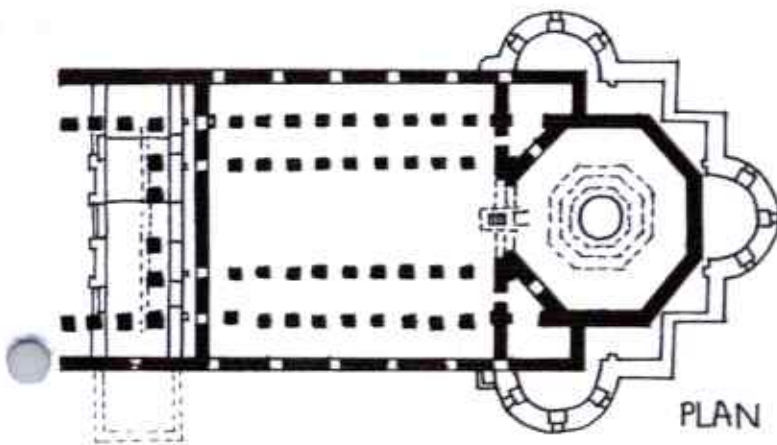
PADMASHREE DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI.				
DATE	SIGN	NAME	ASSIGN NO.	STAMP
3-10-21		SHREVAS VINAY DHATAL	3-1	
		SUBJECT: HDPC	SCALE	
		CLASS: 2 YEAR (B) ROLL NO.: 228		
		ACADEMIC YEAR: 2021-22 TERM: 1		

## THE CHURCH OF NATIVITY- BETHLEHAM



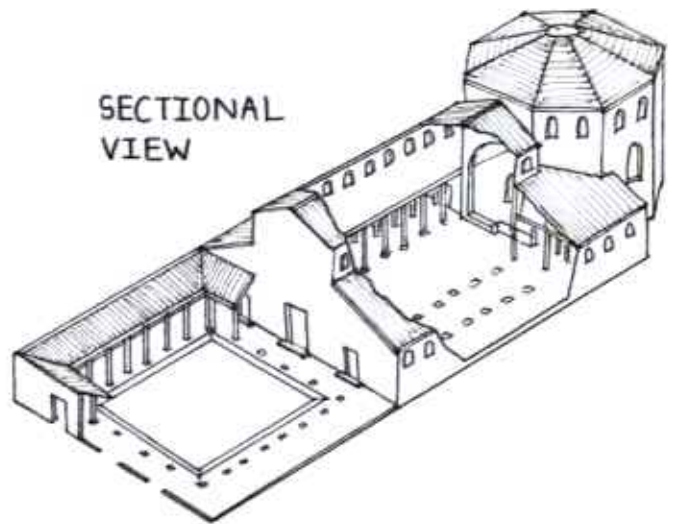
SECTION

- It was founded by Constantine at the birth place of Jesus Christ.
- This historic building, with monolithic corinthian columns, 5.8 m high of the nave and double aisles and three apses of the sanctuary.
- Peculiarly suitable to receive the immense number of worshippers at the birth shrine of the founder.



PLAN

SECTIONAL VIEW



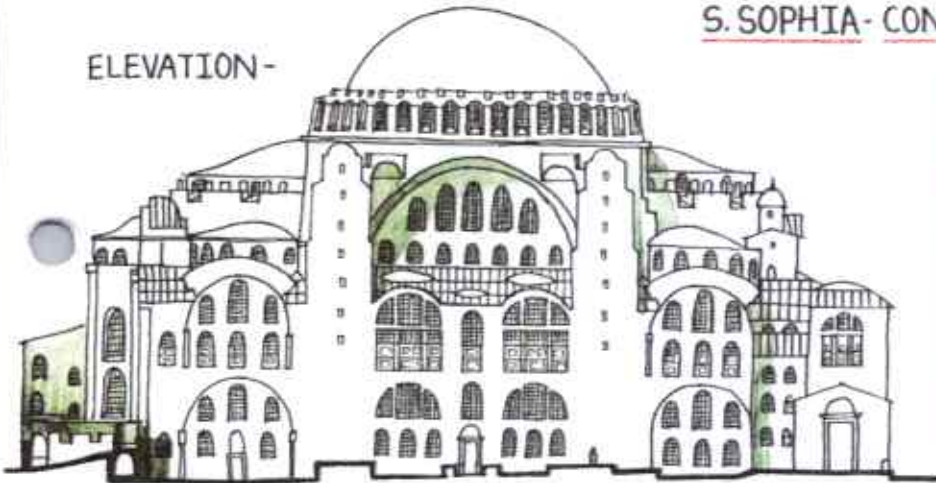
EARLY CHRISTIAN AND BYZANTINE ARCHITECTURE

PADMASHREE DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	SIGN	NAME	ADDRESS	ROLL NO.	STAMP
3-10-23		SHREYAS VISHAY BHARAL		32	
		SUBJECT		SCALE	
		CLASS		ROLL NO: 323	
		ACADEMIC YEAR		TERM	
		2021-2022		1	

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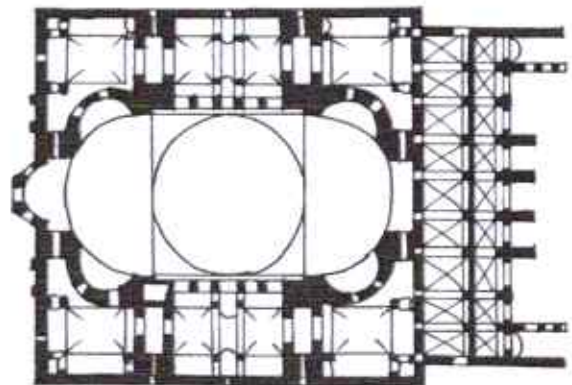
## S. SOPHIA - CONSTANTINOPLE - ISTANBUL

ELEVATION-

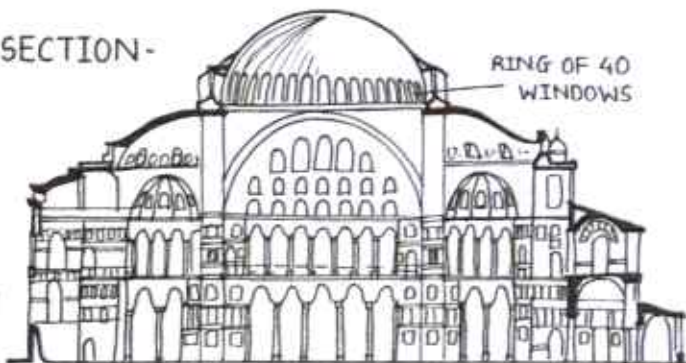


- It was constructed for Justinian by two genius Architects Anthemius of Tralles and Isidorus of Miletus.
- The church is designed in a form of Greek cross 91.8m X 99m with top of the dome at 56.8 m. from the ground
- It has a central space of 32.6m.
- The central dome 33m. Cross appears like a canopy in the centre and hung by a golden chain from the sky.
- The marble columns 107 in all support of groined vaults under the galleries.

PLAN



SECTION-



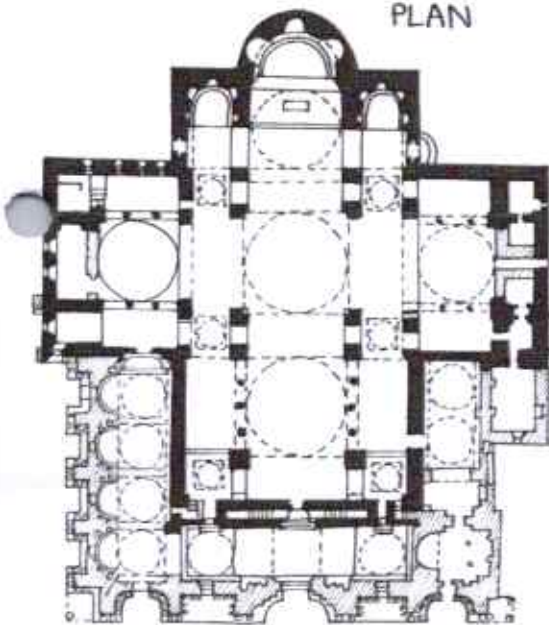
RING OF 40 WINDOWS

EARLY CHRISTIAN AND BYZANTINE ARCHITECTURE

PREPARED BY: DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AURDI				
DATE	SIGN	NAME	ASSIGN NO.	STAMP
3-10-23		SHEKVAS VINAY SHITAL	3:5	
		SUBJECT: HERE	SCALE	
		CLASS: 3 YEAR (B)	ROLL NO: 222	
		ACADEMIC YEAR: 2021-2022	TERM: 1	

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PLAN



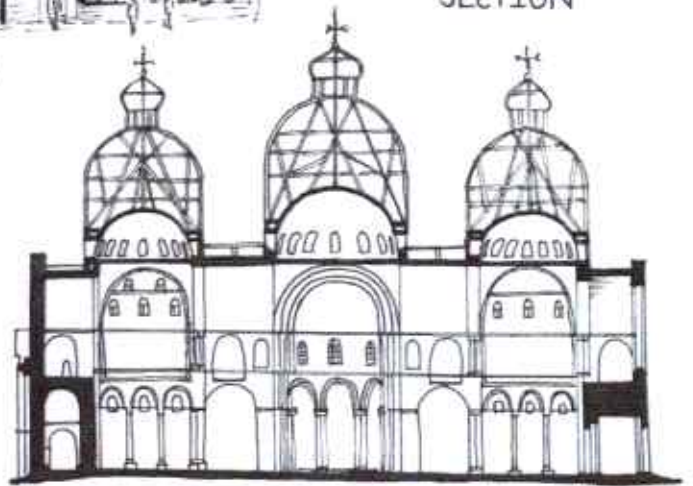
INTERIOR VIEW

S.MARK  
- VENICE

This famous edifice stands for on the site of the original basilican church which was founded in 830 AD to receive the body of S.Mark.

Between 1063-85 A.D. the plan was completely transformed basilican to the Byzantine plan of a greek cross. It reflects the art of Byzantium which so largely influenced the architecture of Venice, situated midway between East and west.

SECTION

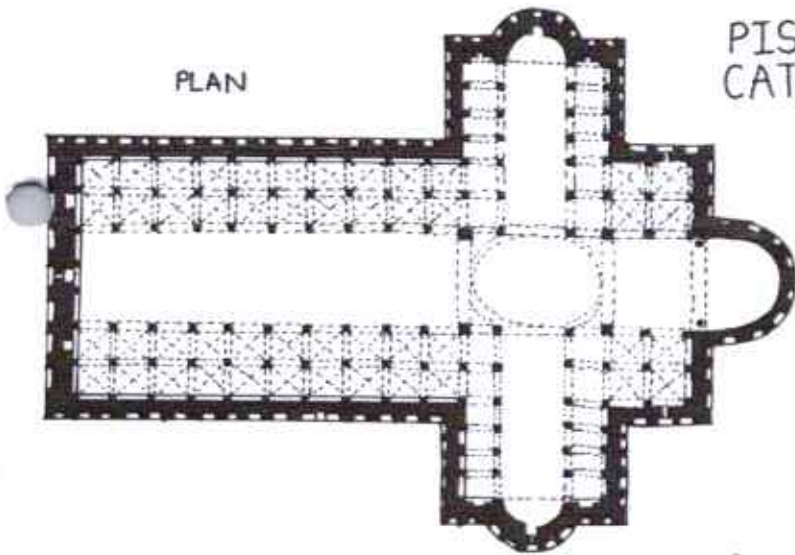


EARLY CHRISTIAN AND BYZANTINE ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	IGN	NAME	SIGNATURE	ASSIGN NO	STAMP
3-10-22		SIDDHANT VIKRANT PHATAK		56	
		SUBJECT: PDRC		SCALE	
		CLASS: 3 <sup>RD</sup> YEAR (B)	ROLL NO: 222		
		ACADEMIC YEAR: 2021-2022	TERM: 1		

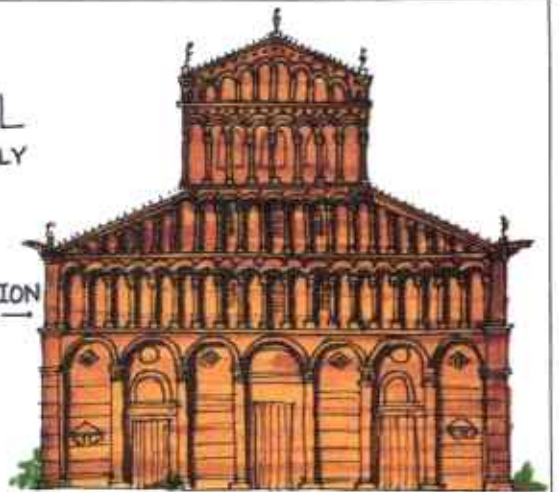
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PLAN

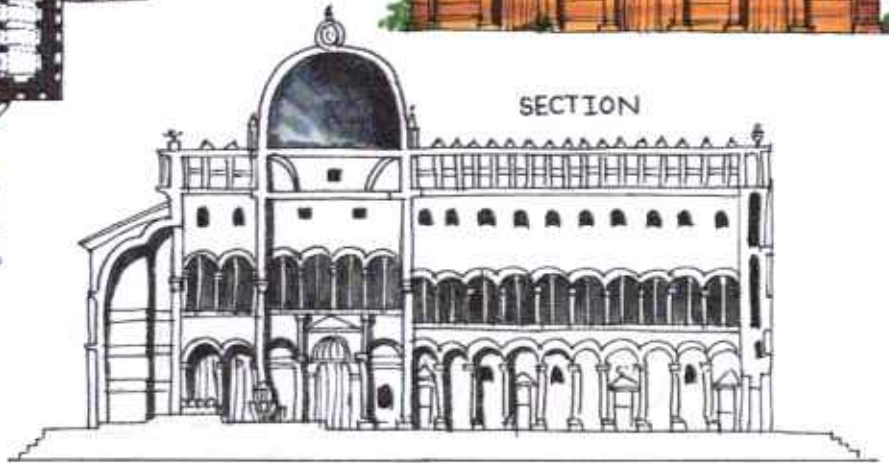


PISA CATHEDRAL  
- ITALY

ELEVATION



SECTION



- Its plan is similar to Basilican Church.
- It has a long row of columns supporting arches, double aisles and central nave transepts and a segmental apse at each end.
- The building possesses a delicacy of treatment, grace, fine proportion and susceptibility of the spirit of antiquity.

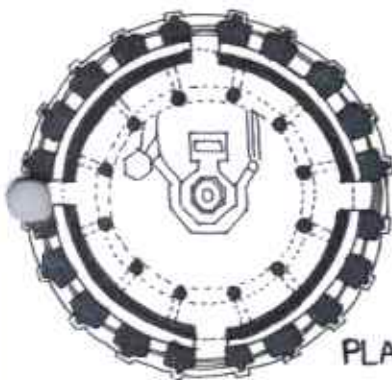
ROMANESQUE ARCHITECTURE

DATE	SIGN	NAME	ENGINEERING WORKS	ASSIGN No	STAMP
			SUBJECT: HISTORY	01	
			CLASS: 2ND YEAR / 2 <sup>nd</sup>	ROLL NO: 114	SCALE
			ACADEMIC YEAR: 2024-2025	TERM: 2	

*Shang*

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## THE BAPTISTERY, PISA

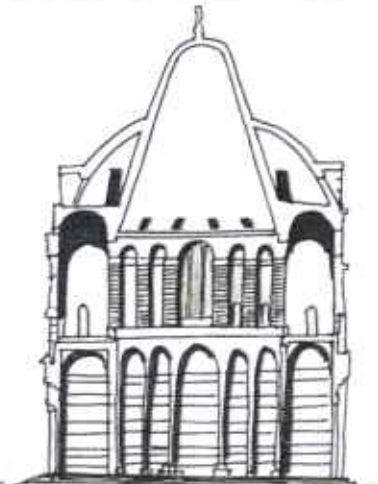


PLAN

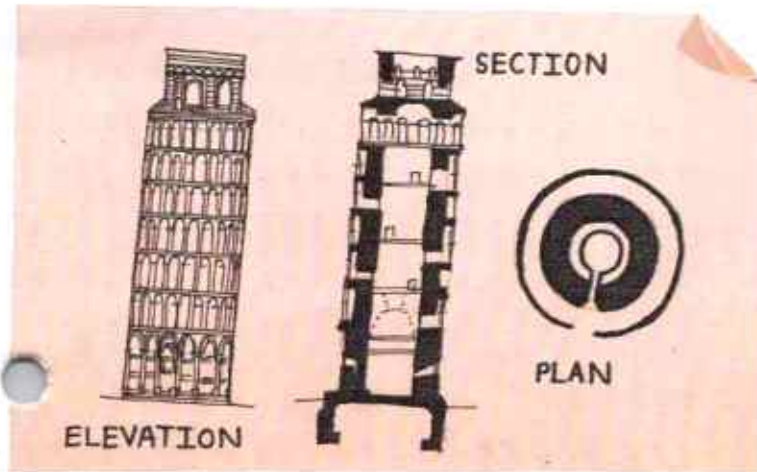
- IT forms the most famous group of Pisa Buildings.
- It's circular in plan, with central nave looks nice.
- These are the special features of Italia Romanesque architecture.



ELEVATION



SECTION



ELEVATION

SECTION

PLAN

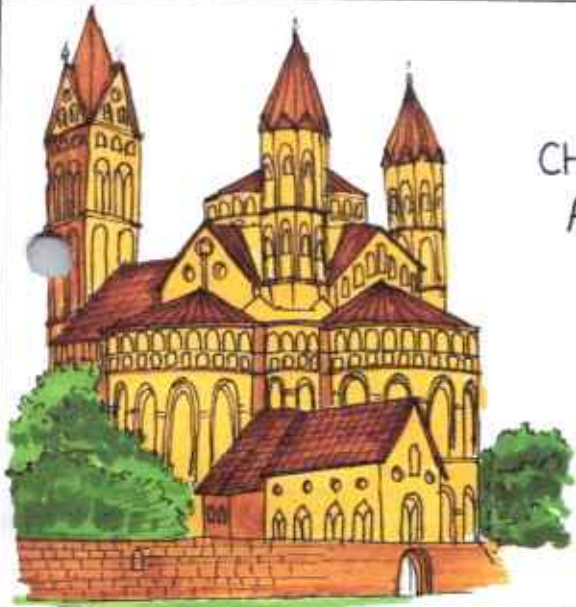
## THE COMPANILE, PISA

- This is world famous leaning tower, 15.8 m in diameter, have height 57 m in eight storeys of encircling arcades.
- The campaniles or bell towers are generally constructed alone.
- Sometimes they are connected by cloisters with church.
- This towers served as watch tower.

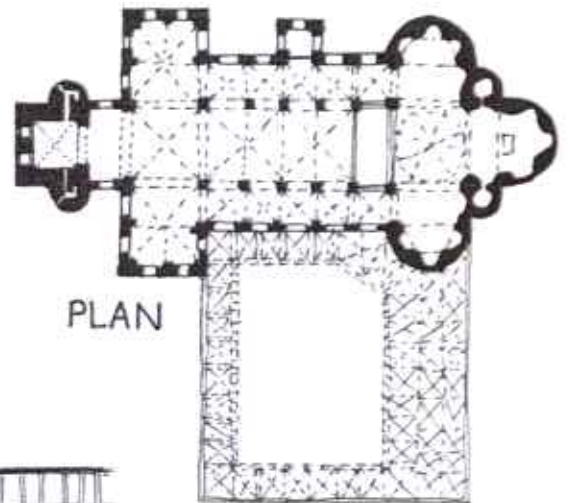
ROMANESQUE ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	SIGN	NAME	SHEET NO.	ASSGN NO.	STAMP

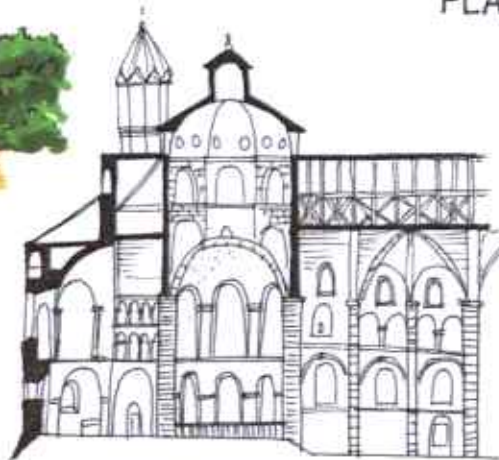
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## CHURCH OF APOSTLES, GERMANY



PLAN



SECTION

- The Basilica of the Holy Apostles is a Romanesque church in Bamberg, Germany, located near Innenstadt's Bury Neumarkt. The former church is dedicated to the twelve apostles.
- Built in 1021 by Archbishop Konrad II, it has been a pilgrimage site since the middle of the 12th century. The church building grew with new additions.

- The church contained a broad nave, aisles half in width, transepts and choir. An octagonal tower makes the building more impressive.
- The tallest tower is 67 meters high.
- It has three apses at the East and making a trefoil plan.

ROMANESQUE ARCHITECTURE

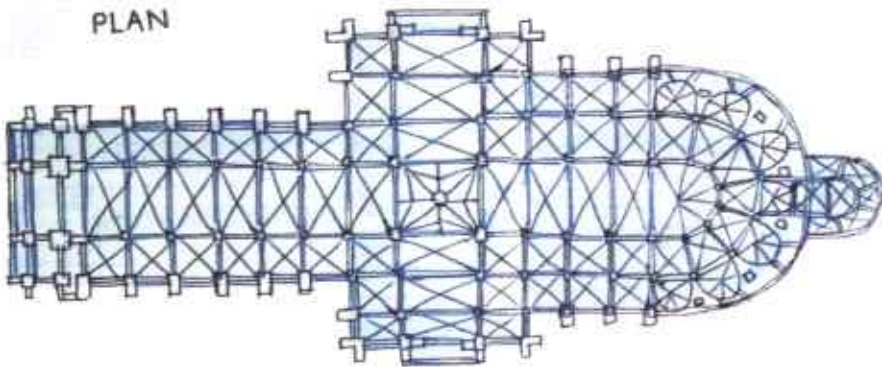
PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI					
DATE	SIGN	NAME	ASSIGN NO.	STAMP	
		SHREYAS VINAY PATIL	603		
		SUBJECT: HSAC'S			
		CLASS: 5TH YEAR (B) ROLL NO: 232	SCALE		
		ACADEMIC YEAR: 2021-2022	TERM: 5		

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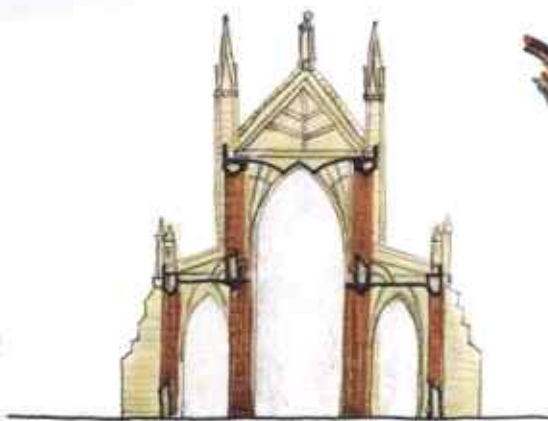


# AMIENS CATHEDRAL, FRANCE

PLAN



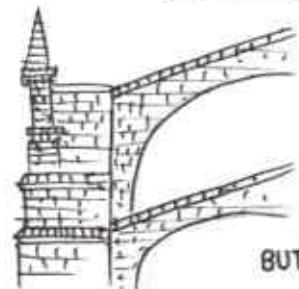
ELEVATION



SECTION



RIB VAULT



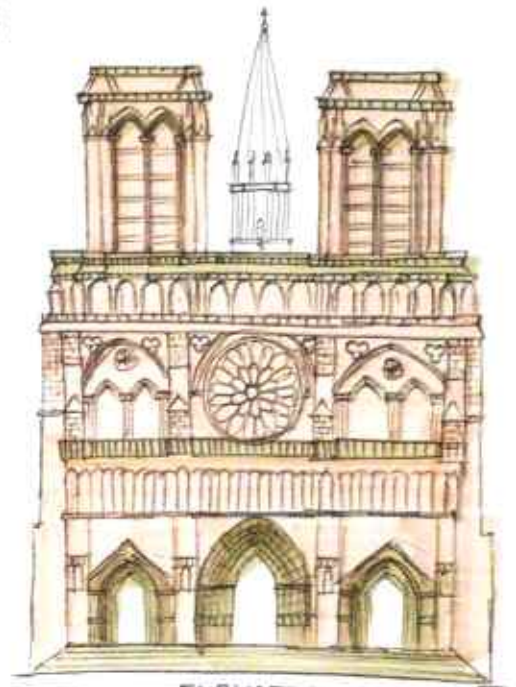
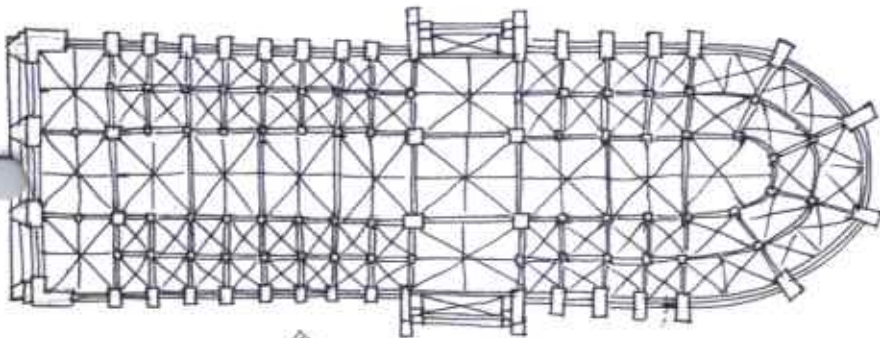
FLYING-BUTTRESSES

GOTHIC ARCHITECTURE

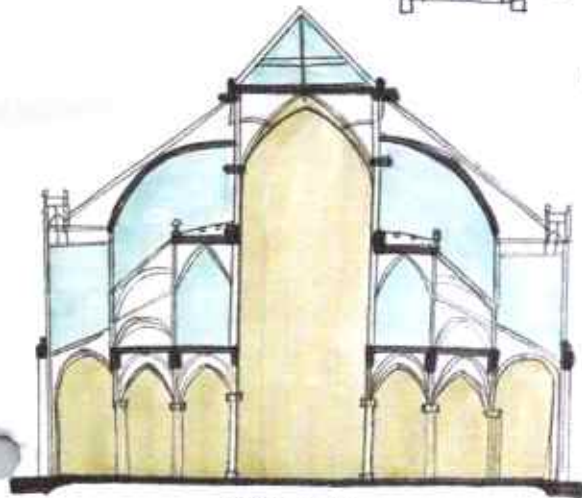
PADMASTREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AVARDE.					
DATE	SIGN	NAME	ASSIGN NO.	STAMP	
21-11-21		SHEEVA VINAY BHATAK	62		
		SUBJECT: HOAC	SCALE		
		CLASS: 3 YEAR (B)	ROLL NO: 222		
		ACADEMIC YEAR: 2021-2022	TERM: 3		

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PLAN NOTRE DAME, PARIS



ELEVATION



SECTION

ARCH



ROSE WINDOW



TOWER

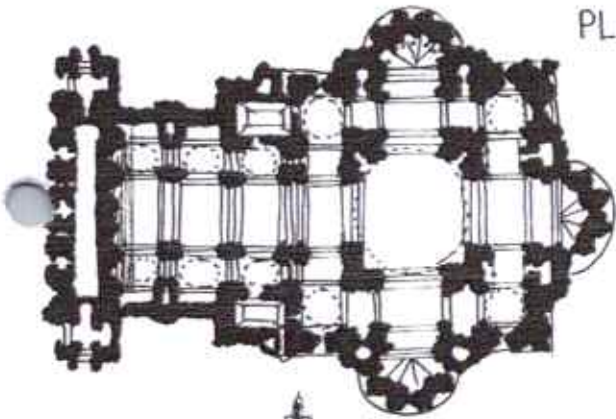


GOTHIC ARCHITECTURE

PADMASHREE DR. D.Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI				
DATE	SIGN	NAME	ADDRESS NO.	STAMP
21-11-20		SHREYAS VINAY BHATAV	6-1	
		SUBJECT: JGCA		
		CLASS: 2 YEAR (B)	ROLL NO: 222	SCALE
		ACADEMIC YEAR: 2021-2022	TERM: 1	

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PLAN



SECTION



ELEVATION/VIEW

# ST. PETER'S BASILICA -ROME

RAINASSANCE ARCHITECTURE

PRADESHIYA DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AURDI				
DATE	SIGN	NAME	ADDM. NO.	STAMP
		SHREYAS VISHAY KUMAR	611	
		SUBJECT: HDPC	SCALE	
		CLASS: 1 <sup>ST</sup> YEAR (B)	ROLL NO: 093	
		ACADEMIC YEAR: 2021-2022	TERM: 1	

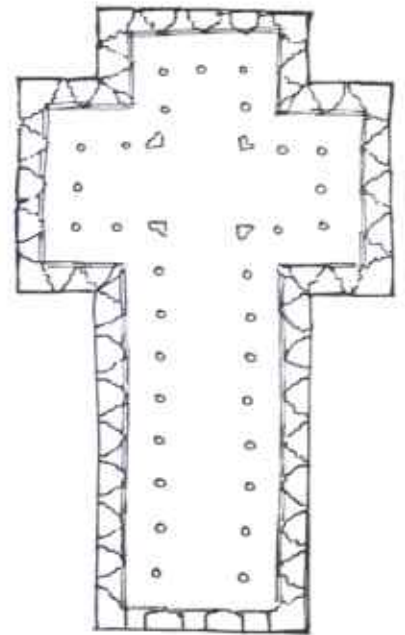
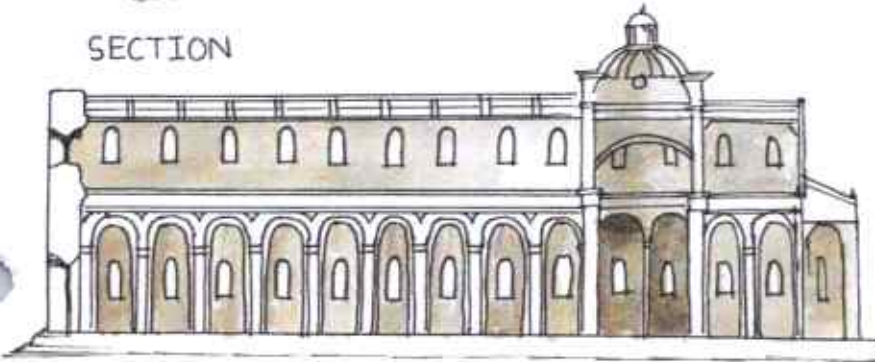
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FRONT VIEW



# BASILICA OF SANTO SPIRITO

SECTION



PLAN

RENAISSANCE ARCHITECTURE

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DATE	SIGN	NAME	ROLL NO.	STAMP
		SHREYAS VENAY DIXAL	22	
		SUBJECT: HDAC	SCALE	
		CLASS: 3 <sup>RD</sup> YEAR (B)	ROLL NO. 222	
		ACADEMIC YEAR: 2021-2022	TERM: 1	

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# CRITERIA 1

## *Curriculum Enrichment*

---

### *Subject- Building Services II*

#### *Issue Addressed- Environment and Sustainability*

#### *Description-*

This subject inculcates an understanding of the integration of Building Services in low, medium, and high-rise buildings in architectural design. The Building Services include:

- Solid Waste Management: The collection, treatment, and disposal of organic and inorganic waste
- Lighting-Natural, Artificial- An integrated design approach for day lighting to cover passive design strategies.
- Electrification: Introduction to alternative sources of energy such as Solar PV, Wind turbines, etc. and integration into building design

Students have demonstrated the role of these building services in their assignments.

# DISPOSAL OF GARBAGE

**WASTE IS WEALTH**

**90% OF PLASTIC WASTE CAN BE RECYCLED**

**GARBAGE IS FULL OF 'POWER'**

**DELHI MAY DROWN IN ITS OWN TRASH**

**RAJIV FALLS TO CURB USE**

**WASTE LEAVES UNDER PLASTIC BURDEN**

# COLLECTION OF GARBAGE

**YOUR GARBAGE WILL NOW COST YOU**

**Pick of the litter**

**WASTE COLLECTION UNDES**

**FROM END OF THIS MONTH?**

**GARBAGE SWEEPING FEE CHART**

**KEY FEATURES OF NGMT POLICY**

**50% people dump garbage in open**

## COLLECTION & DISPOSAL OF GARBAGE

DATE	SIGN	NAME	QUALITY	MAJORITY	ACQ. BY	ADDRESS
3.01.17		SHRUTI	RS			
		CLASS	57497	ROLL NO.	50	SCALE
		ACADEMIC YEAR	2016-17	TERM		

*Dr. D.Y. Patil*

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# WHAT IS SOLID WASTE MANAGEMENT?

## SOLID WASTE MANAGEMENT

WASTE MANAGEMENT IS WASTE DISPOSAL INCLUDING THE PROVISION AND MAINTENANCE OF FACILITIES TO HANDLE WASTE FROM ITS SOURCE TO ITS FINAL DESTINY. THIS INCLUDES THE COLLECTION, TRANSPORT, TREATMENT AND DISPOSAL OF WASTE.

### TYPES OF WASTES?



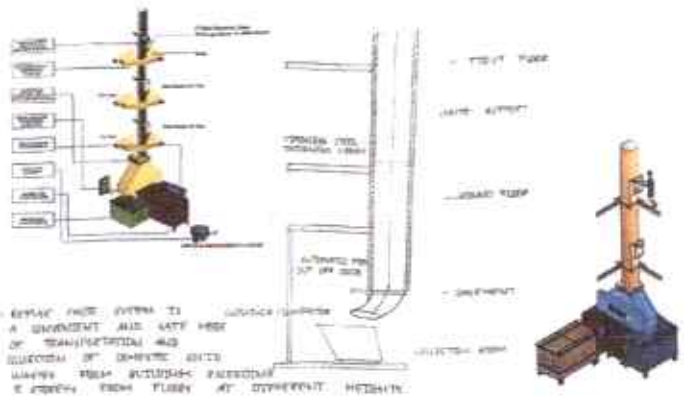
### THE 7 R'S

REDUCE, REUSE, RECYCLE, RECOVER, REPAIR, REFUSE, RETHINK. THESE 7 CANNOT BE SEPARATED BY THEMSELVES. THEY ARE INTERRELATED AND MUST BE USED TOGETHER TO ACHIEVE SUSTAINABLE DEVELOPMENT.

### SEGREGATION OF WASTE

WASTE SEGREGATION IS THE PROCESS OF SEPARATING WASTE INTO DIFFERENT TYPES OF WASTE. THIS IS DONE TO FACILITATE THE REUSE, RECYCLE, AND RECOVER OF WASTE. IT ALSO HELPS IN REDUCING THE AMOUNT OF WASTE THAT GOES TO LANDFILL OR INCINERATION.

# REFUSE CHUTE SYSTEM



REFUSE CHUTE SYSTEM IS A CONVENIENT AND SAFE MEANS OF TRANSPORTING AND COLLECTION OF DOMESTIC WASTE FROM BUILDINGS. IT PREVENTS WASTE FROM SPILLING AT DIFFERENT HEIGHTS.

# TREATMENT METHODS OF WASTE

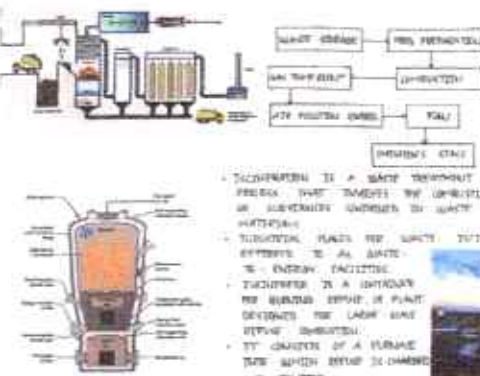
## VERMICOMPOSTING

VERMICOMPOSTING IS A BIOLOGICAL PROCESS WHERE WASTE IS DECOMPOSED BY WORMS INTO COMPOST. THIS COMPOST CAN BE USED AS FERTILIZER FOR PLANTS. THE PROCESS INVOLVES THE USE OF WORMS TO BREAK DOWN ORGANIC WASTE INTO A RICH, DARK, AND FRUITFUL COMPOST. THE COMPOST CAN BE USED AS FERTILIZER FOR PLANTS AND TO ENRICH THE SOIL. THE PROCESS IS ENVIRONMENTAL-FRIENDLY AND DOES NOT PRODUCE ANY POLLUTION.

## LANDFILLING

LANDFILLING IS THE DISPOSAL OF WASTE IN LAND. IT INVOLVES THE DEPOSITING OF WASTE INTO A PIT OR TRENCH. THE WASTE IS COVERED WITH SOIL AND COMPACTED. THIS PROCESS IS USED FOR DISPOSING OF WASTE THAT CANNOT BE RECYCLED OR REUSED. LANDFILLING IS A COST-EFFECTIVE METHOD OF WASTE DISPOSAL, BUT IT CAN CAUSE POLLUTION AND HEALTH PROBLEMS IF NOT DONE PROPERLY.

# INCINERATION



INCINERATION IS A WASTE TREATMENT PROCESS THAT INVOLVES THE BURNING OF WASTE. THE HEAT GENERATED IS USED TO PRODUCE STEAM, WHICH CAN BE USED FOR ENERGY GENERATION. THE ASH PRODUCED IS DISPOSED OF IN A LANDFILL. INCINERATION IS A COST-EFFECTIVE METHOD OF WASTE DISPOSAL, BUT IT CAN CAUSE POLLUTION AND HEALTH PROBLEMS IF NOT DONE PROPERLY.



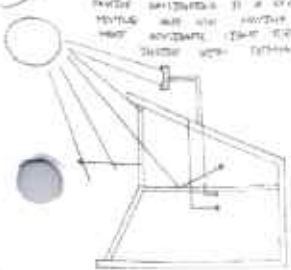
# SOLID WASTE MANAGEMENT

DATE	SIGN	NAME	GRUP	MASJAL	ASSALIM	STAMP
07/05		SUBIKT	R-5			
		CLASS	S.Y (R)			
		ACADEMIC YEAR	2022-23			

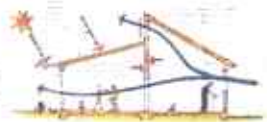
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Akurdi Pune

# WHAT IS PASSIVE LIGHTING?

Passive lighting is a system of using existing building materials, structures and systems to provide lighting. It does not require any electrical or other energy source.



## Passive Design Strategies



These design strategies let ambient energy warm buildings or cool them down. The strategy of using solar energy is called passive solar design.

# WHAT IS FENESTRATION?

Fenestration refers to the openings in a building's envelope. It is the arrangement of windows, doors and skylights in a building. Fenestration design is critical in reducing energy and material costs. Fenestration design is also a key factor in a building's energy performance.



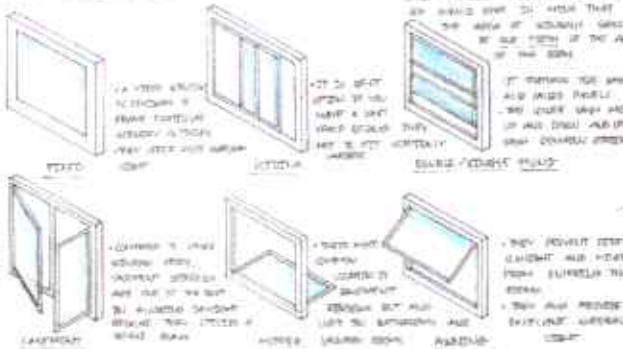
# DIFFERENT TYPES OF GLAZING MATERIALS



A glazing system performs its primary function according to the glazing material used. The properties of each glazing material are determined according to the date, system and different types of glazing materials used.



# TYPES OF WINDOWS

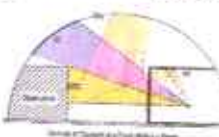


# PASSIVE DESIGN STRATEGIES



Light enters a room through a window. The amount of light that enters a room depends on the window's size, orientation, and the amount of light that is available outside.

# DAYLIGHT FACTOR



The daylight factor is defined as the ratio of illuminance in the space to the illuminance on a clear day. It is expressed as a percentage. The formula for daylight factor is:  $DF = \frac{E_{i}}{E_{o}} \times 100$ , where  $E_{i}$  is the illuminance in the space and  $E_{o}$  is the illuminance on a clear day.

# LIGHTING (NATURAL)

DATE	BOOK NAME	CLASS	ROLL NO.	SEM
20/11/2023	CAUSTI MALLATKA	E.S. II	160	03
SUBJECT		CLASS	ROLL NO.	SEM
LIGHTING		E.S. II	160	03
ACADEMIC YEAR 2022-23 TERM				

Dr. Pail Praashthan's  
 Padmashree Dr. D Y Patil College of Architecture,  
 Akurdi Pune







# CRITERIA 1

## *Curriculum Enrichment*

---

### *Subject- Architectural Design I*

*Issue Addressed- Human Value, Environment and Sustainability*

### *Description-*

To design a **Vaccination Center** with basic infrastructure for Covid-19 vaccinations which can be delivered appropriately with respect to the local context and clinic standards.

- Design should be able to cater the patients with disabilities.
- Students must learn the safety guidelines and design accordingly.

PUNE UNIVERSITY

PADMASHREE DR. DYP COLLEGE OF ARCHITECTURE, AKURDI.

STUDENT NAME – HEMANT PAUL

CLASS – F.Y.B

SECTION - B

ROLL NO. – 176

SUBJECT – AD-1

TERM – 2

TEACHER'S NAME – AR. RAKSHA MAM, AR. ASHIRVAD SIR, AR. PURNIMA MAM.

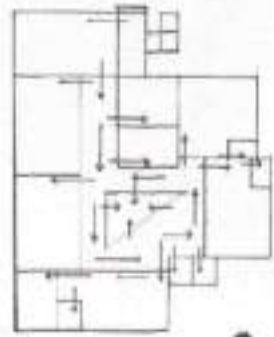


Dr. D Y Patil Pratishthan's  
Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

BUBBLE DIAGRAM:-



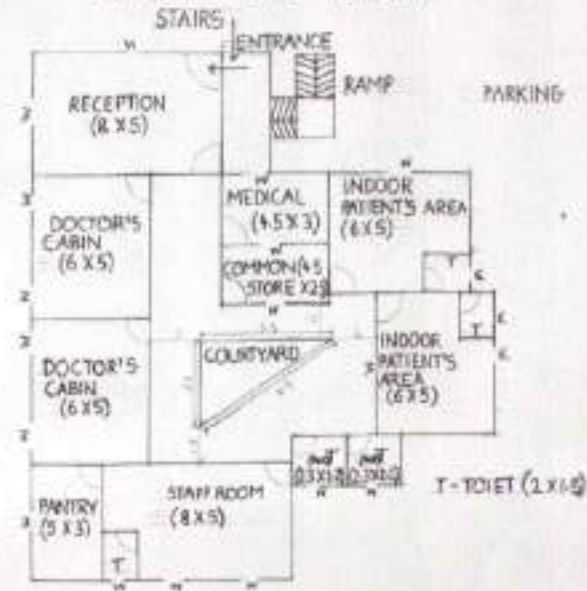
CIRCULATION



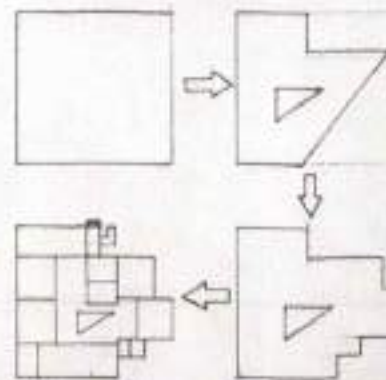
VENTILATION



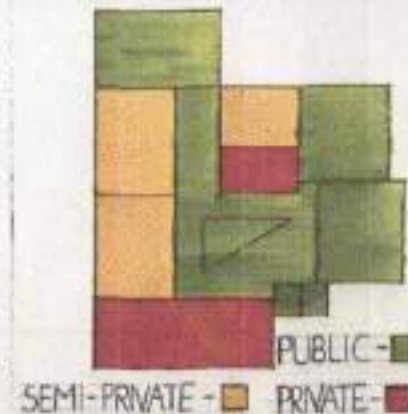
SINGLE LINE PLAN:-



CONCEPT



ZONING



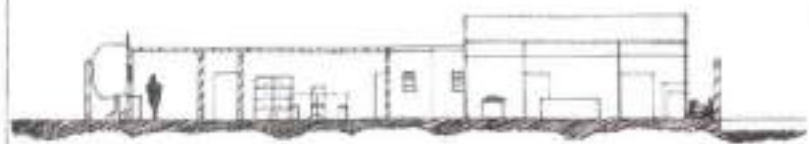
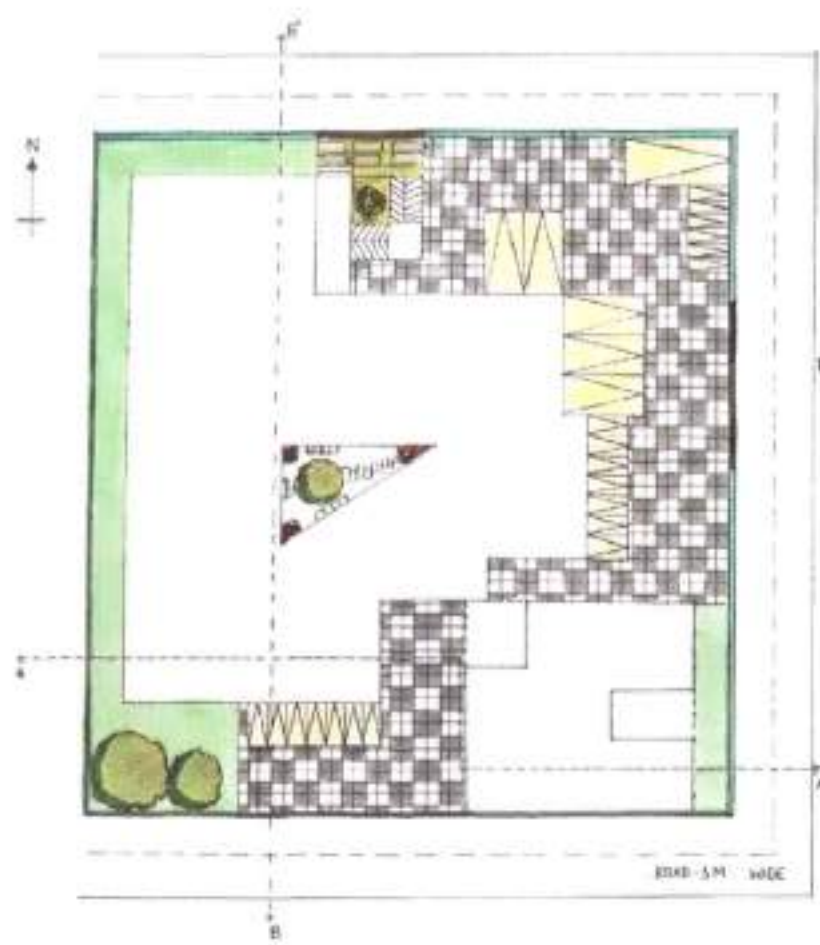
MY SITE IS SITUATED  
IN RAJASTHAN  
(BISHNOI)

CLINIC DESIGN

PROPOSED OR BY NATL. COP. 6/1/2011  
SCALE: 1/1000  
DATE: 10/11/2011  
PROJECT: RAJASTHAN  
SCHOOL OF ARCHITECTURE  
PUNE

*Dr. D.Y. Patil*

Dr. D.Y. Patil Patil's  
Pedagogue Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



SECTION AA'



SECTION BB'

SINGLE LINE SITE PLAN

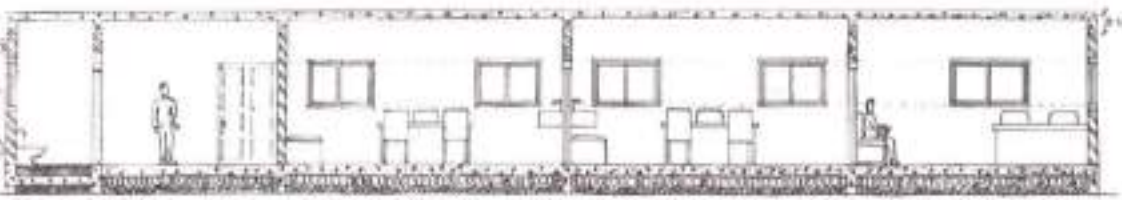
# CLINIC DESIGN

*D. Y. Patti*

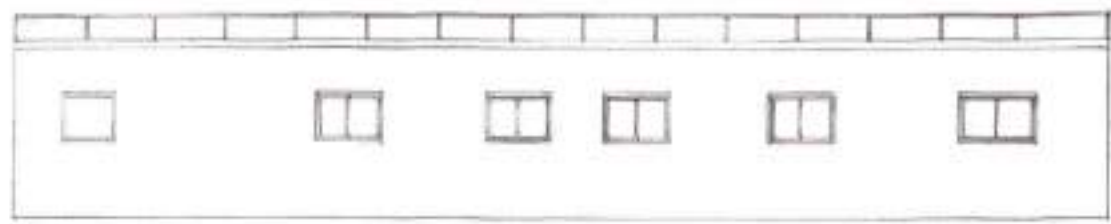
INCORPORATED BY THE GOVT. OF INDIA  
 DATE: \_\_\_\_\_ SIGN: \_\_\_\_\_ REGISTERED ARCHT. / ENGINEER / PLANNING  
 SHEET: 1/1  
 CLASS: F.E.E.  
 ALL RIGHTS RESERVED  
**Dr. D.Y. Patti Pratishthan's**  
**Padmasree Dr. D.Y. Patti College of Architecture,**  
**Akuri Pune**



SILL (+3.00)  
 LINTEL LEVEL (+2.10)  
 SILL LEVEL (+0.90)  
 PLINTH LEVEL (+0.30)  
 GROUND LEVEL (+0.00)

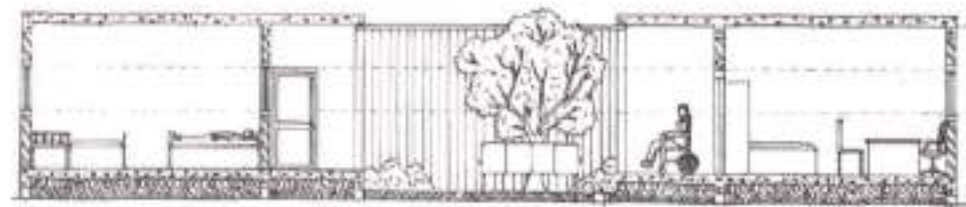


SECTION AA'



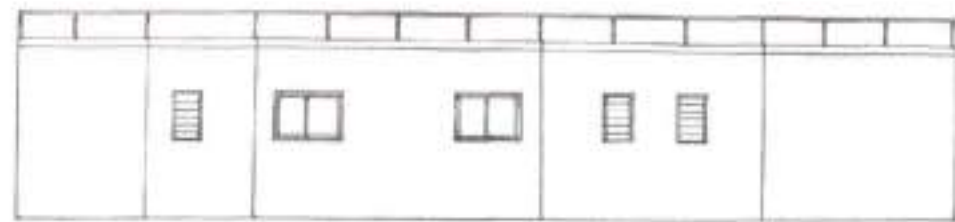
BACK ELEVATION

SECTION BB'



SILL (+3.00)  
 LINTEL LEVEL (+2.10)  
 SILL LEVEL (+0.90)  
 PLINTH LEVEL (+0.30)  
 GROUND LEVEL (+0.00)

SIDE ELEVATION

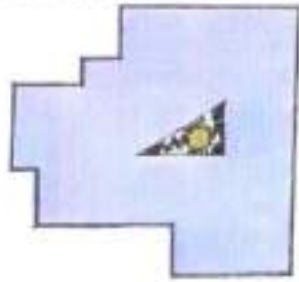


# CLINIC DESIGN

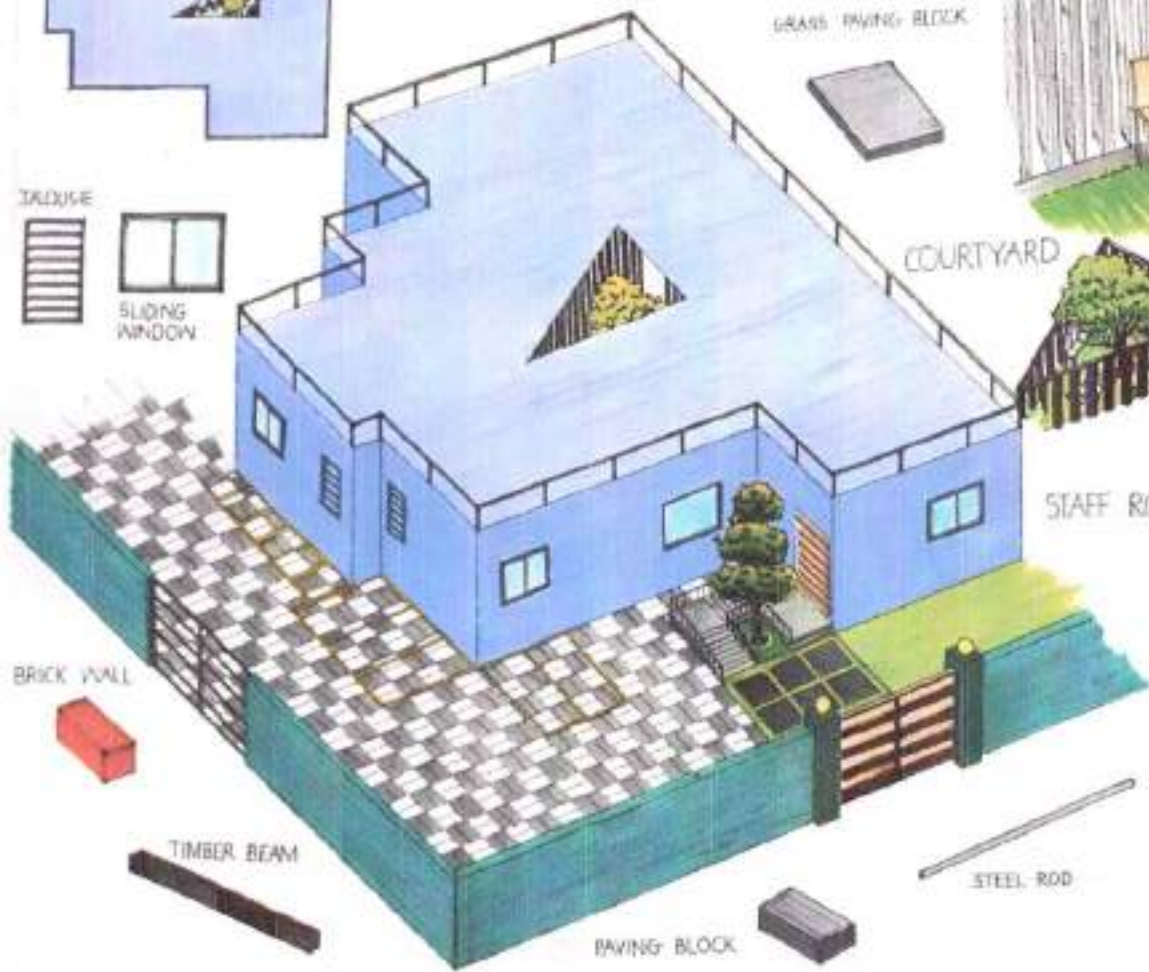
DATE	NAME	REMARKS	SCALE
	AD-1		

Dr. D.Y. Patil Pratishthan's  
 Padmashree Dr. D.Y. Patil College of Architecture,  
 Akurdi Pune

ROOF PLAN



3D VIEW



TRUSS

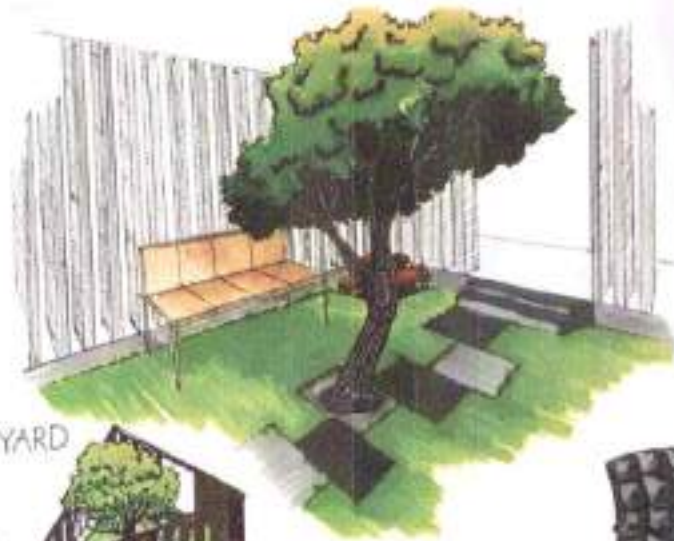


SLIDING WINDOW

GRASS PAVING BLOCK



COURTYARD



STAFF ROOM



INDOOR PATIENT'S AREA

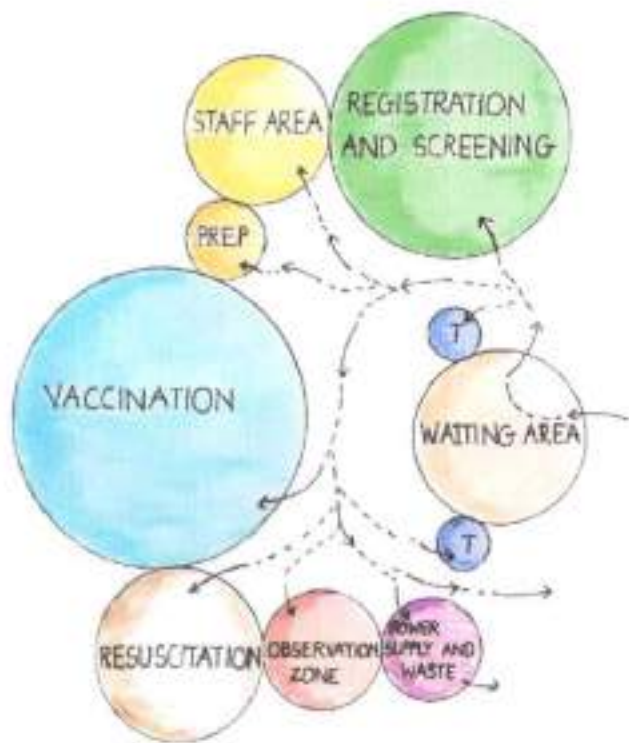


# CLINIC DESIGN

Dr. D.Y. Pralishthan's  
Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



### BUBBLE DIAGRAM:-

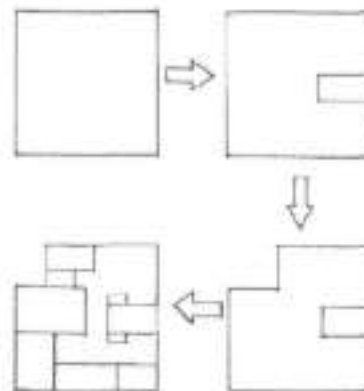


MY SITE IS SITUATED IN RAJASTHAN  
(BISHNOI)

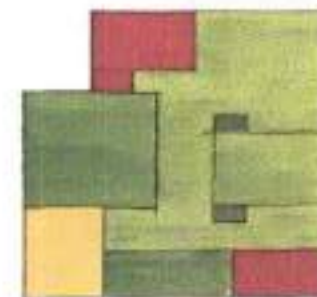
### SINGLE LINE PLAN



### CONCEPT



### ZONING



PUBLIC - ■  
PRIVATE - ■  
SEMI-PRIVATE - ■

# VACCINATION CENTER DESIGN

APPROVED BY THE ARCH. REG. AUTHORITY  
DATE: 15/04/2018  
PROJECT NO: 18/04/2018  
15/04/2018

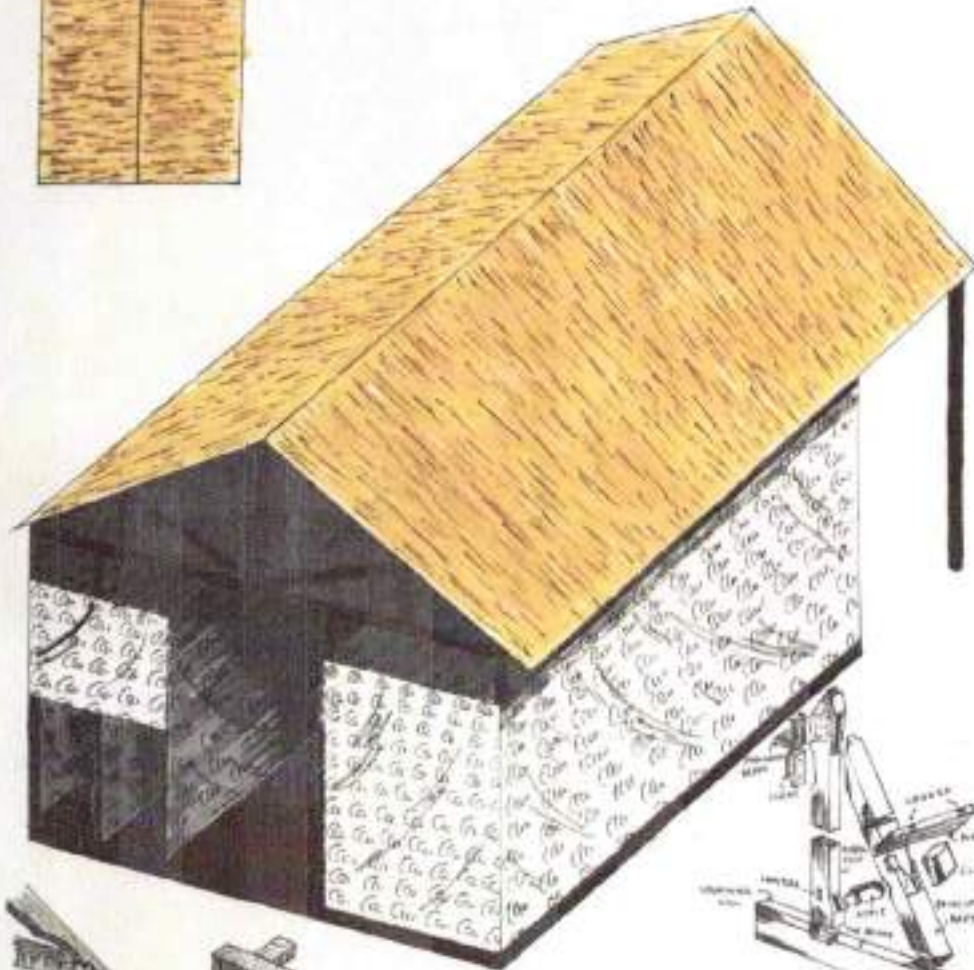
*D.Y. Patil*

Dr. D.Y. Patil Pratishthan's  
Padmasree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune

ROOF PLAN



3D VIEW

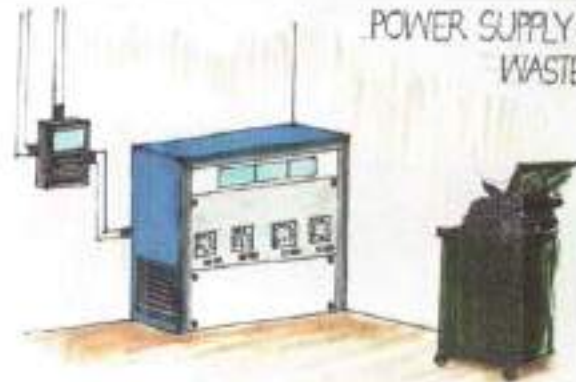


JOINERIES

STAFF ROOM



POWER SUPPLY AND WASTE



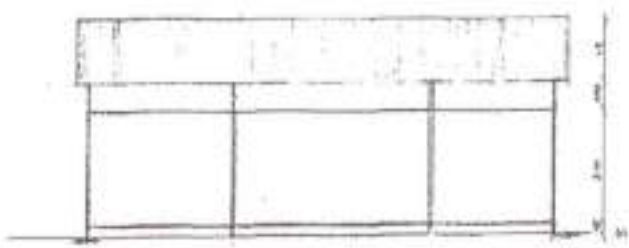
RESUSCITATION



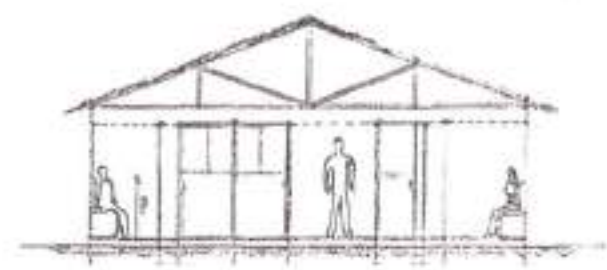
# VACCINATION CENTER DESIGN

PROJECT NO.	1001
DATE	10/10/2010
SCALE	1:100
PROJECT NAME	VACCINATION CENTER
PROJECT LOCATION	AKURDI PUNE

Dr. D Y Patil Prashivan's  
 Padmashree Dr. D Y Patil College of Architecture,  
 Akurdi Pune



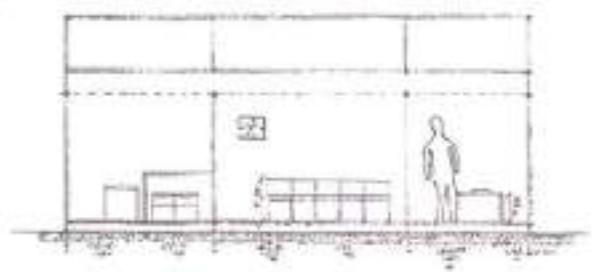
SIDE ELEVATION



SECTION - M



FRONT ELEVATION



SECTION - SE

DATE: 10/11/18

14  
24  
OPEN IN 1/11  
1/11 10/11/18  
10/11/18

10/11/18

14  
24  
10/11/18  
10/11/18

# VACCINATION CENTER DESIGN

DATE	10/11/18	PROJECT	VACCINATION CENTER
DESIGNER	DR. D.Y. PATIL	CLIENT	DR. D.Y. PATIL
SCALE	1/4" = 1'-0"	NO.	01

*Dr. D.Y. Patil*  
 Padmashree Dr. D.Y. Patil College of Architecture,  
 Akurdi Pune

# CRITERIA 1

## *Curriculum Enrichment*

---

### *Subject- Architectural Design IV*

*Issue Addressed- Human Value, Environment and Sustainability*

### *Description-*

**Campus Design** for College of Architecture and Applied Arts, at Balewadi, Nande Road

#### **Design techniques used by the student which are suitable for site condition:**

1. Flat roof for dry climate
2. Use of window overhangs or sunshades to reduce AC use.
3. Eliminating west face glazing to reduce summer and fall heat gain.
4. Use of open plain interior to promote cross ventilation.
5. Use of shaded courtyard with a water feature which can provide wind protected microclimate.
6. Larger openings on opposite walls on leeward side.
7. Use of light color building material to reduce heat gain.
8. Use of vegetation on W side to minimize heat gain.
9. Provision of outdoor shaded spaces.
10. For passive solar heating, glass area faced to south to maximize the sun exposure and design overhangs to fully shade in summer.
11. Long narrow building floor plan to help maximize cross ventilation.



SCALE 1:10000

**Road Hierarchy**

- Highway
- Arterial Road
- Collector

**Landmarks**

- Station
- Public Transportation
- Landmarks



**LANDUSE ZONING**

The diversity of the site area is covered with vegetation which includes tropical forest.

- 25% of the site is occupied by residential buildings, most housing, apartment and bungalow and to connect to existing.
- Around 45% of the site is covered by public and semi public places which include recreational items, educational institutions, shopping centers, religious places.
- Disturbance of land is used for road and large scale industries like RMC, construction etc.
- Free 40% Light & Dark Stone is occupied by commercial building such as IT and other offices.

**LOCAL TREES**

- High flowering (Jambun, Pereskia, Alchornea, Begonia, Begonia)
- Plant (Palm of the Forest, Rubber, banana, mango, papaya, Citrus, Pineapple, etc.)
- Plant (Mango, Rambutan, etc.)
- Giant (Shorea, (Lumnitzera, Casuarina))
- Giant (Cycas, Pandanus, etc.)
- Large tree palm (Pisonia, Scaevola)
- Water (Eucalyptus, etc.)
- Chromola (Sida, etc.)
- Tropic (Tillandsia, etc.)
- Giant (Pisonia, etc.)
- Small (Sida, etc.)

**DESIGN TECHNIQUES USED IN THE REGION**

- Rainwater tank for dry climate.
- Use of window overhangs to reduce summer and winter heat gain.
- Use of open plan layout to promote cross ventilation.
- Use of thick roof with a wide eave to provide wind protected microclimate.
- Building layout and height low walls, it could not be increased to prevent dark ventilation.
- Local building or materials with high openings on leeward side.
- Use of light color building materials to minimize heat gain.
- Use of vegetation on the site to minimize heat gain.
- Provide outdoor shaded spaces.
- For passive solar heating, best glass area to the south to maximize winter sun exposure and design overhangs to fully shade it summer using various building facade can help maximize cross ventilation.



The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is 7.8 km from the road to the nearest town, Kota Bharu.

Elevation of the site is 10m from the sea level. The site is located in the 100m contour line and 75% of the site is 10m.

Direction of the prevailing wind is SW and NE, which can be a good point while designing natural ventilation for the site.

There is a river in the vicinity of the site. The river is 10m from the site and 10m from the road. The river is 10m from the site and 10m from the road.

Access to the site is from a 10m road which connects to the road at the site.

**NEIGHBOURHOOD CONTEXT**



**NATURAL FEATURES**



**NATURAL FEATURES**



**NATURAL FEATURES**



The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



**SECTION A-A**



**SECTION B-B**



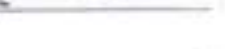
**SECTION C-C**



**SECTION D-D**



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



**SITE**

Location: 100m from the road to the nearest town, Kota Bharu.

Address: 100m from the road to the nearest town, Kota Bharu.

**CONNECTIVITY**



**CLIMATE**

Temperature: 25°C (77°F)

Humidity: 75%

Air Pressure: 1013 hPa

Wind Speed: 10 km/h

Rainfall: 2000 mm

Evaporation: 2000 mm

Daylight: 12 hours

**SWOT**

**Strengths**

- Existing vegetation on the site and surrounding that can be used to create a green environment.
- Existing urban layout and building can be used to create a green environment.
- The location is in Sarawak, which is known for its natural beauty and scenic views.
- There is a river in the vicinity of the site, which can be used to create a green environment.

**Weaknesses**

- The site is located in a remote area, which can be a disadvantage for the site.
- The site is located in a remote area, which can be a disadvantage for the site.
- The site is located in a remote area, which can be a disadvantage for the site.

**Opportunities**

- The site is located in a remote area, which can be an opportunity for the site.
- The site is located in a remote area, which can be an opportunity for the site.
- The site is located in a remote area, which can be an opportunity for the site.

**Threats**

- The site is located in a remote area, which can be a threat for the site.
- The site is located in a remote area, which can be a threat for the site.
- The site is located in a remote area, which can be a threat for the site.

**TOPOGRAPHY**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.



**SOIL & HYDROLOGY ANALYSIS**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

**VEGETATION ANALYSIS**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.



**SLOPE ANALYSIS**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.



**RELIEF ANALYSIS**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.



**VIEWS ANALYSIS**

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

The site is located in the Western margin of the District Road and located east of the Sarawak mountain range.

Dr. D.Y. Pralishthan's  
Padmasree Dr. D.Y. Pralishthan's  
AKUIS TIME

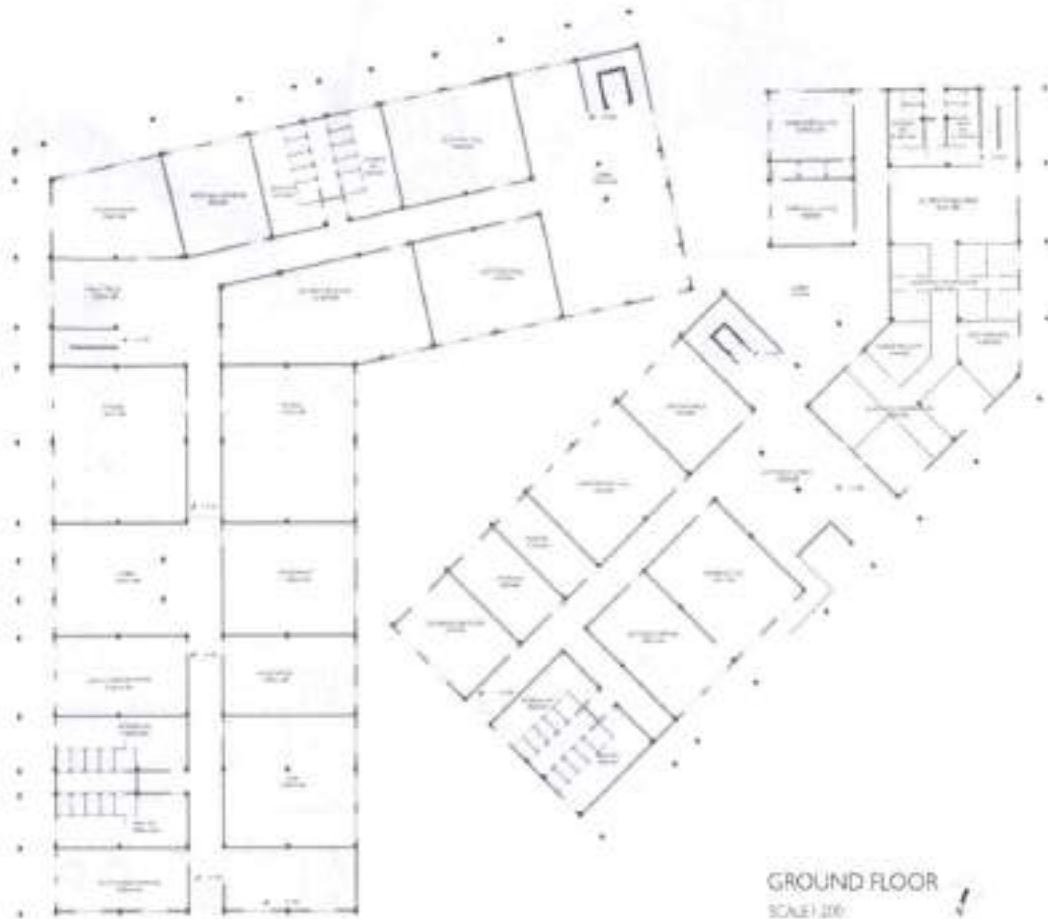


FUTURE EXTENSION  
AREA

- |                           |                     |
|---------------------------|---------------------|
| 1. AUDITORIUM & CATERING  | 6. APPARTHEURS      |
| 2. DEPT. OF APPLIED ARTS  | 7. BASKETBALL COURT |
| 3. ADMIN FOR APPLIED ARTS | 8. TENNIS COURT     |
| 4. DEPT. OF ARCHITECTURE  | 9. PARKING          |
| 5. ADMIN FOR ARCHITECTURE | 10. OPEN SPACES     |

SCALE: 1:400

Dr. D Y Pasi Prashanthan's  
Padmasree Dr. D Y Pasi College of Architecture,  
Akurdi Pune



GROUND FLOOR  
SCALE: 1/200



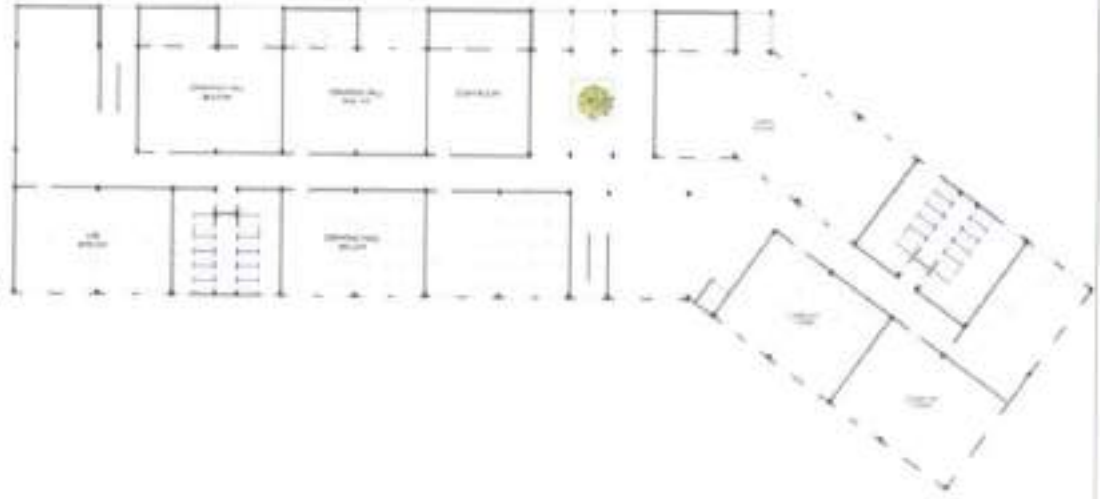
G+1 FLOOR  
SCALE: 1/200



KEY PLAN  
Dr. D Y Patil Pratishthan's  
Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune  
RAHUL GORE



GROUND FLOOR  
SCALE: 1/200



G+1 FLOOR  
SCALE: 1/200



KEY PLAN

Dr. D.Y. Pillai Prashantha's  
Padmashree Dr. D.Y. Datta College of Architecture,  
Akurdi Pune





ELEVATION A  
SCALE: 1:200



KEY PLAN



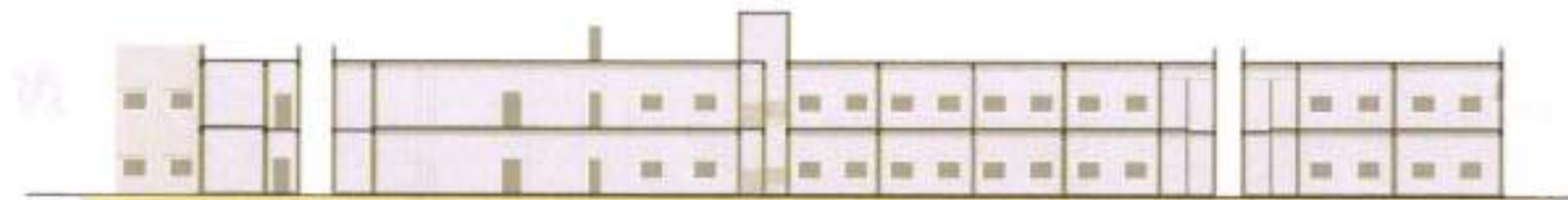
ELEVATION B  
SCALE: 1:200



KEY PLAN



SECTION AA  
SCALE: 1:200



SECTION BB  
SCALE: 1:200

  
 Dr. D Y Patil Prashant's  
 Padmasree Dr. D Y Patil College of Architecture,  
 Akurdi Pune



# CRITERIA 1

## *Curriculum Enrichment*

---

### *Subject- Landscape Architecture*

### *Issue Addressed- Environment and Sustainability*

### *Description-*

1. Students studied landscape elements, their application, principles of design and approaches of design.
2. Short duration projects allowed students to explore the palette of landscape elements in open space creation and design
3. In long duration projects, students were supposed to analyze activities around the buildings within a campus and understand the same in context to relation of built form and open spaces, understand site analysis and site planning, elements of landscape, pedestrian and vehicular movement, their segregation, managing sloping sites, contours, etc



ACTIVITY-I

DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI			
DATE	SIGN	NAME	SHREYAS VINAY PHATAK
		SUBJECT	LA
		CLASS	3RD YEAR (B)
		ACADEMIC YEAR	2022-2023
		TERM	1

DR. D. Y. PATIL  
AKURDI PUNE

SECRETARIAL  
GENERAL EXAM

# TEMPLE OF STEPS, ANDHRAPRADESH

## ARCHITECT- SAMEEP PADORA

SAMEEP PADORA IS THE PRINCIPAL ARCHITECT AND FOUNDER OF MUMBAI BASED STUDIO, SP+A AS WELL AS DIRECTOR OF *sp+re*, A RESEARCH INITIATIVE LOOKING AT ISSUES OF URBANIZATION IN INDIA.

**PROJECT**-MR SAMEEP RECEIVED THE MARMOMACC AWARD FOR ARCHITECTURE IN STONE. HE DEVELOPED THIS PROJECT IN 2018. THE BRIEF OF THE PROJECT WAS TO DESIGN A TEMPLE IN THE DRY TERRAIN LAND. THE MAIN CONCERN WAS TO PROVIDE SPACE WHICH WOULD MURGE THE SOCIO-CULTURE OF TEMPLE

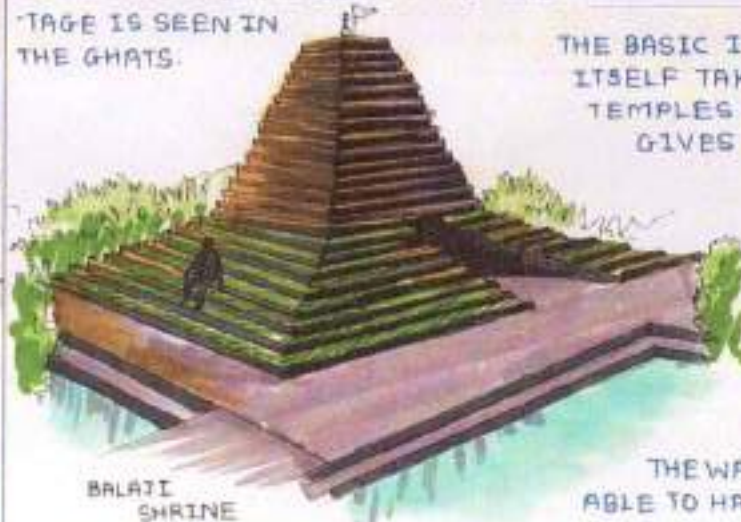


WITH THE ECOLOGICAL FRAMEWORK AND THE DYNAMICS OF AND AROUND THE SITE-

**CONCEPT**- CONCEPT IS TAKEN FROM THE TRADITIONAL TEMPLES AND THEIR RIVER GHATS INCORPORATED



**CONTEMPORARY FEATURES**- THE PROJECT FOCUSE ON MAINLY, OF THE WATER AND LANDSCAPE RELATION GOING TOWARDS THE SKY. TO DISCRIBE THIS, THE TEMPLE IS CONSTRUCTED IN LOCALLY AVAILABLE BLACK LIME-STONE SLABS CORBELLED TO FORM THE MAIN BODY OF THE TEMPLE. THE SAME CORBELLS PROFILE ALSO INCORPORATE WITH SOIL AND PLANTING IN LOWER PART OF TEMPLE WHICH ACT AGAINST HEAT. THIS STONE PLATFORM CONTINUOUS TILL WATERBODY WHICH ACT LIKE A GHAT. THIS COLABORATION OF LAND AND WATER IS A SIGNIFICANT OF INDIA'S ARCHITECTURAL HERITAGE IS SEEN IN THE GHATS.



THE WATER BODY, KUNDA IS ABLE TO HARVEST ABOUT 13.7 LACK LITRES OF WATER, THE LANDSCAPE OF THE TEMPLE DOES NOT HAVE DENSITY OF TREE SO THAT VISITOR CAN ENJOY DYNAMIC VIEW OF SURROUNDING AND TEMPLE ITSELF

THE BASIC IDEA FOR THE STRUCTURE ITSELF TAKEN FROM ANCIENT TEMPLES BUT THE EXTERIOR GIVES MODERN OUTPUT.

THE PATTERN OF STEPS IS FOLLOWED EXTERNALLY AS WELL AS INTERNALLY. SKYLIGHT IS PLACED OVER THE STATUE OF BALAJI. INTERIOR ALWAYS REMAINS COOL DUE TO LIMESTONE



THE SHRINE AREA WITHIN THE STEPPED TEMPLE



CONTEMPORARY ARCHITECTURE

DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AKURDI			
DATE	SIGN	NAME	SHREYAS VINAY PHATAK
		SUBJECT	LA-1
		CLASS	T.Y. BARCH (BATCH-8) ROLL NO: 228
		ACADEMIC YEAR	2022-23 TERM 1

Dr. D.Y. Patil





ENVIRONMENTAL PSYCHOLOGISTS SUGGEST THAT LANDSCAPED ROADSIDES MAY REDUCE TRAVEL RELATED STRESS AND IMPROVES ATTENTION ON DRIVING. PLANTATION BETWEEN THE ROAD CAN REDUCE THE GLARE OF CAR LIGHT THOSE TRAVELS OPPOSITE IN DIRECTION ALSO TREES ABSORBE DUST AND PROVIDE FRESH AIR



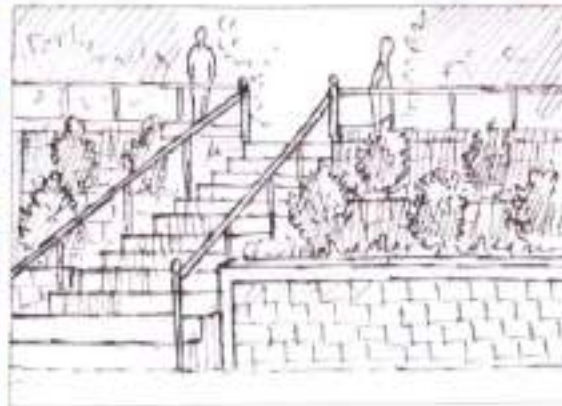
LANDSCAPING THE FRONT YARDS CAN BECOME A ATTRACTION OF HOUSE



PARKS, GARDENS BETWEEN IN CITIES CAN BECOME A FOCAL POINT OF THE CITY. CAN PROVIDE PLEASANT PLACE TO RELAX.



OPEN PARKING LOTS IS A COMMERCIAL NEED. BY ADDING TREES AND SHAUBS IT CAN BECOME A MEMORABLE SPACE.



WASTED SPACES BELOW THE BRIDGES IMPACT ON THE LIVES OF THOSE RESIDING IN THAT AREA, AND LEADS TO USE AS A SHELTER OF HOMELESS PEOPLE CREATING BEAUTIFUL LANDSCAPE IN THIS SPACES CAN CREATE HEALTHY ENVIRONMENT



Dr. V. P. Patil  
Padmashree Dr. V. P. Patil College of Architecture,  
Akurdi-Pune

# SCOPE OF LANDSCAPE

DR. V. P. PATIL COLLEGE OF ARCHITECTURE, AKURDI, PUNE			
DATE	SIGNATURE	NAME	SHREYAS VINAY PHATAK
		SUBJECT	LEAP
		CLASS	T.Y. B. ARCH (B) BATCH ROLL NO. 223
		ACADEMIC YEAR	2022-2023 TERM I
		SECTION NO.	3
		SCALE	1:100



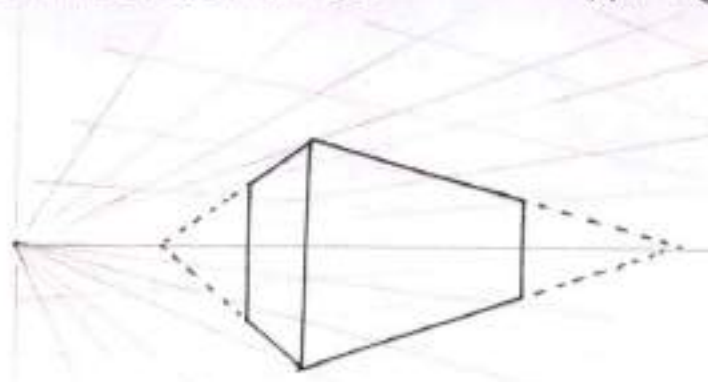
# LANDSCAPE GRAPHICS

GRANT W. REID



DIFFERENT WAYS TO SHOW DIRECTION OF NORTH

NON-TRADITIONAL PERSPECTIVE -  
BOOK HAVE STEPS TO DRAFT NON-TRADITIONAL PERSPECTIVE WHERE OBJECTS ARE PLACES AS THERE FOCUS POINTS DO NOT MATCH WITH THE ORIGINAL ONCE.



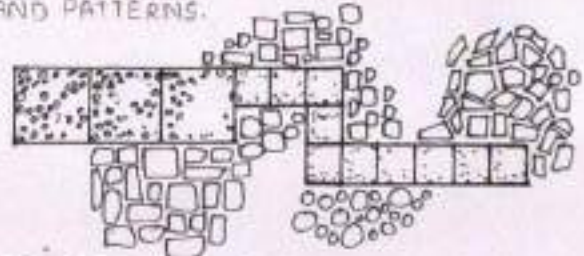
THERE ARE SO MANY DIFFERENT SYMBOLS OF DIFFERENT KIND OF TREES AND USING THEM IN ONE CLUSTER AND SECTION IN THE BOOK

LANDSCAPE GRAPHICS, AS LIKE NAME THE BOOK GUIDE US TO THE BASIC GRAPHIC TECHNIQUES USED IN LANDSCAPE DESIGN AND LANDSCAPE ARCHITECTURE. IT CONTAINS ALL INSTRUCTIONS ABOUT BASIC DRAFTING, LETTERING IN THE PLANS, FREEHAND DRAWINGS ALSO CONCEPTUAL, PERSPECTIVE DRAWINGS.

BOOK ENTIRELY FOCUS ON ONLY BLACK AND WHITE RENDERING. IT IS DIVIDED INTO 3 PARTS TOOLS, SYMBOLS AND TECHNIQUES.

## SITE Analysis

IT ALSO CONTAINS CALLIGRAPHY OF WORDS WITH NATURAL TEXTURE AND PATTERNS.



DIFFERENT KIND OF PAVING MATERIALS IN PLAN BY DIFFERENT SHAPES, LINES TO REPRESENT VARIETY OF MATERIALS.



VARIING DISTANCE BETWEEN LINES TO SHOW DIFFERENT LANDFORMS.



REPRESENTATION OF Dr. D.Y. Patil  
NATURAL FAULT

## BOOK REVIEW

DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AURANGABAD				
DATE	SIGN	NAME	SHREYAS VINAY PHATK	ASSIGN
		SUBJECT	LA	2
		CLASS	TY B-ARCH (B-BATCH) ROLL NO: 228	2
		ACADEMIC YEAR	2022-2023	1
		TERM	1	



Existing trees on site are tall and have canopy shaded area below them which can be used for various activities



Flowering plants or sides of pathways to create some joy during walking

Possible height trees to block the view from parking



Roadway



Mound

Large trees for noise barriers as well as to block view completely

Medium height trees for barriers

Flowering shrubs

Water body

Section A-A water body (A)

Overall site is located in such way that you get beautiful natural view from any direction



The main approach of site is the main access Road is passing through site at South side where from we can get a nice lake view



Dr. D Y Patil Pratishthan's

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Akurd Puna

# SITE ANALYSIS

## LANDSCAPE ARCHITECTURE

DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AHMEDABAD				
DATE	SLY	NAME - SHREYA VINAY KANTH	ROLL NO.	STAMP
		DYB - LA-1		
		CLASS - 1 <sup>ST</sup> SEMESTER	HALL NO. 122	SEAL
		YEAR - 2022-23	TERM - 1	

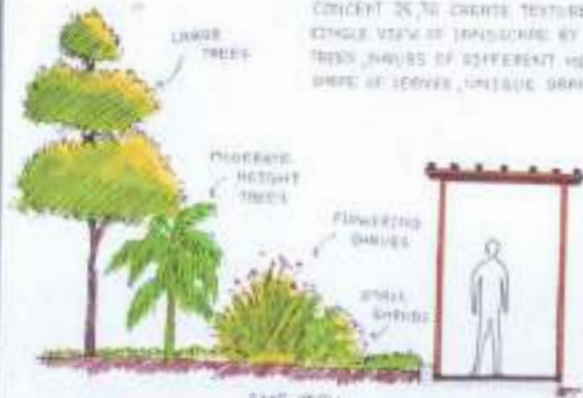


FRONT VIEW

GROUND COVER

HORIZON ELEMENT

CONCEPT IS TO CREATE TEXTURE AND VARIETY IN SINGLE VIEW OF LANDSCAPE BY USING VARIOUS KINDS OF TREES, GROUPS OF DIFFERENT HEIGHT, DIFFERENT SHAPE OF LEAVES, UNIQUE GRAPHIC PATTERNS.



SIDE VIEW



STONE ART

HORIZON ELEMENT LIKE ELEMENT SCULPTURES, STONE ART, FOUNTAINS TO CREATE VISUAL RESTING POINT AT CORNERS.

TREES TO CREATE BARRIERS FOR BLOCKAGE OF VIEW WITHOUT OBSCURE



PARITIAL TREE

LEGENDS

- ROAD
- PARKING
- LAWN
- WATER BODY
- SITTING
- DECK
- HORIZON ELEMENT



Dr. D.Y. Patil Pratiksha's

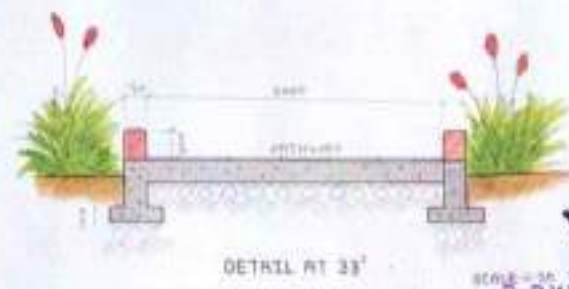
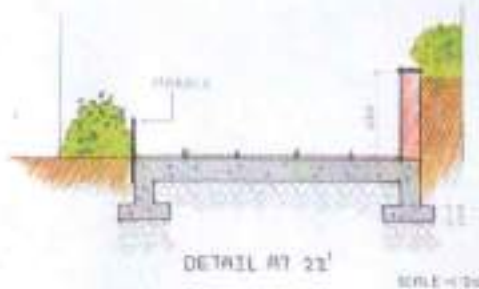
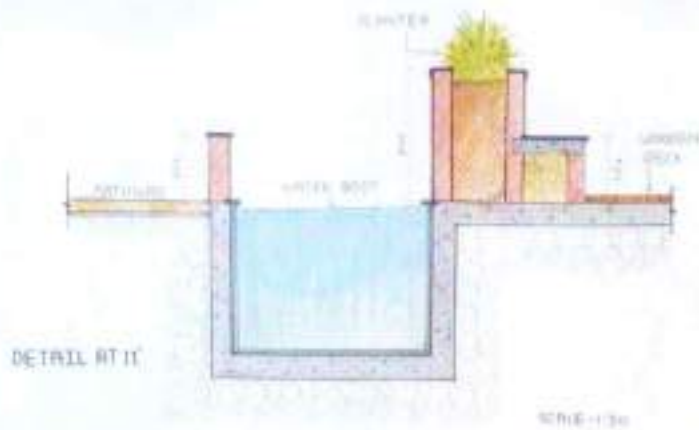
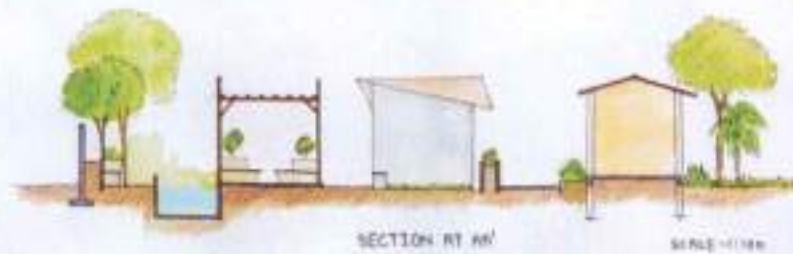
Padmasree Dr. D.Y. Patil College of Architecture,

CONCEPT AND ZONING

DR. D. Y. PATIL COLLEGE OF ARCHITECTURE, AWARDI PUNE				
DATE	SIGN	NAME	ASSIGN NO.	STAMP
		SHBEYAS VINAY PATIL		
		SUBJECT: LA		
		CLASS: I.Y. (B. BRICH) ROLL NO. 358	SCALE	
		ACADEMIC YEAR: 2022-23	TERM: I	







*Shreyas*

Dr. D Y Patil Pratishthan's  
Padmasree Dr. D Y Patil College of Architecture,  
Aurangabad

# LANDSCAPE DETAILS

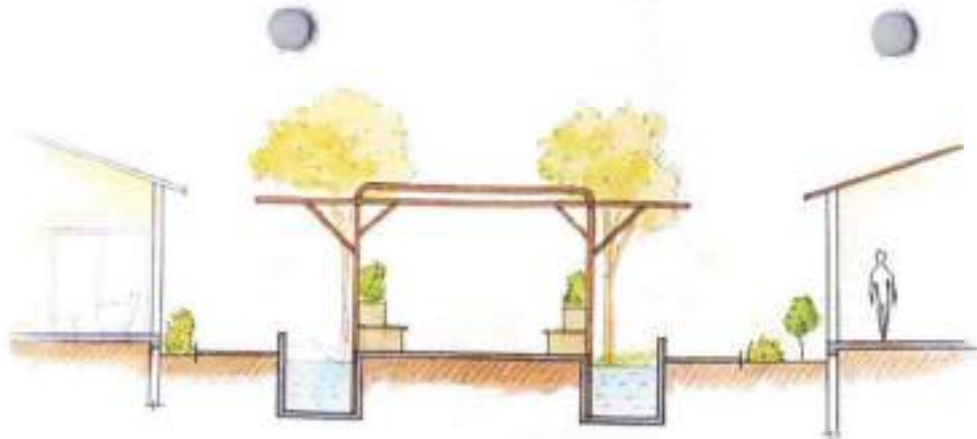
DR. D. Y. PATIL COLLEGE OF ARCHITECTURE AURANGABAD					
DATE	SIGN	NAME	ASSIGN NO.	SCALE	STAMP
	<i>Shreyas</i>	SHREYAS VENKAY PHATKAR			
		SUBJECT: LP			
		CLASS: T.Y. (B BATCH) ROLL NO: 228			
		ACADEMIC YEAR: 2010-13 TERM: I			



SITE PLAN

SCALE - 1:100

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 Akurdi Pune



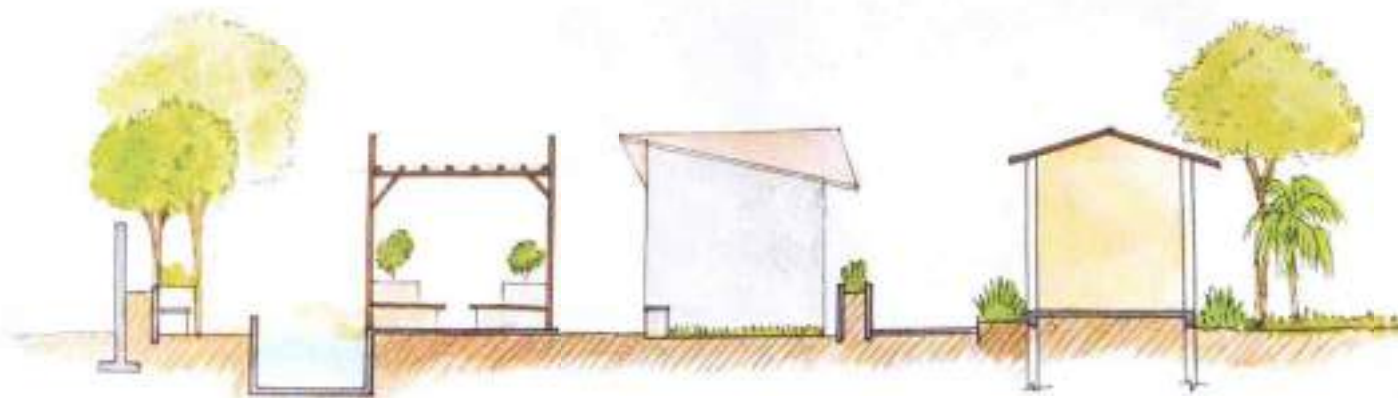
SECTION AT BB'

SCALE - 1:100



SECTION AT CC'

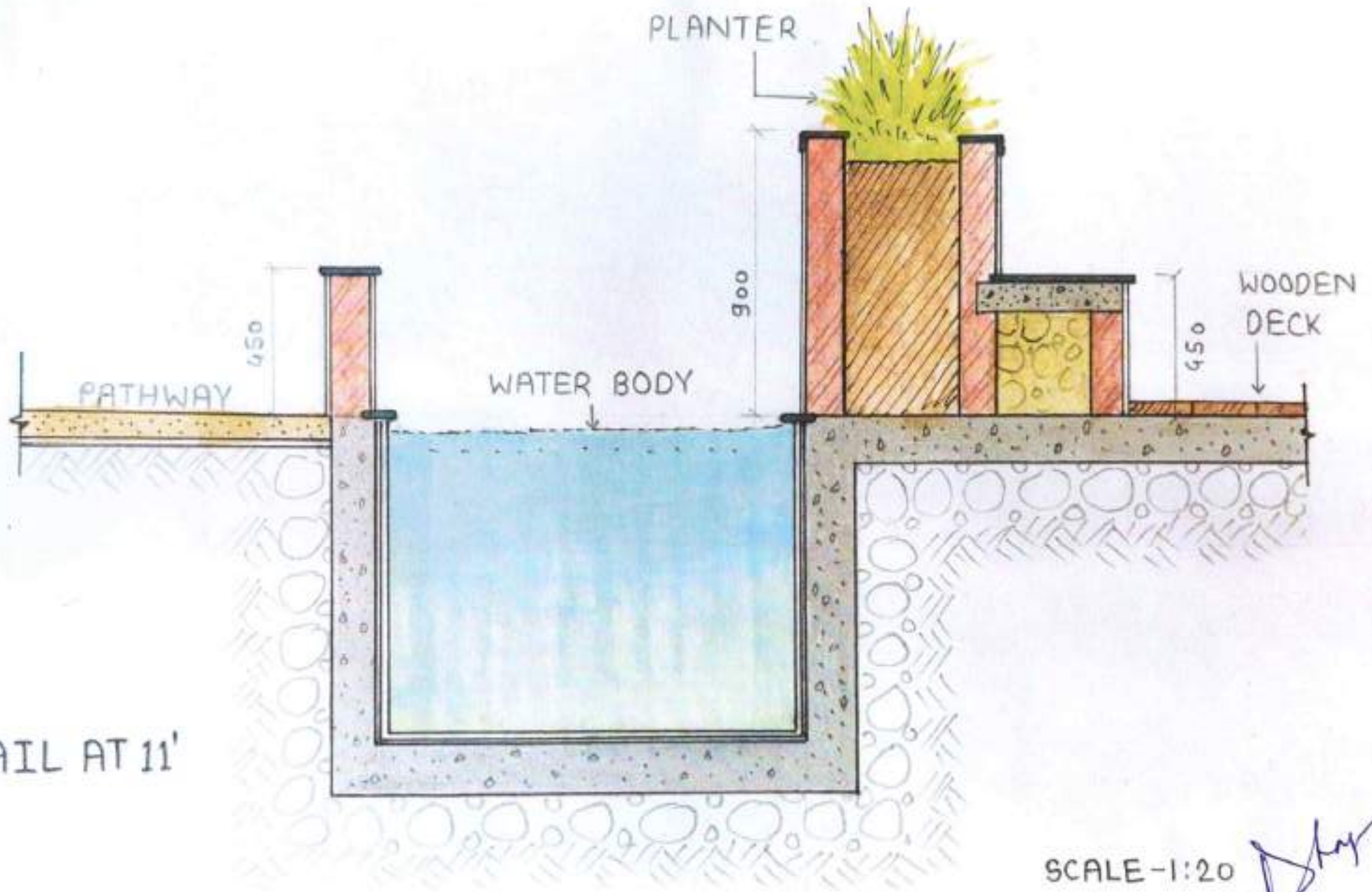
SCALE - 1:100



SECTION AT AA'

SCALE - 1:100

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DETAIL AT 11'

SCALE - 1:20

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 Akurdi Pune



10.0	10.0	10.0	10.0	10.0
11.0	11.0	11.0	11.0	11.0
12.0	12.0	12.0	12.0	12.0
13.0	13.0	13.0	13.0	13.0
14.0	14.0	14.0	14.0	14.0
15.0	15.0	15.0	15.0	15.0
16.0	16.0	16.0	16.0	16.0
17.0	17.0	17.0	17.0	17.0
18.0	18.0	18.0	18.0	18.0
19.0	19.0	19.0	19.0	19.0
20.0	20.0	20.0	20.0	20.0

*[Handwritten signature]*

By: D.Y. P. Bhatnagar's  
Padma Prasad, D.Y. P. College of Architecture,  
Ward Pune

LANDSCAPE ARCHITECTURE  
3rd Year B Batch SEM I (2022-23)

# SITE ANALYSIS

SHREYAS V. PHATAK  
T.Y. B. ARCH (0)  
ROLL NO. 298

N  
SCALE  
1:1000



# CRITERIA 1

## *Curriculum Enrichment*

---

### **Subject- Elective III**

#### ***Issue Addressed- Environment and Sustainability***

#### ***Description-***

Students Report on Biomimicry as a tool of sustainable architectural design in high rise buildings.

**Aim:** To study the role of biomimicry in sustainability and energy efficiency in high rise building.

**Scope-** The scope of this research is to study and analysis of biomimicry as a significant tool for sustainable architectural design and construction in high rise, thus highlighting an important link between biomimicry and architecture and outlining its potential for future sustainable design.

**Elective- III – Allied Elective**

**Fourth Year B. Arch.**

A Report

On

**“Biomimicry”**

**“Biomimicry as a tool of sustainable architectural design in high rise buildings”**

Submitted by

**Utkarsha Chopada**

*Fourth Year B. Arch (Batch 'C')*

Under the guidance of

**Ar. Madhura Hanji**



Academic Year - 2020-21

Dr. D Y Patil, College of Architecture, Akurdi, Pune.

Dr. D Y Patil Pratishthan's  
Padmashree Dr. D Y Patil College of Architecture  
Akurdi Pune



## ACKNOWLEDGMENT

I am thankful of my institution, the principal, director, faculty and all the people DR. D Y PATIL COLLEGE OF ARCHITECTURE, for creating an environment for growth and giving me the opportunity to complete this report. I would like to express my gratitude and appreciation towards Ar. Madhura Hanji whose contribution in stimulating suggestions and encouragement, helped me to coordinate and complete my report. Finally, I would like to thank my family and friends for the support and belief in the most difficult times which the report could not have been possible.

**Utkarsha Chopada**



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## ABSTRACT

Buildings are the main destination for the nation's power supplies. High-rise buildings due to their large scale require much more materials for their construction compared to low rises. In addition, they use more energy and emit greenhouse gases, as a result, they have major environmental impacts. Therefore, high rises seem to be non-sustainable. With increasing popularity of high rises, achieving a high level of sustainability has become the leading subject of the architectural designs. Nature is an excellent and the final response to the problem of sustainability. Therefore, architects have employed biomimicry approach in their designs to minimize buildings negative impacts on the environment and reach overall architectural sustainability. This paper intends to examine different approaches and levels of biomimicry. It analyses the basic principles and advances in biomimicry in architectural design and discusses case studies to study how biomimicry has so far been applied in high-rise buildings. It is shown that employing different principles of biomimicry may result in diverse outcomes in terms of tall building's sustainability.

Keywords: Biomimicry, High-rise building, Sustainability



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# CHAPTER 1: OVERVIEW

## 1.1 INTRODUCTION


With the emergence of the need for shelter, architects and engineers made various buildings using the materials that exist in nature and the methods of nature. Although high-rise buildings are architectural works developed against the increase in population and land prices, the structure, earthquake and wind load, aesthetics, city skyline and energy consumption problems. One innovative approach to harmonious coexistence between human society and nature can be achieved through biomimicry. Architects have considered nature as a great source of inspiration for centuries. Nature provides creative solutions for human problems. Biomimicry claims that nature is the most effective source of innovation for designers. Biomimicry is an inspiration for intelligent and innovative engineering for minimizing or eliminating the negative impact of the construction industry on the environment and reaching overall sustainability of the buildings. Architects sometimes used the process they observed, sometimes the shape of the organism, and sometimes the functioning of the ecosystem, as a source of inspiration in the design of high-rise buildings. While the high-rise buildings built by taking nature as an example are expected to be ecological, sustainable, functional, stable and aesthetic, the forms and structures that were not even dared to try before were applied by pushing the boundaries of science and material.

## 1.2 AIM

To study the role of biomimicry in sustainability and energy efficiency in high rise building.

## 1.3 OBJECTIVE

- To explore the potential of biomimicry in architecture.

  
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- To study different biomimicry approaches and its levels.
- To study interrelationship of sustainability principles, biomimicry and high-rise buildings.
- To study the incorporation of biomimicry in sustainable building design through case studies
- To analyse and evaluate case studies representing such possibilities.

#### 1.4 SCOPE

The scope of this research is to study and analysis of biomimicry as a significant tool for sustainable architectural design and construction in high rise, thus highlighting an important link between biomimicry and architecture and outlining its potential for future sustainable design.

#### 1.5 LIMITATION

The study only focuses on biomimicry aspect of sustainability in high rise buildings typology. Cost consideration and service aspect is not considered in the report.

#### 1.6 NEED OF THE TOPIC

The necessity of tall buildings is increasing as a result of increasing population, land scarcity and its rising prices. Because of tall buildings large scale and high consumption of energy and materials, their sustainability is more crucial than any other types of building. Buildings are responsible for nearly half of CO<sub>2</sub> emissions, and they consume nearly half of all the energy produced. The energy consumption is increasingly growing all over the world. The environmental impact of energy production and consumption has become a main concern. Thus, to make high rise buildings more sustainable we can incorporate biomimicry principles while designing it.

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## **CRITERIA 1**

### *Curriculum Enrichment*

---

**Subject- Professional Practice**

***Issue Addressed- Professional Ethics***

***Description-***

Students work demonstrates how an architect manages their office, maintains their records, and has the professional discipline to adhere to established procedures.



DR. D Y PATIL COLLEGE OF ARCHITECTURE

AKURDI, PUNE - 44



# CERTIFICATE

ACADEMIC YEAR - 2022-23

NAME OF STUDENT - Parth R. Sasane

CLASS - 4<sup>TH</sup> YEAR (B)

COLLEGE ROLL NO. - 02.

NAME OF SUBJECT. - Professional practice-I

THIS IS TO CERTIFY THAT MR./MISS.  
IS ALLOWED / NOT ALLOWED TO APPEAR FOR  
THE SESSIONAL ASSESSMENT TO BE CONDUCTED IN  
NOV.-DEC. / APRIL-MAY-20 -20

INTERNAL  
EXAMINER

COLLEGE  
STAMP

PRINCIPAL

EXTERNAL  
EXAMINER

DATE

## ACTIVITY-1.

**Discipline:-** Discipline is action or inaction that is regular to be in accordance (or to achieve accord with a particular system of governance.

Discipline is most important in architecture like we get any software or any still or term definition to remember long time, that time we have to practice daily (day by day) that it come under perfection and that occurs due to discipline.

There are many profit of discipline your life going on routine, like doing exercise, homework submission or it's important in daily life to. there is one story. once upon a time there were a small village and in that village one (middle class) family live the nurturer of the family was very strict he was always shouted or say his children turn off the fan, stop the water cock, put the garbage in the room, and this type of routine goes day by day and after few years the boy in that family went to city for searching job. when he reach the interview building he saw that bulb is on day so he off that bulb after that is stop the water flow from filter to avoid waste of water and then he seat on the waiting area. Interviewer called him and with asking anything they higher him for job. just because of his discipline (in behavior) schools and places of work teach us discipline teachers, parents and elder also helps to learn as fellow ruler. we must try to discipline your self. **21/90 rule:-** It states that it takes 21 days to make a habit and 90 days to make it permanent lifestyle a discipline lifestyle.

## ACTIVITY-2

### FIRM PARTNERS:-

Skills.

#### 1) ANUSHREE KALE:-

Good at communication skills.

presentation and design.

#### 2) Tejas padalkar:-

Technical design.

#### 3) Pratik shedage:-

Graphics and design.

#### 4) Parth sasane:-

Finance and management.

### FIRM NAMES

#### 1) ARCADE

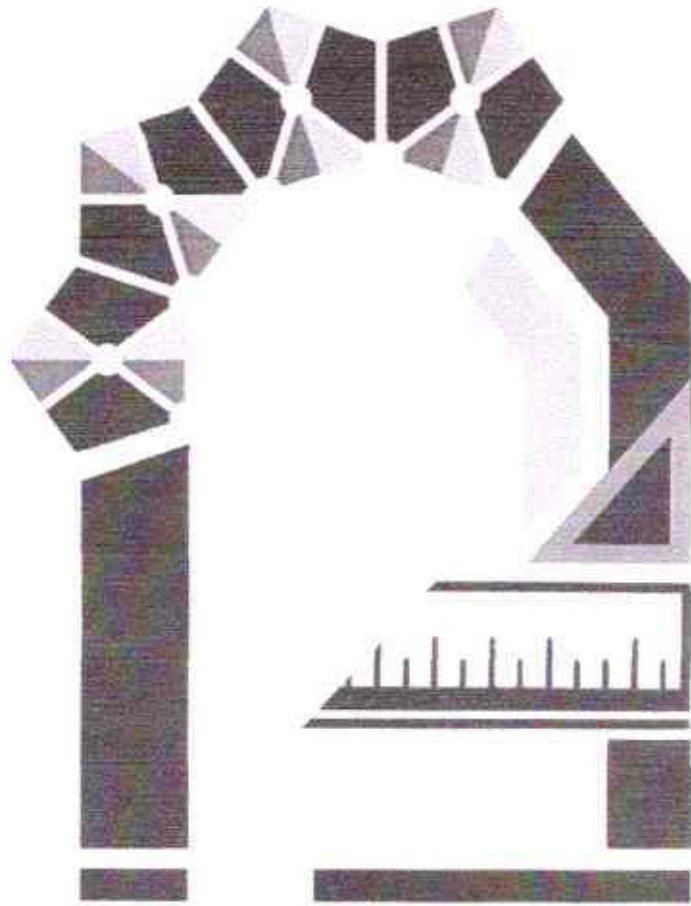
#### 2) KEYSTONE

#### 3) Inspiroroots

### Final name:-

ARCADE:- In architecture is a defined passageway that can be marked in a few different ways

Logo:- passageway under arches and walls covered walkway between arches.



**ARCADE  
ARCHITECTS**

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## Question

Q) Why is architecture considered to be a profession?

→ • Architecture is a paid occupation, as it involves a 5-year period of learning and training with formal qualification.

It needs a specific certificate of completion or degree approved by the Council of Architecture.

• Architecture involves planning, design, and construction of buildings etc. a complex and lengthy process, which can only be done after hard work and 5 years of study. Hence, it is a profession and not a business.

**PARTH SASANE**  
 Architectural Designer

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**ARCADE**  
ARCHITECTS & INTERIOR  
DESIGNERS

please type here

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**ARCADE**ARCHITECTS & INTERIOR  
DESIGNERS

## Client Details

Client name:- Gorakh More

Address:- Tahorabad, Nashik

Education:- 12<sup>th</sup> pass

Occupation:- Farmer

Annual income:- Rs 10,00,000/-

Name of Spouse:- Vandana More

Name of children:- Karan- 15 Years

Sakshi- 17 Years

Parents:- living Together

location of plot:- Tahorabad Nashik

Total Area of plot:- 500 sqm

Total Builtup Area:- 250 sqm

Rate of Construction:- 25,000/sqm

Percentage of Fees:- 8%

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**WEBSITE**

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**ARCADE**ARCHITECTS & INTERIOR  
DESIGNERSinitial Bill

Ref No Env/RB/0316/02

Date 10th Aug 2022

To

Mr. Gorakh More

Tahorabad,

Nashik.

Sub: Proposed Bungalow At P Society, Tahorabad, Nashik : First Bill

Respected Sir,

We hereby thank you for having chosen us as your Architects for the above mentioned project

and verbally approving of the fees as per our offer letter. This is the first bill for the same.

First Bill for Retainer

Bill for Retainer as per Offer Letter Rs 20,000.00

Rupees Twenty Thousand Only

Please release the above amount at the earliest.

Thanking you,

We remain

Yours truly,

Parth Sasane,

Partner Arcade

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Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

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123-456-7890

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**WEBSITE**  
www.arcdearchitects.com



**ARCADE**  
ARCHITECTS & INTERIOR  
DESIGNERS

Reference No: ARCD/AK/01  
Date 10th August 2022

To  
Mr. Gorakh More  
Taharabad , Nashik.

Sub: Proposed Bungalow At Jaykheda, Taharabad.

Respected Sir,

Arcade architects please to present a proposal to you for a bungalow design for architectural services at Nashik .

Arcade is a full service architectural firm with recent experience providing the requested services on similar projects. More significantly , over the past 3 years ago has been extensive experience with new bungalow projects renovation of apartments, farmhouse, completing 12 projects in Maharashtra.

In addition to providing full architectural services architect experience and specialities include:

- 1.Reorganisation of interior functions and interior.
- 2.Renovation of an additions to existing facilities.
- 3.General project management.

We would hear in like to state the scope of our services and the scale of charges payable to us for the same as under:

Scope of services:

- a.Taking your brief, providing conceptual design proposals for your approval.
- b.Initial estimate and providing detailed working drawings and specifications
- c.Selection of contractor
- d.Periodic supervision of work as per progress
- e.Selection of materials
- f.Certifying bills

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ARCADE  
ARCHITECTS & INTERIOR  
DESIGNERS

Approval from local authority and documents required shall be provided by you. If the same are to be procured by us, it will be at extra cost as per schedule. Providing designs for structural system will not be part of our services and shall be paid by you directly as per terms agreed upon mutually.

Our charges shall be 8% of cost of project these charges are to be paid as per following stages:

1. Initial retainer	Rs 20,000/-
2. On providing conceptual designs	10%
3. Finalisation of design	10%
4. Submitting proposal to PMC	10%
5. On providing set of working drawings	10%
6. On obtaining plinth checking	10%
7. On completion of RCC work	10%
8. Uncompletion of brick work	10%
9. On virtual completion of work	10%
10. On obtaining occupancy from PMC	Balance

Note: the above fees does not include service tax at the rate 18% on total fees and will be charged separately.

We hope the above meets your approval we hereby request you to kindly release the initial retainer so that we may proceed with making alternative designs etc

Thank you for considering arcade architects as a resource for the design construction and services for your bungalow project for any questions or queries please contact us at

Thanking you  
We remain  
Yours truly,

Parth Sasane  
Partner Architect  
Arcade Architects

Dr. D.Y. Patil Pratishthan's

Padmashree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



# CRITERIA 1

## *Curriculum Enrichment*

---

### **Subject- Research II**

### ***Issue Addressed- Gender Equality***

#### ***Description-***

Students research topic on “**Equality Center LGBTQ & Community Resource**”

**Aim-** To promote an understanding and a need of a space for the community to gather and use to bring a neighborhood together to give support to those within the LGBT community.

#### ***Scope-***

This research topic seeks to create a space that benefits a community and neighborhood through connection and cultural awareness. The facility will be a space which can be used to strengthen bonds and provide opportunities for individuals that only can become possible through architectural space.

RESEARCH  
REPORT ON

EQUALITY CENTER  
LGBTQ & COMMUNITY RESOURCE

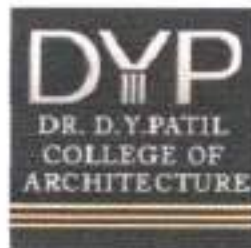
Submitted by,

Aishwarya Kamble


FOURTH YEAR – B.ARCH YEAR: 2021-2022

UNDER THE GUIDANCE OF

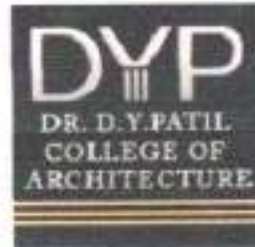
Ar. Purva Kulkarni



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Dr. D Y Patil Prashanthan's  
Padmasree Dr. D Y Patil College of Architecture,  
Akurdi Pune

DR. D. Y. PATIL PRATISHTHAN'S  
DR. D Y PATIL COLLEGE OF ARCHITECTURE,  
AKURDI, PUNE.



This is to certify that the research work entitled

**“Equality Center LGBTQ & Community  
Resource”**

Is a work of the Bonafide student

**‘Aishwarya Chandrakant Kamble’**

Of Fourth Year B.Arch 2021-22 carried under my guidance and submitted in partial fulfilment of requirements for research topic for Bachelor of Architecture, Savitribai Phule Pune University, Pune

Aishwarya Kamble  
Signature of the Candidate

Ar. Dhananjay Chaudhari  
Signature of Principal

Ar. Purva Kulkarni  
Signature of Guide

College Stamp

External Examiner

Dr. D Y Patil Pralishthan's  
Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

## DECLARATION BY THE STUDENT

I hereby declare that the project work entitled "Equality Center LGBTQ & Community Resource" submitted to Dr. D. Y. Patil College of Architecture, Akurdi, Pune, is a record of an original work done by me under the guidance of Ar. Purva Kulkarni. I have taken care in all respect to honor the intellectual property right and have acknowledged the contribution of others for using them in academic purpose and further declare that in case of any violation of intellectual property right or copyright I, as a candidate, will be fully responsible for the same. My supervisor should not be held responsible for full or partial violation of copyright or intellectual property right.

Place: Pune

Date:

Signature of Student



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## 1. CHAPTER 1: Introduction

### **i. Introduction**

Architecture today, can be defined in so many ways and advances in the field of technology and construction have ensured that nothing is impossible to build. However, it is the belief of the author, architecture in all its forms, must help give meaning to everyday lives.

In this light, it is imperative that good architecture and design be accessible to all. There exist many underserved communities which, often, do not have access to basic services and infrastructure. For architecture to be meaningful in such a context, affecting social change must be one of the objectives.

India is one of the fastest growing developing nations. However, the country still faces many challenges. Unemployment is a major concern that needs to be addressed, as it sows the seeds of various other unwanted social problems among the youth. But with the right skills, education and environment, it is the belief of the author that these challenges can be overcome.

Architecture can facilitate the creation of a comfortable, welcoming and uniting space for its users. This thesis seeks a solution to the need for LGBT-affirming spaces. These spaces are necessary for a minority community that is vastly underrepresented in many of today's communities. The outcome will be a facility that will provide education, health and community centered spaces for all those within the LGBT community and its allies. Spaces are intended to be used widely in the community as the demand for gathering and community spaces increase. It will also serve the Center for Diversity's communications and office spaces. The outcome will result in a more welcoming and inclusive city for the embrace of diversity and Dignity.

### **ii. Aim**

Promote understanding Provide a space for the community to gather and use to bring a neighborhood together to give support to those within the LGBT community.

- To create an environment that community engagement and hence strengthens community ties.
- To create spaces and experiences that inspire action and creativity and thus lead to self-growth at an individual level.
- To act as a social hub for the community, over which the members feel a sense of ownership.
- To strike a balance between the aspirations of the community and the environment that they are familiar with, to create a new environment that is suited to their needs.



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### **iii. Objective**

There is a need within a community to gather. LGBT community centers allow for an educational outreach that helps educate and unite people of all types. This understanding helps blur differences and brings a greater level of understanding and interaction with each other within a neighborhood and community of peers, allies and adversaries.

### **iv. Need/Significance of the project**

There is a need within a community to gather. LGBT community centers allow for an educational outreach that helps educate and unite people of all types. This understanding helps blur differences and brings a greater level of understanding and interaction with each other within a neighborhood and community of peers, allies and adversaries

### **v. Need Identification**

The community faces the following socio-economic problems- Youth delinquency High unemployment rates often unsanitary living conditions Lack of education a step towards addressing these problems is providing the right platform.

### **i. Scope**

This project seeks to create a space that benefits a community and neighborhood through connection and cultural awareness. The facility will be a space which can be used to strengthen bonds and provide opportunities for individuals that only can become possible through architectural space. The careful study of public and private gathering spaces will help form an affirming space for anyone in the community seeking these connections. Blending into the fabric of an existing neighborhood while creating an identity for this area will be an opportunity to explore.

### **i. Limitations**

This thesis Project is more focused on LGBTQ community for their development & in their support in the society. The center will include the health related facilities.

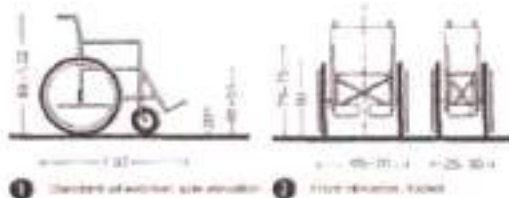
### **ii. Methodology**

The qualitative/quantitative analysis will be compiled using a mixed method to ensure I collect the widest variety of research possible. I focus my research through case studies as well as 2D and 3D drawings, personal interviews and print/online data sources.

  
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Akurdi Pune 3

## 2.CHAPTER 2: Literature Review

### i. Anthropometric study/ study of standards



1 Standard wheelchair, side elevation

2 Front elevation, wheel



3 Top



4 Space requirement of wheelchair passing open door movement area



5 Wheelchair on stairs



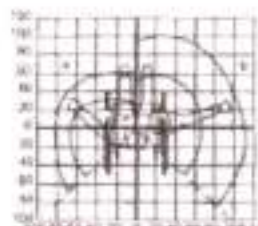
6 On ramps



7 Complete workplace



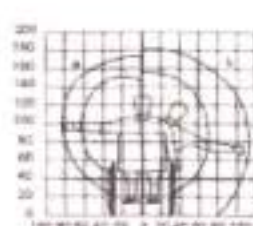
8 At a station



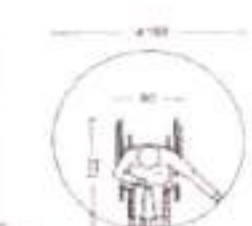
9 Circle area



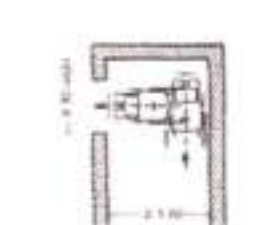
10 Area the seat



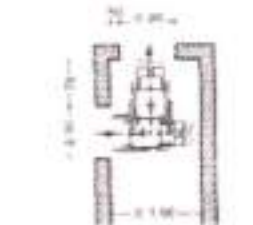
11 From behind



12 Maximal turning circle



13 Forward through wide door



14 Through narrow door



15 With three doors



16 With four doors

### ACCESSIBLE BUILDING Dimensions for Wheelchair Users

Basics

ACCESSIBLE BUILDINGS  
Dimension for wheelchair users  
Accessible public buildings  
Accessible buildings

EN 12181  
EN 12182  
EN 12183

EN 12184

EN 12185  
EN 12186

#### General design basics

Building regulations cover the design, construction and furnishing of housing, of accessible public buildings or parts of buildings of workplaces and their external spaces. These buildings must be accessible for all people free of barriers. The users must be in a position to be almost completely independent of outside help. This applies notably to wheelchair users, the blind and visually impaired, those with other disabilities, old people, children and those of exceptionally short or tall stature.

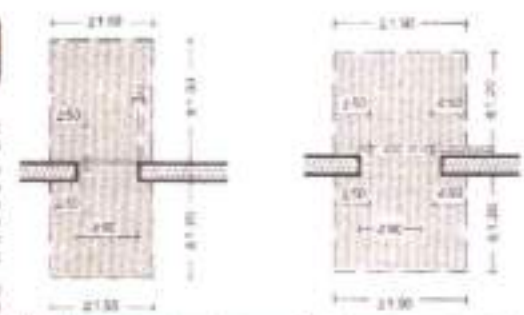
#### Movement areas

Are those necessary for moving a wheelchair and are to be designed according to the minimum space requirement of a wheelchair user. The wheelchair (1) - (2) and the movement area for the person (3) - (4) provide the modules for this. The dimensions of the movement area are 0.90 x 1.50 m and may overlap - except in front of lift doors. A depth and width of at least 1.50 m should be provided in every room for turning. (More information on movement areas is found on the following pages.)

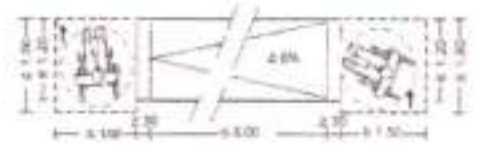


**ACCESSIBLE BUILDING**  
 Dimensions to wheelchair users  
**Accessible public buildings**  
 Accessible housing

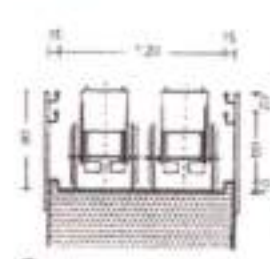
RS 6300  
 DN 1604  
 DN 1605  
 W40  
 See also I.B. 126-124



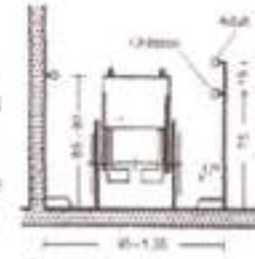
1 Movement area in front of travel-lifted and hung doors  
 2 Movement area in front of travel-lifted sliding doors



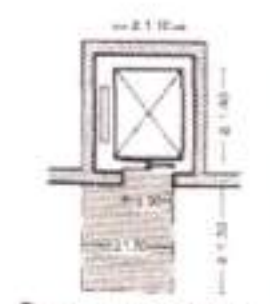
3 Ramp



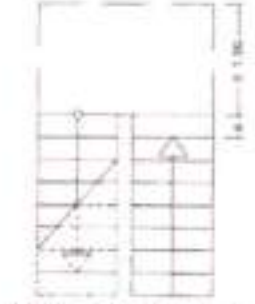
5 Ramp in section



6 Clearance of corridors and passages



7 Clear dimensions of the lift car and hoistwell area in front of the room



8 Movement area in front of stairs going up and down



9 Overlapping of movement areas in certain facilities



10 Movement area next to operated facility

**ACCESSIBLE BUILDING**  
 Accessible Public Buildings

**Movement areas must be:**

**min. 1.50 m wide and min. 1.50 m deep ...**  
 in every room as a place to turn, at the start and end of ramps, in front of telephone boxes, public telephones, service counters, passages, pay desks, checkpoints, post boxes, automatic service machines, calling/speaking equipment.

**min. 1.50 m wide ...**  
 in corridors, main routes and next to stairs up and down.

**min. 1.50 m deep ...**  
 in front of therapy facilities (e.g. bath, couch), in front of wheelchair parking places, next to the long side of the vehicle of a wheelchair user in car parks → p. 23

**min. 1.20 m wide ...**  
 alongside facilities which a wheelchair user has to approach from the side, between the wheel kerbs of a ramp and next to operated equipment.

**min. 0.90 m wide ...**  
 in access ways next to cash desks and checkpoints and on side routes.

**Accessibility without steps**

All levels of buildings designed in accordance with the principles of accessibility must be accessible without steps, i.e. using a lift or a ramp.

**Lifts**

Cars of lifts must have a min. clear width of 1.10 m and a clear depth of 1.40 m. The movement area in front of the doors must be at least as large as the floor area of the car, but min. 1.50 m wide and 1.50 m deep → 1. This area must not overlap with other traffic routes and movement areas.

**Ramps**

May have a maximum slope of 6% → 4. If ramps are longer than 6 m, an intermediate landing of min. 1.50 m length is required. The ramp and the intermediate landing are both to be provided with 10 cm high wheel kerbs and handrails (diameter 3–4.5 cm) at a height of 85 cm. The clear ramp width must be min. 1.20 m. Wheel kerbs and handrails must project 30 cm horizontally into the platform area. There must be no stairs down in the extension of the ramp.

**Stairs.** The movement area next to the stairs going up and down must be min. 1.50 m wide; the tread of the first step is not to be included in the calculation of the movement area → 8.

**Doors**

Clear passage width of doors ≥ 0.90 m → 4, 5. Doors to toilets, showers and changing rooms must open outward.

**Sanitary facilities**

At least one toilet must be provided for wheelchair users in all sanitary facilities. The seat height should be 48 cm → 6.

**Corridors and meeting areas**

Corridors and routes longer than 15 m must have a passing place for two wheelchair users of at least 1.80 m width and depth.

**Wheelchair parking place**

A wheelchair parking place for each wheelchair user is to be included in the design, preferably in the entrance area. Space requirement and movement area → p. 21 → 3.

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## ACCESSIBLE BUILDING

Accessible Housing

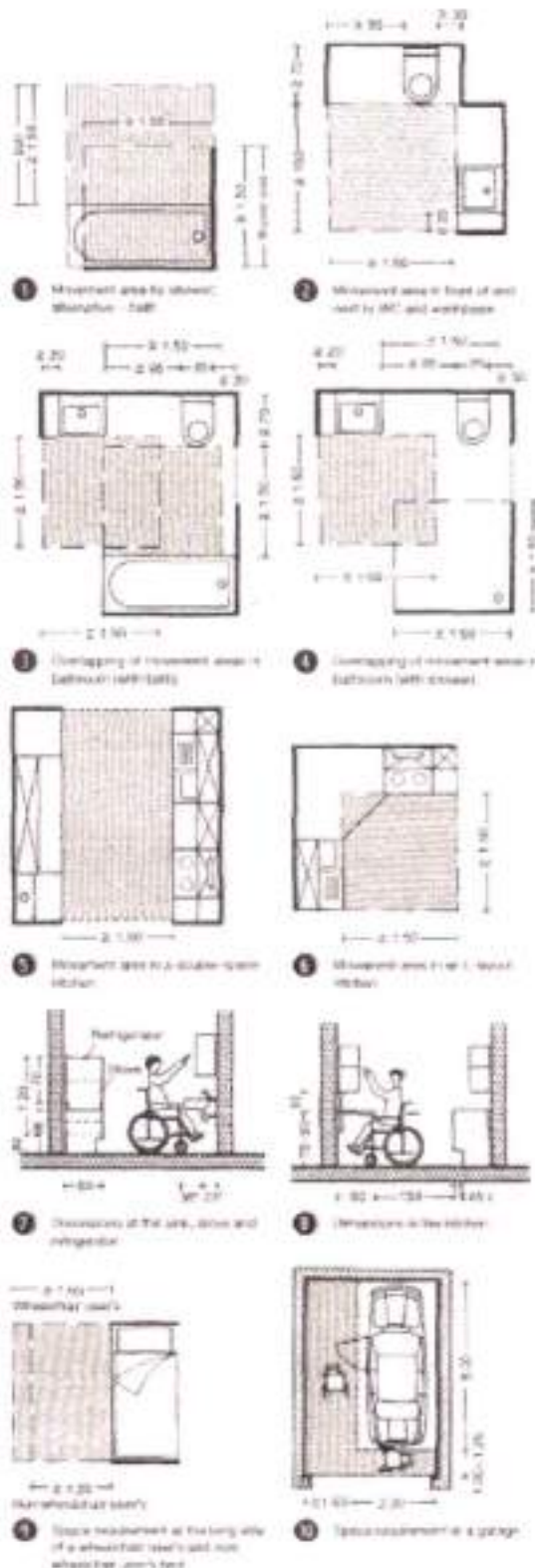
Basics

### ACCESSIBLE BUILDING

Directions for wheelchair users  
Accessible (with  
ramps)  
Accessible  
Housing

IN 6210  
D9 286  
104 1828  
THE 1828

MSD



### Movement areas which must be:

#### min. 1.50 m wide and min. 1.50 m deep...

a turning place in every room (excepting small rooms, which the wheelchair user can use by moving backwards and forwards), the shower → ❶ → ❷, in front of the WC and vanity unit → ❸ → ❹, at an outside seating area, in front of lift shaft doors, at the start and end of a ramp and in front of the hose of a rubbish chute.

#### min. 1.50 m deep...

in front of the long side of a wheelchair user's bed → ❶, in front of cupboards, in front of kitchen installations → ❸ → ❹, in front of the access side of a bath → ❶ → ❷, in front of a wheelchair parking place and in front of the long side of a vehicle → ❺.

#### min. 1.50 m wide...

between walls outside the house, next to steps going up and down, where the head of the uppermost step is not to be included in the movement area.

#### min. 1.20 m wide...

along furniture which the wheelchair user approaches from the side, along the access side of a non-wheelchair user's bed → ❷, between walls within the dwelling, next to operated equipment → p. 22 ❶, between wheel kerbs of a ramp → p. 22 ❶ and on routes within a house.

### Accessibility without steps

All rooms belonging to a dwelling and the communal facilities of a house must either be without steps, or have a lift → p. 22 ❶, or be accessible with a ramp → p. 22 ❶. Door steps and thresholds at the bottom of doors should be avoided, but if absolutely necessary may not be higher than 2 cm.

### Wheelchair parking place

A wheelchair parking place is to be included in the design for each wheelchair user, preferably located in the entrance area, for transferring from street to indoor wheelchair. Space requirements and movement area → p. 22 ❶.

### Bathroom

The bathroom is to be provided with a wheelchair-accessible shower. The take installation of a bath should be possible near the shower. The movement area to the right or left of the WC must be at least 95 cm wide and 70 cm deep. From one side of the WC towards the wall, or furniture, there must be a distance of min. 30 cm → ❶ - ❷. No bathroom doors may open inwards.

### Kitchen

The main items of equipment items like the refrigerator, stove and sink, plus the worktop, are to be arranged as close as possible to each other. It must be possible for a wheelchair to pass under the sink and worktop without limitation. For the sink, this means that either a waste fitting behind the plaster or a flap fitting on the surface is necessary. Shelf space must be accessible for the wheelchair user and no tall units should be included in the design. The horizontal reach area is about 60 cm, and the vertical activity range is 40-140 cm. The optimum height of the worktop (approx. 75-90 cm) should be discussed with the disabled person and fixed at a height to suit the user → ❶ + ❷.

### Car parking place

A weather-protected car parking place or garage is to be provided for each dwelling. A movement area of 1.50 m depth should be provided next to the long side of the car → ❺.

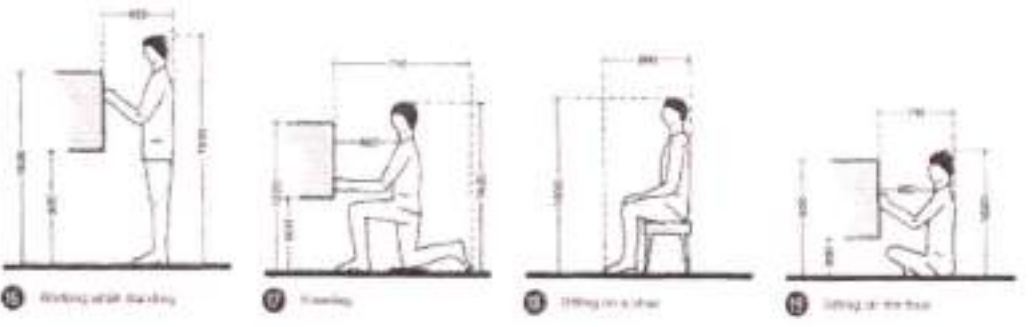
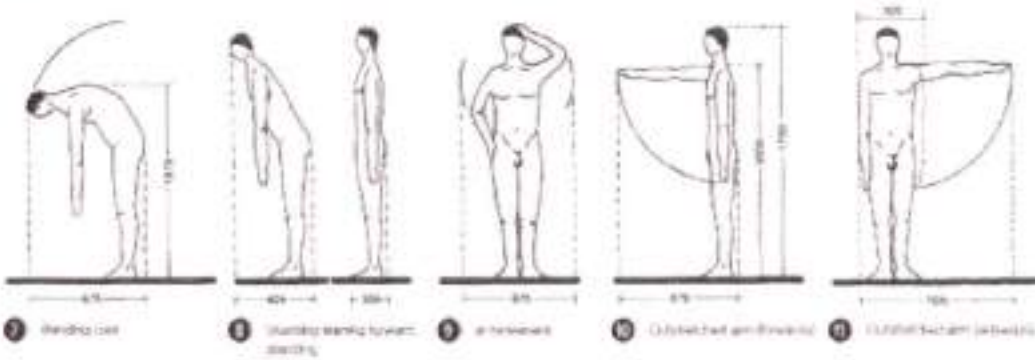
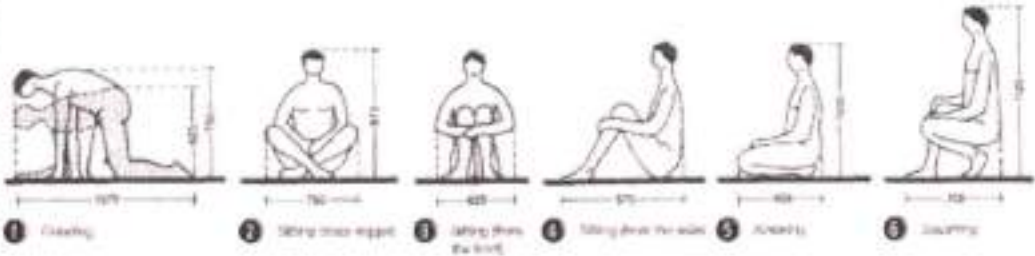
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**DIMENSIONAL BASICS AND RELATIONSHIPS**

Body Measurements and Space Requirements

**DIMENSIONAL BASICS AND RELATIONSHIPS**

Man as measure and outline. The universal standard. Body measurements and space requirements. Universal standard. Universal standard of living.



*[Signature]*  
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## BASICS

Design Basics



10 Functional Diagram developed to study human L&N Study - 1960s



11 Traditional spatial model of room-adjacent from the single-room flat to the 'open' flat represents a prototype for the spatial organization of open and flexible zones of living space

room type	real occupation time vs light incidence	
living room	social gathering	
living/dining area	working/learning	
children's room	relaxing/learning	
bedroom	light only here how is possible	

12 Pattern of occupation and distribution of light in residential rooms

Living in houses, originally the spatial resolution of basic human needs, has developed in modern society into a complex interaction of a multitude of influences subject to the most varied requirements and individual quality standards.

The lifestyle, principles and preferences of the potential inhabitants come up against building regulations, political subsidy ideas and their consequences for town planning and also (underlying ideological) architectural predispositions about location, type of building, development and ground plan.

### Historical development

In the course of industrialisation and the movement of population to urban areas, residential building developed into a central task of the construction industry in the 19th century, and on account of the world wars this was still the case during the last century.

The planning preoccupations with privacy and prestige, which originated in the feudal system and still apply as models and clichés, have entered the awareness of a wide public. Prosperous urban society expressed this by building villas and impressive mansions. In parallel, much Victorian accommodation was built in dense blocks in rental districts as a result of the massive (working class) housing shortage and with the aim of maximising land use and profit.

The architects of the modernist movement and their successors developed opposing concepts to those of the 'row' city. They investigated the individual home, its **lighting and orientation** → 1 the optimal (minimum) **room size and functional layout** → 2 and also rational and standardised methods of construction. The results ranged from ambitious private houses to new 'flats from the drawing board' housing developments.

### The present day: community and individual

Modern housing requires the separation in space and time of individual and community interests within the house as well as meeting the demand for privacy and publicity (or anonymity) in the urban context → 3

The increasing relaxation of traditional family lifestyles and, as a result of the information age, the approaching end of the separation of housing and workplace mean that the classic functional and utilitarian procedures inside houses → 4 have to be re-examined. The established terms like living room or children's room often have little validity.

The place of residence is understood to be a private space with controlled and graduated access from the outside world. The classic common and individual areas within a house are becoming less significant in terms of area, and the 'multi-purpose room' (living-working room, shared living space as in a flat etc.) which occurs in both private and public housing, is developing into a significant room type.

### Room division and functional neutrality

The consequence of the individualisation of lifestyles could be customised layouts with differentiated and often luxurious room division, but it could also be a functionally neutral division of space with qualitatively similar rooms suitable for flexible use by families, flat sharers, 'multi-generation living' groups or living-and-working models.

These considerations result in increased significance for the neutrality of the developing decor.

Residential buildings

BASICS  
Design Basics  
room housing  
pattern

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## BASICS

### House Building Policy

#### Residential buildings

#### BASICS Design team House Building policy

#### The task of a century

Among the changes in society caused by industrialisation, since the middle of the 19th century house building has developed into a central activity of the construction industry. Housing shortage and mass poverty became a decisive political dimension, which still continued into the 20th century due to the World Wars.

The regulation and encouragement of house building is therefore an essential aspect of national construction policy. Political instruments have been developed in the form of planning laws and building regulations → p. 56, intended to set **minimum standards** to protect privacy, avoid danger and protect health.

Laws to subsidise housing construction and a repeatedly modified system of financial grants and tax exemptions have been set up to support private investment in rented and tenement-occupied housing (**property incentives**). In consideration of the current oversupply of housing and increasing demands in the market regarding area and quality, the subsidy laws have been amended in recent years.

The essential subsidy instruments in Germany are: the **Law to Subsidise House Building**, the **state subsidy for house building**, laid down in the Law to Subsidise Social Housing of 13/09/2001. The subsidising of house building includes the new construction of flats with subsidised rents, the new construction of owner-occupied housing, the purchase and refurbishment of existing houses and the purchase of rights of occupancy.

Housing subsidy is carried out at the **state level**. The extent of grants, the size details of subsidised houses and application conditions can therefore differ from state to state and are laid down in the relevant **housing subsidy regulations** → ❶. The target housing subsidy group are households whose income does not exceed the level stipulated in the laws and regulations, and also households with two or more children and households with disabled members. The subsidy is in the form of loans at preferential rates, grants, guarantees, housing settlement certificates and the provision of cheap building land.

Household size	Maximum living area	
1 person	30 m <sup>2</sup>	for each further person
2 persons	40 m <sup>2</sup>	belonging to the household, the living area can be extended to max. 50 m <sup>2</sup>
3 persons	50 m <sup>2</sup>	
4 persons	60 m <sup>2</sup>	

❶ Limits on the living area in subsidised housing (example)

#### Owner-occupied House Allowance Law

This legislation provides for a limited period a subsidy from taxation via a fixed annual allowance for the purchase of owner-occupied flats and houses. The target group for this allowance is households whose income does not exceed the limits laid down in the law. On account of the current oversupply of housing, the political justification for this law is often questioned.

#### Housing area regulation

The 'Regulation for the calculation of the housing area' of 25/11/2003 is used to work out the area of houses and flats for the purpose of the Law to Subsidise House Building. The area of a house or flat includes the floor area of all rooms, which being exclusively to the house or, in the case of a residential home the area intended for the sole use of the owner → ❷.

The floor area of a room is determined from the clearable space between building components and starts from the face of the cladding of the building component → ❸. The floor area is measured in the completed room, or can be calculated from a suitable construction drawing. Floor areas are calculated according to → ❹.

Living area includes	Living area does not include
all rooms which being solely to the house, or are intended for the sole use of the occupants, including: <b>entrances, entrance porches, etc. (if enclosed or at least partially enclosed), garages and terraces</b>	subsidised rooms, cellars, store rooms, utility rooms, storage rooms, washrooms, etc. rooms, living rooms, heating rooms, garages, rooms which do not correspond to the requirements of planning law for the relevant use, offices

❷ Rooms included in living area (living area regulation, current)

Area area of a room includes	Area area of a room does not include
clear area (free space) of ceiling, between building components, including the area of door and window frames, <b>stairs, permanently installed objects, free-standing installations, built-in furniture (movable components)</b>	chimneys, <b>heating radiating, plantings, offices (over 1.5 m height and 1.5 m floor area), stairs and landings (over 1.50 m), door outlets, window and wall outlets (which do not touch in the floor or are at least 0.22 m deep)</b>

❸ Floor area of a room included in living area (housing area regulation, current)

Rooms	Rooms and parts of rooms with a clear height of at least 2 m
flat	rooms and parts of rooms with a clear height of at least 1.5 m and the floor 2 m, unheated and fully enclosed, <b>entrances, entrance porches, etc.</b>
entrances & porches at the highest level	terraces, garages, roof gardens and balconies

❹ Examples of floor areas in the calculation

#### KfW Subsidy Bank

The KfW Subsidy Bank is a public body with its capital provided by the Federal Republic of Germany and the states. The main emphasis of its activity is the provision of favourable loans for the encouragement of house building. The subsidies are in the form of a subsidy programme with fixed aims. Currently (autumn 2006) the following programmes are active:

#### KfW property programme

for the building or purchase of owner-occupied houses and flats.

#### Ecological building

for the construction of passive houses, KfW energy-saving houses and the installation of renewable energy heating systems.

#### Housing modernisation

for the modernisation and repair of residential buildings with emphasis on the reduction of energy consumption.

#### CO<sub>2</sub> building refurbishment plan

for single measures intended to reduce the energy consumption of old buildings.

#### Solar electricity production

to finance photovoltaic systems on residential buildings.

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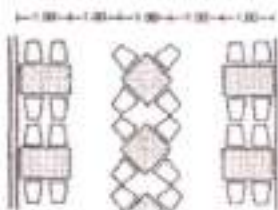




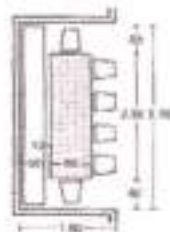


## CATERING

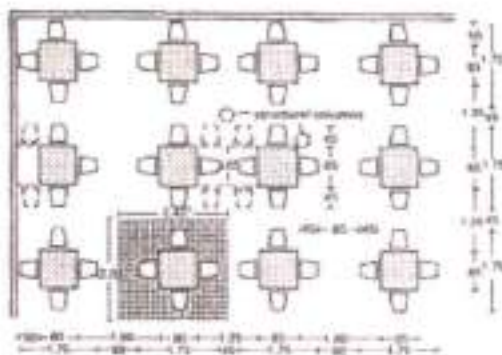
### Restaurants



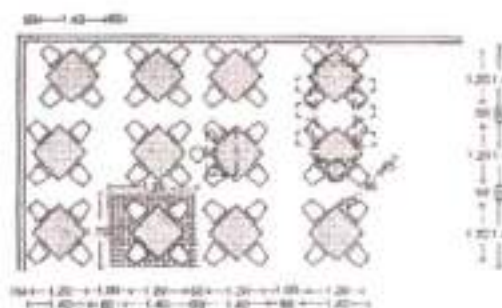
1 Closest seating area



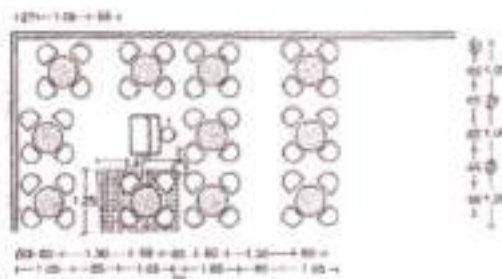
2 Free table



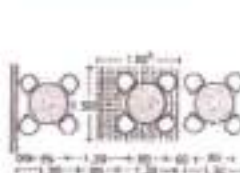
3 Parallel arrangement of tables



4 Diagonal arrangement of tables



5 Closest table spacing



6 Tables in a row



7 Curved tables

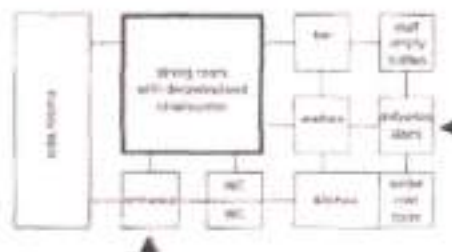
Before any restaurant or other catering establishment is built, the organisational processes must be determined with the operator. The following have to be decided: what food will be on the menu; what quality and quantity will be on offer? Which service system will be used, whether à la carte with fixed or changing daily menus, plate or table service, self-service or mixed? For design purposes, it is important to know which target clientele is aimed for. The site itself will help to determine the most suitable type of restaurant. Appoint specialists in kitchen equipment, electrical, heating, ventilation and sanitary design.

The main room in a restaurant is the dining room. Its furniture and fittings should be appropriate for the business. A number of additional tables or chairs should be available, so that table groupings are flexible. Provide special tables for regulars. Side rooms and conference rooms should always be flexibly furnished in order to permit variations. A food bar with fixed stools can be arranged for customers in a hurry. Larger dining rooms should be split into zones. Kitchens, side rooms, toilets and sanitary installations should be grouped around the dining room, also in the basement. → 8

Columns in a dining room are best located in the centre of a group of tables or at the corners of the tables. → 9 The ceiling heights of dining areas with a floor area  $\leq 50 \text{ m}^2$  - 2.50 m,  $> 50 \text{ m}^2$  - 2.75 m and  $> 100 \text{ m}^2$   $\geq 3.00$  m; above or below galleries  $\geq 2.50$  m.

Emergency exits 1.0 m wide per 150 people using them. Minimum clear width of aisles in restaurants 0.80 m, doors 0.90 m. → 10

Toilets in public houses, bars or restaurants: Stairs to toilets, wash, staff and storage rooms, usable width  $\geq 1.10$  m. Clear walk-through height  $\geq 2.10$  m measured vertically. Window area  $\geq 1/10$  of the floor area of a restaurant.



8 Functional scheme of a small restaurant

Floor area of dining room	Multi-seating with bar
400 m <sup>2</sup>	27-30 m
500 m <sup>2</sup>	37-40 m
600 m <sup>2</sup>	47-50 m
700 m <sup>2</sup>	57-60 m
800 m <sup>2</sup>	67-70 m

Dining tables	Bar	WC	Kitchen	Staff entry	Customer entry
240	1	1	1	1	1
320-350	1	1	1	1	1
400-450	1	1	1	1	1
500	1	1	1	1	1

9 Usable width of aisles

Type	Bar occupancy per sqm	Kitchen occupancy per sqm	Dining room floor area (m <sup>2</sup> /seat)
restaurant	1	0.7	1.6-2.0
pub/club	1.5	0.8-1.0	1.4-1.7
self-service	1.5	0.8-1.0	1.4-1.7
buffet	1.5	0.8-1.0	1.4-1.7
fast-food	1.5	0.8-1.0	1.4-1.7
take-away	1.5	0.8-1.0	1.4-1.7
fast-food	1.5	0.8-1.0	1.4-1.7

10 Total furniture

Furniture	No. pieces	Value (€)	Self-service (€)
restaurant	9	1.75	1.17
pub/club	9	1.75	1.17
self-service	9	1.75	1.17
fast-food	9	1.75	1.17

11 Total space required by dining room 1.4-1.6 m<sup>2</sup>/table

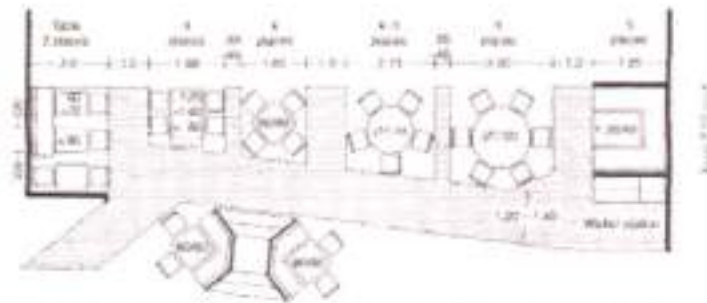
Table width	Bar	WC	Kitchen	Staff entry	Customer entry
240	1	1	1	1	1
320-350	1	1	1	1	1
400-450	1	1	1	1	1
500	1	1	1	1	1

12 Space requirements

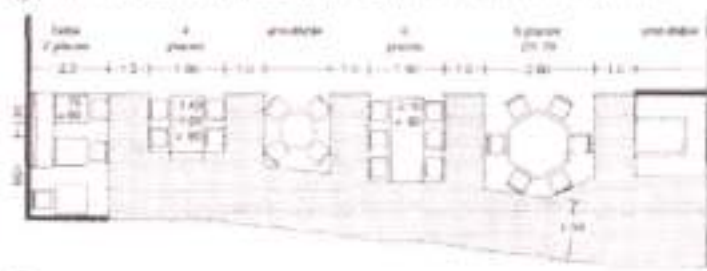
13 Area tables

**Accommodation**

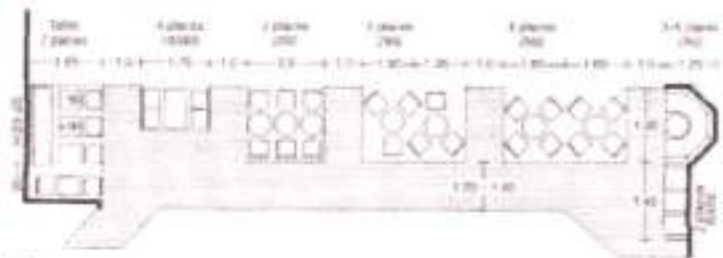
**CATERING**  
 Restaurants  
 Drinking houses  
 Fast food outlets  
 Restaurants  
 Kitchens  
 Large kitchens  
 Canteens



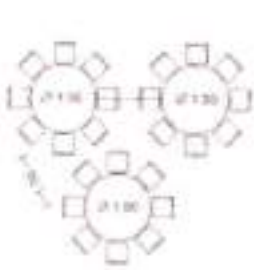
1. This shows a restaurant with approximately 100 seats. The tables are arranged in a grid pattern with a central aisle.



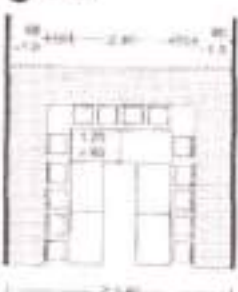
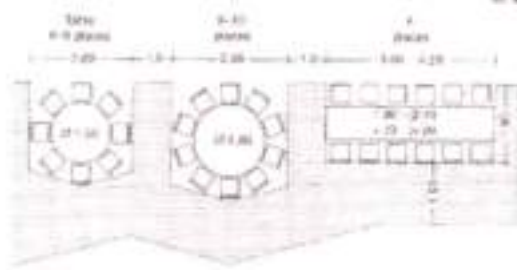
2. In a self-service restaurant...



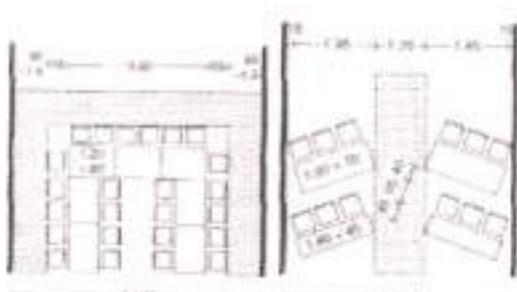
3. This is a large scale...



4. Circular



6. Canteens and service rooms

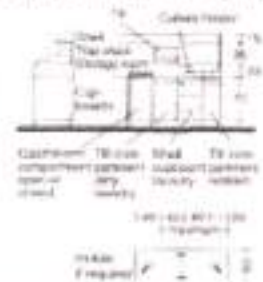


**CATERING**  
 Dining Rooms, Service

The space required varies very widely according to the character of a restaurant. Apart from fast food outlets, the least space required is in canteens. The most is needed in restaurants and diners. Diagonal arrangement of the tables generally takes up less space than an aligned pattern, with a space saving of up to 30%. Alcoves are beneficial for use of space because the distance between seats and wall is no longer required. In larger restaurants, many groups of tables (a waiter's territory) are collected together to form units.

Basically, the design of dining rooms based on 'number of heads' - m<sup>2</sup>, formulae is to be avoided, as they are not applicable to rooms under 100 m<sup>2</sup> and can lead to false results. Facing the dimensions of rooms should in any case be done from concrete furniture layout plans. The functional design of dining rooms involves determining the following:

1. Entrances and traffic axes, which limit the usable area, according to number and required width.
2. Service points (with the reception of variable forms of furniture) stations for 40 places each with at least one service point as centrally placed as possible.
3. Table sizes and shapes according to the character of the business and the expected guest structure. A good procedure is to design a percentage structure of desirable table sizes with various combinations, starting from the intended total capacity. Table sizes and shapes result from the intended use. Areas of about 20 (12-24) places are designed according to the character, type of business and intended visual organisation, to avoid the impression of a waiting room.



8. Water station



9. Bar and service counter

Public circulation



Private area



MUSEUMS AND ART GALLERIES

General

A museum is a public collection of objects testifying to human cultural development. It collects, documents, receives, restores, interprets and communicates these through display.

The following museum types can be categorised according to the origin and nature of the items in the collection.

**Art gallery:** Collector of works of fine art (including craftswork and graphics).

**Cultural history museum:** Collection of objects, weapons, clothing, written documents etc. which show the cultural development of a geographically restricted area (ethnological museum, open-air museum, local history museum).

**Ethnology museum:** Works from the cultural heritage of traditional peoples and lost cultures.

**Science museum:** Collection of educational and display material connected with scientific and technical themes.

Lighting

There should be no direct daylight falling on museum objects as this could cause damage. Therefore display rooms should be provided with flexible lighting systems: no permanently built-in lights, no fixed wall and ceiling lights.

Guidelines for lighting

Very sensitive display objects	50-80 lx
Sensitive display objects	100-150 lx
Less sensitive display objects	150-300 lx

UV radiation must not be exceed 20 W/m<sup>2</sup>

It must be possible to completely darken all display rooms, in public rooms where no items are displayed, e.g. entrance area, cafe, library, a greater amount of daylight is desirable.

The lighting calculations for museums are highly theoretical; the quality of lighting is decisive. American tests can be more informative.

Room climate in the store and the display areas

The ideal temperatures in the store and the display areas are 15-18°C in the winter and 20-22°C in the summer. Except as short peaks, in the summer 28°C should not be exceeded. Stores should not therefore be located in uninsulated attics, for example.

Because the reproduction of insects is very limited under 15°C, above all for science and ethnography collections a temperature of 12-13°C is optimal.

Paper and film material is relatively chemically unstable and the material should therefore be stored cool and dry at temperatures under 16°C (ideally at approx. 5°C).

The relative humidity in the store and the display areas depends on the displayed and stored materials: the optimal values are for wood 65-60%, canvas 50-55%, paper 45-50% and metals, max. 40%. It is important to avoid short term variations in relative humidity; the variation within one hour should not exceed 2.5%, or not more than 3% in one day. Seasonal variations should not be more than 10% in summer or -5% in winter. The changing flow of visitors in museums leads to continuous variation in the climatic parameters.



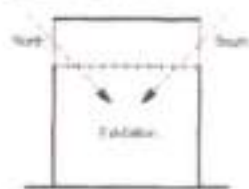
MUSEUMS AND ART GALLERIES

General

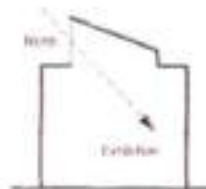
Display rooms

see also  
CHAPTER  
pp. 101-5

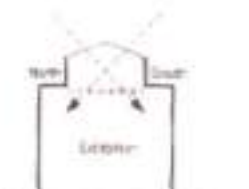
1. Lighting scheme



2. Indirect lighting through suspended glass ceiling



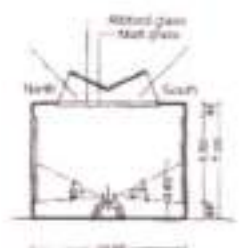
3. Lighting of display case through lighting rails



4. Indirect lighting through suspended glass ceiling



5. Side lighting with high level



6. Wall lighting with an opening to another room

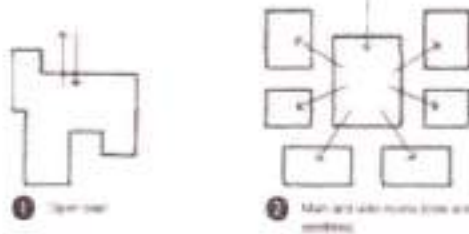


7. Lighting in gallery with spot according to CIE beam design

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 Akurdi Pune

## MUSEUMS AND ART GALLERIES

### Display Rooms

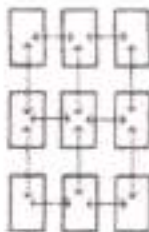


1 Open plan

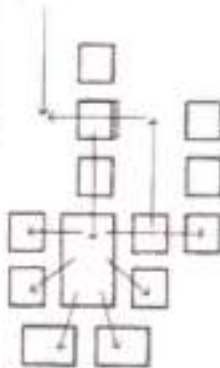
2 Main and side rooms (one and more)



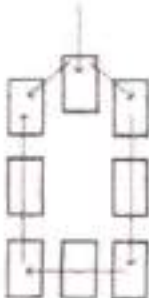
3 Linear chaining



4 Labyrinth



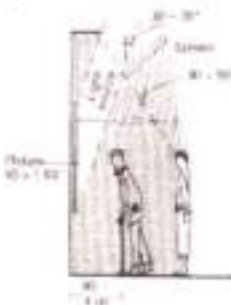
5 Complex



6 Round tour (loop)



7 Light and display in display cabinet



8 Distance and light

The decisive factor in the layout of display rooms is the relationship between the collection and the way it is to be displayed (display concept). There are the following basic types of layout → 1 - 6

**Open plan** → 1 large and usually autonomous items on display, free circulation, function rooms in basement

**Core and satellite rooms** → 2 main rooms for orientation in the museum or the exhibition, side rooms for autonomous displays (themes/collections)

**Linear chaining** → 3 linear sequences of rooms, controlled circulation, clear orientation, separate entrance and exit

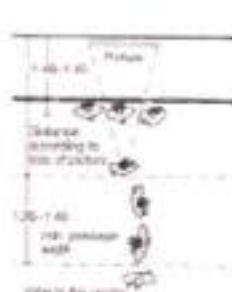
**Labyrinth** → 4 free circulation, guided route and direction are variable, entrance and exit can be separate

**Complex** → 5 combined groups of rooms with typical features of → 1 - 4, complex organisation of collection and display concept

**Round tour (loop)** → 6 similar to linear chaining → 3, controlled circulation leads back to entrance

Display concept	Space arrangement
isolated or display items	open plan → 1
systematically arranged	main and side rooms, core and satellite → 2
thematically arranged	linear chaining → 3, round tour → 6
complex arranged	labyrinth → 4, complex → 5

The size and height of the display and store rooms, depend on the dimensions of the works and the extent of the collection, but the minimum height is 4 m clear.



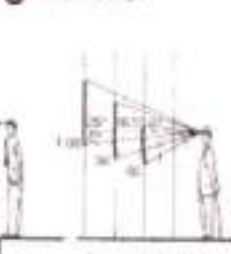
9 Picture on the wall, viewing and traffic



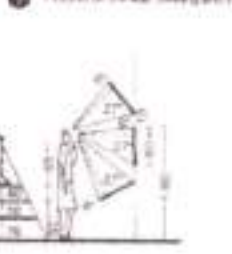
10 Traffic in front of display cabinet



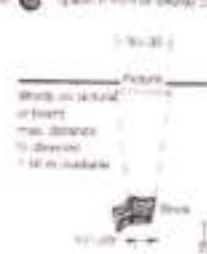
11 Field of view, height, size and distance



12 Field of view, height, size and distance



13 Field of view, height, size and distance



14 Field of view, height, size and distance

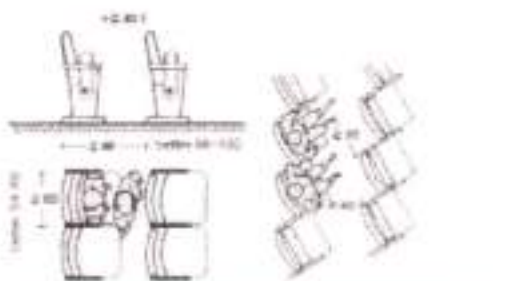
Cultural heritage

MUSEUMS AND ART GALLERIES  
General Display rooms

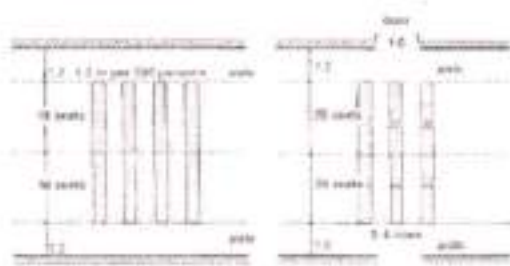
Dr. D Y Pail Patil's  
Padmashree Dr. D Y Pail College of Architecture,  
Aundh Pune

## THEATRES

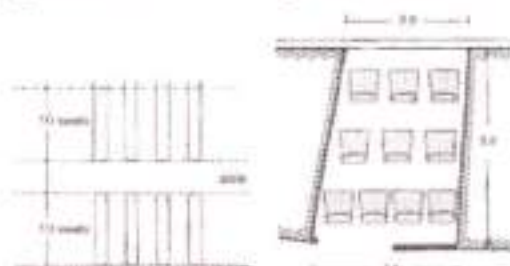
### Auditorium



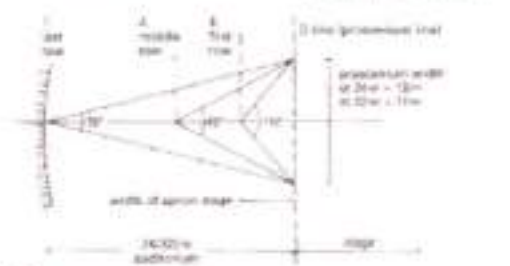
- Seating must be level according to Places of Assembly Regulations. Maximum dimensions are set aside for theatres.
- Staggered seating offers freedom for objects.



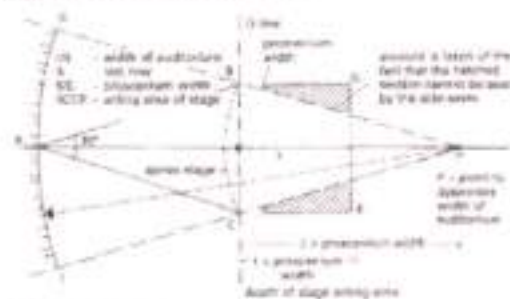
- Row with 20 places
- Row with 25 places, clear passage



- Row with less than 10 places, side aisle at left and right
- Row may have 200 mm clear, or less, width if necessary, at points of 25 m<sup>2</sup> floor area



- Proportions of traditional auditorium plan



- Auditorium width

In addition to the local building regulations, decide for the design of theatres are the Places of Assembly Regulations of the relevant state. This is based on the Model Places of Assembly Regulations, which can vary in detail from those of a particular state. This legislation applies from 200 spectators. It should be noted that it is not the actual number of seating or standing places that counts; it is assumed that there are two spectators per m<sup>2</sup> in the place of assembly for rows of seats, two spectators per running m for standing places.

#### Auditorium and stage/acting area

Size of auditorium: the number of people in the audience gives the required floor area. For seated spectators, assume  $\approx 0.5$  m<sup>2</sup>/spectator. This number results from:

$$\begin{aligned} \text{seat width} \times \text{row spacing} & \leq 0.45 \text{ m}^2 / \text{seat} \\ \text{add } \approx 0.5 & = 0.95 \text{ m}^2 / \text{seat} \\ & \approx 0.50 \text{ m}^2 \end{aligned}$$

Length of the rows of seats per aisle: 10 places  $\rightarrow$  25 places per aisle if an exit door of 1.2 m width is available at the side per 3 or 4 rows.

Exits, escape routes 1.2 m wide per 300 people. 1% of the seats at least two must be accessible for wheelchair users, if possible in connection with a seat for an accompanying person.

#### Auditorium volume

This is determined by acoustic requirements (see below)  $\rightarrow$  p. 221 as follows: playhouse approx. 4-5 m<sup>3</sup>/spectator; opera house approx. 6-8 m<sup>3</sup>/spectator. Air volumes must not be less, for technical ventilation reasons, in order to avoid too rapid air changes (draughts).

#### Proportions of the auditorium

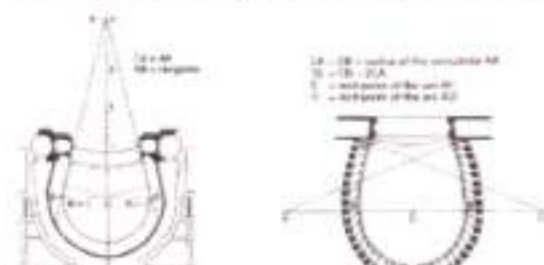
These are derived from the psychological awareness (ret. angle) of view of the spectator, or the requirement for a good view from all seats. Options are:

- Good view, without moving head, but slight eye movements of approx. 30°
- Good view with slight head movements and slight eye movements of approx. 60°
- Max. awareness angle without head movement approx. 110°; i.e. all actors in the field are 'in view'. Outside this field there is uncertainty, because 'something' is out of view.
- Full head and shoulder movement allows an angle of view of 360°.

#### Proportions of the classic auditorium

Open, multi-purpose theatre, and traditional playhouse  $\rightarrow$  distance of the furthest row from the start of the stage should not exceed: - playhouse, max. 24 m (max. distance for the recognition of facial expressions); opera, 32 m (large movements are still recognisable).

Auditorium width is determined by the spectators at the side being able to see the stage adequately  $\rightarrow$  10. The comfortable proportions and sometimes good acoustics of the classic theatres of the 18th and 19th centuries are based on particular rules of proportion  $\rightarrow$  11, 12.



- Design of auditorium's vertical section. Grand Theatre, Helsinki. Arch. Walter Gropius 1918
- Design of the auditorium's cross-section. Teatro alla Scala, Milan. Arch. Piermarino

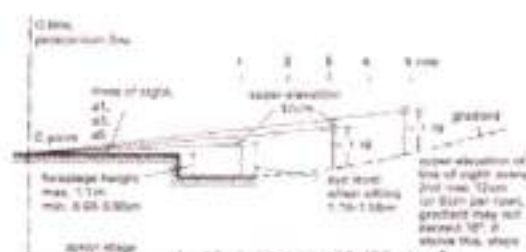
### Cultural venues

**THEATRES**  
Historic theatres  
Theatres  
Auditoriums  
Stages  
Subsidiary rooms  
Workshops and rehearsal spaces  
Rehearsal and public rooms  
Museums

Dr. D Y Patil Professor's  
Padmashree Dr. D Y Patil College of Architecture,  
Akurdi Pune

## THEATRES

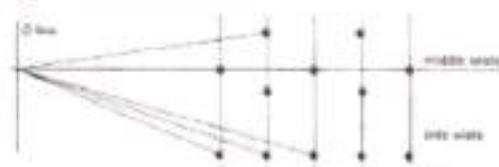
Seating



1 Direction of seating gradient



2 Gradient curve and its modification



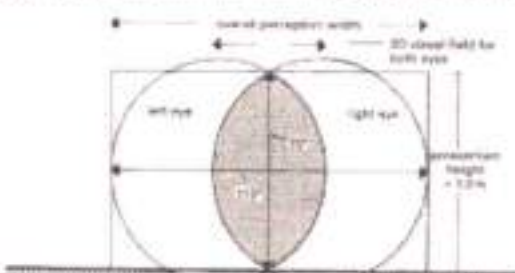
3 Chopping of the seats in a row is achieved through variable seat widths (0.50-0.75 m)



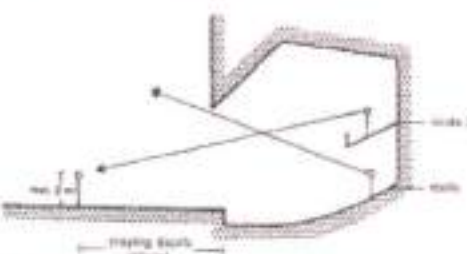
4 Feeling of integration (visual perception)



5 Conceptual relationship between the auditorium and the stage and with each other



6 Field of perception and proportions of the unimovment unit



7 Typical theatre and view of stage

The elevation (gradient) of the seating in the auditorium is derived from the sight lines. The sight line construction applies for all places in the auditorium (stalls, but also tiers) → 1. It can be assumed that the spectators sit sensibly and so only every second row requires full sight super-elevation (12 cm). Specialised mathematical literature addresses problems of view in the theatre, including, for example, the distribution of people's heights.

Rows of spectators should be positioned in arcs, not only for better alignment toward the stage, but also to achieve a better perception of each other (security effect) → 2. The stepped side aisle must rise 10-15 cm and the head must not be less than 20 cm. The floor between the seats must be on the same level as the adjacent aisle at the side.

### Overall layout of the auditorium

Firstly, determine the height of the proscenium: in stalls theatre, the relationship should be:

$$\frac{\text{proscenium height } 1}{\text{proscenium width } 1.6}$$

This derives from the golden section and the physiological field of awareness, respectively → 3. After determining the proscenium height, the ramp height, the pitch of the stalls and the volume of the room, this gives the room height. The ceiling is to be adapted for acoustic requirements. It should be the case that the noise reflected from the stage and apron is distributed evenly over the room → 4.

For tiers, it is important that there is also a sufficiently deep view of the stage from the uppermost level → 5. This may render it necessary to make the proscenium higher.

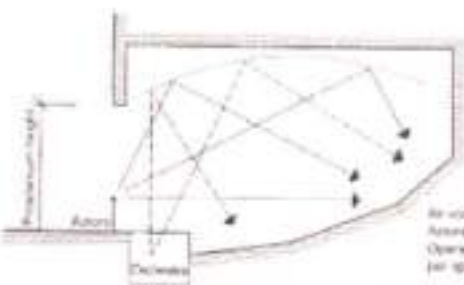
### Proportions of an experimental space → p. 213

These are neutral or open theatre spaces, which permit different arrangements of spectators and stage areas. This variable arrangement is achieved through:

- Mobile stage platforms and mobile scands for the audience on a fixed floor.
- Mobile sections of floor, which consist of moveable podiums. This solution is technically more elaborate and is therefore used only in larger spaces for min. 150-450 or more people.

The simpler option A is particularly suitable for smaller theatres and for unused spaces, which normally do not have extensive space underneath. Size: up to max. 199 places, because the regulations apply from 200.

$$199 \text{ seats} \times 0.5 \text{ m}^2 = 100 \text{ m}^2 (2/3) = 30 \text{ m}^2 (1/3) \text{ stage area} = 130 \text{ m}^2$$



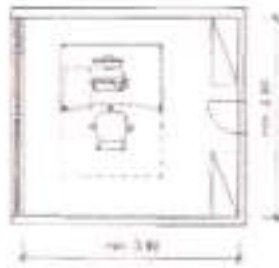
8 Acoustics must be adapted through acoustic measures. See culture → p. 226

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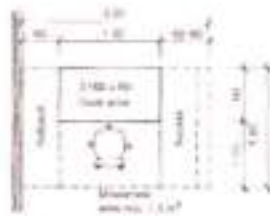


## OFFICE BUILDINGS

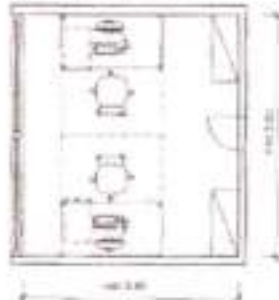
### Space Requirement



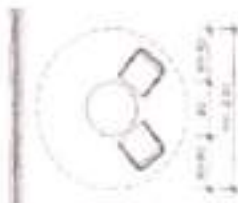
1 Simple single office



2 Minimum space requirement for a single workstation



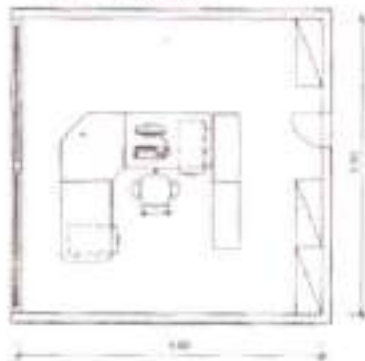
3 Example double office with well-oriented workstations



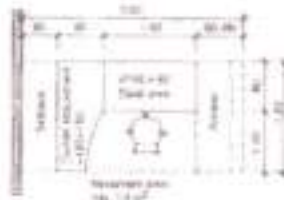
4 Space required for meeting area



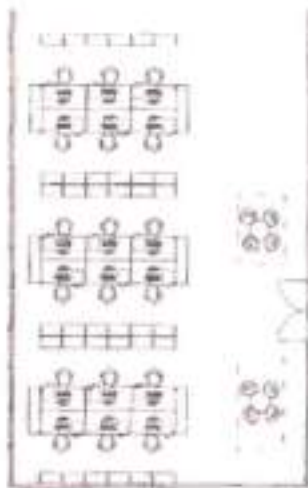
5 Space required for two



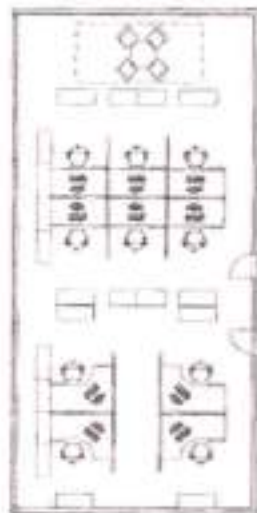
6 Example office management



7 Space required for large workstation with additional desk area



8 Typical workstation layout in a large group office



9 Example alternative layout in a small group office

### Workplace

According to the new Workplace Regulations, there are no longer any fixed minimum dimensions for workplaces, but the requirements of the accident insurers and the fact that all workplaces today have computer screens means that the minimum dimensions in the relevant DIN EN standards and regulations apply.

### Furniture areas

The standard no longer prescribes fixed dimensions for workplaces, but requires sufficient working and movement areas for changing positions at work and for the individually adaptable placing of work equipment.

The assignments of various areas are differentiated by the standard; however, they can overlap if this results in no limitation of the function.

The areas are:

- work area: table
- shelf area: plan area of the furniture
- furniture function area: space required for doors and drawers
- movement area of the workstation
- traffic and through-passages

### Forms of office and work

The office's form and thus its room layout are part of a system influenced by activity, procedural organization, IT technology and complex culture. The building structure and design of rooms can have a significant influence on the work. Efficiency gains can result from factors like reduction of the area per workstation, rooms designed to support procedures and improve motivation for which emotional factors above all are decisive. The material and colour ideas, but also the provision of quiet and communication areas for formal and informal meetings. The analysis of requirements can produce valuable pointers to possible forms of office.

Administration and office

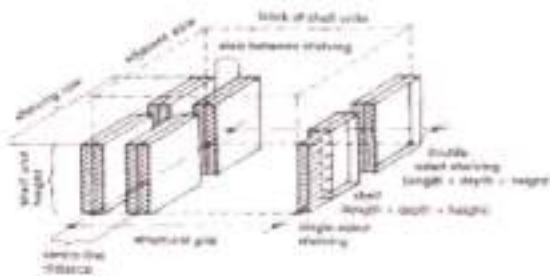
OFFICE BUILDINGS  
Structure  
Function  
Technology  
Cost 1980  
Area  
Requirements  
Computer workstation  
Activities  
Additional work  
Room layout  
DIN  
Access  
Building services  
Construction

THE AREA 1

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## LIBRARIES

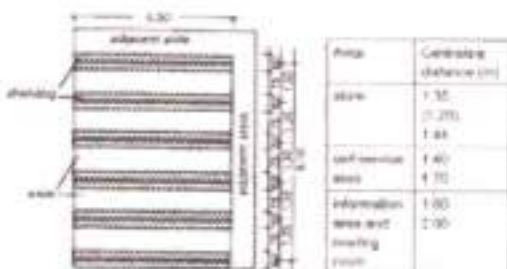
Basics



1 Unshelved stacks to clarify the terms used in the calculation of areas for books



2 Floor area for books shelved in stacks (shelving), which are stored in the public



3 Floor area for books shelved in self-service areas (stacked book 0.70 x 0.30) m

Library area/floor type	Stacks and self-service areas	Compact systems	Reading room and self-service area	Administration
on floors arranged horizontally	7.0	12.5	5.0	5.0
on floors not arranged horizontally	8.0	10.0	5.0	5.0

4 Load assumptions for floors (kN/m<sup>2</sup>)

	Structural grid					
	2.40	4.20	4.80	5.40	6.00	6.60
Stacks (S)	1.00	1.50	1.50	1.50	1.50	1.00
Self-service areas (ST)	1.20	1.20	1.20	1.10	1.00	1.20
Self-service areas (SC)	1.40	1.37	1.33	1.30	1.31	1.40
Reading room areas (R)	1.44		1.50	1.47	1.44	
	1.60	1.50	1.54		1.60	1.57
Workplaces (2.20) (W)	1.60		1.80	1.71	1.60	1.60
	2.40	2.10	1.92	2.00		2.37
Direct workplaces (D)	2.40	2.10	2.40	2.10	2.40	2.40
	2.80	4.20	4.80	3.00	4.80	4.80

5 Suitability of various structural grids for essential functions of a library

### Types of library

**Public lending libraries** → p. 250 offer a wide range of literature and other information, preferably on open-shelves. The supply of literature covers all population and age groups. In larger cities, the functions of scientific and public libraries are sometimes combined.

**Scientific libraries** → p. 251: collection, acquisition and provision of literature on specific subjects for education and research, mostly publicly accessible without limitation.

**State libraries:** federal, state and national libraries, collections, for example, of literature produced in the state or a region (legal deposit copies); publicly accessible.

**Specialist libraries:** scientific libraries for the collection of specialist literature and media on specific subjects, often with very limited group of users.

### Components

Three areas in every library: user and reading area, store and administration. The space requirement for these areas differs according to the type of library.

**User and reading area:** With a good orientation system (signposting of routes, functions and shelves with easily read signs), the reading area with reading and working places should if possible be spread over as few floors as possible, also for ease of book transport; staggered floors should be avoided. Access should if possible be by stairs. All areas of the user and reading room should also be accessible by lift (book transport, disability-friendly). The floor in the user and reading area should be designed for a loading of 5.0 kN/m<sup>2</sup>.

Traffic routes > 1.20 m wide, clear distance between the shelves – in public areas always fixed – up to max. 1.30–1.40 m. Entrance and reading room area separated by access control with book security system, if possible, only one entrance and exit. The access control should ideally be situated near the lending counter/central information.

**Outside access-controlled area:** cloakrooms or lockers for clothing and bags/cases, toilets, cafeteria, newspaper reading corner, exhibition room, lecture and conference room (which may be open outside library opening hours), central information point, possibly also card index and microfiche catalogue, online catalogue terminals, book return, collection point for ordered books.

**Inside access-controlled area:** reader information, bibliographies, online catalogue terminals, handing out and return of books only to be used in reading area, issuing of books in educational book collection, copies (in separate rooms), book stock on open shelves, user workspaces, possibly access to self-service stores.

The provision of user workplaces in **university libraries** depends on the number of students and the distribution of the individual subject groups. Special workplaces for disabled people (wheelchair users, visually impaired), special work tasks (microform reading and enlargement devices, PCs, terminals, CD-ROM and similar) observe the guidelines for computer workplaces p. 230f and single workplaces: cubicles, carrels, single work rooms. The arrangement of the reading places should be in daylight. Space requirement per single reading/working place 2.5 m<sup>2</sup> per PC or single working place 3.40 m<sup>2</sup>. Traffic routes ≥ 1.20 m wide, clear distance between the shelves, which in public areas should always be fixed, up to max. 1.30–1.40 m.

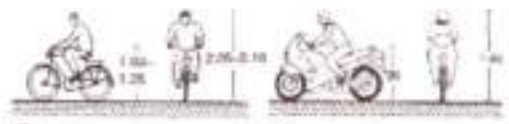
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Administrative and offices

LIBRARIES  
Basics  
Filing  
Lending counter  
Public storage  
Scientific libraries  
Access



1.70-1.90      1.40      2.25      1.95



1. **Bicycle**      2. **Motorcycle**



1. **Hatch**



1. **Mini**



1. **VW Lupo**



1. **VW Polo**



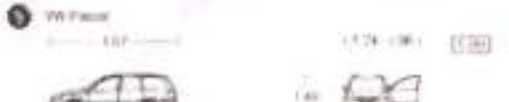
1. **Ford Fiesta**



1. **VW Jetta**



1. **VW Golf**



1. **VW Passat**



1. **VW Passat estate**

1. **Other**

## PARKING FACILITIES

Vehicles - Cars

Dimensions, turning circles and weights of typical vehicles regarding space requirements and regulations for garages, parking spaces, and access and exit driveways.



1. **Audi A3**



1. **Audi A4**



1. **Audi A4 estate**



1. **Audi A4**



1. **Audi A4 estate**



1. **Audi A4**



1. **Audi A4**



1. **Audi A4**



1. **Audi A4**

1. **Audi A4**



**PARKING FACILITIES**  
 Vehicles - cars  
 Vehicles - turning  
 Parking spaces  
 90°-driving car parks  
 Driveways  
 Multi-storey car park regulations  
 Parking systems  
 Vehicles - Trucks  
 Trucks - parking and turning  
 Service areas  
 Petrol stations  
 Car wash

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## ii. Research paper study

### Research Paper Review

#### A case study of a community center project based on appropriate technology as a community capacity building of underdeveloped country

Byungyun Lee and In Su Na

#### ABSTRACT

This study is a case study on community center planning in Gondrapa Village of Mymensingh City, Bangladesh, where the urban poor are densely populated. The goals of the plan are to build the capacity of the community, improve the local sanitation level, improve gender equality, and create a more sustainable urban environment. Particularly, this project was judged that the process of project planning and construction through participatory design and implementation with local residents contributed to enhance the local residents' pride and the consciousness of the residents themselves.

### 1. Introduction

In order to respond to rapidly changing city growth, UN-Habitat wants to manage cities by looking at cities as concepts of settlement space from a subjective viewpoint of production and consumption. UNHabitat also emphasizes high-speed urbanization, global environmental crisis consciousness, the gap between rich and poor, urban and rural disparity, urban development and regeneration, urban planning and implementation. It has expanded the problem of urbanization not only to architecture but also to environmental, social and economic aspects and emphasizes a regional approach. The 2015 UN SDGs aimed to create a comprehensive, safe, sustainable urban and human living environment that resolves disparities and conflicts between tiers, regions and races.

Recently, the international community has continued its efforts to eradicate poverty in low-developed countries, create a closer interchange among countries and expand citizens' participation. This has led to the emergence of research on appropriate technologies to support the development of the ability of poor users, and to create new opportunities based on them, as a solution to international social problems. Appropriate technology requires architectural technology based on the characteristics and capabilities of the local area, but the existing architectural aid system lacks understanding of local materials and technologies.

This research considers the community center project, applies appropriate technology aiming at improving capacity building and hygiene levels of an urban poor community within an underdeveloped state, improves gender equality awareness and

considers the process of realizing appropriate technology.

### 2. Theory of appropriate technology

- Use at low cost and
- Utilize materials available locally.

Table 1. Categories of appropriate technology.

Categories	Criteria
Industrial	Feasibility Sustainability
Technological	Convenience Diversity
Material	Regionality Environment

- Create employment by utilizing local technology and labor.
- The size of the product must be adequate and the method of use must be simple.
- It must be able to be used without knowledge of a specific field.
- It must be able to be created for themselves.
- Draw people's cooperative work and contribute to the development of the local community.
- Utilize renewable energy resources.
- People using the technology must be able to understand the technology.
- Be able to change according to the situation.
- Does not include intellectual property rights, consulting fees, import duties, etc.
- Match the culture and interests of local people.

In terms of industry, technology and materials, the

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above 12 types of conditions can be categorized into six: feasibility, sustainability, convenience, diversity, regionality and environment (Table 1).

#### Project goals and main strategies

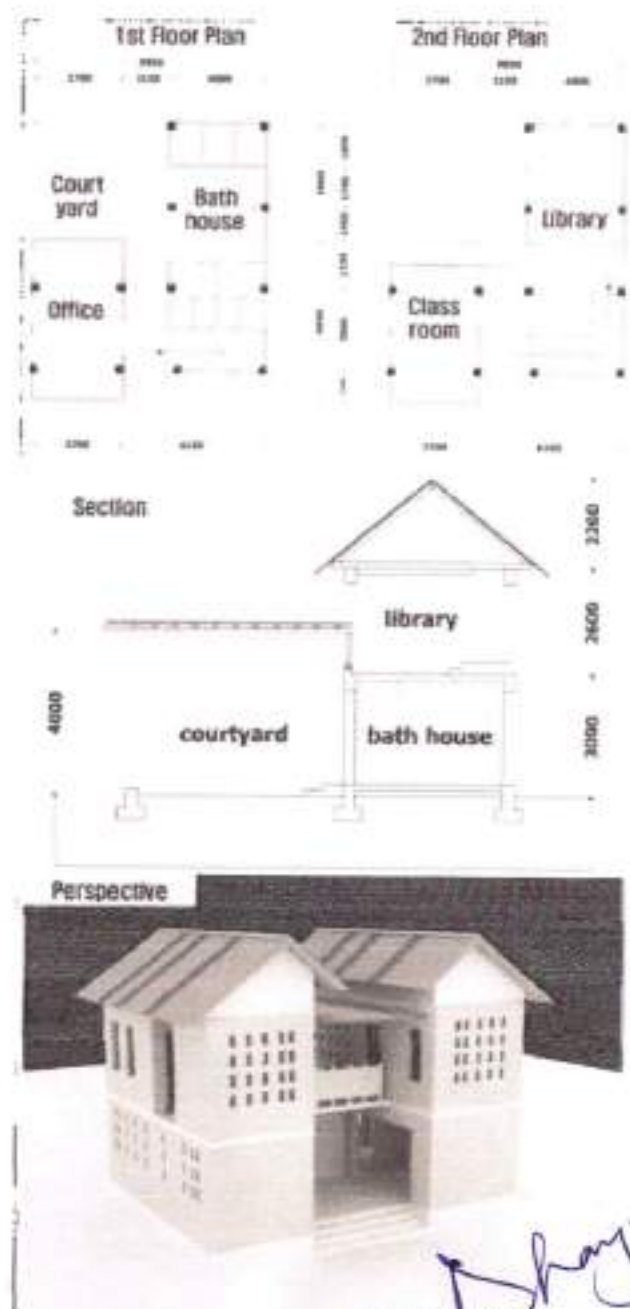
This project was promoted with the following goals. First, this project aimed to strengthen the capacity of urban poor communities through securing community space. In the case of developing countries and underdeveloped countries, as the urbanization is rapid and the settlement systems become unstable, the slum areas are produced widely. Although community activities are active, a public forum for that community space is often very short. Second, it aimed to improve the community's hygiene level. For slum areas around large cities, basic water and sanitation systems are poor and are very susceptible to disease, so it is urgent to secure basic hygiene levels. Third, it aimed to improve gender equality awareness at the regional level through the expansion of sanitation facilities. In the case of slum areas, due to poor hygiene levels, women are exposed to the outside, causing social consciousness to deteriorate or causing unprotected criminal circumstances. Finally, it aimed to create a sustainable urban environment. In consideration of the ripple effect of the surroundings and the postmanagement of buildings, this project sought for a scheme that could match the level of technology and labor of the area, and accordingly, introduction of appropriate technology was considered.

In addition, according to the above objectives, a community center plan was prepared and cooperation with diverse entities was carried out to secure the site, plan, design and construct. Gondrapa Village has four ethnic groups with a total population of 2,715 people, and there are many community-based groups active in the area, so about 41% of the village population (1,045 people of total 1,111 people, 94.1% are women in the vulnerable strata) are actively participating M organization which was the most representative community-based organization (CBO). The M organization is co-chaired by six leaders who work with international NGOs like UNHabitat to provide villagers with income growth, educational services etc. Recently, elementary schools have been opened to promote basic education for children in the village. M organization owned a small site of 128 square meters in the town, but concrete business plans and execution budgets were not prepared. M organization showed a very favorable position to

the proposal of the community center project, and actively opened various opinions on detailed programs, proposals and construction methods through consultation (Table 3).

Meanwhile, in connection with the introduction of the appropriate technology scheduled from the beginning, the university's sustainable laboratory participated for the implementation of the appropriate technology method considering the level of construction labor technology within the region, durable construction methods and techniques utilizing available and utilizable materials were discussed and grown. The program consulted by architectural company, university's sustainable laboratory, CBO combines the village community

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# CRITERIA 1

## *Curriculum Enrichment*

---

**Subject- Architectural Design Project (Thesis)**

***Issue Addressed- Human Values***

***Description-***

Student's thesis topic on "**Tribal Interpretation Center**"

**Aim-** To design a center which will represent the culture and background of tribal community..

**Scope-**

To build a community of adivasi intellectuals around a new way of thinking in order to enable societal change. The thesis is an attempt to comprehend and investigate numerous aspects of tribal unemployment, malnutrition, and tribal cultures, with the ultimate focus on the job opportunities, preservation, and promotion methodologies.

ARCHITECTURAL DESIGN PROJECT – REPORT ON

*अस्तित्वम्*  
**“TRIBAL INTERPRETATION CENTRE”**

Submitted by

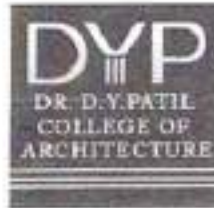
Aishwarya Shewale

FIFTH YEAR – B.Arch  
YEAR: 2021-2022

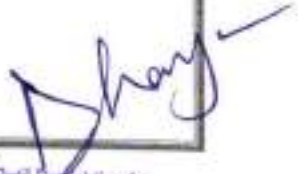
Submitted in partial fulfillment of the requirements for the award of the Degree of  
**Bachelor of Architecture**  
Savitribai Phule Pune University

UNDER THE GUIDANCE OF

Ar. Neha Parthak

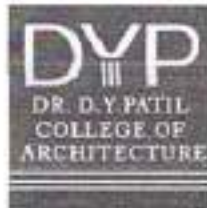


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PUNE.



This is to certify that the work of Architectural Design Project entitled

**"TRIBAL INTERPRETATION CENTER"**

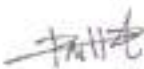
Is a work of the Bonafide student

'Aishwarya Shewale'

Of Final Year B.Arch 2021-22 carried under my guidance and submitted in partial fulfilment of requirements for Degree of Bachelor of Architecture, Savitribai Phule Pune University, Pune

  
Signature of the Candidate


Ar. Dhananjay Chaudhari  
Signature of Principal

  
Ar. Neha Patil  
Signature of Guide



College Stamp

  
External Examiner

  
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Akurdi Pune

**DECLARATION BY THE STUDENT**

I hereby declare that the project work entitled "Tribble interpretation center" submitted to Dr. D. Y. Patil College of Architecture, Akurdi, Pune, is a record of an original work done by me under the guidance of Ar.Neha Pathak. This project work is submitted in the partial fulfillment of the requirements for the award of degree of Bachelor of Architecture. I have taken care in all respect to honor the intellectual property right and have acknowledged the contribution of others for using them in academic purpose and further declare that in case of any violation of intellectual property right or copyright I, as a candidate, will be fully responsible for the same. My supervisor should not be held responsible for full or partial violation of copyright or intellectual property right.

Place: Pune

Date:

  
Signature of Student

  
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About Mapungubwe Interpretation Center.....

CHAPTER 4.....

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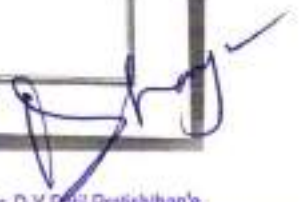
DESIGN PROGRAMME.....

BIBLIOGRAPHY.....

### ABSTRACT

The goal is to give the tribal community the recognition and respect that they rightfully deserve. Its aim is to empower and uplift tribal people by giving a platform for traditional art and craft forms, as well as displaying and honoring tribal culture. Also, to learn how to create a built-form for tribal people that takes use of their natural surroundings and functions as a self-sustaining unit within their original context. The thesis aims to comprehend the process that will aid in the preservation of their traditions and culture, as well as the integration of the entire community.

To maintain tribal heritage in the modern era, we need both technology advancements and sensitivity and appreciation from a larger crowd. The architectural research is inspired by tribal living and their spatial environment. The thesis' whole focus is centred on the glorification of tribal lifestyles. Simplicity, Honesty of Materials, Truthness of Structure, and Optimum Intervention are the architectural techniques and spatial organization that are drawn from the historical design principles of the setting. The design aims to create a focal axis that oversees all of the center's operations.



TRIBAL INTERPRETATION CENTER AT TRIMBAKESHWAR,  
MAHARASHTRA.

ORIGIN OF IDEA

Some tribes are still unable to describe themselves because they are still homeless and have limited literacy. Consider their tone of voice.

The people far from democracy, far from literacy and luxury cannot afford to make their lives better as they aren't even recognized. But as designers we have a lot to learn from and give them.

This exchange can take place when we are ready to travel to their locations and learn about their way of life.

Architecture is something that all of us have in common because we need to learn from them and also provide ours so that it may serve as a bridge between different people's lifestyles. We appreciate each other's existence in this way.

The tribe people have rich traditions cultures and heritage with unique life styles and customs which needs to be preserved. At present there is no center of excellence or one stop information which holistically deals with the tribal folklores, customs and traditions and its application for promoting endogenous development. As tribal lifestyles modernize. There is potential threat for the long-held traditions and tribal identity to be lost in these changing times. Traditional values should not be lost in the maddening rush of modernization.

At present, there is no common place or institutions for development of tribal's which generates employment opportunities within their area, educate the tribal's preserves culture and traditions, conducts social and cultural events for the tribal people.

Creating a space for this exchange drove me to choose this topic.



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# CHAPTER 1

## 1.1 INTRODUCTION

An interpretation center is a place where people can learn about natural or cultural heritage. Interpretation centers are a new type of museum that are typically related with Eco museums and are located near a cultural, historic, or natural landmark.

Even 75 years after India's independence, tribal peoples remain a vulnerable and oppressed population. Isolated from mainstream culture, astounded and unable to cope with the onslaught of a highly competitive environment, they remain a silent lot in the city. Their unwillingness to defend their rights and liberties in the worst cases, they are used by land lords. Land grabbing, underemployment, and mistreatment are all examples of ill-treatment. Their lives are frequently threatened if they make a statement. The tribals are denied fundamental rights such as shelter, sanitation, and education. Healthcare and education are two of the most important factors to consider. Children, in particular, are the most mistreated and victims of many abuses, discrimination in its various manifestations.

Regardless of their occupation, the vast majority of tribal people live in poverty. Their low incomes and expenditures, as well as their standard of living and absence of basic services and infrastructure, indicate their poverty levels. Hunger is on the rise in the tribal region as a result of pervasive poverty, illiteracy, malnutrition, a lack of adequate drinking water and sanitary living conditions, poor maternal and child health care, and insufficient national health coverage.

The main reason for this is tribal unemployment. Diversification of the economy from subsistence to commercialized production of farm and non-farm products has been identified as one of the most important alternative possibilities and a vital policy to address unemployment and poverty.

Tribal people have a rich history and legacy, as well as distinct living styles and practices, which must be preserved. There is currently no center of excellence or one-stop information center that deals comprehensively with tribal folklore, customs, and traditions, and how they might be used to promote endogenous development. Tribal lifestyles are becoming more modernized. In these changing times, it is possible that long-held traditions and tribal identity will be lost. Traditional values must not be sacrificed in the frenzied push of modernization.

There is now no common site or institution for tribal development that creates employment opportunities, educates tribals, preserves culture and customs, or organizes social and cultural events for tribal people.

## 1.2 AIM

Aim of the project is to design a center which will represent the culture and background of tribal community.

## 1.3 OBJECTIVES

- To promote tourism and maintain heritage of the tribes.
- To promote handicrafts, and provide space for exhibitions.
- To address the need of interpretation for various categories like nature, heritage, culture.
- To be a platform for local community to show their art and culture.
- To provide a platform for celebration of local annual festivals
- To build with local materials and provide employment for local people.

## 1.4 NEED OF THE PROJECT

An interpretation center can be a viable option for effectively communicating heritage information in municipalities and rural areas when resources are limited and heritage is a key factor in tourism development. It will provide identity to that place.

Interpretation centers, unlike traditional museums, do not collect, conserve, or research things; instead, they are specialized institutions for communicating the value and meaning of heritage. They work to educate and inform the public.

To make people aware about the need of preserving tribal culture, art, and artisan techniques. To raise awareness among tribal peoples about the need of preserving their rich culture and heritage, as they lose contact with their own traditions in terms of materials, techniques, designs, and aesthetics of traditional arts and crafts as a result of contemporary industrialization's abrupt changes.

To provide tribe members with the most up-to-date technological equipment in order to generate high-quality goods, save time, and make larger returns.

To establish a center for high-quality research and teaching on Adivasi development and social dynamics. To establish a market for promoting indigenous arts and crafts and, as a result, to provide employment opportunities for tribal people. To provide a source of education, consistent employment (with possibilities inside their region, reducing tribe migration to cities), and to aid in the preservation of tribal culture and heritage.

To build a community of Adivasi intellectuals around a new way of thinking in order to enable societal change.

Traditional wisdom and knowledge systems must be revitalized in order to address the new challenges faced by modern technology and values.

## 1.5 SCOPE

Various topics relating to the subject have defined and regulated the research's scope. The thesis is an attempt to comprehend and investigate numerous aspects of tribal unemployment, malnutrition, and tribal cultures, with the ultimate focus on job opportunities, preservation, and promotion methodologies.

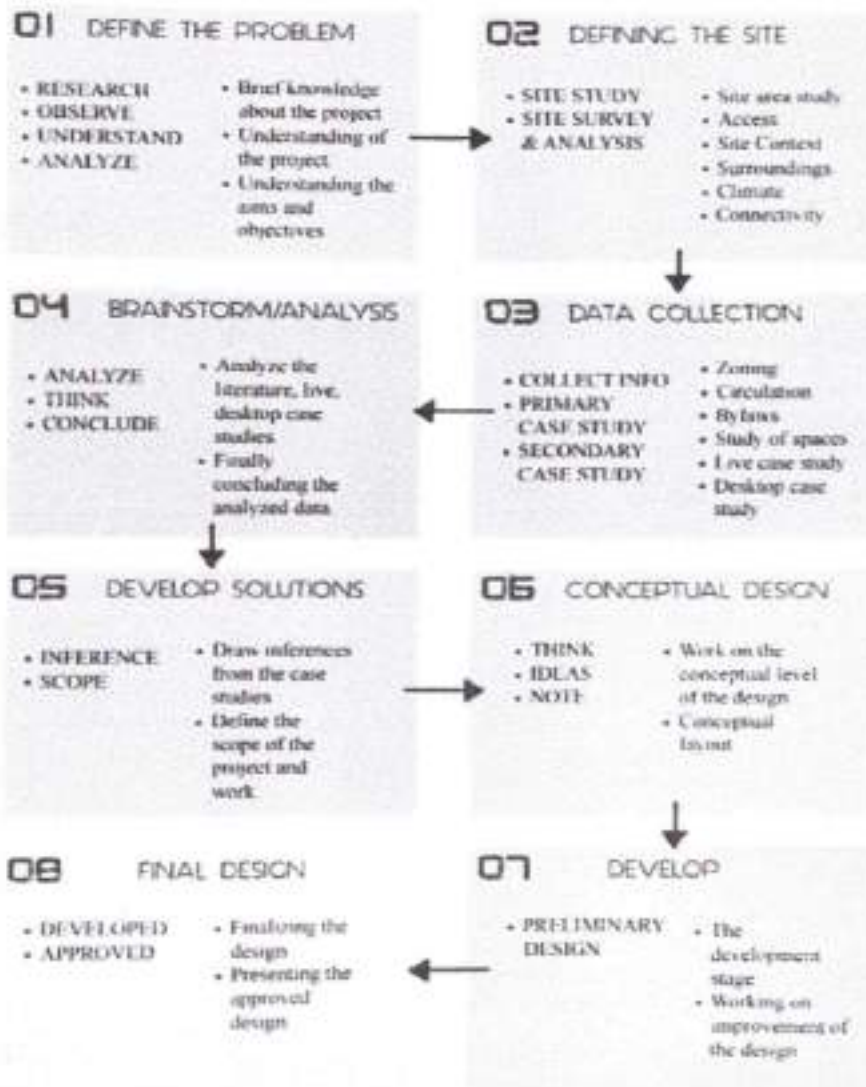
The thesis' last section focuses on "Tribes and their related challenges such as employment and malnutrition." Tribal history and culture are also a focus. As a result, a thorough investigation is carried out into their historical life, their growth as a tribe, their current existence, and the issues they confront. The information in this dissertation is the result of interactions with Adivasi persons, and non-governmental organizations (NGOs) who are intimately affiliated with the tribes.

## 1.6 LIMITATIONS

The dissertation's scope has been limited or defined in some areas, bearing in mind the dissertation's time limits. Though the design requires more built-space detailing, certain key places have been planned with details, while others have been conceptually designated. As a result, due to time limits and other constraints, the scope of the dissertation is limited at each level to a set of parameters that are optimal for use in developing a design solution.



## 1.7 METHODOLOGY





## **CRITERIA 1**

### *Curriculum Enrichment*

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***1.3.1 B. Arch Faculty Lectures which addresses crosscutting issue relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability***

### **1.3.1**

		<b>Index</b>
<b>Sr. No.</b>	<b>Content</b>	<b>Cross Cutting Issues</b>
1	HOAC II	Human Values
2	AD I- Brief	Human Values, Environment and Sustainability
3	Elective IV	Environment and Sustainability
4	Landscape Architecture	Environment and Sustainability



# CRITERIA 1

## *Curriculum Enrichment*

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***Subject- History of Architecture and Culture II***

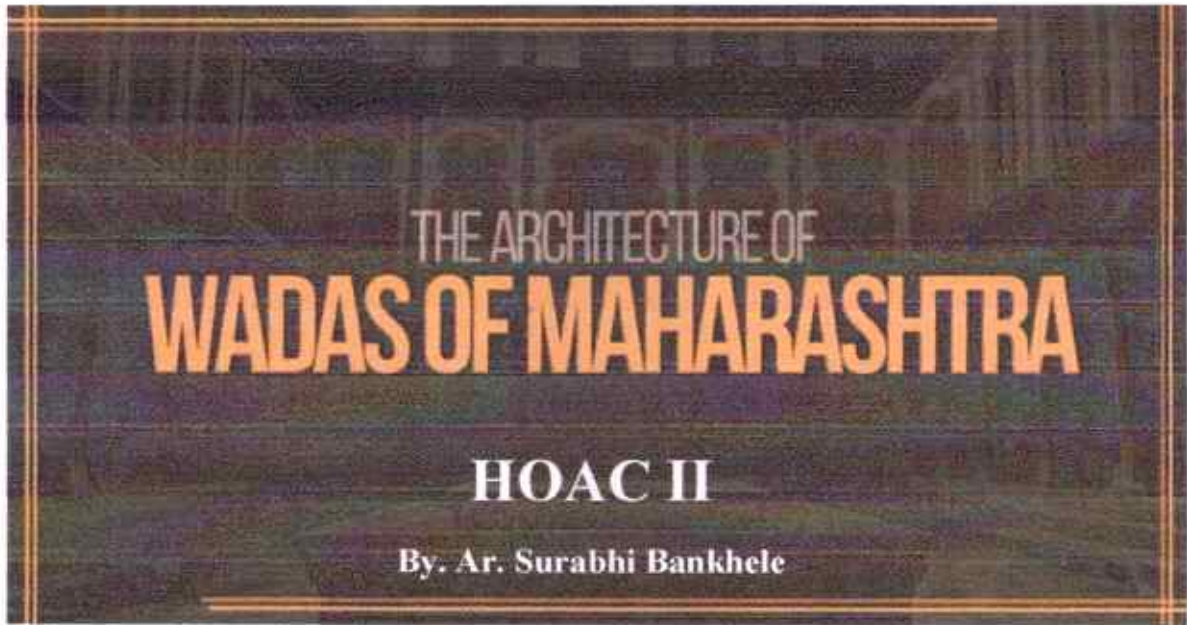
***Issue Addressed- Human Values***

### ***Description-***

Lecture on development of architecture in the Deccan since the 12<sup>th</sup> AD.

#### ***Wada Architecture: WADAS OF MAHARASHTRA***


- To introduce students to the developments in architecture of the Indian sub-continent after 12th century AD as a result of the social, political, and geographical contexts.
- To study the Wada's development in terms of its architecture with specific reference to form, technology, and ornament.
- To teach an integrated understanding of settlements, materials, and architecture as a manifestation of culture.



### Wadas of Maharashtra

Wadas are a rich and cherished architectural heritage in Maharashtra, reflecting the pride, religion, culture, traditions and turbulent history of Marathas. A form of housing in the past, Wadas today are being re-used and preserved as cultural and architectural heritage. The article highlights the emergence of Wada Architecture, its elements, spatial planning, ornamentation, fenestrations, religious influence and overall design philosophy.



  
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## The Architecture of Wadas of Maharashtra

Maharashtra is renowned for its caves and rock-cut architectures. The Buddhist monks initiated these caves in the 2nd century BC, in pursuit of a serene and peaceful environment for meditation, and so these magnificent caves were formed. Later, Hindu cave temples at Ellora and Ajanta became the finest designs of human art and was recognized by UNESCO Heritage in 1983. Some of India's oldest wall paintings can be seen here which were made out of natural elements. The famous rock-cut caves have several distinct design elements, such as the techniques of carvings, the motifs and the depictions of different postures even though sculptures of the time are regarded to be so stiff and unmoving.

The state may be known as the fast-running state but it still holds the heritage values in its architecture styles special in the temples and housing typology known as the Wada Housing. Wada is derived from the Sanskrit word 'Vata' which means plot or piece of land meant for a house. The traditional residence 'Wada' included houses of several families or only one family who stayed there. It is generally used to denote a courtyard house mansion. This House form belonged to ruling classes as well as commoners. This typology is very significant in terms of historical, cultural and economic aspects. Though there are certain variations in size, scale and economical status, all wadas do share some of the basic elements and characteristics.



Ajanta and Ellora Caves

  
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The roots of the history and the rich cultural heritage lie wrapped in the small elements of these structures that display the beauty and sense of style and creativity of those who could make it possible. The essence of the Maratha empire is alive in these structures built during their reign. The architectural design layouts were affected by various cultural factors of which rituals and religion are an important aspect. The form and design developed on the basis of their daily activities and spaces needed to undertake those activities.

**Osari:** It is the transition space or verandah . It is a semi-open space or a passage or spill out space for activities.

**Dewadi:** A verandah for guards

**Sadreacha Sopa:** Open to courtyard, verandah space used for administrative activities, usually in the first or central courtyard.

**Kacheri :** Office: It is the administrative department in the first or central courtyard.

**Khalbhatkhana:** Negotiation Room. It was a semi-public space where discussions/decisions place

**Diwankhana:** Living room. Huge hall for formal meetings. It is planned just above osari and dewadi

**Majghar:** Middle room. From this part, the private area is segregated from the public area. Generally, women & family members use it. It is a private hall .


**Devghar:** Prayer Room.

**Tijory :** Treasury.

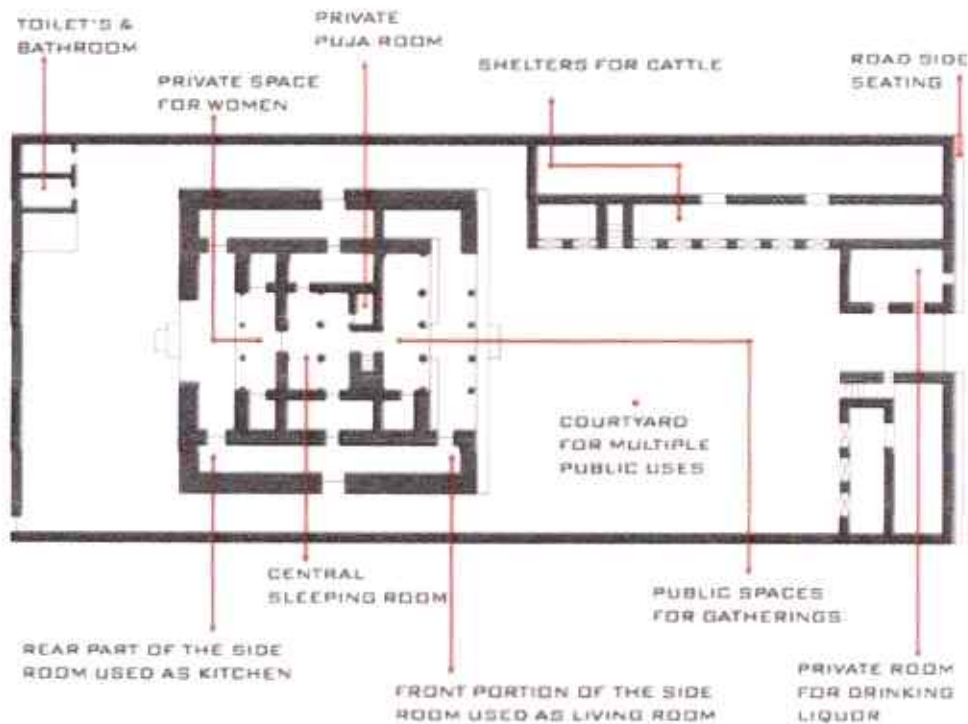
**Gotha:** Cow-pen in the backyard of a house.

**Swayampak Ghar :** Kitchen.

**Kothar:** Storeroom.

  
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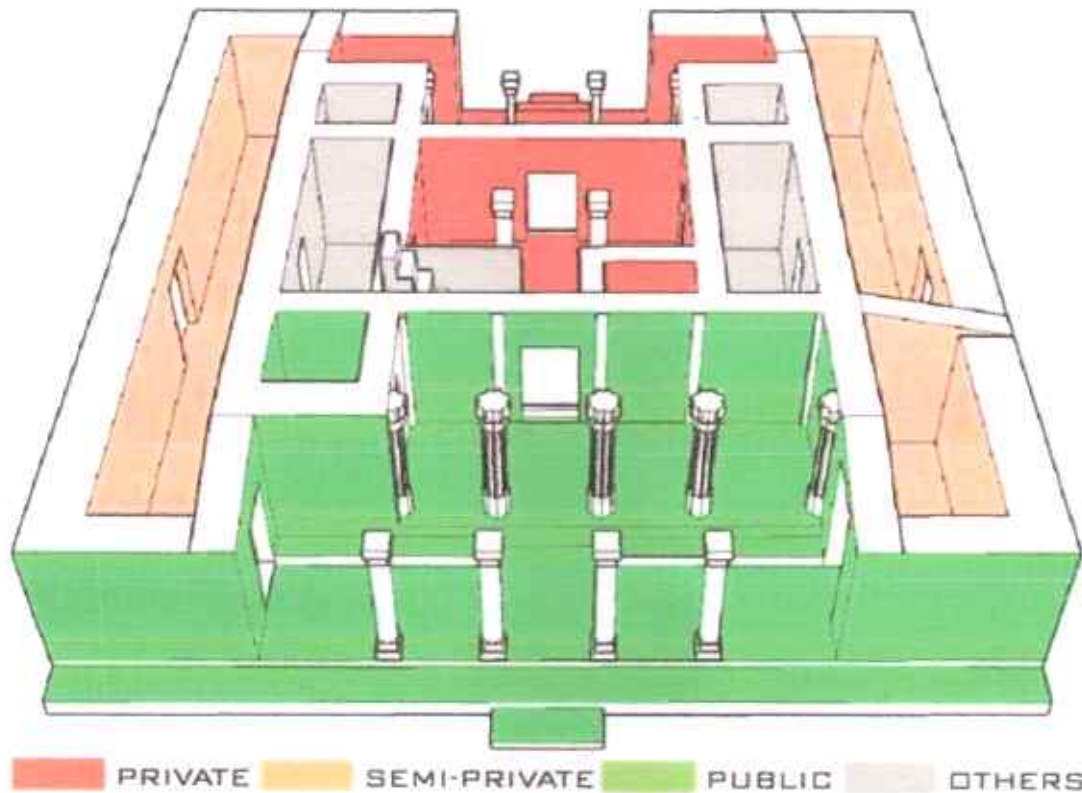
## Spaces In Wada



Basic Floor Plan of a Typical Wada, Google Images

## Development Of Wada Architecture

The Wadas of the Maratha and Peshwa period, on the other hand, represent the turbulence and traditions of the era. Some of them are magnificent and others are private, solitary structures on the banks of rivers. Wadas – which were the traditional residential form of Maratha architecture, evolved under the reign of Peshwas rules. Its style was a merger where features from Mughal, Rajasthan, and Gujarat architecture were combined with local construction techniques. This type of housing style deals with air and light resulting in great ventilation of both and it also fulfils security or privacy concerns due to the exterior of the structure. Wadas, as a form of residential architecture that emerged in the 18th and 19th century. The concept came into existence during the Peshwa, in 1730. the garhis (fortified palaces) had facades, ornamentation, and openings were minimum, whereas the facades of wadas had openings in every structural bay also highly ornamented opening. Topography and Climatological have also played an important role because in some regions people used flat roof and in some areas in sloping roof depending on the rainfall. Social factors of caste and occupation also contributed to the looks of the wada where the facades of the trading community were highly ornamented the facades of the Brahmin were plainer and simple.



Schematic Plan, Google Images

## Development Of Wada Architecture

1. Wadas are planned depending on the weather conditions of the areas.
2. The arrangement is generally linear.
3. They are two or three-storey houses which are rectangular in shape with a courtyard in the centre and rooms around them.
4. Wadas have two or three courtyards with different function rooms around them.
5. The first courtyard is considered as the public area for social events while the other courtyard is meant for rooms only for ladies.
6. The wadas also have a well that is placed within one of the courtyards.
7. The main staircase for the owners was from the courtyard while the staircase for servants were hidden between walls so they are not seen.
8. The wada with three courts were used in a different way:
  - 1st court was used for social gathering leading to rooms accessed by guests.
  - 2nd court was used for the office called the 'Kacheri' and was accessed by the officials only.
  - 3rd court was for private use especially by the ladies of the house the spaces were the kitchen, store room, and the balantini kholi (delivery room). It also contained the tulasi vrindavan plant for prayer purposes.

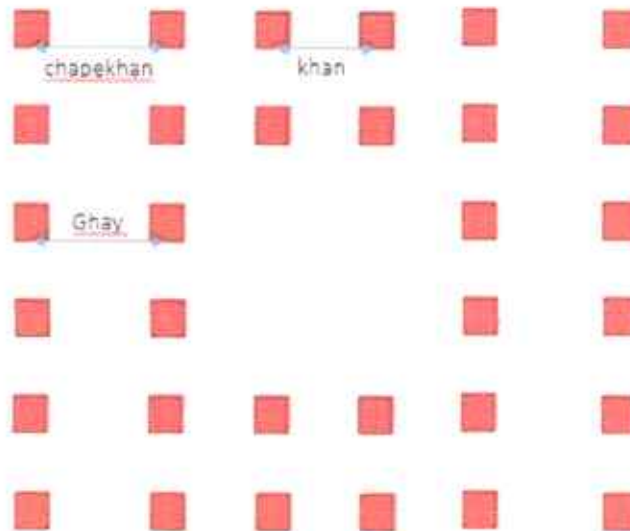


The spaces followed the structural grid. These structural system measurements depended on the type of timber available.

All the dimensions of these houses are the multiples of the unit bays called khann.

Ghay = 2 x width of khann

Chapekhan is always used at the corners of the structural system.



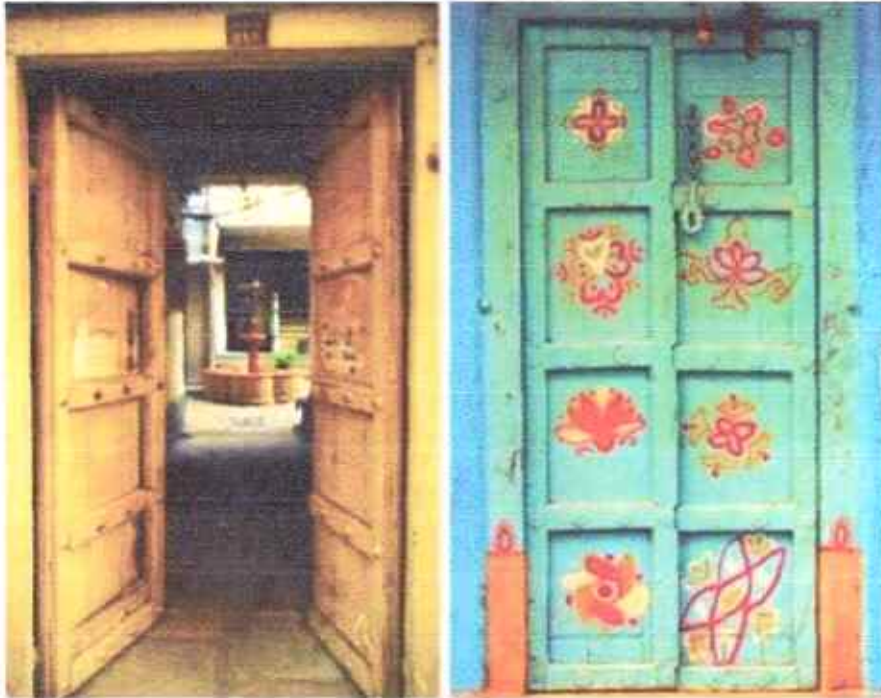
Schematic Column Plan of Wada

#### DOORS:

Different types of doors depict the wealth and the social status of the owner. The more decorated the door is the wealthier the family while the simple doors belonged to a middle-class family.



### Different Types Of Doors, Brackets And Windows



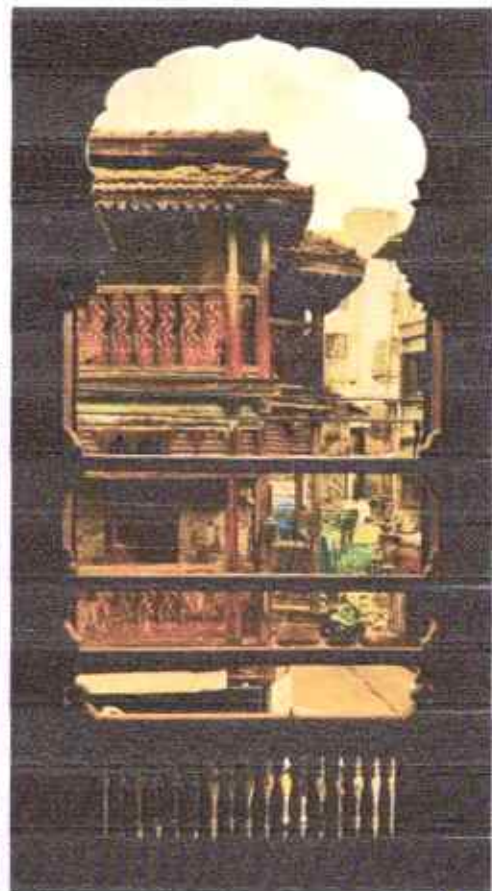
Doors of Wada, Pune © The Better India, Pune's Old Wadas Stand Tall Amid High-Rises as Reminders of a Bygone Era

#### WINDOWS:

The windows were of two kinds: half windows and full windows.

Half windows had four opening panels two above and two below depending on the weather and purpose the window panels were opened.

The full windows were designed with carvings and had two panels.



**Brackets:**

The brackets are the end details done on the beam. These details were either depending on the family and heritage or were influenced by the Asian designs of dragons and lotus.



**Wall Niches:**

It is an 18th-century feature. It was made to put candles/diyas inside them as they protect the light from the wind.

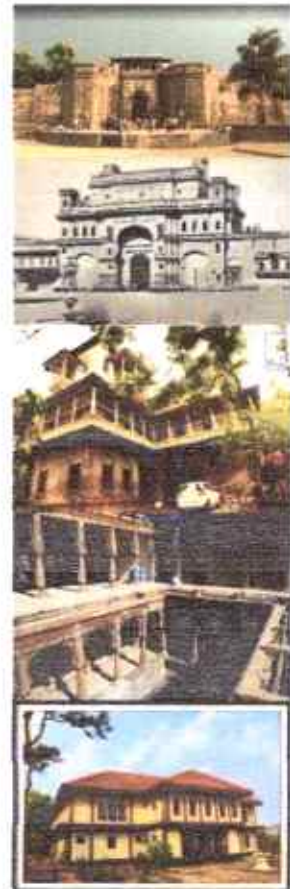



Wall Niches of a Wada

*[Signature]*  
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Wadas have journeyed a long way since the start, and though not many have survived these beautifully designed and decorated houses have become a significant part of Maratha Architecture. The unique planning based on a square grid pattern set the wadas apart from the other typologies available in India. Though in today's scenario, we notice a decrease and deterioration of Wadas on the maps of Maharashtra as they have been erected for years and today cannot sustain the changes occurring around them. Many of the preserved wadas are used as temples or museums but very few are inhabited by people. The wadas play an important role in shaping the architectural map of Maharashtra as the cravings and decoration were not just established but were inspired by Indo-Saracenic, Chinese and Rajasthani style of Architecture. Few notable Wadas include Shaniwar Wada, Dhepe Wada, Nana Wada, Vishrambaug Wada, Kesari Wada, Raste Wada, Bhor Rajwada, Purandare Wada in Pune, Sarkar Wada in Nashik, and Gaikwad Wada, Juna Wada in Kolhapur, as these wadas have survived the test of time and are used in movies to portray the perfect scene.

Top to Bottom: Shaniwar Wada, Pune Juna Wada, Gaikwad Wada, Sarkar Wada and Dhepe



  
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# I. GREEK ARCHITECTURE (650 – 30 B.C)

## Background

### Classical architecture

- Influenced by Egypt
- In term, influenced Roman
  
- Refinement, Details, Ornamentation
  - Use of Marble
  - Optical corrections
  - Chrome
  - Proportion

## **GEOGRAPHY**

- AEGEAN CULTURE -----3000 - 1100 B.C
- HELLENIC -----800 – 323 B.C ---- 650 – 30 B.C
- HELLENISTIC -----323 – 30B.C

### Aegean –Architectural Character

- Flat Roofs (2 storeys high)
- Light Wells
- Spacious stairways
- Entrance porch, Megaron, courtyards
- Rubble & Stone for walls
- Timber & S.D Bricks for Roof
- Tinted walls
- False & Heavy Arches
- Collins: cylindrical shaft Disc/circular Base
  
- CRETE island was powerful sea power
  
- Aegean culture spread to mainland Greece
- Mountainous
- \*Distribution of people
  - Communication three sea
  - Dialects
  - Classes & Groups Rivalry

## **GEOLOGY**

- Stone in abundance
- Timber relatively scarce
- Pentelic Marble Paros & Naxos Islands, Athens
- Monumental, precise lines, forms, Richs Details
- Marble cladding on Limestone Walls



## CLIMATE

- Moderate
- Clear sunshine----Facilitated form 'n' Detail
  - \*Justice, Drama, Ceremonies outdoors
- Porticoes E.g. Colonnades
  - \*Houses also

## HISTORY

- Polis Greek city state ---culture
- Independent (politically) city states bound by Language, customs, life styles
- Rivalry among city states
- 'DRAMA'-a medium to signify man – God relation
- Greeks became Colonizers in the Hellenic period - Syracuse, Selinas & Agigentum in SICILY are the important colonies

## RELIGION

- Worship of natural phenomena ---Stones, Trees
  - Idols were slowly given Divinity
  - \*Aegean culture
  - Temple was preceded by open areas, Cares
  - Transformation of a place of sacrifice to a sacro – sanct pavillion of worship
  - Priests & priestesses (controversial) lead normal life
- ZEUS (Supreme – Sky God)  
HERA (Wife of Sky God)  
APOLLO (God of Law, Reason, Art, Music E.g. Poetry)  
ATHENA (Goddess of Wisdom, Learning)  
POSEIDON (Sea God)  
DIONYOS (God of Wine, Feasting)  
DEMETER (Goddess of Earth, Agriculture)  
ARTENES (Goddess of Chase)  
HERMAS (God of Commerce)  
APHRODITE (Goddess of Love and Beauty)  
HEPHAESTUS (God of Fire and Beauty)  
ARES (God of War)

## Architectural Character

- Derived from Aegean Culture
- 'Temple'... Chief Building type
- Low pitched roof with pediments or gables over shorter sides
- Enclosures with 'Propylae' (Entrance porch/Portal)
- Underused Wooden roofs with L/C beams
- Short spans not exceeding 10m

- Until 600 B.C columns & Entablatures are worked in Timber and later in Stone and hence, Greek Architecture is termed as 'Carpentry in Marble'
- Coarse Rubble & Fine Ashlar stone walls are a common feature
- Sensitivity to form was displayed by the development of 'Optical corrections'

### CLASSICAL ORDERS

The orders of Greek architecture reflect the geological, geographical and linguistic differences. The Doric order evolved in the main land and Ionic order evolved in the eastern greek area of the aegean islands. Buildings after the 7<sup>th</sup> century B.C. were larger in form, interesting is decoration and durability became more and more important. Accordingly, the structures required heavier roofs, strong supports and massive walls. The Corinthian order with its own myth and logic of evolution was actually a decorative variant of the Ionic order.

#### DORIC ORDER (5<sup>th</sup> Century B.C)

- The Doric columns stand without a base on a crepis or crepidoma. The crepis has three steps of 29 inches height.
- The earliest Doric columns were relatively less slender with the height being 6 times the base diameter
- The shaft has 20 shallow flutes with sharp arris
- There are examples of shaft with 12,16,18,24 flutes.
- The shaft had a slight convex bulge at approximately 2/3 of the heights. This is called Entasis, to contract the concave appearance due to straight columns.
- The shaft terminates in the hypotrachelion of three grooves.
- The capital consists of abacus and echinus, with the amulet following the Echinus.
- Doric Entablature has three main division
  - (i) Architrave      (ii) Frieze      (iii) Cornice
- The architrave in Parthenon is of three stone slabs in depth- a facer, a backer and the middle slab.
- Above the architrave is a flat projected band called Tenia, which corresponds to the Triglyphs with regulae and six guttae each below the triglyph
- The frieze has alternating metopes and triglyphs
- The triglyph is provided over each column and one in the intercolumniation
- It is a Greek principle that the frieze should terminate with triplyphs at the corner, hence the Doric columns at the corner, have lesser spacing.
- Mutule comes above each triglyph and each metope is ornamented with 18 guttae (3 rows of 6 guttae each).

#### IONIC ORDER – [5<sup>th</sup> Century B.C]

- Ionic columns have the height 9 to 10 times the lower diameter of the shaft
- They have 24 flutes separated by flattened arises. Earlier example had 40, 44 and 48 flutes as a result of which the flutes were shallow and the arrises were sharp



- The capital has 2 pairs of volutes or spirals, which are  $\frac{2}{3}$  of the diameter. In height. One pair in the front and the second pair on the rear. They are joint by a concave cushion
- Above the volute there is a shallow abacus. The ionic capitals had angular volutes at the covers of a rectangular building which is similar to the problem of doric temple
- The ionic entablature evolved in the eastern Greek area and passed through various stages of development
- Erechtheon is an example of ionic temple, and the temple of Nike Athena, another finest example of the style.

### CORINTHIAN ORDER [5<sup>th</sup> Century B.C]

- Corinthian order is a decorative variant of the ionic order, with the difference lying in the column capital
  - Initially used for internal colonnades
  - During hellenistic period it was used as a full fledged external colonnade
  - The capital is deeper than the ionic
  - The height of the capital is  $1 \frac{1}{3}$  of the base diameter
  - A perfect Corinthian capital has a deep inverted tell, the lower part is surrounded by tow tires of 8 acanthus leaves.
  - Each face of the moulded abacus is curved towards the corners to end in a point or is chamfered

Callimachus, the famous Athenian Bronze age sculptor got the idea by seeing a basket on the grave of a Corinthian maiden's spouse. The basket was covered with a tile to protect the offerings. The whole basket with tile was placed on the roof of an Acanthus plant gradually, the stems and foliage grow around the basket and when obstructed by the tile, they spiraled downwards, thus looking like a volute.

### SANCTUARIES AND TEMPLES

- Greek sanctuaries and temples were built in towns and villages and even along the countryside. The choice of site was governed by the presence of earlier walls or walled citadels as sites which have natural distinctions like springs, cella, Naos, Doric or Ionic columns, monumental altars, treasury room are the regular parts of a sanctuary.
- Use of columns has facilitated wider rooms than 10m
- Pronaos i.e., the front porch that precedes the temple main where the idol stood. It may be a prostyle or antis but the function was to serve as an entrance portico.
- Generally side walls extended from the temple main between which rows of columns stand
- All the temples in a sanctuary were of varied importance built at the same time or built at different times and are of equal importance.
- The altars were monumental and rectangular in shape with a Metope and Triglyph series
- Alters existed in citadels and sanctuaries with or without a temple





- There was also a joining of holy and less holy places.
- The public involvement was seen much in less holy areas like a theatre, a stadium and a gymnasium.
- Another space, which is within the temple proper, was a large room with couches placed along the walls and the people used the space for consuming their part of sacrificial meat. This was not a part of the altar. This was the exceptional room of public involvement though it is in the premises of the temple complex.
- All the temples did not have this space in particular. In Acropolis, this room is within "The Propylae"
- Another regular feature is a healing ritual, which was discerned by patients. The patients walk in the sanctuary during the night who were hopeful of a miraculous visit of god in the dark. The ritual was observed during festivals

### Acropolis, Athens

- This sanctuary was one of the supreme examples of Greek Architecture
- It was built on a citadel of Bronze age
- The site of Acropolis had the remains of the old temple of Athena. The temple of Nike Athena
- The structures built within this sanctuary are Parthenon, Erechtheon and the Propylae
- The temple of Athena was rebuilt several times
- The Persians finally burnt this temple in 480 BC.
- Only in the 5<sup>th</sup> century, buildings started to be added to acropolis
- The Persians accepted peace in 449 BC and only then the work on site was renewed
- The old propylon was replaced by the propylae
- Mnesicles was the architect of this building
- The central hall was 'H' shaped in plan and it is flanked by two wings on the East and West sides.
- The inner hall is at a higher level and the cross wall has 5 doors. This is preceded by a flight of 7 steps.
- Except to the central door, there is a ramped access for processions and animal sacrificial
- Both facades are Dodecahexastyle and prostyle
- Inner and outer halls had different roof levels but the roof of the outer hall was supported by two rows of three ionic columns
- The ceiling was of marble with a contrasting decorative elements on the entablature in limestone
- The outer façade has two wings along N-S runs out from the side of the main halls.
- Behind the North wing is a rectangular room with an off center door. This had couches placed along the walls and was used as a formal dining hall. The walls were decorated with panel paintings and thus it was known as pinacotheca [picture gallery]



- The remarkable feature of propylene is the way in which it was gathered from different masses with different roof lines into a very coherent configuration and composition. This was started in 436 B.C and left incomplete due to the outbreak of war in 431 B.C

### Parthenon

- One of the most important and well preserved buildings on the acropolis is Parthenon
- It started in 447 B.C and completed in 436 B.C. The existing south foundation was put to reuse and the temple was made wider by extending it towards the center of Acropolis
- The façade has 8 columns, and the flanks had 17 columns as per the approved 5<sup>th</sup> century ratio
- Ictinus and Callicrates were the master architects. Phidias was the master sculptor and was also a general supervisor of all the work on acropolis
- The temple stands on the conventional 3 steps (Crepis or Crepidoma). The dimension at the top most steps is 30.9m by 69.5m. The steps were two high to ascend and so intermediate steps were provided at the center of both the shorter sides
- The cella consisted of 2 rooms with hexastyle-prostyle porches
- The Eastern room (Naos) was 29.8 M x 19.2 M. This room had two tiers of Doric columns which was a structural necessity towards the end of the room between the colonnades was placed the gold and ivory statue of Athena Parthenos sculpted by Phidias
- The goddess of Athena is fully armed with spear, helmet and a shield with a snake and also a statue of victory in her extended right arm
- Light into the temple was admitted through the doorways and also through the high windows on either side of the doorway. This fact was not known until it was revealed through excavation
- The West room was a sq. chamber. This was used for depositing valuable offering and the roof was supported by 4 ionic columns, the space between the antis and the porch column was closed by metal grills
- The 17 Doric columns on the flanks and 8 Doric columns on the façade are of 1.9m diameter and 10.4 m high. The height is noticed to be 5 1/2 times the base diameter.
- The Parthenon is the best example also because of the implementation of optical corrections
- The stylobate has an upward curvature towards the center by 60mm on the East and West ends, and by 110mm on the North and South ends.
- The joints of the marble roof tiles above the cornice were worked curved antefixal. The ceilings were self-supported with marble coffers, which on the whole were supported on marble beams.
- The sculptural decoration of the Eastern pediment represents the birth of Athena while the western pediment represents the contest of Athena and Poseidon. The metopes were 92 in number with deep relief work depicting

- (i) Gods and Giants on the East façade
  - (ii) Greeks and Amazons on the West facade
  - (iii) The battle of Trojan war on the North facade
  - (iv) Centaurs on the South facade
- All these symbolize the struggle of Greeks against the Persians

### Erechtheion

- This temple was dedicated to the shrine of Erechtheus, one of the legendary kings of Athens
- The architect of this building is not known but the work might have been an inspiration of Mnesicles
- The building was unusual and irregular in plan but it partly resembles the way propylae has gathered from several elements into a single structure
- The construction began in 421 BC and completed in 406BC.
- This was actually the replacement for an old temple but was to be placed on the old foundation. The three possible reasons for this are
  - (i) it was not considered proper to build a dedicated temple on a site that was destroyed by the Persians
  - (ii) moving the temple to the North gave a better balance with Parthenon on the South
  - (iii) It was decided to incorporate a new structure with monuments and other sacred spaces like the shrine
- The site is not flat due to existing sacred places it was not possible to level it
- The cella is built on two levels with the Eastern part higher than Western part
- The western part contains an anteroom and two inner rooms placed side by side
- The eastern porch is hexastyle prostyle with 6.586m (21ft 7inches) high columns. The west columns were smaller in size
- The entablature has a continuous frieze in dark limestone with attached marble pillars
- Only the porch at the South west is allowed to rest on the old foundation. This consisted of total of 6 statues of young girls as the maidens, Four maidens in the front and one each behind the corner maiden. The entablature rests on the maiden's head
- It is ionic and has dental frieze. The west porch has two doors out of which one is the main central door and the other is the smaller door
- The superlative efforts of ornamentation and workmanship dominate the design irregularities which were done deliberately by inspiration and admiration of the propylae

### GREEK CITIES

- Classical Greek cities were either the result of continuous growth from the prehistoric time or created at a single moment as a result of colonial settlements

- Tombs always had fixed boundaries by fortification but even otherwise there was a clear demarcation between the interior and exterior. This was possible by the existence of small temples or graves of less privileged individuals along the roads
- Much of the available area was devoted to public rather than private uses. This is very much evident from the existence of Agora- an important gathering place. This was easily accessible from all directions of the city and communication was equally convenient, only in the case of coastal cities the Agora was placed by the side of the harbor.

There were Stadia and Open-air theatres for cultural, political and administrative gatherings. Athletic contests were also held there. The Agora of Athens was situated on low-lying damp ground to the north of the Acropolis, which had been incorporated in the city in the early archaic period. An essential stage in its development as the civic center was the provision of effective drainage by the tyrant Peisistratos in the second half of the sixth century BC. The drain, built in superb polygonal masonry, runs near the western boundary of the agora. Civic and religious buildings were erected progressively around its perimeter. Most of those of the sixth century BC were architecturally nondescript. And were destroyed by the Persians in 479BC.

### Urban Architecture

Urban architecture during the Hellenistic age became more substantial. It was dominated by the grid plan cities created for Alexander and his successors. There were also grid-plan cities, which were refoundations, either following earlier destruction or by a process (also seen in the Classical period) of merging together formerly scattered populations into new urban centers. These provide the most complete information, following the loss of Hellenistic Antioch and Alexandria. The best known are the cities of Asia Minor, extensively excavated from the late nineteenth century: Priene, Miletus, Magnesia and Pergamum.

Priene is the most completely explored of all Greek cities. It is disputed whether its re-foundation was the work of Mausolus in the 330s, but its buildings belong essentially to the Hellenistic age. Not all the available area within the city walls was developed. The site is a sloping shelf below steeper mountain cliffs, on the top of which was a military stronghold. The town was limited to this shelf, and there was no building on the steeper slopes immediately below the cliff. At the center of the grid, about one-fifteenth of the built-up area of the city. Some terracing was necessary on the south side to provide a sufficiently extensive flat area. The main street ran from the western gate of the city to the agora, and across its north side. (It is characteristic of the Greek agora, like the traditional Roman forum, that streets run through it. This can be seen at Athens, also.) The agora was completely bordered by stoas: one to the north of the road was an independent structure, while the one on the east, south and west side was continuous, with the two outer north-south streets directed past the back of the stoas. They were built probably in the third century BC. As is usual with Hellenistic stoas, even in the Ionic area, they are built in the Doric order, with the wide spacing of the columns requiring three Triglyphs and Metopes to each intercolumniation. The north stoa probably had rooms behind it, as did the other on the west and south. The north stoa was destroyed, and replaced in the second

century by a larger stoa, again Doric, with two aisles. This is extended along the width of the adjacent building block to the east, but has rooms only along the original length of the first two blocks. It measures 116.5m x 16.8m (382ft x 55ft) including the rooms. The portico only is 11.8m (38ft 9 in) deep. The outer colonnade is Doric, in the usual spacing, the taller inner columns Ionic. All these stoas are built of carefully worked limestone, though the detail tends to be mechanical and repetitive, and the floors are beaten earth. The south agora at Miletus is a much larger example, with a long stoa on the east side 189.2m x 22.7m (621ft x 74ft 6in) with two sets of rooms, one accessible from the agora, the other from the street which passed outside to the east. There are two other L-shaped stoas on the north and south, with a gap between them (and between them and the east stoa). Here, as at Priene, the main road leads through the agora, but in late Hellenistic times it was shut off at both ends by gateways built between the east and the adjacent stoas

Major improvements to the irregularly shaped traditional agora at Athens (q.v.) in the second century BC. With the support of the kings of Pergamum, were undoubtedly intended to convert it to a more regular form. Three stoas were built to achieve this: the stoa of Attalus on the east side is a two-story building, 116m x 19.4m (381ft x 63ft 8 in). With a Doric colonnade on the ground floor. And an Ionic upper colonnade of the upper floor has columns of palm-leaf design developed in Pergamum. There is a row of rooms behind the colonnades on both floors. The details are unsatisfactory in comparison with the forms of Classical Athenian architecture. More important is the way the stoas are used to close off the agora to a regular plan. This is particularly noticeable in those, which replace the original south stoa that is to say the new south stoa, 93.6m x 8.5m (307ft x 28ft), running at right angles to the stoa of Attalus and the middle stoa, 146.6m x 19.9m (484ft x 65ft 6in), which has colonnades to either side of a central longitudinal wall.

Stoas were employed at Pergamum and towns under Pergamene control not only to delimit open areas and courtyards, but to help create them. The same principle can be seen earlier in the south stoa of the agora at Priene, which is built over and along the terrace wall, which helps create the flat area for the agora itself. Behind the north stoa at Priene is an assembly building substantially constructed with limestone walls and with stone seats arranged in straight lines round three sides, to hold perhaps 640 people. It is for the restricted popular assembly of a small town rather than a council chamber but the form is similar to the Classical council houses at Athens and at Miletus: the latter, like the Priene building, is second century BC in date. There is no architectural embellishment at Priene except for the entrance doors and an arched opening in the south wall. It is structurally interesting; the original span of 14.5m (47ft 6in) proved too great and the roof collapsed. Subsequently the supports were moved in by two meters. The Council House at Miletus was another gift of the Seleucid King, Antiochus IV. Made in about 170BC. It has seats arranged in a circular plan within a rectangular building like the new council house at Athens. The exterior was embellished with engaged Doric half-columns on the upper part of the wall with echini carved in the Ionic manner in an ovolo pattern supporting an Ionic entablature. This variation from Classical rules and the use of a



decorative pseudo-peripteral order are distinctive aspects of later Hellenistic architectural taste

During the Hellenistic period there were substantial improvements in buildings used for dramatic and athletic activities. Greek theatres, which were unroofed. Consisted of three parts the auditorium (cavea or koilon) the orchestra or dancing floor and the stage building or skene. The cavea provided seating for a mass audience in most theatres numbered in thousands. The orchestra was the area where the chorus of each plays danced and sang. This was an integral part of the drama in the fifth century BC. The actors were confined to an area behind the orchestra possibly not yet raised in the form of a stage but with some form of temporary structure behind (the stage building) which acted as a backcloth and must have include the door openings which are seen to be necessary for the proper staging of the action in most plays that have survived. The stage building was separated from the cavea by a passage to either side the parodos.

### The theatre at Epidaurus

- This was started in 4<sup>th</sup> century BC but was given stone sitting only in 3<sup>rd</sup> BC.
- The three important parts of Greek theatre
  - (i) The auditorium also known as cavea which had the setting for the audience
  - (ii) Skene (stage building) for performance or addressing the gathering
  - (iii) A columned building behind the stage, which had the support rooms. This building also acted as a backdrop for the stage
- The auditorium is divided into several segments of a circle due to the rows of steps to access the sitting at various levels. The cavea is broadly positioned in two tiers. The lower one had 34 rows of seats while the upper one had 21 rows of seats, the separation of two tiers was possible by a continuous uni – leveled passage known as Diazoma
- The stage as skene was circular with a lower circular periphery for the orchestra and chorus. The later examples had semi - Circular stages

### STOAS

- Stoa was another regular feature of a Greek Sanctuary
- It is a columned building continuous in its length
- This had inner rooms to be used at the time of a cultural festival celebrated in a sanitary as in a Agora
- The stoas had ionic and doric columns if there were two colonnades
- In general the ornamented columns were standing as a series in front of a blank, undecorated as less decorated ornamented continuous wall.
- This sometimes was supplemented by paintings as to serve as visual transition or as an attempt to relief the blank wall of its monitory.



- Stoas were of two types wrt the number of storeys. In general stoas were of single storey with internal and external colonnade. The external Doric columns and the internal ionic columns (two diff. Height members) were of same height when the stoas had to be accommodated with a second storey above
- Stoas were generally of flat roof structures

### Building Techniques

- The column shafts were prepared from a monolithic stone but for the ease of transportation, intricate ornamentation and flexibility of accuracy on site, the shafts were assembled from individual drums of stone
- The stone drums were dowelled at the two contact surfaces (top and bottom) and then the columns were worked upon for the sharp degree of ornamentation
- The edges / facia of the stone drums were given a rough finish at the quarry so that the damage to the surface is very minimum or nil
- Blocks of stones were interact within the wall structure by virtue of their enormous self weight to counteract or resist the tremors of an earthquake
- The blocks were damped at the joints of the wall course. The clamps were set in lead solution for easily immobility and stability, but still an earthquake cannot be resisted if it is of higher magnitude.
- Pentelic marble, the most lustrous white marble type was used for cladding on the prepared stone wall or rarely as a material itself
- The super –natural shine was responsible for a visual glare during the day. In some ease the pentelic marble surface was given a mild tint of grey, firstly to avoid the usual glare, and secondly to highlight the entablature which had metopes, friezes and triglyphs
- The edge on the face of marble wall was normally engraved to show the hairline distinction between the blocks. The massive walls optically were giving the impression of a single stone slab acting as the wall
- On the Doric entablature the metopes and the friezes were painted alternately in dark grey so as to highlight the intricately proportioned ornamentation. Apparently the frieze lost its colour with time but in the process pentelic marble also lost its shine to a very minimum extent
- Roofs were stone coffered in the pronaos and timber frames rest on the stone ceiling



## II. ROMAN ARCHITECTURE [300 B.C – 365 A.D]

### ANCIENT ROME

#### Introduction

- The study of Ancient Rome covers the period between the 8th and 1st centuries BC.
- Rome grew from a tiny settlement to an emerging empire while developing from monarchy to a republican form of government.

Nearly 3,000 years ago shepherds first built huts on the hills beside the Tiber River in central Italy. These encampments gradually grew and merged to form the city of Rome. Rome's history is unique in comparison to other large urban centers like London, England, or Paris, France, because it encompasses more than the story of a single city. In ancient times Rome extended its political control over all of Italy and eventually created an empire that stretched from England to North Africa and from the Atlantic Ocean to Arabia.

The political history of Rome is marked by three periods.

- In the first period from 753–509 BC, the city developed from a village to a city ruled by kings.
- Then, the Romans expelled the kings and established the Roman Republic during the period from 509–27 BC.
- Following the collapse of the republic, Rome fell under the domination of emperors and flourished for another five centuries as the Roman Empire from 27 BC–AD 476.

Yet these same Romans created a civilization that has shaped subsequent world history for 2,000 years. The remains of vast building projects, including roads and bridges, enormous baths and aqueducts, temples and theaters, as well as entire towns in the North African desert, still mark Rome's former dominion. Cities throughout Western Europe stand on Roman foundations.

The Romans had enormous cultural influence.

- Their language, Latin, gave rise to languages spoken by a billion people in the world today.
- Roman alphabet is still used by many other languages—including Polish, Turkish, and Vietnamese.





- The Romans developed a legal system that remains the basis of continental European law, and they brought to portraiture a lifelike style that forms the basis of the realistic tradition in Western art.
- The founders of the American government looked to the Roman Republic as a model. Modern political institutions also reflect Roman origins: senators, legislatures, judges, and juries are all adapted from the Roman system.
- In addition, despite recent modernization, the Roman Catholic Church still uses symbols and ritual derived largely from the ancient Romans.
- The Romans extended citizenship far beyond the people of Italy to Greeks and Gauls, Spaniards and Syrians, Jews and Arabs, North Africans and Egyptians.
- The Roman Empire also became the channel through which the cultures and religions of many peoples were combined and transmitted via medieval and Renaissance Europe to the modern world.

### Early History

The land and environment of Italy provided the Romans with a secure home from which to expand. Italy is a peninsula surrounded on three sides by the sea and protected to the north by the Alps mountain range. The climate is generally temperate, although summers are hot in the south. Rome was part of a region near the Tiber River in central Italy.

- To the north, the Etruscans had established a vigorous civilization in the region called Etruria. These people probably originated in Asia Minor and spoke an entirely different language than neighboring Indo-European peoples.
- In southern Italy and on the large island of Sicily, colonists fleeing from famine and political conflict in Greece founded new cities between 800 and 500 BC. The city of Naples derives its name from the Greek words *Nea Polis* (New City).
- Volcanoes like Mount Etna and Mount Vesuvius dot the western coast of Italy and its offshore islands, leaving sections of Latium, Campania near Naples, and Sicily fertile from the residue of volcanic ash. The mountains were once rich in timber and had meadows where sheep and goats grazed in the warmest months before they were driven to the plains for the winter. There was salt along the Tiber River and large deposits of iron were located in Etruria. North-south land routes allowed for overland trade, and so commerce as well as agriculture, pasturage, and metalwork drove the economy.



## Legends of Early Rome

An island in the Tiber River afforded the easiest crossing point between the north and the south, and archaeology shows that some Latins established a settlement on the nearby Palatine Hill; perhaps they hoped to rob, or collect tolls, from traders crossing the river on their way from Etruria to southern Italy.

## Legendary Period of Kings (753-509 BC)

- The Romans believed that Romulus and Remus founded Rome in 753 BC, and that Romulus erected a wall around the site of the new city.
- The second king of Rome, Numa Pompilius, was regarded as especially just and devoted to religion. Many of Rome's religious traditions were later attributed to Numa. He also established a calendar to differentiate between normal working days and those festival days sacred to the gods on which no state business was allowed. His peaceful reign lasted from 715 to 673 BC.
- Under Tullus Hostilius (672–641 BC) the Romans waged an aggressive foreign policy and began to expand their lands by the conquest of nearby cities, like Alba Longa.
- When he contracted the plague, the people thought it was a punishment for the neglect of the gods so they named Ancus Marcius, a highly religious grandson of Numa, as the fourth king (640–617 BC). Marcius founded the port of Ostia at the mouth of the Tiber.
- A wealthy man from the Etruscan city of Tarquinii, Lucius Tarquinius Priscus, came to live in Rome and became such a favorite of King Ancus that he managed to succeed him even though he was considered a foreigner. Tarquinius, who ruled between 616 and 579 BC, was said to have drained the marshes between the hills and paved an area for the market place that became known as the Roman Forum.
- His successor, Servius Tullius (578–535 BC), organized the Roman army into groups of 100 men called centuries and was said to have built a new wall around the city.
- The cruel seventh king, Lucius Tarquinius Superbus or Tarquin the Proud (534–510 BC), was expelled in 510 after his son cruelly raped Lucretia, a virtuous Roman matron and the wife of his kinsman Collatinus.

## Architectural Character

- Greeks adopted trabeated style [Columns, beams and occasional arches], the romans adopted arcuated style [arches, vaults, domes] in addition to the trabeated style, Romans used piers as support for their entablature as a structural necessity



- Columns could also have been used for support but they were generally used in public and private buildings
- The Romans built structures that are mostly of utilization value apart from structures that are relevant and necessary in public social life. The buildings types are :-
  - (I) Thermae (Public baths)
  - (ii) Basilicas [hall of justice]
  - (iii) For a [counterpart of Greek Agoras]
  - (iv) Circuses
  - (v) Amphitheatres
  - (vi) Aqueducts
  - (viii) Triumphal Arches
  - (viii) Temples
- The Romans added Composite order while the Etruscans added Tuscan order. The Roman orders were both decorative and constructive while the 3 Greek orders were dominantly constructive.
- Tuscan is a crude version of Doric order with base and flutings. The height is 7 times the diameter of the base.
- Composite order is a thorough amalgamation of Ionic and Corinthian orders. They were slender. The height is 10 times the diameter of the base.
- Romans used concrete constituting stone fragments and broken bricks laid on lime and sand mortar; where sand was not available, pozzolona was used.
- For walls stones and concrete were used together. Walls were of four types wrt the type and size of material used.
  - i) OPUS TESTACEUM-brick facing on stone and concrete wall.
  - ii) OPUS QUADRATUM- Rectangular stone blocks of 4'x2'x2'
  - iii) OPUS INCERTUM- Concrete core with polygonal stone facing.
  - iv) OPUS RETICULATUM-Concrete core with sq. stone facing.
- Roman roofs were of concrete when large spaces had to be spanned with the help of large supporting arches. In case of other buildings, the method of triangulation was adopted with wooden trusses.
- Roman vaults were of concrete or stone with brick ribs. Generally, concrete was used because skill required was less; the cohesion of components was more and easier. The three types of vaults are
  - i) Simple                      (ii) formal / barred      iii) eras vault.
  - Vaults facilitated ventilation into the interiors as well as spanning archer
  - Roman domes and semi domes were semi-circular from inside and sq shaped from the outside because of protective casing done over it.



- Roman rarely used marbles and it was only white marble used walls either on the exterior or interior
- The method techniques and style adapted by the Roman were modification with time and inspiration form the Etruscan

### **Basilica Of Trajan – Rome**

- It is one of the finer example of Roman halls of justice
- The building is rectangular with 2 semi-circular terminations called Apses, on the two shorter sides
- The entry into the Basilica was from the longer side usually due to the repetition of tribunal on both the shorter sides
- There is a columned porch in addition to the two functional entries- The nave and the Aisles were 300' in length and 182' in width
- The length was usually double the width of Basilica proper excluding the tribunals
- Two or four columned were on either side of nave corresponding to one or two Aisles on either side of the nave
- The alter is a raised platform on either side of which is the access to ascend the tribunal platform
- Roman proctor (judge) occupied the seat in the center and is flanked by Assessors on either side
- There was no atrium or fountain but there were library cells with Trajan's column between the two cells
- Light was admitted through the difference in height of the roof above the nave and the roof above the aisles
- The roofing was of triangular timber truss from the inside and a solid wooden roof from the outside
- Galleries were positioned above both the aisles to cater to the larger audience

### **Pantheon – Rome**

- It is a roman temple dedicated to all gods and so is the name given to this temple
- This is one of the finest temples and can be considered as the counterpart of Greek Parthenon
- This is a combination of a circular [rotunda] temple proper and a rectangular deep porch
- This was built in 125AD on the site of a temple built by Agrippa in 25 BC
- The entrance porch is octastyle-prostyle and is 3 bays deep. It is 110' in length and 85' 7" in depth until the inner periphery of the circular hall
- The columns were of 46' 5" height, 4' 11 1/2 " diameter at the base and 4' 3 1/2 diameter at the top
- The shaft is unfluted an is mounted with a corinthian capital



- The entablature is roughly 11' in height and the capital alone is 5' 31/2" in height
- The wall is not a solid concrete wall but is interrupted with 8 recesses out of which 1 is used for entry from the porch
- The remaining are three semi-circular recesses and 4 rectangular recesses
- A recess has 2 columns spaced centrally behind which there were statues of gods
- Next to every recess there are very small niches oblique recesses which also have 2 columns in front of the 2 edges
- The semicircular recess opposite the rectangular entry recess also has two columns spaced in front of the two edges. This was to facilitate the main entry and an important statue
- The circular rotunda is of 156'6" in diameter
- The column in the recesses supports a second tier within the semi circular or the rectangular recess. This makes the small gallery space hidden
- The concrete walls are faced with marble in the interior and brick in the exterior
- The lower part of the wall has travertine and tuta stone. The upper part was of tuta stone and brick. The concrete dome has tuta and brick in the lower part, tuta and pumice in the upper part and a relatively lighter material on the top of the dome
- The eye of the dome is unglazed and is ornamented with 2'6" high bronze moulding
- The flooring in the interior as well as the exterior was of granite and marble
- The entire structure can be understood, felt and seen in 3 distinct tiers from the inside (i) the dome (ii) The gallery tier (iii) recessed tier. While from the outside the distinction is not felt in terms of height.
- In plan, the two dominant forms are the rectangular octastyle porch and the circular (rotunda) temple proper. The saucer shaped protective sassing on the exterior of the dome is 4' thick. The interior of the dome has coffers to reduce the weight

### TRIUMPHAL ARCHES

- These were built to commemorate victory of Roman kings in war.
- In general, these structures were monumental in purpose but relatively small in size

#### Arch Of Titus – Rome

- This is built in commemoration of victory over Jerusalem
- The structure is 43'9" wide 47'4" high
- This structure is flanked by 4 columns of composite order and the central columns have the archway in between



- The keystone projects out of the arch and is intricately ornamented
- The spandrels on either side of the keystone are also decorated with relief works
- The soffit of the arch has coffers from the springer line to the keystone below which scenes of war were depicted. The thickness of soffit is 15'6",
- The attic storey accommodates a plate of inscription which is common for any triumphal arch

### AQUADUCTS

- These are used to carry water over large distance against the land structure or topography
- Water was transported with the principle of gravity and hence when there is a valley or similar topographic hurdles, aqueducts were constructed to carry water along
- Lead and terracotta pipes were used generally. Rome alone required 350,000 gallons of water per day for its citizens, public fountains, thermae etc
- Pout Du Gard is the most famous aqueduct built in France by the Romans. It is 882 ft long & 155 ft high with 3 tiers of arches
- The arches were laid in dry masonry and stone blocks were secured with help of bronze clamps
- The arches directly above water in 1<sup>st</sup> and 2<sup>nd</sup> tiers are 80' wide while the arches in topmost tier are 14'
- They are laid in line mortar & 35 in number

### FORUMS

The forum, corresponding to the agora in a Greek city, was a central open space used as a meeting-place, market, or rendezvous for political demonstrations, like the French 'place' the Italian 'piazza' and the English market-place. For small towns a single forum might suffice, but in the larger several were needed, though there was always one principal importance. In towns, which had grown from small beginnings, forums underwent piecemeal changes and were often somewhat irregular in shape, but when towns were newly founded or for some reason partially rebuilt, the forums were laid out systematically, on formal lines. All were designed to meet the requirements of Roman citizens, and with the surrounding buildings they reflect not only the religion, law, and commerce, but also the busy corporate life of the city, which was much the same whatever the form of government, whether of elected kings, Republic, or Empire (p.169)

#### The Forum Romanum

The Forum Romanum, Rome, the oldest and most important in the city, was sited in the valley between Rome's famous hills. It is not strictly rectangular; it was originally an all – purpose form, but as the city grew its shops were removed elsewhere and the contests and displays, which once had taken place there were relegated to the theatre,



amphitheatre and circus. Only the chief public buildings then were grouped around it, and its appearance in the heyday of ancient Rome, adorned with pillars of victory and statues and surrounded by porticoes, colonnades, temples, basilicas, and state buildings, must indeed have been imposing (pp.171A, 182), as viewed from the arcaded Tabularium (78 B.C), where the public archives were preserved. Rome, with its great Empire, required more civic space than the forum Romanum allowed, and successive Emperors laid out imposing new symmetrical forums, which were at the same time monuments to themselves. Julius Caesar added the first; then the Emperors Augustus, Vespasian, Nerva and Trajan in turn.

Amphitheatres, unknown to the Greeks, are characteristically Roman buildings found in every important settlement and are good exponents of the character and life of the Romans, who preferred displays of mortal combats, considered to be a good training for a nation of warriors, to the tame mimicry of the stage. Gladiatorial combats had their origin in funeral religious rites connected with human sacrifices to the manes of the dead. The elliptical amphitheatre, with its rising tiers of seats, may be regarded as a compound of two theatres, stage to stage, thus making a continuous auditorium round a central arena. In addition to their normal purposes, they were also used for naval exhibitions, and water – pipes for flooding some of the arenas still exist. Spanish bull-rings of today give some idea of the arrangement and uses of Roman amphitheatres. The arena, a Latin word meaning sand or beach, was so called because of the sand with which it was strewn to absorb the blood of the combatants.

### The Colosseum, Rome

The Colosseum, Rome, also known as the Flavian Amphitheatre, was commenced by Vespasian (A.D 70) and completed by Domitian (A.D.82). It is situated in the level valley between the Esquiline and Caelian Hills, and in plan it is a vast ellipse, 620 ft by 513 ft, with eighty external arcaded openings on each storey, those on the ground floor forming entrances from which the various tiers of seats were reached (P.212). The arena proper in an oval 287 ft by 180ft surrounded by a wall 15 ft high, behind which was the podium, with the Imperial throne and seats for the Pontifex Maximus, Vestal Virgins, Senators, Praetors and other officers of stat, Behind the podium rose the auditorium seats for some 50,000 spectators, with corridors and stairs beneath, while dens for the wild beasts were under the lowest tier, on a level with the arena (PP.166B, 211B). The seats, which have been removed, were in four main divisions, the two lower or grand tiers for those of equestrian rank and for Roman citizens, separated from the third tier by a high encircling wall, above which was the top range and colonnade, all of which were reached by stairs from the surrounding corridors placed at intervals between radiating walls (P.166B). The construction is notable for the skilful combination of materials, according to the purpose to which they were applied. The component parts of the concrete vary thus : i) lava was used for solid foundations, (ii) tufa and brick for the supporting walls, (iii) pumice stone for the vaults to reduce their weight. Travertine blocks, set without mortar and held together with metal cramps, were used in the façade, while marble was employed for the columns, seats, and ornament. The supporting mass has been calculated to occupy as much as one-sixth of the whole area of the building, and consists of wedge-

shaped piers, radiating inwards and supporting concrete vaults sloping downwards towards the center, all producing a structure of great inherent strength and consequently difficult to destroy – a fact well expressed by the line:

When falls the Colosseum, Rome shall fall.

The external façade, 157 ft 6 ins high, is divided into four storeys, the lower of which are pierced with arches, and have attached three-quarter-columns of quasi-Doric, Ionic, and Corinthian Orders, while the top storey has Corinthian pilasters, with corbels between to support the masts of the velarium which was drawn across the auditorium.

Some of the special architectural features of this wonderful building are: (i) the massive piers which support the three tiers of apparently countless arcades which encircle the exterior and form covered ambulatory; (ii) the decorative use of the classic orders of architecture, which are superimposed and are thus in strong contrast to the Greek use of single Orders; (iii) the grand sweeping lines of the unbroken entablatures round the building (P.211A). The proportions of the attached columns, which all have the same diameter, are unusual, for the Doric columns are about  $9\frac{1}{3}$  diameters high, and the Ionic and Corinthian about  $8\frac{3}{4}$  diameters.

The colosseum is of a type unique among ancient buildings. The structural problems involved were engineering in character, and all the more so because the Romans built up the whole gigantic edifice without the extraneous support which earth. Here, then, is an entirely new departure made possible by the invention and use of concrete, employed not only in corridors and cells, even in chambers under the arena itself, but also in multitudes of raking vaults, which formed the almost indestructible foundations of each of the four tiers of seats reared one above the other in a great ellipse, to the crowning colonnade. Greek architecture had been simple in appearance and self-evident in design, with columns standing on a crepidoma below and supporting an entablature above. Roman architecture, especially as carried out first in the theatre of Marcellus and afterwards in numerous amphitheatres, became complex in appearance and hidden in design; for not only were columns placed in front of piers, but there were columns above columns, entablatures above entablatures, and arches above arches, while radiating vaults round the whole building were hidden supports to the auditorium seats. In the Greek theatres the steps which radiated at regular intervals to the various ranges of seats were slabs of marble between the seat; in a Roman amphitheatre the stairs emerged at intervals from the vaulted supporting corridors which swept round the building. Stupendous in proportions, complex in structure, and yet consistent in the constant repetition of the external design, the Colosseum compels a like awe and admiration of a nation who conceived and carried to completion such an immense undertaking to serve popular amusements. The Colosseum is still magnificent, even in its ruin, and recalls the gladiatorial contests, the naval displays, and the martyrdom of Christians which took place within its giant walls before it became a Mediaeval fortress or was plundered to provide building materials for Renaissance palaces and churches.





## THERMAE

- Romans had the ritual of public baths and competitive events of swimming. The king also participated in these events along with the general public

The Thermae (Gk.thermos=hot) or palatial public baths of Imperial Rome, which were probably derived from the Greek gymnasia, portray, even in their ruin, the manners and customs of the pleasure-loving populace, and are as characteristic of Roman civilization as are the amphitheatres. The principal ruins of thermae in Italy are at Rome and Pompeii. The thermae were not only designed for luxurious bathing, but were resorted to for news and gossip, and served, like a modern club, as a rendezvous of social life besides being used for lectures and athletic sports, and indeed entered largely into the daily life of the Imperial City. A small entrance charge of a quadrans (1/2 farthing) was sometimes made, but in later times they were opened free to the populace by emperors in search of popularity. The thermae were under the management of the 'aediles'; there were also 'balneatores' to take the entrance money, and janitors to guard the doors, with a staff of attendants, including anointers, manicurists, barbers, Shampooers, besides stokers, lamplighters, and hundreds of slaves to make the process of bathing a luxurious relaxation.

The thermae were generally raised on a high platform within an enclosing wall, and underneath were the furnaces and rooms connected with the service of the establishment, which usually consisted of three main parts, as shown in the Thermae of Caracalla and Diocletian.

### Thermae Of Caracalla, Rome

- This is an example of Roman baths not only in terms of size, location but also due to the organization of open, semi-open and enclosed spaces in a single building of size 750' x 380'
- The building had entrance through a small porch and a columned lobby
- Natatio is a semi-open space with a large swimming pool
- On the same axis, there is open frigidarium [cold water bath] enclosed tepidarium [hot water bath] and domed calidarium [warm water bath]
- Calidarium is flanked on either side with suites attached to the bathrooms
- Also present are sudatorium [sweating/steam bath] on either side of tepidarium parted by two semi-open rooms
- The building is surrounded by landscaped avenues with fountains and there is also Xystus in the farther south end
- Behind this landscape avenue and also on either sides are lecture halls and libraries
- At the south west end are the water reservoirs in two storeys to store water supplied through marcian aqueduct
- The North East front is surrounded by small shops in two storeys



- Ephebeum [gymnasium] and open exercise yard are on either extreme ends of the principal axis.

### Thermae of Diocletian, Rome (A.D. 302)

This great bath accommodated over 3,000 bathers, resembled the Baths of Caracalla in their general distribution. The great central hall, 200 ft by 80 ft and 90 ft high, has the original cross vaulting of concrete (p.177M), springing from eight monolithic columns of Egyptian granite, 50 ft high and 5 ft in diameter, with composite capitals of white interest, first because it gives the general appearance of these great halls, and secondly because Michelangelo converted it in 1563 into the Church of S.Maria degli Angeli. A choir was added on one side by Vanvitelli (A.D. 1749), which converted the nave into a transept. The restorations of the frigidarium and the ephebeum give a good idea of the sumptuous character of the building.

The unbounded licence of the public baths, which were resorted to for all sorts of dissipation, brought them under the ban of the Early Christians, who held that bathing might be practiced for cleanliness, but not for pleasure. Then in the fifth century the thermae fell further into disuse and decay, owing to the destruction of aqueducts by the Huns, and also to the decrease of the population. Later they served as quarries for Mediaeval and Renaissance builders.

### THEATRES

Roman theatres were often adapted from the Greek to suit the Roman drama, and for this the auditorium, with its tiers of seats one above the other, was restricted to a semicircle. The central area at the ground level, which in Greek theatres was occupied by the chorus, became part of the auditorium and was assigned to senators and other dignitaries. The stage increased in importance and was raised and brought into immediate connection with the auditorium. Roman theatres were not only hollowed out of a hill-side, but they were also built up by means of concrete vaulting, supporting tiers of seats, under which were the connecting corridors used for retreat incase of sudden showers.

The Theatre, Orange, in the south of France, is in an unusual state of preservation, and here the auditorium, which holds 7,000 spectators, is partly constructed and partly hollowed out of the hill-side. It is 340 ft in diameter between the enclosing walls, and has stairways on either side of the various levels. The stage was 230 ft wide by 45 ft deep, and is enclosed by return walls at right angles to the wall at the back of the stage. The great wall of the outer façade, 324 ft long by 116 ft high, is ornamented with wall arcading, and there still remain the two tiers of corbel stones pierced with holes for the seating of towering masts, from the top of which, chains extended to support the front of a wooden sloping awning over the stage. An enormous portico, which once extended across the full width of the façade, has entirely disappeared.



## CIRCUSES

The Roman circus, for horse and chariot racing, was derived from the Greek hippodrome, and attained great magnificence. (For foot-racing and athletic games there was the stadium, based upon the Greek stadium, usually included with the amenities of the thermae rather than appearing as a separate building). Chariot racing was enormously popular, and vast sums were spent upon the training and selection of men and horses. Famous charioteers were the idols of the day, and though risking life and limb, reaped rich rewards. Four-horsed chariots were usual, but races were varied by using two, three, or sometimes six, eight or ten horses, and by equestrian displays and acrobatic riding. The teams of the four factions or 'stables' of Rome competed against one another. Heavy betting gave intensity to the popular interest, and brought its attendant evils. Until a permanent amphitheatre had been provided in Rome, in the late first century B.C., the hippodrome was used too for the brutal contests of man and beast, which then were relegated there.

The Circus Maximus, Rome, so called from its great size, was sited in the valley between the Aventine and Palatine Hills, but has long since disappeared. It was the oldest in Rome and underwent many improvements and restorations. Julius Caesar, from 46 B.C., followed by Augustus, first gave it the monumental proportions for which it is so famous, and later emperors, Claudius, Nero, Titus and Trajan, added their enrichments of costly marbles, columns and statues. From Heliopolis, Egypt, came the obelisk of Rameses II, now standing in the Piazza del Popolo, brought by Augustus to occupy the center of the spina or dividing wall, which ran down the middle of the arena in a slightly oblique direction, so that the chariots might have more room at the starting end. It measured 2,000 ft long and 650 ft wide, and seated 255,000 spectators. The twelve 'carceres' held the contestant chariots and horses, and each race required seven laps of the spina, equal to a distance of about  $2\frac{1}{4}$  miles. In the time of Caligula, the number of races held in one day of the games was doubled, from twelve to twenty-four. When a race was in progress, the laps were signalled by moving seven large wooden eggs on the spina. Despite the twelve carceres, it seems that not more than four chariot teams raced at a time. The bas-relief gives a good idea of a racing quadriga and the relief on a lamp shows the triumphant victor in a race. Around the track rose the triple banks of seats, supported on concrete vaults; outside, the circus showed three ranges of marble arcades like those of the colosseum, under which thronged the excited crowds, importuned by wine sellers, caterers, tipsters and cheap-jacks who plied their trades there. The last race to take place in the Circus was in A.D.549.



### **III. EARLY CHRISTIAN ARCHITECTURE (313–800 AD)**

- Political instability, economic decline and civil war happened 3 AD in Rome
- It was also the peak of Paganism, a “Roman religion”
- Rise of Christianity & Christianization at the then time
- Christianity appealed to masses due to the following factors directly / indirectly:
  - Closer to unseen god
  - Place for penitents
  - Simple prayer rites
  - Ritual meals
  - Gospel by clergy/ Bishop
  - Human scale of buildings
- Constantine recognized Christianity as state religion
- Shortage of skilled craft men, Architect resulted in Polymath Architecture
- Professional training in early 4th century A.D - Pappus and Alexandria were the first two examples
- Inactive Quarries ..... Marble was scarce
- Forestation.....Timber was scarce
- Use of Iron was an appropriate alternative
- By 6 AD, there was Relief in the East but partial Chaos in the West continued
- Buildings were erected on a smaller scale, close in relation to the human scale, as a coincidence. Due to scarcity of resources, old or ruined roman buildings and basilicas were used for constructing new churches. In the process, the building elements that were in irregular scale, shape and size were regularized by sizing them down to a uniform dimension and only then were used for construction. As a result, the early Christian church building became close to the human scale. It was a coincidence and mere circumstantial virtue than a conscious thought of doing so
- In addition, roman basilicas were highly suitable for the practice of Christian worshipping rites due to which early Christian churches occupied the re-modelled basilicas and hence the name, basilcan church.

#### **St. Clemente, Rome**

- It is built during 1099 - 1108 AD.
- This is rebuilt over much earlier church and some foundations were retained
- The wide was reduced but the original arrangement and the configuration of spaces remained the same. This implies the suitability of a Roman Basilica to the performance of a Christian ritual
- The atrium or open rectangular forecourt has a fountain in the center, which served for ablution. This leads into the semi-open narthex, assigned to pretends
- The narthex acts as a intermediate space before entering nave and aisles
- In the church proper choir was enclosed by low screen walls called Cancelli. This was done to define the space with the growth of performance of a Christian ritual
- Just behind the chair is the alter that was used for placing offerings to the god or deity. The Roman Basilicas had alters for sacrificial offerings
- Ambo is found on either side of the church to read Epistle and Gospel

- The termination of the church is with a semi-circular apse. The bishop was seated in the center like roman praetors.
- Presbyters are member of church councils occupied the seats on either sides of the Bishops seat, like Roman assessors
- Baldacchino, Ciborium or Ciborum is a canopy supported on 4 marble columns. This was erected over the alter
- Rich glass mosaic (Opus Grecanium) was used for the interiors especially in the dome of the apse. This has the figures of glorious saints surrounding the Christ, against a golden background
- Slices of columns were laid as centres surrounded by geometrical inlay patterns
- Clear story of small windows were found near the roof above the aisles
- The columns are widely spaced supporting the arches by reducing some columns to un9form height
- Women sat in the second story above the aisles in churches where there were two storeys. But in St, Clement church both the sexes at in opposite aisles

### BAPTISTERIES

- These are separate buildings used only for the sacrament of Baptism (name giving, acceptance to a Christian church)
- Roman circular temples and tombs were occasionally used for this purpose
- This rite was done only on 3 great festivals
  - Easter – Resurrection of the Christ
  - Pentecoste – a Christian feast on the seventh Sunday after Easter commemorating the descent of the Holy Spirit on the apostles — also called Whitsunday (custom of wearing white robes by those newly baptized at this season) / Jewish harvest festival
  - Epiphany- 6<sup>th</sup> Jan, manifestation of Christ to St. Maggi
- Hence large buildings were required to cater to the crowd coming on these days. Until the end of 6<sup>th</sup> AD Baptisteries adjoined the atrium or open forecourt of basilican church
- After introduction of infant baptism, Baptisteries were replaced by a font near the entrance
- Circular roman temples or tombs had to be enlarged sometimes to a suitable size, but it was different to span the new structure with one roof. Therefore, they adopted high central columned roof and lower aisle roof
- The aisle was enclosed by an outer wall

### Baptistry, Nocera

- This is a circular building of 80 ft diameter. The central area has 30 antique columns in pairs
- The dome above this area was covered by an external wooden roof
- The Romans exposed their vaults (Pantheon - Rome), but the gothic covered thin stone vaults with protecting timers roofs
- The outer periphery/aisles had the roof at a lower height.



## XI. BYZANTINE ARCHITECTURE (1330 AD – 1453 AD)

### Background

- Byzantium (Istanbul), capital of new Roman Empire in 330 AD. Constantine, the great was the found of this Empire.
- Locational advantage.. Mediterranean climate, e.g. the Black Sea
- Art pervaded to all parts of E. Rome through traders carried who carried to Greece, Asia Minor, Venice etc.
- Building Materials and elements used for construction:
  - Locally available Clay for brick
  - Rubble for concrete
  - Marble imported from quarries of islands around.
  - Constantinople was the chief marble working center
  - Monolithic columns
- Columns were also used for underground cisterns / storage of water.

Lot of building activity was taking place in this newly formed capital that attracted resource persons, craftsmen, skilled labour, artists etc from other countries

### Response to Climate

- Flat and /or Domical structures
- Small windows at bottom of domes, on the drums
- Columned arcades around open courts

### Architectural Character

- Novel development of dome on Square and Polygonal Plan
- Strong contrast to Early Christian timber trusses and Romanesque Vaults
- Centralised plan in contrast to the elongated overall form like Early Christian churches
- Brick work (Chief building material) was cladded internally with marble and mosaic with the help of bronze clips while they were cladded externally with patterns and bands in stone / brick
- Later, fresco work was prevalent
- Lime and sand with crushed pottery, tiles for mortar
- Domes & vaults were constructed with bricks and were decorated with coloured glass mosaic
- Columns in marble/stone
- Domes surrounded by small e.g. Semi – dome
- Places and objects of ornamentation:
  - Bust of Christ...Dome at the center
  - Virgin and Child.... Apse
  - 4 Evangelists... Pendentives
  - Saints and the life of Christ...Walls

- The columns had Abacus on a circular shaft, monolithic. Bronze annulets in a ring surround the circular shaft at the abacus and also at the capital
- The exterior closely corresponds with the interior
- The methods and materials of decorations were varied in color, extent, position, size etc. But the manipulation of different surfaces on a single plane reveals that one surface melts and blends into another surface with the underlying system of decoration remaining the same

### St. (Hagia) Sophia, Constantinople (532-537 AD)

- This church- was built by Emperor Justinian on the site of two successive Basilican churches of the same name built by (i) Constantine [335 AD] (ii) Theodosius II [415AD]
- The architects were Anthemius [Tralles] and Isidorus [Miletus]
- This was the greatest of all Byzantine churches built by the Emperor
- The entrance is through three portals into the outer narthex through the atrium. The atrium had traditional fountain at the center
- The outer narthex was acting as a transition space between the atrium and the church proper
- Narthex was of size 200ft by 30ft has two storeys, the upper one used as a gallery and the lower one was used as space for catechumens and penitents
- The nave is a gigantic oval of 220ft by 107ft over which there is a central dome of 107ft diameter, supported on 4 large piers of size 60 ft by 25ft
- The piers support huge semi circular arches on all the four sides, which support the dome. The pendentives between the arches start at a height of 70 ft from the ground. The height of each pendentive is 60ft from where the dome rises up to 50ft. Thus, the dome is at 180 feet from the floor
- The square central space between the four piers is 107 ft side and has semi-circular spaces on the E-W ends of the nave. This oval naïve is interrupted at its four carvers by exedras (Semi-Circular deviations form the oval which was used as open niches or alcoves). All the four exedrae have a semi-dome and the semi-circles on East and West also have semi-domes which balance the sideward thrust of the dome
- On the N-S of the central dome buttresses 60ft x 25ft in plan were provided to take the sideway thrust of the central dome due to the absence of semi- domes on these sides
- On the N-S of the central nave there are aisles of 50ft width. Both the aisles had two storeys supported on arcaded of 4 columns. Which are 6 in no in the upper storey. The upper storey on the aisles was used as gallery for women
- The church is roughly a square measuring 250ft by 220ft excluding the inner narthex and the apse
- The lighting to the interior is provided by 40 openings at the base (drum) of the central dome. Also, the solid arches towards the dome had 12 windows each
- The church interior on a whole is of a gigantic scale which is gradually built up from the arcades, to the galleries, to the semi-circular arches between the piers, to the semi-dome



- The semi-domes on E-W finally culminate in the large central dome
- The dome is built of brick but the 4 piers are of stone
- The decoration in the interior consists of marble pavements for floors, marble for walls (cladded with the help of bronze clips on the clay-brick wall. The piers also had marble cladding up to 70 ft from ground
- The pendentives and the dome ceiling were of colored glass mosaic on golden background. The forms of dome and semi-dome were not hidden with any protective casing. They were visible from outside and inside in the same manner. Thus, one can say that the exterior closely corresponds with the interior. The surfaces of decoration are different but every surface melts and blends into another
- The church was later converted in to a mosque with the addition of 4 minarets, one each next to the ramp and stairway at the 4 corners. Now, it is converted into a museum
- Atrium is destroyed and hence details are uncertain
- Skeuophylakion – on the north east corner was used for consecration





## ROMANESQUE ARCHITECTURE

King Charlemagne was crowned as the king of Holy Roman Empire in 8<sup>th</sup> century AD. At the then time, there was a widening influence of Christianity. But in 814 AD, Roman cultural decline resulted in violence and terror. This persisted for at least 100 years and again in 914 AD there was revival of order. This resumed the wave of construction of church buildings and mass pilgrimage. Many autonomous kingdoms were consisted within the Holy Roman Empire

Papacy (the administration rule & power of pope) was powerful and they were patrons of Romanesque.

### Architectural Character

2. The general architectural character of the Romanesque style is sober and dignified, while massiveness & picturesque ness depends on the grouping of towers & the projection of transepts & choir from the elongated nave
3. Dressed stones of smaller size were used on thick beds of mortar
4. Roman cross vaults were used till the beginning of 12<sup>th</sup> century but gradually rib and panel vaulting became popular in which a framework of ribs supported thin stone panels
5. Basilican church plan has undergone a metamorphosis and resulted in the addition of transepts & the elongation of sanctuary due to which church became a well-defined cross in plan.
6. Transepts were generally equal to width of naïve. Nave was double the width of an aisle, generally
7. Choir was often raised on piers above the end of nave, over a vaulted crypt.
8. Aisles were sometimes carried around the chancel or ambulatory
9. Square and octagonal towers are prominent features, placed over the crossing on the Western or Eastern end
10. Walls were often roughly built relived internally by shallow buttresses or pilaster strips and connected at top by horizontal moldings or by series of semicircular arches
11. The arcades of the nave consisted of massive circular columns or piers which supported semicircular arches
12. Doors & window opening were very characteristic, with jambs or sides formed in a series of receding moulded planes. The semi-circular arch above was also constructed in receding concentric rings
13. Ornamentation included vegetables and animals forms and curving and sculptures were often rough
14. The columns were generally cylindrical and were of massive proportions, built up with ashlar masonry and having a rubble core. These were treated with flutings in spiral, trellis or chevron patterns
15. Variations of Corinthian capitals were used

16. Mouldings – They were often elaborately carved. The base had Circular moulding which often projected over the square plinth. The space below the abacus and above the capital was moulded with alternate fillets and hollow spaces
17. Italy slowly adopted a new system of construction and preferred to concentrate on beauty, ornamentation, details
18. The church plan was of basilica type. Developments over Basilica church plan were physical, visual and functional resulting in change of aesthetic appeal. One great change was the use and application of arcades in multiple tiers
19. White marble was rarely used for facing. The naïve had highly ornamented columns from ancient Roman temple
20. The choir is raised over a crypt above the level of Main reached by steps. The aisles were roofed with small vaults while the naïve had open bright colored timber roofs
21. Mosaics and frescos continued to symbolise Christianity
22. Campanile / bell towers became prominent focal feature. Battlemented parapets were generally found in the Romanesque buildings

### Romanesque Architecture in Italy

#### The Pisan Group

- The Pisan group is the best and famous example of Romanesque architecture in Italy
- It consists of a cathedral, baptistery and campanile (bell tower)
- The cathedral plan is a latin cross and its interior resembles that of a basilican church. There is a long nave with double aisles on either side with a row of columns with semi-circular arches on top divide the nave which has the usual timber roof
- The transepts have semi-circular apse on either side
- At the crossing of transepts on the nave, an elliptical dome done as a later addition
- The exterior has bands of red and white marble and the ground storey is faced with arcading
- Baptistery is circular in plan with outer diameter 116 ft. The central nave is of 60 ft diameter, and surrounded by two storeyed aisles all around by a ring of 4 piers and 8 columns
- Campanile is the circular bell tower of 52 ft diameter rising to eight storeys of encircling arcades
- The upper part of the tower overhangs from its base as much as 13 ft 10 inches seemingly due to subsidence in the foundation



### Romanesque Architecture in France

The church had cruciform plan. The addition of transepts resulted in the shape of well-defined Latin cross. The naves were barrel vaulted and the aisles were semi-barrel vaulted. Towers are sometimes detached e.g. as in the Campaniles

The cloister became to be added elements to the elongated church plan on one of the sites

An open quadrangular court with or without foundation surrounded by double columned arcades leading to Christian monastery Eg. Campo Santo

The cloister had columns, which were treated with intricate ornamentation

The E end was semi-circular with an ambulatory and radiating chapels. This richly decorated cloister were generally found in France

### Angouleme Cathedral

- Angouleme cathedral was built during 1105 – 1130 AD
- It has a long, aisle-less nave, 50ft wide, transepts with lateral chapels, and an apsidal choir with four chapels forming a Latin cross in plan
- The nave is covered by 3 stone domes, and a double dome is placed over the crossing raised on a drum with 16 windows and terminated by a finial
- Both transepts originally had towers built the southern one was destroyed
- The western façade is rich with tiers of arcades  
Over the entrance there is a high window framed in sculpture

## GOTHIC ARCHITECTURE (12<sup>th</sup>–16<sup>th</sup> Century AD)

### Background

- Gothic Vault is a novel vault with a frame work of intersecting pointed arch and ribs which together support thin stone panels
- The vault pressures operated both downward by the weight of the stone and outwards by the force of the arch voisseurs.
- Both pressures were collected by the meeting of the rib at the angles of vaulting compartments. The resultant oblique pressure was then counteracted and transmitted to the ground by buttresses and flying buttresses
- The weight of the roof was transmitted by the nave arcades, on to the earth
- Walls became less necessary as supports
- Invention of coloured (stained) glass, used to adorn windows
- The stonework of tracery windows provided a framework for pictures
- The semicircular 'chevet' with its garland of chapels and processional aisle, is a characteristic part of the plan of the apsidal east end of French gothic churches
- Gothic architecture in France (1150 A.D – 1550 A.D)

-**Primaire** – 12<sup>th</sup> – century – change from Romanesque

Pointed arches and geometric tracery windows

- **Secondaire** – 13<sup>th</sup> century – Rayonnant

Circular windows with wheel tracery

- **Tertiaire** – 14<sup>th</sup> – 15<sup>th</sup> & part of 16<sup>th</sup> century

Flamboyant presentation of Flame like window tracery

- Three interpretations of gothic architecture: Transformation of the structural and thereby the visual appeal
  - Structural: The skeletal stone structure of gothic architecture resulted in reduction of the massive Romanesque piers to a minimum
  - Visual: Role of light, which multiplies and takes over the visible interior structure, transforming it into an elegant configuration of light weight dynamic form. The role of light is through the glow that radiates from the shutters of stained glass
- Intellectual discipline of the period viz., 'Scholasticism' connected with gothic architecture. Close correspondence between the scholastic treatise and the rational organization of the cathedrals
- Cathedral as the image of the heavenly Jerusalem. An 'other worldly' appearance in its statuary and stained glass, in its sheer scale and magnificence
- Visionary primacy (the state of being first) of the gothic cathedral
- Space, light, line, geometry – created the transcendent atmosphere of the building
- Structural elements or features which made the visual appeal possible:  
rib vaults, pointed arches, flying buttresses
- Gothic architecture shares much with Byzantine as a transcendent style. In both buildings, rational geometric structures created stunning and / or irrational effects

### Gothic Rib Vault

- Ribs are of arches, usually three pairs per rectangular bay, running diagonally, transversely and longitudinally
- It is the diagonal arches that distinguish ribbed vault from non-ribbed vault [Romanesque barrel and Gothic groin vaults have transverse and longitudinal arches] the cross ribs act together with the outer actuated frame to create a complete armature of arches
- Barrel vault of Roman and Romanesque is heavy & requires massive centering. But Roman barrel vault fits naturally only over a square plan while Romanesque groin barrel vault is difficult to construct as a clear, graceful line
- Cross ribs of the ribbed vault are primary elements whose curvature is independent of the other arcuated shapes of the vault. Ribs can be semicircular, segmented, parabolic, stilted or pointed
- Gothic rib vault is suitable over any conceivable ground plan like rectangular, triangular, circular or hexagonal. Rib vaults require centering only for the arches of each bay. Arches become a form of permanent centering for the construction of the ribs
- Weight of the vault is reduced by the thin shells of webbing in case of gothic rib vault

### The Flying Buttress

- Ribs act to concentrate the entire weight and vest at the corners of the bays
- Lateral thrust had to be buttressed which gathered at small areas viz., corners of the bays
- Powerful external arches swing above the side aisles and the ambulatory. These arches spring from colossal free standing piers which absorb the thrust
- These flying buttresses shift the required buttressing mass from the nave wall thereby the affect on the interior of the nave or choir is nil

### The Pointed Arch

- The pointed arches look lighter and have an inherent visual buoyancy
- A pointed arch actually exerts less thrust than a semi-circular arch of even a smaller span
- A typical gothic pointed arch approximates a catenary curve
- A pointed arch can safely be thinner than a rounded / semi-circular arch

## EXAMPLES

### 1. Notre Dame, Paris (1163 - 1205 A.D)

- It is one of the oldest French Gothic cathedrals
- The plan is on a bent axial line with one nave and double aisle. Transepts of small projection and a notable chevet with double aisles and surrounding chapels between buttresses
- The nave arcade has cylindrical columns carrying pointed arches and shafts to support the ribs of the sexpartite vaulting
- There are transepts in small projections (remote resemblance to the cruciform church) after which is the elevated choir and altar
- The chevet has double aisles acting as ambulatory
- There exists a chapel between every two buttresses either looked from outside or felt from inside
- The west facade is the first in France and Served as a model for the later churches
- It has three deeply recessed portals the depth of which is felt more not only due to the actual depression but also due to the tiers which gradually recede till the window or door
- The sculptural doorway is divided into two by the statue of Jesus Christ carved on the central pillar
- Another two doorways have been added in the later years but the cathedral has under gone subsequent changes
- The parapet above the entrance portals is a stretch or band of statues of French Kings. This is surrounded by a wheel tracery window of 42 feet diameter
- This central window is flanked on either side by coupled windows embedded into a pointed arch
- Over these windows there is a preceding arcade all across the façade
- The two side doorways have towers above them with high pointed arch having louvered openings, while the central doorway does not have a tower above
- The Spire between the two side towers can be clearly, if viewed from a suitable distance
- On the east end the cathedral presents a fairy like dynamic appearance with slender flying buttresses, chevet and inclined roof, together taking the height to 300 feet (nearly 100mts) from the ground backed by the two western towers
- The nave and aisles put together are nearly 154 ft in width and 450 ft in length

### 2. Reims Cathedral (1211-1300 AD)

- This cathedral is built in two stages 1) in 1211 A.D and 2) in 1260 AD
- The cathedral measures 100'-0" x 452'-6" where as the width increases at the choir to 162'-6"
- The church initially was built smaller than the others as per the need at the then time but later the length is increased by decreasing the width and thus the offsets resulted eventually

- The chevet has 11 radiating chapels while the single Aisle from the new church and the double aisle of the old church meet at the choir
- The aisle of the new church continues beyond the choir as ambulatory

The overall ornamentation, traceried windows, Christ's statue, coupled windows, side towers etc. are typical of any gothic cathedral with a few/specific differences

### Miscellaneous information

#### **I. Two important Gothic Masons: - (13<sup>th</sup> Cent AD)**

- 1) Villard ved Honnecourd
- 2) Hugues Regfer (Skilled and trained craftsman)

#### **II. Five important Romanesque Cathedrals**

- 1) St Mourelde Cathedral
- 2) St Zenomaggiore Cathedral (Bcrona)
- 3) St Michelle Cathedral (Paris)
- 4) St Ambrogio Calturt (Milan)
- 5) St Milan Cathedral (Mulan)
- 6) St Mahthanor Cathedral

The combination of two diagonal and one transverse arch within a given bay divides that into six equal on inequal parts which are thereby filled with panels. In reality all the surfaces of sexpartite vault are vaulted upon at once or in parts

### Glossary of terms

1. **Catenary curve** = the curve assumed by a cord of uniform density and cross section that is perfectly flexible but not capable of being stretched and that hangs freely from two fixed points
2. **Chevet** = such an apse or sanctuary of a church usually with radiating chapels)
3. **Groin** = the projecting curved line along which two intersecting vaults meet or a rib that covers this edge
4. **Patristic** = of or relating to the church fathers or their writings
5. **Primacy** = the state of being first in importance, rank
6. **Scholasticism** = a philosophical movement dominant in western Christian civilization from the 9th until the 17th century A.D and combining religious dogma with the mystical and intuitional tradition of patristic philosophy especially of Saint Augustine
7. **Sexpartite Vaulting** = The combination of two diagonal and one transverse arch within a given bay divides that into six equal on unequal parts which are thereby filled with panels. In reality all the surfaces of sexpartite vault are vaulted upon at once or in parts
8. **Spire** = tower and the finial together
9. **Statuary** = sculpture; related to statues
10. **Tracery** =
  - a) architectural ornamental work with branching lines;
  - b) decorative openwork in the head of a Gothic window
  - c) decorative interlacing of lines suggestive of Gothic tracery



## **HOA-II Assignment:**

# **Early Christian & Byzantine Architecture**

Q1. Compare both styles on the following parameters:

Sr. No.	Main Topic	Sub topic
a	Influential Factors	Geographical
		Geological
		Climatic
		Religious
		Social
		Historical
		Architectural Character
b	Analyze & Compare	Plans
		Walls
		Openings
		Roofs
		Columns
		Mouldings
		Ornament

  
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Padmasree Dr. D.Y. Patil College of Architecture,  
Akurdi Pune



## **HOA-II Assignment:**

# **Early Christian & Byzantine Architecture**

Q2. Explain in detail One Church each from both the Architectural styles: Early Christian & Byzantine Architecture, with explanatory sketches (other than examples taught in class)

Q3. Watch a *Documentary* on both the styles and prepare a report of 300 words (should include sketches also) based on your understanding. Mention the Title/ Name of the Documentary in Heading of the sheet.

### **ASSIGNMENT FORMAT:**

1. A3 size sheets (can be handmade)
2. Use of colours for presentation
3. Precise Notes Expected

### **IMPORTANT NOTE:**

Notes & Sketches have to be referred from the book "History of Architecture" by Sir Hannister Fletcher.

**Submission Date:** Friday, 19/07/19



**Course File**

**Class: - II Year B. Arch – A, B, C Batches**

**Subject: - HISTORY OF ARCHITECTURE III (2019 Pattern)**

**Index**

<b>Sr. No</b>	<b>Contents</b>
1.	Syllabus Structure
2.	Syllabus
3.	Lesson Plan
4.	Attendance Book
5.	Attendance Analysis
6.	Teaching Methodology
7.	Result Analysis

**Subject: HISTORY OF ARCHITECTURE III**

HISTORY OF ARCHITECTURE II		
Subject Code	2201523	
Teaching Scheme	Examination Scheme	
<p>Total Contact Periods per week (lectures=2, Studio=1) <b>3</b> <b>Total Credits=2</b></p>	Sessional (Internal)	<b>25</b>
	Sessional (External)	25
	Viva (Internal)	NIL
	Viva (External)	NIL
	In-semester exam	NIL
	End Semester exam	<b>NIL</b>
	Total Marks	<b>50</b>

**Syllabus**

**Subject:** History of Architecture III  
**Class:** II Year B. Arch – A, B, C batches  
**Semester:** Term I  
**Month and Year:** 15 June 2020 to 5<sup>th</sup> December 2020  
**No. of Lecture per week:** 2 (2 x 16 weeks = 32 Lectures)  
**No. of Studio per week:** 1 (1 x 16 weeks = 16 Studios)

**COURSE OBJECTIVE**

- To introduce student to architectural development with reference to time, space and people.

**COURSE OUTLINE**

- To introduce students to the evolution of architecture of Europe and its immediate surroundings from 1<sup>st</sup> century CE to 18<sup>th</sup> century CE. Religious architecture under Christianity Broad periods of European cultural history including Gothic, Renaissance, Baroque and Revival
- To sensitize students to the linkages between architecture and the socio- cultural, political and economic context of the period.
- To introduce students to the developments in technology and the subsequent effect on architecture.
- To familiarize students with noteworthy architectural productions from the period and their significance.
- To introduce students to the regional and temporal variations in archetypes and the rationale for the same.

**SESSIONAL WORK:**

Two project based assignments and one tutorial AND.

Measure drawing and documentation of architectural components/ small building dating from the Colonial period in India.

**REFERENCE BOOKS**

1. History of Architecture by Sir Bannister Fletcher. Page 8 of 16 2.
2. History of Architecture by Spiro Kostof.



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## **HOA-II Assignment: Romanesque Architecture**

**Q4.** Investigate the lean in Leaning tower of Pisa and what are the corrective measures taken to arrest the lean further, draw appropriate sketches.

**Q5.** Sketch the various architectural features of Romanesque Architecture with appropriate titles mentioned below each sketch.

### **ASSIGNMENT FORMAT:**

1. A3 size sheets (can be handmade)
2. Use of colours for presentation
3. Precise Notes Expected

### **IMPORTANT NOTE:**

Notes & Sketches have to be referred from the book "History of Architecture" by Sir Bannister Fletcher.

**Submission Date:** Friday, 02/08/2019



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## **HOA-II Assignment: Gothic Architecture**

- Q1.** Comparative Analysis of Romanesque & Gothic Architectural style.
- Q2.** Enlist Architectural characteristics of Gothic Architecture with Sketches.
- Q3.** Explain in detail 1 example each from French Gothic & English Gothic style wrt plan & Architectural features. Draw Plan & Section with appropriate Nomenclature for both the examples.
- Q4.** Investigate how the experimentation & inventions of Pointed arch, Ribbed vaults & Flying buttress lead to development of Gothic Architecture.

### **ASSIGNMENT FORMAT:**

1. A3 size sheets (can be handmade)
2. Use of colours for presentation
3. Precise Notes Expected

### **IMPORTANT NOTE:**

Notes & Sketches have to be referred from the book "History of Architecture" by Sir Bannister Fletcher.

**Submission Date:** Monday, 9/9/2019



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# CRITERIA 1

## *Curriculum Enrichment*

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### *Subject- Architectural Design I*

### *Issue Addressed- Human Value, Environment and Sustainability*

### *Description-*

To design a **Vaccination Center** with basic infrastructure for Covid-19 vaccinations which can be delivered appropriately with respect to the local context and clinic standards. The site was located in Pune.

- Design should be able to cater the patients with disabilities.
- Students must learn the safety guidelines and design accordingly.



**DESIGN BRIEF**  
**ON**  
**“Vaccination Center for COVID-19”**

**Subject:** Architectural Design I  
**Title:** Vaccination Center  
**Year/Semester:** 1st Year -II SEM  
**Batch:** B

**Date:** 2<sup>nd</sup> July 2021

**Summary:**

Coronavirus disease (COVID-19), is an infectious disease caused by a newly discovered coronavirus (SARS-CoV-2), which has spread rapidly throughout the world. In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic. While countries, including India, have taken strong measures to contain the spread of COVID-19 through better diagnostics and treatment along with vaccines will provide a lasting solution by enhancing immunity and containing the disease spread. These Vaccination centers are thus designed to cater to the amount of public that is allotted daily following the COVID-19 safety guidelines.

**Aim:** To design a Vaccination Center with basic infrastructure for Covid-19 vaccinations which can be delivered appropriately with respect to the local context and clinic standards.

**Design Program:**

- Design should be able to manage the flow of patients of 20 per Day through the vaccination process by using a one-way system and adequate spacing to maintain a distance between patients of 2 meters.
- The vaccination center should be comprised of two main areas. The waiting area will ensure that patients can wait safely before entering the main clinical area. Design the area in such a way that the arrival of patients is controlled, and overcrowding is avoided.
- Design should be able to cater the patients with disabilities.
- Materials used to build the vaccination center should provide sufficient shelter to protect staff and patients from direct sunlight and weather. Design could be built using either temporary buildings or tents. All areas must be ventilated.

The design program for Vaccination Center is as follows:

Sr. No.	Space	Units	No. of users	Area (In Sq.m)
1	Arrival and Waiting Area	1	4	20
2	Registration and Screening area	1	2- Patients 2- Staff	15
3	Vaccination Area	1	2- Patients 2- Staff	20
4	Observation Area & Exit Desk	1	4	15
5	Resuscitation Area	1	1	10
6	Office/ Staff Area	1	2	10
7	Power Supply & Waste Zone	1	1	10
8	Common Toilet in temporary structure	1 Female & 1 Male	2	5
9	Parking	1 Car, 4 Two Wheelers, 4 Bicycles		As per standards

Ar. Raksha Bongirwar  
Ar. Ashirwad Korde  
Ar. Purnima Chitale  
F. Y. B Arch B- Batch  
Architectural Design I  
Subject Faculty

Ar. Dhananjay Chaudhari

Principal

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# CRITERIA 1

## *Curriculum Enrichment*

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### ***Subject- Elective IV***

***Issue Addressed- Environment and Sustainability***

### ***Description-***

Lecture on one of the elective topics: **Environment and Energy Management**

### ***Mitigation Measures- Environmental Management Plan: Construction Phase***

1. To make students understand how some construction activities will create potential impacts on the Land, Water, Vegetation and Socio economic environment.
2. How the mitigation measure can be taken to tackle the impact.
3. What will be the responsibility of all stakeholders involved in construction phase?

**FIFTH YEAR B.ARCH**

**SUBJECT- ELECTIVE IV**

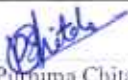
Elective Topic- Environment and Energy Management

**MITIGATION MEASURES- Environmental Management Plan : Construction Phase**

Sr. No	Potential impacts on Land Environment	Mitigation measures	Responsibility
1	Impact on the natural drainage system and soil erosion.	If the topsoil is proposed to be preserved, the details relating to the quantity of topsoil stored, demarcated area on plan where it is stored along with preservation plan is to be given	contractor, Site Engineer, Environmental Expert and expertises from various fields and project manager
2	Loss of productive soil and impact on natural drainage pattern		
3	Study of the problem of landslides and assessment of soil erosion potential and the impact		
4	Use of pesticides	Avoid heavy usage of chemicals (eg. Pesticides) and Use of naural fertilizers	Landscape architect, Environmental expertises
Sr. No	Potential impact on Water	Mitigation measures	Responsibility
1	Impact of water withdrawal on surface water is to be given, Impact on ground water potential is to be detailed, Waste water generation,	Prediction of ground water contamination and suggested mitigating measures to minimize the pollution level. Hydrogeological information should be clearly detailed, Details of water conservation within the buildings Details of rainwater harvesting to recharge the ground water	Site Engineer, Environmental Expert and expertises from various fields and project manager
2		Removal and collection of top soil i.e. the reduction in dust emission on project site.	Site Engineer and project manager
3	Increase in dust particles, Fugitive Dust emission, PM 2.5, PM 5, PM 10, SO x, NO x	Vehicles should have PUC ,During trasportation fugitative dust emission. Use of fuel,LPG, and wood. Sprinkling water-before the transportation to help dust settle down. Truck container does not contain any leakages. Vehicle tiers should be washed properly when it leaves the site.	Site Engineer, Environmental Expert and expertises from various fields and project manager
4		Dust emission during loading and unloading of raw materials.	Contractor and site engineer
Sr. No	Potential impacts on Air Environment	Mitigation measures	Responsibility
1	Prediction of point source emissions	Mitigative measures during construction phase due to reduce the emissions during loading, un-loading, transportation and storage of construction materials.	contractor, Site Engineer, Environmental Expert and expertises from various fields and project manager
2	Prediction of air emissions from the vehicles during the construction and operation phases	Greenbelt development.	
3	soil erosion potential impact	Dust emission during loading and unloading of raw materials. Use of LPG for cooking	Contractor and site engineer Contractor, Project Manager
4	use of pesticides	Use of naural fertilizers	Landscape architect, Environmental expertises



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Sr. No	Potential impacts on Noise Environment	Mitigation measures	Responsibility
1	Noise due to demolition / construction activities. Impact due to present and future transportation activities: Impact of noise due to work at night.	Site plan and details for construction management showing the layout of noise and dust barriers should be given.	contractor, Landscape Architect, Site Engineer, Environmental Expert and
<b>Environmental Management Plan : Construction Phase</b>			
Sr. No	Potential impacts on Biological Environment	Mitigation measures	Responsibility
1	Impact of construction activity on flora and fauna	Tree survey plan showing protected / preserved / transplanted / removed trees are to be given. Proposed landscape plan with details about species that are to be planted are to be given	contractor, Landscape Architect, Site Engineer, Environmental Expert
<b>Environmental Management Plan : Construction Phase</b>			
Sr. No	Potential impacts on Socio Economic Environment	Mitigation measures	Responsibility
1	Predicted impact on the communities of the proposed activity is to be given. Impact on surroundings on socio-economic status is to be detailed.	Mitigation measures to reduce adverse effects should be given	Project Manager.
<b>Environmental Management Plan : Construction Phase</b>			
Sr. No	Potential impacts on Solid Waste	Mitigation measures	Responsibility
1	Impact of the project during construction and operational phases for generation of waste is need to be assessed.	Options for minimization of solid waste and environmentally compactable disposal should be given. Management and disposal of temporary structures, made during construction phase are to be addressed. Mitigation measures for handling biomedical wastes, e-wastes, municipal solid waste are to be detailed	Project Manager, Contractor and Site Manager.
	 Ar. Purnima Chitale Faculty Coordinator Elective IV, 5th Year B. Arch		

  
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Architectural Design 1

Short Time Problem

VACCINATION CENTER DESIGN

Ar. Raksha Bongirwar

Ar. Ashirwad Korde

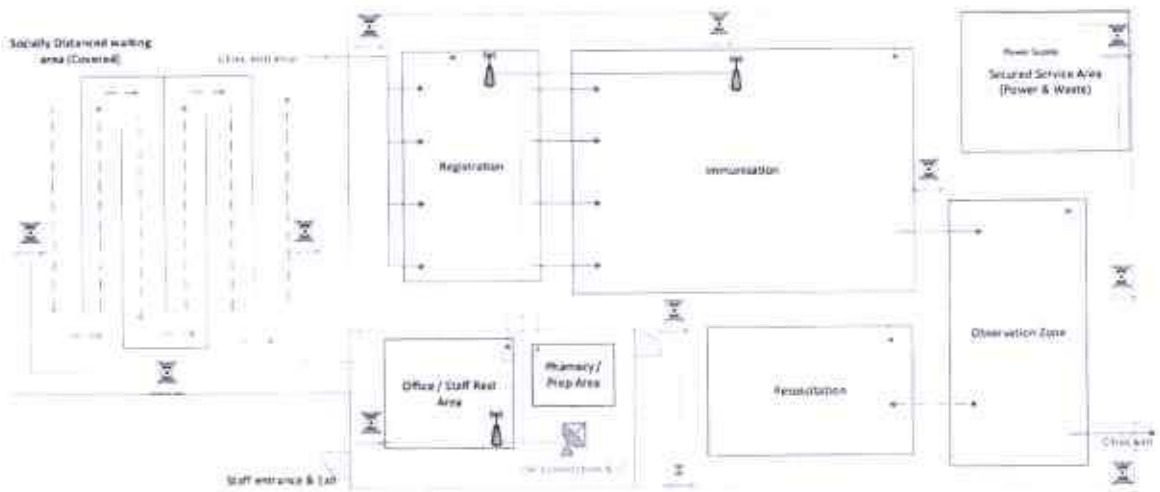
Ar. Purnima Chitale

Subject Faculty

F. Y. B ARCH

B Batch

Understanding The Layout Of The Vaccination Center

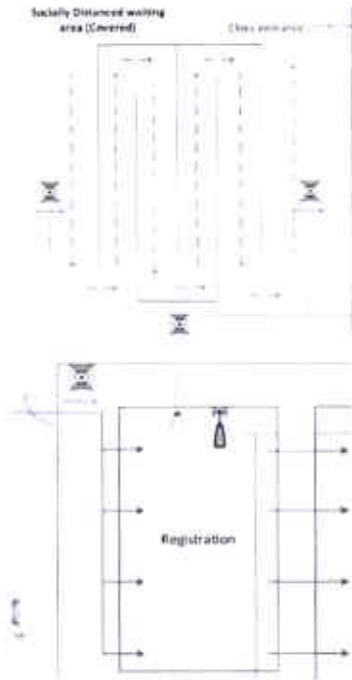


General Flow Diagram Of Typical Vaccination Center

Short Time Problem- Vaccination Center Design

F.Y.B Arch. B- Batch

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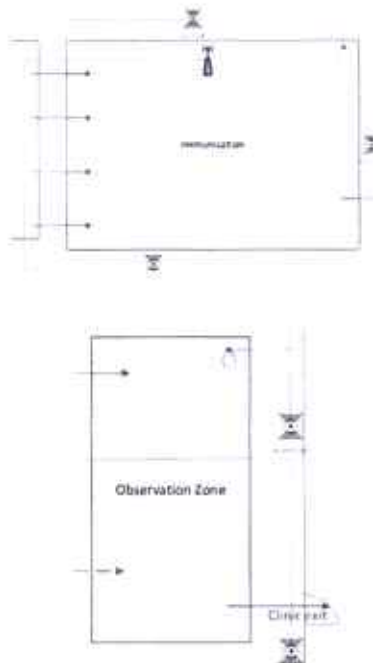


**Arrival and waiting area:**

- Patients will arrive at a waiting area. Sometimes markings are placed on the ground or Seating Arrangement is placed 2m c/c to ensure that social distancing is observed.
- Temperature checks are conducted as patients arrive. A booking system could be used to stage the arrival of patients in manageable groups.

**Registration:**

- The registration area will be set up with an IT network and computers which uses the appropriate Health Information System (HIS) for the vaccine campaign.
- During registration, patients are screened.
- There should be a separate entrance or the same entrance can be used from where a patient if fails during screening, they can be taken out of the clinic through that entrance.



**Vaccination area or Immunization area:**

- In this area, bays are set up with bays separated with dividers to ensure privacy.

**Observations Zone:**

- After vaccination visitors are required to go through a period of post immunization observation.
- In this zone, for a period of 15 minutes patients will wait under observation and then released if there have been no adverse reactions to the vaccine.



**Resuscitation:**

- A separate area is provided to treat patients who react adversely to the vaccine.




**Office and Pharmacy area:**

- This area will be separated from the public area.
- Two modules can be built into this area which include a combined staff rest area/Office and the Pharmacy. The Pharmacy will host vaccine fridges and sufficient space to carry out any preparation work needed on the vaccine before deployment to the vaccine bays. Other modules such as PPE stores can be provided.



**Power supply and waste zone:**

- A secure area is provided to host the power supply & manage a Clinical waste in this zone.
- Containers which hosted the vaccine are either destroyed or passed to a certified clinical recycling program from the center.

  
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# CRITERIA 1

## *Curriculum Enrichment*

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***Subject- Landscape Architecture***

***Issue Addressed- Environment and Sustainability***

***Description-***

**Lecture on: Site Analysis and Contemporary Landscape Architecture**

1. To make students understand the importance of Site Analysis
2. How to observe and analyze the site and its surroundings that may result to constraints and opportunities for development.
3. How site analysis is helpful while doing the site planning.
4. To make students understand the factors to consider for site analysis which can also be an inventory for them.

# SITE ANALYSIS

LANDSCAPE ARCHITECTURE  
3<sup>rd</sup> year B . ARCH

BY  
Ar. Purnima Chitale

---

## ❖ What is SITE ANALYSIS ?

Site analysis is a predesign research activity which focuses on existing and potential conditions on and around the building site. It is an inventory of the site factors and forces, and how they coexist and interact.

## ❖ What is the purpose of site analysis ?

A site analysis is used to develop an understanding of the site and its context, and the resulting constraints and opportunities for development.

## ❖ Why is it important to do site analysis ?


Good site analysis allows the designer to improve the project, ensuring that the building makes the best use of the resources, such as light, access, views, on the site as possible. It should also allow the designer to anticipate any potential issues which may cause problems to the project.

## ❖ What is SITE PLANNING ?

Site planning is the art of arranging structures on the land and shaping the spaces between, an art linked Architecture, Engineering, Landscape architecture and City planning.

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The typical site analysis includes the : *natural, man-made factors, off site influences*

- Site location and size
- Topography (N)
- Soil (N)
- Hydrology (N)
- Geology (N)
- Climate (N)
- Physiography (natural and man-made features)
- Vegetation : Habitat — Flora, Fauna (N)
- Neighborhood context
- Legal aspects
- Recreation Potential
- Culture
- Urban Form
- Access
- Pedestrian and Vehicular circulation
- Visual and Aesthetic Values (N)
- Historical Uses/Factors
- Transportation
- Zoning and Land Uses
- Sensory stimuli
- Any other factor deemed appropriate for the particular site
- Services

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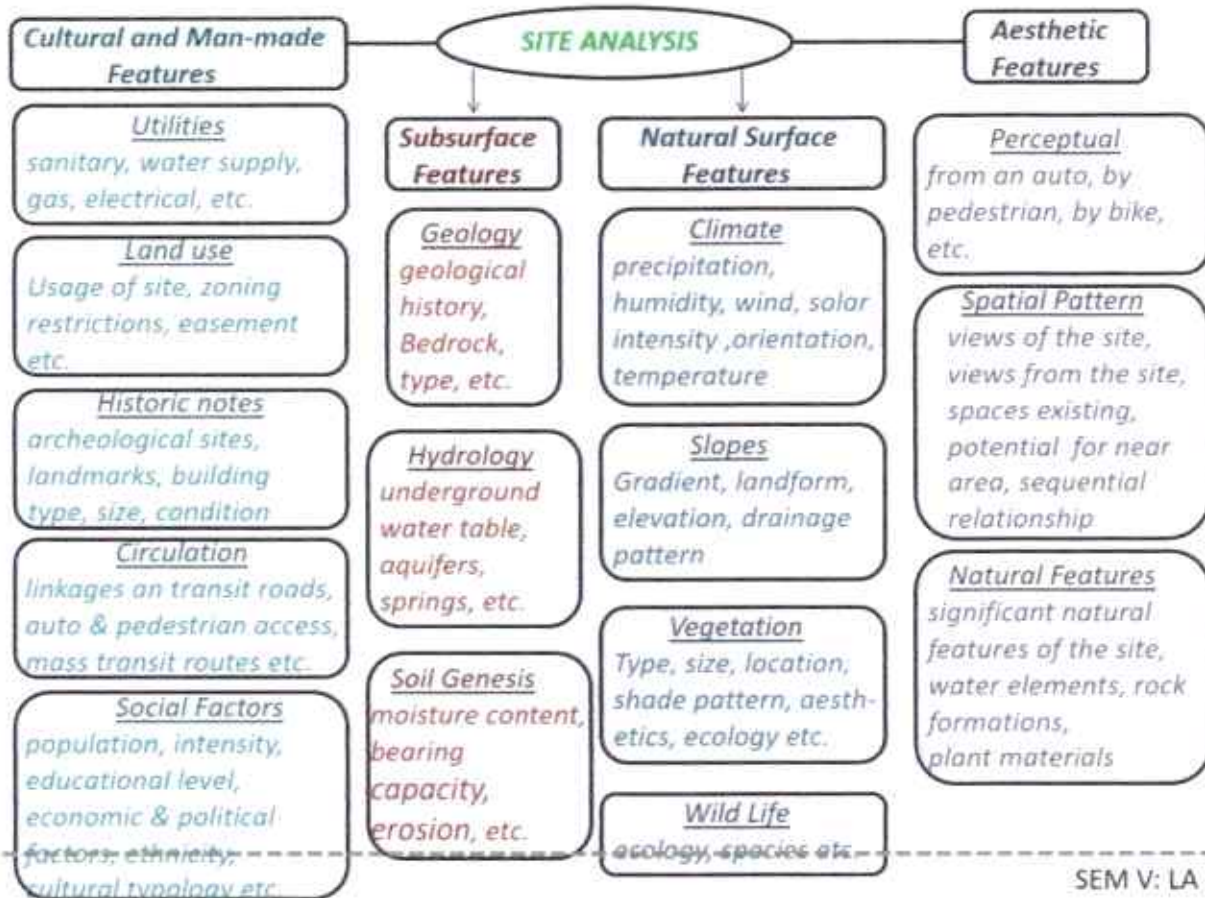
#### Factors for Site Analysis

Category	Sub category	Attribute
Physical	Topography	Landforms, elevation, slope aspect, slope analysis
	Soils	Bearing capacity, porosity, stability, erodibility, fertility, acidity
	Hydrology	Surface water, Surface drainage, underground water, water chemistry, aquifer and recharge areas, springs.
	Geology	Type of rock, Sismic Hazards, Depth of Bed Rock
	Climate	Solar access and insolation, prevailing winds.
Biological	Vegetation	Plant communities and their health, exotic or native species.
	Wildlife	Endangered or threatened species and their habitats.
Cultural	Landuse	Prior and present landuse, landuse on adjoining properties.
	Legal	Site Boundaries, Ownership, Landuse building Regulations.
	Utilities	Sanitary Sewer, Storm drainage, Electric and Gas supply, water supply and Telecommunications.
	Circulation	Pedestrian and Vehicular Access
	Historic	Buildings, Monuments, landmarks, Archiological sites.
	Sensory	Visibility, visual quality, noise and odours.]

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## TOPOGRAPHY

Graphic representation of the surface features of a place or region on a map, indicating their relative positions and elevation.

1. Elevation - Site elevations affect both drainage pattern and visibility.
2. Slope - Existing slopes determine the site's suitability for roads, walkways, buildings etc.
3. Aspect – understanding aspects of slopes help to determine sunlight facing areas, which further help in development.
4. A contour line joins points of equal elevation (height) above a given level, such as mean sea level.

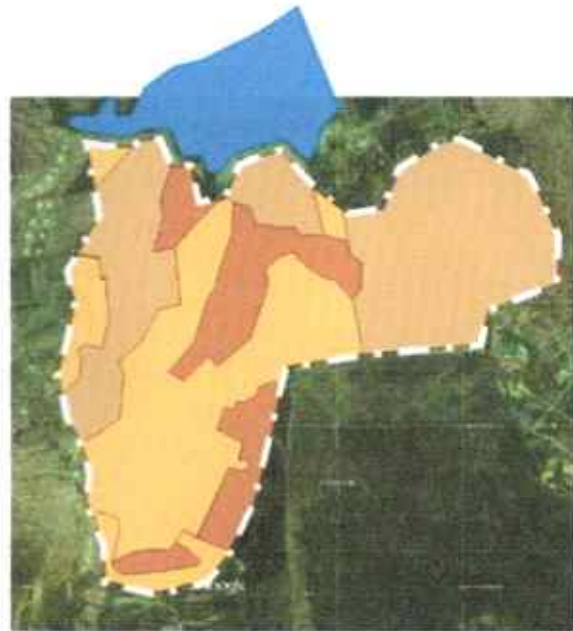
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## GEOLOGY

- Geology is concerned with the structure, composition, and stability of the materials beneath and in some locations at the earth's surface.
- A geologic map shows the age and distribution of rock layers and other materials.
- The nature of the soil determines to what extent it is susceptible to erosion by wind, water and the preventive measures to be taken.
- These attributes influence a site's suitability for excavation and grading, groundwater supply, pond construction and other common land development objectives.
- Geological maps also show locations that are susceptible to earthquakes (if your area falls under seismic zones), landslides and other hazards.



### LEGEND :

- SCRUB VEGETATION - MURRUM
- DENSE VEGETATION - FERTILE SOIL
- AGRICULTURAL PATCH - BLACK COTTON SOIL

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## HYDROLOGY

- Hydrology is the study of the movement, distribution, and quality of water on Earth both on the surface and below the ground.
- Topographic relief creates drainage patterns which in turn influence vegetation association and distributions. Surface drainage is very closely related to topography.
- The identification of ridges and valleys give some indication of the drainage pattern, such as catchment areas, major drainage channels, areas of poor drainage and areas susceptible to erosion.
- Development of site affects the local drainage pattern of an area.
- Care should be taken to give more porous hard surface areas, to allow more ground water recharge. Rainwater harvesting is an effective way of recharging ground water.



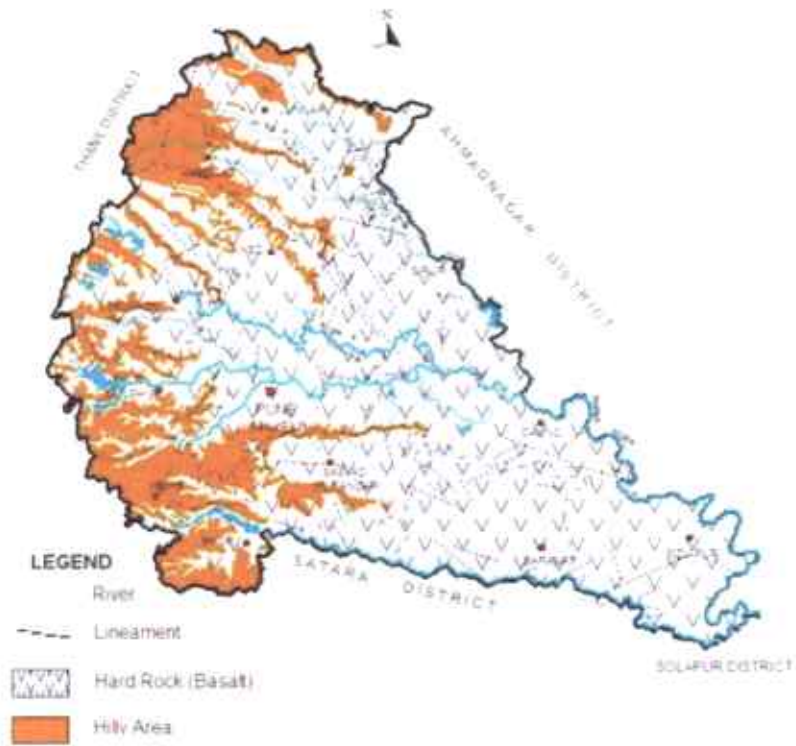
### LEGEND

- WELLS
- VALLEY
- RIDGE
- SURFACE FLOW
- STREAMS

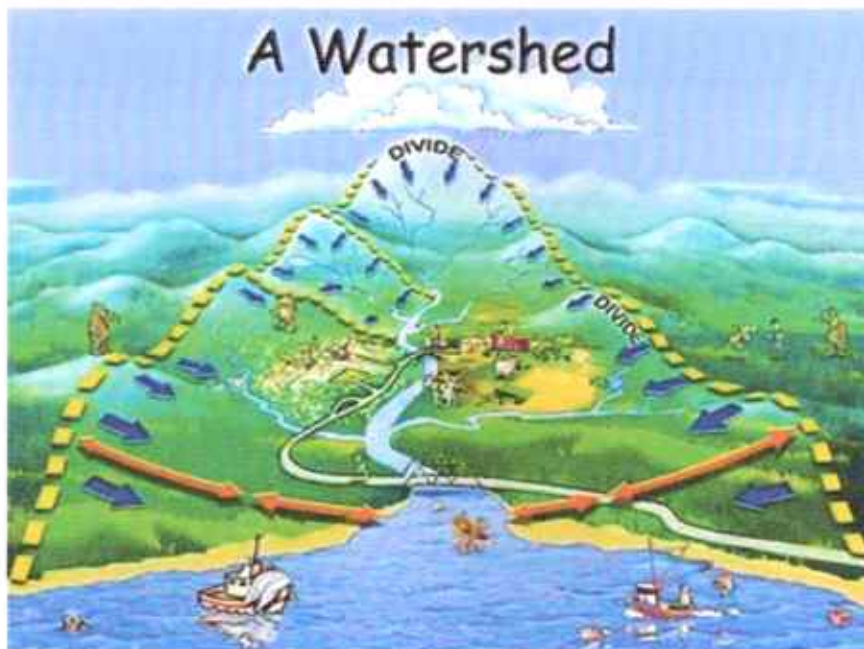
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# HYDROGEOLOGY, PUNE DISTRICT, MAHARASHTRA



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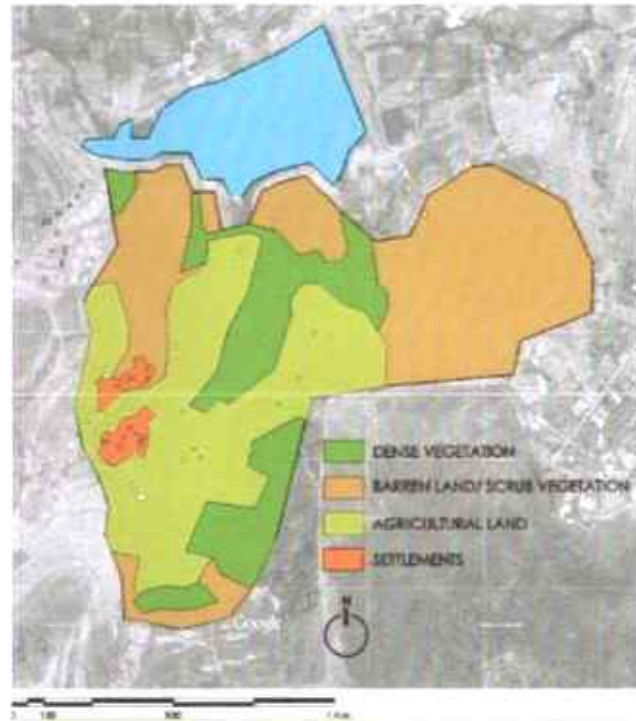


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## VEGETATION

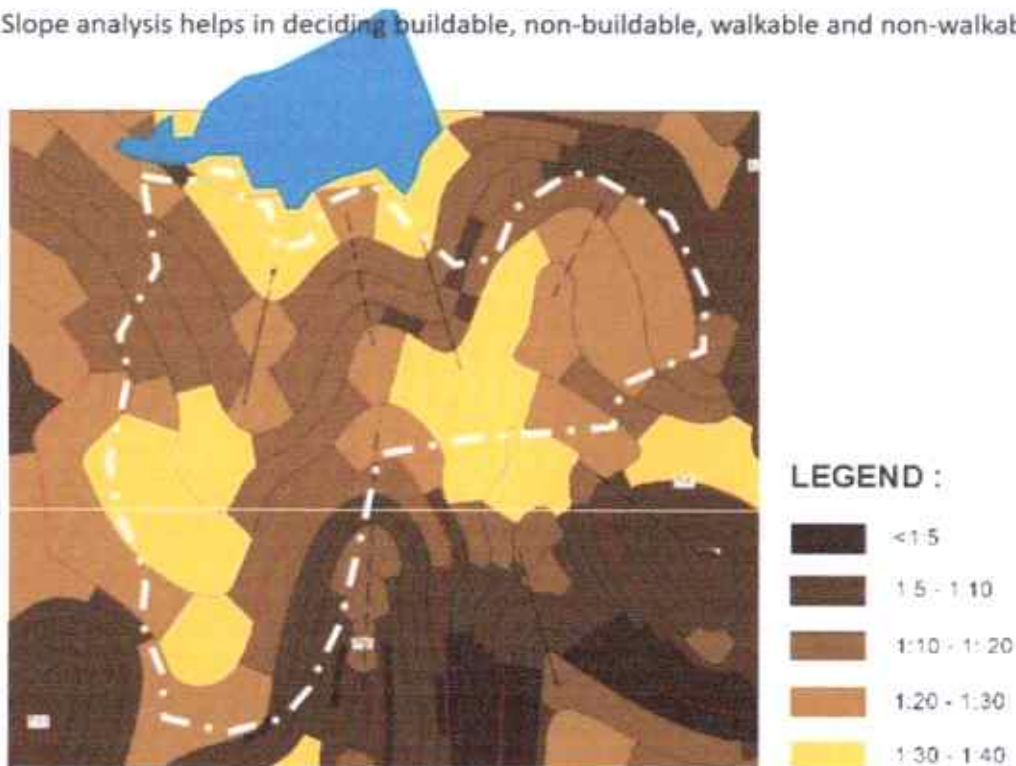
- Trees on site are assets that can yield multiple ecological and social benefits.
- Trees serve various design functions like provide shade, screen undesirable views and serve as wind breaks. They also have aesthetic value.
- Significant trees on the site should be mapped to ensure that as many trees as possible are protected. The information commonly includes size, species and location.



sem v : la

## SLOPE ANALYSIS

Slope analysis helps in deciding buildable, non-buildable, walkable and non-walkable slopes



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## Microclimate

- Atmospheric conditions like precipitation, temperature, humidity, sky conditions, solar incidence, wind direction and wind speed influence site planning.
- Microclimate is the climate of a specific site which is influenced by the existing site conditions like vegetation, buildings etc
- Slope and aspect of a site also affect the microclimate
- The microclimate must be studied not only for the natural elements, but for how any man-made elements, such as buildings and landscaping are affecting and/or will affect the site. For example, a windbreak that protects against the winter winds can change the microclimate of the site significantly.



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## UTILITY

A site utility inventory should at least include the locations and sizes of the utility systems, if they exist on or are adjacent to the site.

- a. Storm water sewer
- b. Sanitary sewer
- c. Potable water
- d. Electricity
- e. Natural gas
- f. Telephone
- g. Television cable

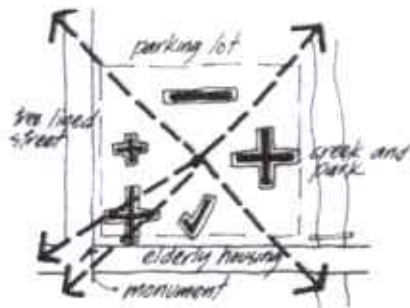
## CIRCULATION

- On site circulation systems must be internally well organized and must be linked to off site circulation systems.
- The location of adjacent streets, driveways, drop-off zones, service areas, and parking lots influences the spatial organization of the developed site.

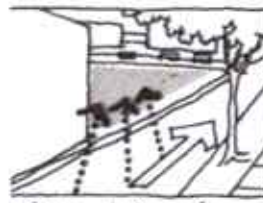
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**SENSORY**

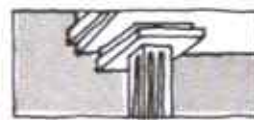
Adjacent land uses may affect a site through sights, noise, odors and other perceptible impacts.



Views from Site



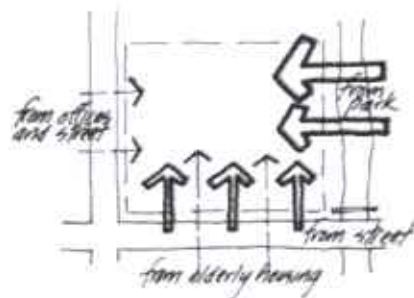
views into site



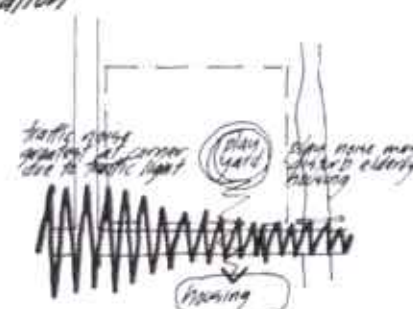
details



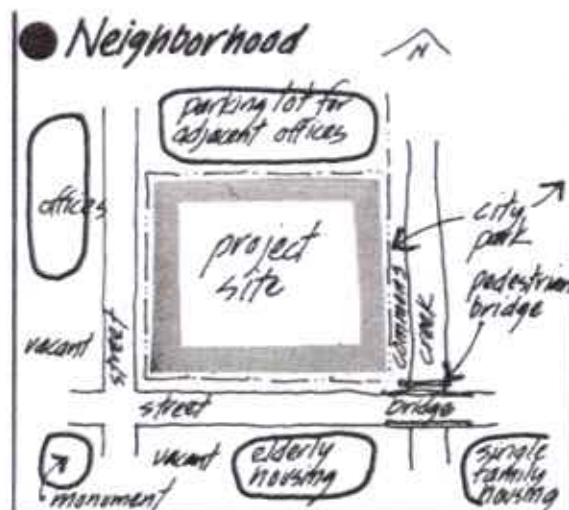
street elevation



View to Site



- The massing and placement of buildings in a city, village, or other settlements contribute to the character of the neighborhood.
- It helps in taking design decisions to add to the area's visual quality.



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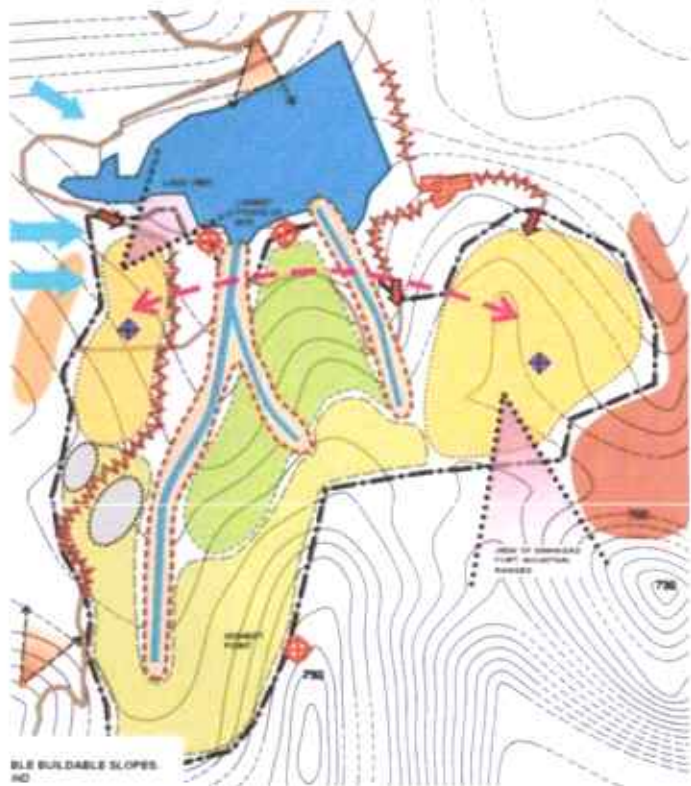
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# SITE SYNTHESIS

**LEGEND:**

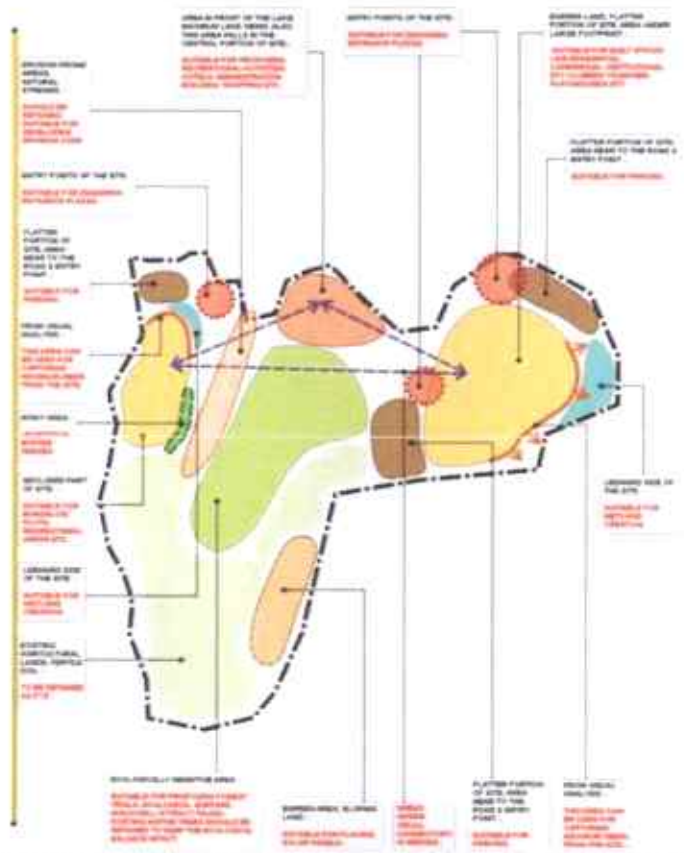
	HIGHEST & LOWEST POINTS ON SITE		USUAL ZONE DETERMINING CHARACTER OF THE TERRAIN
	WATER FLOWS OF THE SITE		IMPORTANT ZONES FOR THE SITE
	WINDING AND WIND DIRECTION		NATURAL STREAMS & RAINFALL RUNOFF AREA
	WATERAGE POINTS ON SITE		WIDE PARTS OF THE ROAD
	TRAFFIC JUNCTIONS		USUAL CORRECT FLOW

	COMFORTABLE BUILDABLE SLOPES BARRER LAND
	EXISTING AGRICULTURAL LAND FERTILE BLACK COTTON SOIL
	ECOLOGICALLY SENSITIVE AREA FOREST LAND
	ALREADY DEVELOPED FARM HOUSES
	WATER LAND PARTLY DEVELOPED
	EXISTING SETTLEMENTS



sem v : la

# SITE SUITABILITY



sem v : la

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# Contemporary Landscape Architecture

LA

III YR B.ARCH

B.Y.P.C.O.A.




LA

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## What is meant by Contemporary?

Contemporary literally has to be one of the broadest categories in terms of style and design. By definition, contemporary means, belonging to or occurring in the present. Based on the definition, contemporary is not a static style. Instead, it is always changing.

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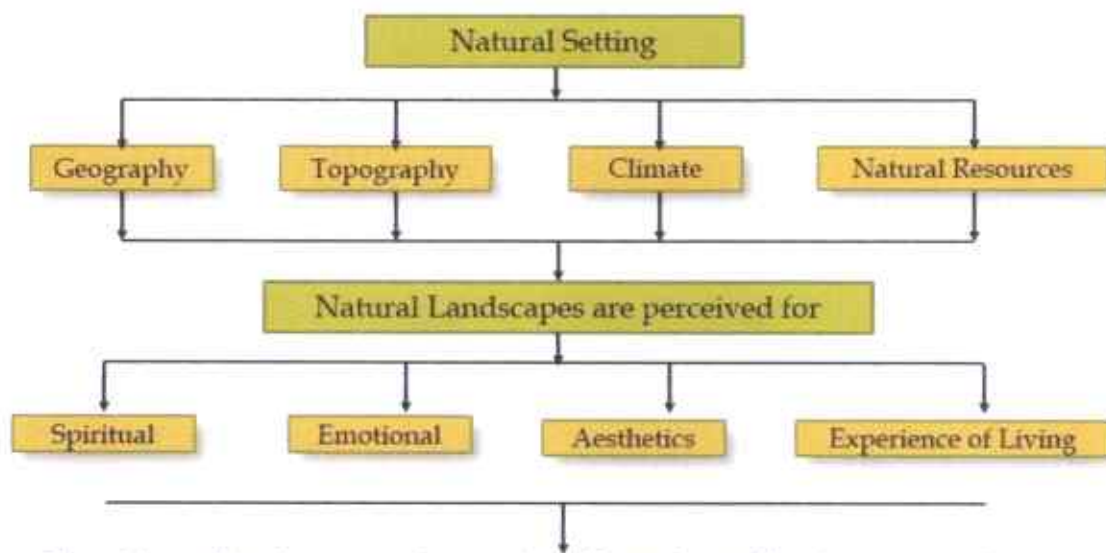
# Introduction

- Contemporary Landscape Architecture is characterized by a subjective determination to sculpt the landscape into spaces that reflect the human living experience. It develops these spaces with respect to Nature, and in some way or another always works to create a relationship between architecture and the contemporary landscape.
- Contemporary Landscape Architecture can be used either to unify architecture and the surrounding landscape, or it can be utilized to starkly contrast the differences between the two.
- The exact nature of the relationship is always determined by the project itself, its location, and the type of environment being worked in. Because it flows along the lines of contemporary design in general, and because of its highly subjective characteristics, contemporary landscape architecture can be found in almost any setting where the experience of living itself is used to create forms and structures outdoors.

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These Natural Landscape are then sculpted & emphasized for the purpose of human appreciation in the history. Thus designed Forms and Structures that are based on some practical function dedicated to improving the quality of life is an existential landscape which is also called as

**Contemporary Landscape Architecture.**

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## Difference between Modern and Contemporary Landscape Architecture

Modern Landscape Architecture	Contemporary Landscape Architecture
Modern landscapes are defined by their clean, hard-edged minimalism and use of materials such as concrete and metals.	Contemporary Landscapes goes for a natural look with wood accents.
Rigid, informal and formal, has a structure & has a particular set of materials.	It's not rigid, it's not formal, yet it's not without structure.
Modern landscapes are eccentric and more of a statement maker.	Contemporary landscapes doesn't have the same set of hard and fast rules. They grow naturally and blend with the nature (even though set in geometric pattern.)
When designing Modern landscapes one has to focus on space, space relation, new materials, freedom of form.	When designing a contemporary landscape, your primary goal is to work with what's already in place and make it better.
Modern Landscape architecture is the revolutionary style of 20 <sup>th</sup> century where innovative use of materials and seamless integration of steel, glass, concrete and whitewashed stucco exteriors, piers, free facade, open plan, ribbon windows and a roof garden into the landscape.	The use of materials in contemporary landscape architecture varies greatly depending on what is new and popular. Current contemporary landscape practices include sustainable design, natural materials and eco-friendly or green design

- **Simplicity-** In the contemporary landscape design "Less is More". Although a contemporary landscape doesn't have to be minimal, clutter and chaos would lower from the overall statement.
- **A strong sense of geometry-** It doesn't have to be a rectilinear approach nor circles but a constructivist structure is what makes any design contemporary.
- **Planting-** Contemporary landscapes planting schemes can be best identified by few elements:
  1. Meaning, really a choice of just a few plant varieties. Not as many as in cottage garden. String groups of same: think 10's & 20's rather than 3's and 5's in numbers.
  2. Dramatic statements. Usually achieved with plants with strong foliage or texture.
- **Few Materials-** few materials work best, also choose materials which contrast well. Natural (elements) materials always can be favored, but many designers use plastic, concrete and a whole range of synthetic products with great contemporary effect.



- Loose Planting Scheme and materials whose edges are blending with the surroundings.



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- Use of Plants to connect garden with the surrounding.



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- Simple Geometry.



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- Balanced Proportions



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- Designing Along Axis



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### Architect's Introduction

Mohammad Shaheer Sir is a reputable landscape artist in contemporary Indian society. He received medal of the Indian Society of Landscape Architects and the best professional design award for garden-museum of Sanskrit foundation. In his renowned urban projects such as Nezamedin-e-bastior rehabilitation of the Baber Historical Garden, the design of the spaces has to do with **human activity** in a way that provides the ground for more and more people to come and that is what spatial sustainability is; as *each space is defined* by the presence of people in it. Shaheer Sir's works are based on **principles obtained from the past, but adjustable in dimension and different scales to the view of modern and current view of life of the people and cultural circumstances of India.**

[https://www.academia.edu/14007030/Contemporary\\_Cultural\\_Landscape\\_3\\_beginning\\_of\\_Reviving\\_Modernity\\_Garden\\_museum\\_of\\_Sanskrit\\_Foundation\\_](https://www.academia.edu/14007030/Contemporary_Cultural_Landscape_3_beginning_of_Reviving_Modernity_Garden_museum_of_Sanskrit_Foundation_)



Ar. Prof. Mohammed Shaheer

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## SANSKRITI KALA KENDRA, New Delhi



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### Project Description

- Sanskriti Kala Kendra is a cultural complex, in shape of a garden, for the life and work of artists in a creative space.
- This complex was established in 1993 by Sanskrit charity foundation to help preservation and rehabilitation of cultural and historical legacy in New Delhi.
- In this project seven hectares of arid and uncultivated land was transformed into a green area with thousands of trees and shrubs.
- This complex consists of three museums called museum of every day art of people of India, museum of Indian terracotta and textile museum.



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### Architect's Approach

- Shaheer Sir's principle approach is based on merging Indian traditions and modern ideas together which is perceptible in his projects. He believes "every district has its own standards for evaluation and definition of a suitable approach of contemporary understanding, while keeping in touch with thoughts and ideas of the past".
- His other approach is continuity which creates a space that is sustained by the continuous presence of people. As he says about this project: "a lot of functions or the probability of their occurrence played an important role in the idea of the landscape design".
- Background tendency and precision in cultural context of the project is a significant approach of this architect which results in paying attention to long held beliefs and traditions of the people of India in order to rehabilitate their culture.



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### Project Groundwork

- The site of this project is historically enriched and geographically dry. It is located in the outskirts of the hill of "Araouli/ Aravali" in southern side of the suburbs of Delhi.
- As a result of Delhi's suitable economic status as the capital city, people of other cities and villages of India immigrate to this city.
- The cultural context of the district is like other parts of India eclectic and is consisted of different beliefs and religions.
- Even though the city of Delhi is enriched historically, the site of the project does not bear any special significance, because of its far distance from well-known historical buildings



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### Way Of Approaching Ecological Context

- The complex began not with building plans or coinciding the landscape arrangement with architecture, but with planting more than hundreds of native trees and therefore the ecological context is less important in contrast to history and culture in terms of background tendency.
- In the planting design, the way of looking at identification is elemental and even though the trees are used as symbolic elements, it seems that its geometrical system is affected by romantic English gardening, in disperse planting and order in micro scale which has a more powerful bond than Indian archetypes.
- In so far as Jon T. Lang says in Sanskriti "The buildings sit as objects within a landscape designed in the English Landscape tradition."  
But Shaheer denies the English Landscape and declares:  
"The ecological background is absolutely basic, it has to be inseparable from any modern Indian landscape theory." And also there is no pre-conceived "shape" to the gardens.
- Bare compact earth is accepted as an inevitable surface condition in most of the landscape spaces; this is true of gardens in traditional courtyard spaces in North India.

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- Of course, the important spaces of the complex, especially the central space is a well-maintained lawn, for functional reasons.
- Prof. Shaheer Sir doesn't consider Indian Landscape as Mughal or Persian landscape. Instead, he considers the descriptions and evocation of landscape traditions of ancient India, of the time of Ashoka in the period 2000 years before the sultanate and Mughal periods in North India.
- These seem to imply hardly any division or distinction between the garden and its natural surroundings, and the descriptions in poetry speak of forests and groves as places of serenity for retreat and recreation.
- In response to the differences in planting between Sanskriti and gardens inspired by Persian ones like Taj Mahal which have axial arrangement in their planting Prof. Shaheer Sir says, "The Taj Mahal is a tomb garden. It may not be appropriate to seek inspiration for a Modern institutional landscape (Sanskriti) in it."



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## Applying the Experience of Spaces

- The aesthetics of the site is the result of experiencing the spaces more than representation of formal application of merely ornamental characteristics.
- Experience of attending the outside cannot be felt without the presence of external environment, but it can introduce new meanings in the connection with the nature by the usage of private courtyard and hatches in the wall that can show images of nature.
- Dividing the open spaces causes a kind of scale and hierarchy. From the city square to the internal courtyard of the house and from entering the public realm to the more private one, the main characteristic of this transfer, that can be considered paradoxical from the point of designing, is that in spite of properly preserving the basis a gentle advance from one realm to another can be seen.
- This domain of the basis from inside to outside and vice versa, it has been used in the form of entering the room to the inner courtyard and to the street, light to the shadow or water to the soil.

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- The site plan is severely derived from the traditional environment and the way they encounter the open spaces.
- Making the arrangement of Adjacencies in terms of adjustment of open spaces with rooms located around the yard and paths which are located in both sides of walls and reach to pleasant fields is quite wise.
- Architecture and Landscapes are entirely mixed such that it hardly can be understood where the architecture comes to an end and the landscape begins



Figure 1. Series mattresses of open spaces, Sanskriti Kala Kendra, Delhi, INDIA



Figure 2. The fusion of architecture and landscape, Sanskriti Kala Kendra, Delhi, INDIA

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## Usage of the Cultural Forms of Nature

- Applying the cultural forms of nature in a symbolic way that has formed the natural and cultural landscape of this complex. For instance, the meadows in the margins are considered as sacred meadows or the Banyan tree that has been placed at the entrance is considered as an image of nature that is the statement of the eternal life and wisdom.
- That can show the power of the nature. In addition, fig 3 implies the sacrifice column or royal column at the entrance of the cities and the villages that have always been honored. All of the chosen trees are related to ancient world and in Indian epical narrations like Ramayana and Mahabharata are mentioned.



Figure 3. The Banyan tree in the entrance. Sanskriti Kendra, Delhi, INDIA



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## Chowk

- Regulating the spaces, whether open or fenced, in a formal way but asymmetrical, was a reason to make the possibility of widening it. These spaces were multifunctional and for creating the different experience of traditional concept of city plans have been made.
- The central Chowk in the many residential quarters can cause a lot of activities from weekly Bazaars in the early mornings to the playgrounds in the time of the day, meeting people in the afternoon, celebrations and festivals, these Chowks that water and tree are their main elements & were the center of people's activities.
- Therefore, their social significance is more remarkable than their applications. These spaces with their climatic design and attention to vernacular elements make live environments a pleasant visual pattern.
- Chowks and central courtyards in a bigger urban pattern are mixed tighter and make continuity the inner and outer spaces. The central courtyard is a solution for touching the nature and listening the sounds and dragging the sense of the nature to the house. That is a relation between architecture and nature. For the different spaces in this complex every experiences of urban Indian spaces can be sensed. Chowks with plain facades, central gardens, trees and platforms.

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Figure 4. A different experience of traditional city plan, Sanskriti Kala Kendra, Delhi, INDIA

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### Identity Elements

- Applying the elements that reminds Indian culture from the statues placed in the garden to façade in some spots of the open space or chaarbagh can be seen.
- The horses that are placed on a platform inviting and invite the audiences to celebrate the happiness and chaarbagh that is are reading of one of the most famous buildings in the history of Indian landscape that is a reminder of the entrance of the Iranian landscape to India.



Figure 5. Identity elements, Sanskriti Kala Kendra, Delhi, INDIA

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## Architect's Introduction

Martha Schwartz is a landscape architect and artist with a major interest in urban projects, creating public realm spaces that engage with people, and build community through intelligent, focused, yet unexpected ideas-based design. Her background is in both fine arts and landscape architecture and is a Professor In Practice at The Harvard Graduate School of Design here she has taught since 1992.

Her mission is to explore the relationship between landscape, art and culture and challenge traditional concepts of landscape design; find opportunities where landscape design solutions can enhance the social, environmental, and economic sustainability of a place and raise them to a level of fine art; and make landscape design critical to the sustainability of our surroundings. MSP believes landscape architecture lends a positive effect on the community by providing a healthy environment that engenders freedom of thought, creativity and curiosity. It is from those beliefs and values that our designs are realized. As we envision ourselves as a part of 'nature', aesthetics are a necessary component of environmentalism. The aesthetic quality, or design, of our environments will determine their success and relevance to our respective cultures. Our philosophy motivates us to conduct extensive research and develop flexible design frameworks that conceive developments as integrated with the surrounding community and the landscape and furthermore, it inspires us to bring total commitment, talent and time to each project. We take our cues and design inspiration from the site and social, economic and environmental context.



Ar. Prof. Martha  
Schwartz

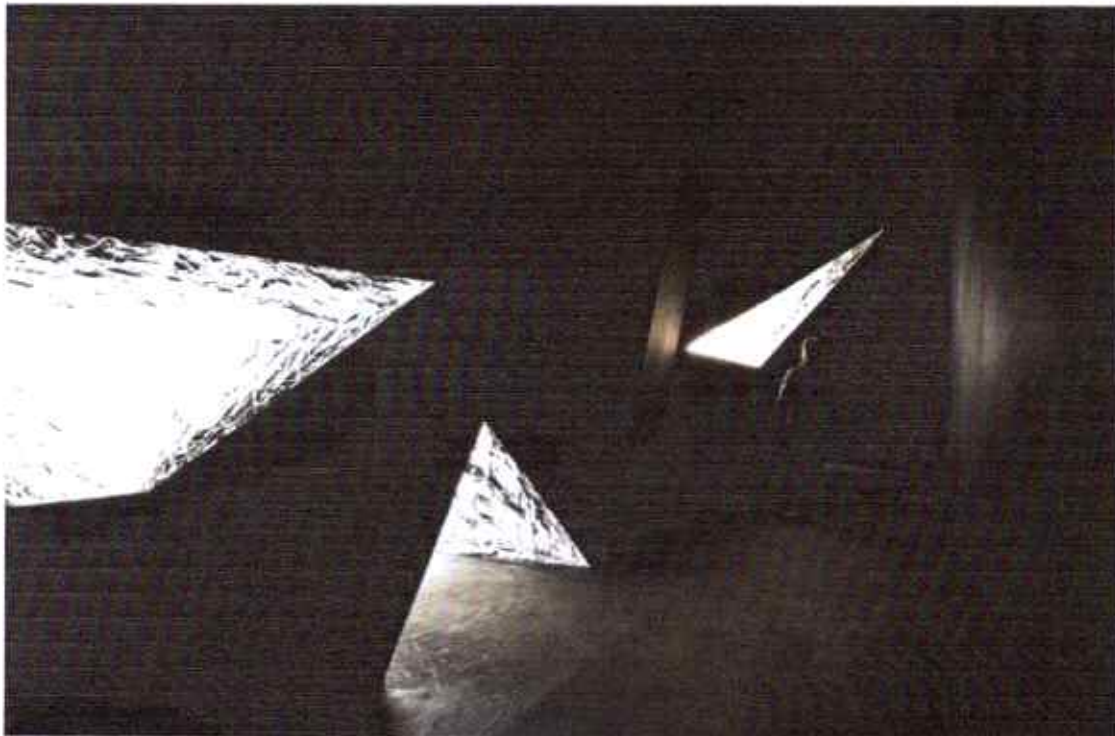
"I always aim to have fun with a project and hope that comes across. I like taking a risk and would like to think that what we do is memorable and leaves an impression."

<https://www.architonic.com/en/story/alyn-griffiths-grounded-new-landscape-projects/7001690>

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## Reyjavik Art Museum Iceland

- This huge black box installation (14m width, by 14m length and 5m high) is entitled I Hate Nature/ Aluminati and was installed in the museum courtyard in May 2008.
- It makes a statement about society's delusional view that there are limitless natural resources to exploit in the modern world and specifically about Iceland's economic dependence on aluminum, which involves a destructive smelting process.
- Visitors walk into the box from a corridor inside the museum and are presented with a series of framed views onto a blinding space of crinkled, industrial aluminum which is both mesmerizing and repulsive, attractive and dangerous.
- "The disconnection between what we say and what we do about nature, along with our misconception of our place in nature, disallows us from developing a pro-active, form-giving attitude towards the built environment," says Schwartz.



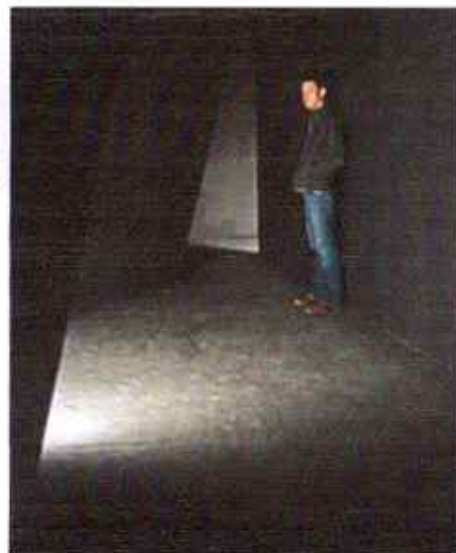
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<https://www.cladglobal.com/architecture-design-features?codeid=32835&ref=n>

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The Aluminati installation was designed to explore Iceland's economic dependence on aluminum



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## Beiqijia Technology Business District

- Landscaping also has an important role to play in providing green space in urban environments, which can help to improve the climate by decreasing the amount of heat-absorbing tarmac or paving.
- This was one of the key aims of the site designed by Martha Schwartz Partners at the Beiqijia Technology Business District in the Changping district of Beijing, which also cools the south-easterly summer winds by directing them over a large water feature.

<https://www.architonic.com/en/story/alya-griffiths-grounded-new-landscape-projects/7001690>

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Martha Schwartz Partners' masterplan for the Beiqijia Technology Business District in Beijing is designed to optimise use of water, reduce paved surfaces and increase the green ratio of the mixed-use development. Photos: MSP



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## Whitehead Institute "Splice Garden", Cambridge, MA, USA

Location: Cambridge, MA, USA

Client: Whitehead Institute for Biomedical Research

Design Team: The Office of Peter Walker and Martha Schwartz (Martha Schwartz, Bradley Burke)

Size: 875 square feet

Status: Completed 1986

- This 25 foot by 35 foot rooftop garden in Cambridge, MA is part of an adventuresome art collection assembled by Director David Baltimore for the Whitehead Institute, a microbiology research center.
- The site was a lifeless rooftop courtyard atop a nine-story office building designed by Boston architects Goody Clancy Associates. Its dreary, tiled roof surface and high surrounding walls conspired to create a dark, inhospitable space, overlooked by both a classroom and a faculty lounge. The lounge offered access to the courtyard, making it a potential place to eat lunch.
- Along with its spatial woes, the floor of the courtyard was constructed with a concrete decking system that could not hold additional weight. There was also no source of water for the rooftop, no maintenance staff, and a low budget, precluding the possibility of introducing living plants.

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- However, it was entirely possible to convey a sense of a planted garden by providing enough signals for the site to read as a garden.
- There are many examples of other cultures that create garden abstractions. For example, in Japanese gardens, symbolic landscapes often imply a larger landscape. This was the strategy at Whitehead — to create a garden through abstraction, symbolism, and reference.
- Schwartz wanted the narrative of the garden to relate to the work carried out by the Institute. The garden became a cautionary tale about the dangers inherent in gene splicing: the possibility of creating a monster.
- This garden is a monster — the joining together like Siamese twins of gardens from different cultures. One side is based on a French Renaissance garden; the other on a Japanese Zen garden.
- The elements that compose these gardens have been distorted. The rocks typically found in a Zen garden are composed of topiary pompoms from the French garden. Other plants, such as palms and conifers, are in strange and unfamiliar associations. Some plants project off the vertical surface of the wall; others reel/roll precariously on the wall's top edge.

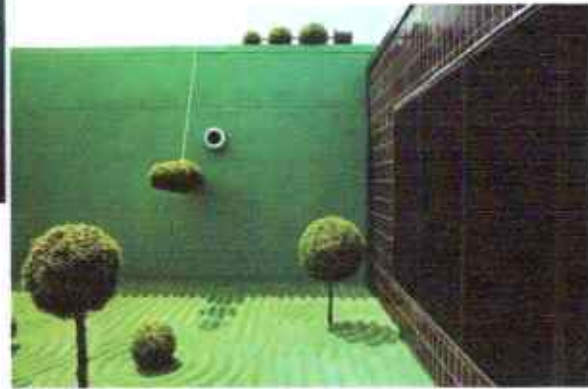
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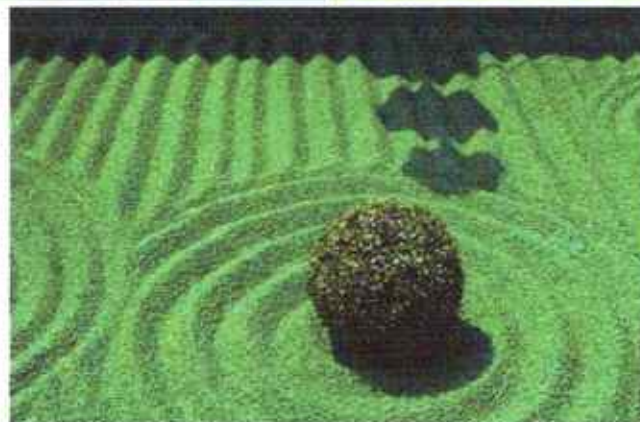
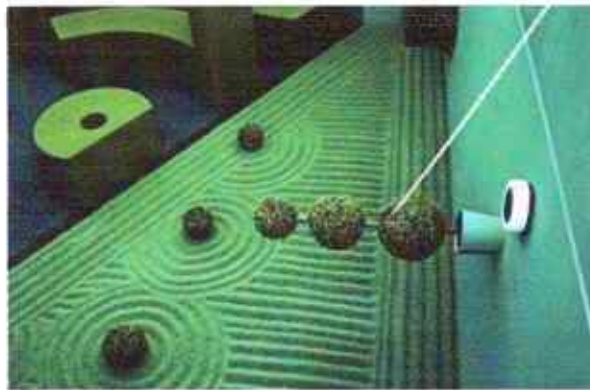
  
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- All the plants in the garden are plastic. The clipped hedges, which double as seating, are rolled steel covered in Astroturf. The green colors, which are the strongest cues that this is a garden, are composed of colored gravel and paint. The intent was to create for the scientists who occupy this building a visual puzzle that could not be solved. The garden is an ode to "better living through chemistry."



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## **CRITERIA 1**

### *Curriculum Enrichment*

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**1.3.1 List of topics in Architectural Design Project in B. Arch Program which addresses crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the curriculum.**

**(AY 2021-22)**



Dr. D Y Patil College of Architecture, Akurdi Pune  
Fifth Year B. Arch  
Guide Allotment list for Architectural Design Project (Thesis)2021-22

Academic Year 2021-22. Date: 08/02/22

Sr.No.	Name of the Faculty	Sr.No.	Students Name	Topic	Batch
1	Ar. Dhanraj Chaudhari	1	Yashwanth Paraskar		B
		2	Anshika Nair		A
2	Ar. Chaya Thirvi	3	Srujita Desai ✓		C
		4	Ashwarya Chhajoti		A
		5	Harshita Mendel		B
3	Ar. Abhijit Maswani	6	Vedant Shambhulkar	Assessment center for Rajgad	A
		7	Neha Kanade	Site visit at Lonavala	B
		8	Rushikesh Wastekar	Centre for Activism and social justice at New Delhi	C
4	Ar. Anita Wastkar	9	Rohini Patil		B
		10	Kaishik Desai	Boarding School at Kapra, Yavatmal	C
		11	Madhuri Agrawal	AARWAS for Animal Welfare and Rehabilitation Society at INDOR	B
5	Ar. Anant Gole	12	Anya Jayashree	Health Rescue Centre, Wayanad	A
		13	Priya Math	Intergenerational Activism, Indore	C
		14	Srujita Bhat	Gunkul, Pune	C
		15	Divya Dalavi	Mural School, Pune	D
		16	Srujita Kamble		B

  
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6	Ar. Raksha Bongirwar	17	Ashani Purbhe		A
		18	Sonija Pansarik		C
7	Ar. Sneha Sharma	19	Manish Narian	Proposed sports complex at Marjari budruk Pune	B
		20	Vaishali Kundekar	Proposed Veterinary Complex and Animal Shelter at Nagpur	C
		21	Pratiksha Pardesti	Proposed cinema/curium at Nashik	B
8	Ar. Nikhil Mehare	22	Anjali bawaskar		A
		23	Priyanka Landge	Heritage Hotel at Nashik, Sindhudurg	B
		24	Shrikant Shemar	Marati Spendsay and country club at Nandiv Pune	C
9	Ar. Purnav Athavale	25	Riya Batta	Meditation Centre at Mulsh	A
		26	Pratiksha Bajare	Recreation Centre at Nagpur	A
		27	Priyanka Nikam		B
10	Ar. Nupur Chichkhede	28	Kalpani Sonekar		C
		29	Vaishnavi patil		B
		30	Nayan lothi		B
		31	Payal Navale		B
11	Ar. Anika Deshpalkh	32	Rohan Mane	Multi Speciality Hospital at Chikhal	B
		33	Aishita Shagal	Alzheimer's Health care Centre at Agra Uttar Pradesh	A
		34	Vardreddy Triaraja	Eco Resort at Hyderabad Telangana	C
		35	Ananya Jauhari	Athletic Excellence Center for Differently-abled at Gwalior	A
12	Ar. Dhanashree Utgikar Nidhi Shah	36	Swarnil palve	Business Hotel at Nashik	B
		37	SHIVANI PARDESHI	Meditation Center at Khopoli	B
		38	Urnabi Barange	Resource center for homeless at Mumbai	A
		39	Tejaswini Dhande	National institute of design at Nagpur	A

  
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13	Ar. Ashinwad Konde	40	Shrut Waghare	Industrial Training Institute	C
		41	Shreyas Jori	Eco Resort	C
		42	Umi Dhake	Transquility Centre	A
		43	Thirani Sanchari	Housing for Senior Citizens	C
14	Ar. Anil Mishra	44	Vidya Patil	Thinking Soul Retreat, Pune	C
		45	Vaishnav Kadam	Nar Bharat Udyan, New Delhi (Memorial for India's freedom movement)	C
		46	Omkar Tiwaskar	Howland Football Training Complex	B
		47	Mohsin Laddha	Film and Television Acting School	B
15	Ar. Neha Pathak	48	Mahesh Pathan	Retirement Home, Chikhal	B
		49	Ashwarya Shewale	Tribal Interpretation Centre, Trombayashwar	C
		50	Seham Ghosh	Centre for Public Engagement and Social Well-being, Kalyani Nagar	C
		51	Shubham Sankar	Winery, Lonasa	A
16	Ar. Chinmay Sudane	52	Neha Jadhav	Homeless School and Hostel, Nashik	A
		53	Ashay Mishra	Eco Retreat Resort, Dapoli	B
		54	Sakshi Patil	Performing Art Centre at Washi, Pune	C
		55	Mugdha Phatak	Pediatric Hospital, Goa	C
17	Ar. Madhura Harji	56	Ragini Patil	Spiritual Centre, Pune	B
		57	Jayesh Kadane	Resort, Pune	B
		58	Abhijeet Khapre	Sports Complex, Pune	A
		59	Vandana Nomula	Spiritual Centre, Lonavala	C
18	Ar. Priscilla Dhanik	60	Kuljeet Phakkar	Resort at Taleigar	C
		61	Ashwini Wankhede	Automobile Museum at Pimpri Chinchwad	C
		62	Gautam Wadia	Green IT Office Building at Nagpur	C
		63	Sushant Ichhande	Dephanage at Nashik	B


19	Ar. Preeti Kulkarni	64	Aman Sharma	Meditation Centre	A	
		65	Rishra Mitta	Public Library	B	
		66	Utkarsha Chitambar	Hospice care Centre	C	
20	Ar. Purnima Chitale Shirke	Ar. Shweta	67	Shweta Bhagwat		A
			68	Nishi Nawale		B
			69	Janhavi Danade		A
			70	Akanksha Gokari		A

21	Ar. Harshada Wagh	71	Priyanka Asalkar	Socio-cultural Hub at Pune	A
		72	Runal Dengal	Post-Disaster Housing at Talaje	A
		73	Kashita Pawar	Multispecialty Hospital at Satara	B
		74	Sarth Isakare	Fish Harbour at Mirajwada	A
22	Ar. Ketki Moholkar Ar. Abhinav Shrivastava	75	Dhanvir	Sports Complex	A
		76	Runal Dedge	Rehabilitation Centre for Street Children	A
		77	Samrudhi Bhalekar	Retirement Home	A
		78	Manav Agarwal	Space Science Center	B
23	Ar. Pranali Gokhale	79	Ameys Pali		B
		80	Deepali Chhajre		A
		81	Gayatri Paratane		B
		82	Aniket Kulkarni		B
24	Ar. Utkarsha Kulkarni	83	Priyesh Zope		C
		84	Bhagyashri Kulkarni		B

  
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		80	Kaustubh Gadhkar		=
		86	Jai Wankhede		C
25	Ar. Kalyani Somwane	87	Vikram Valke	Museum of modern and contemporary art	C
		88	Ajay Bhoj	Tentative Topic: National Institute of Design	A
		89	Sahni Bhalla	Tentative Topic: Tourist information Centre	C
		90	Shrunkhala Danke	Pilgrims Centre	A
26	Ar. Barkha Soni Ar. Pooja Nijhadkar	91	Akanksha Singh	Cultural centre	A
		92	Pratik Dhawane	Jungle safari resort	A
		93	Shradha Dhoot	Home for orphans	A
		94	Sakshi Chandhan	Cultural Rejuvenation Centre	A
27	Ar. Sumita Kothari	95	Dhanya Dorade	-	A
		96	Kshilpa Agarwal	Film Institute	A
		97	Shreyash Chapple	Re-imagining Vajbhay University	A
		98	Swaraj Deshpande	Permanent centre For IFFI	A
28	Ar. Purva Kulkarni	99	Abhay Gupta	Sustainable Vertical Urbanism	A
		100	Vincenta Mary Thomas	Wellness home- a prototype for students for university Campuses	C
		101	Dipsi haas	Agro-Tourism Center at Nashik	A
		102	Sudeshna Patil	Kul- A community for old & young	C
29	Ar. Gayatri Patole Ar. Kalyani Varade	103	Siddhi stin darade	Minimalistic eco-tourism resort	A
		104	Rahul Shawale	Heritage Museum at Chel. Alibaug	C
		105	Hemanshu Sakhare	Automobile Museum Of Indian Innovation Pune	C
		106	Sakshi Agrawal	Residential School for Blind and Deaf in Solawadi, Pune	A
---	Ar. Neha Jalan	107	Husain Bajaj	SOS CHILDREN VILLAGE	A
		108	Sharan Malhotra	ECO - TOURISM CENTER	B

  
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20	Ar. Akalpita Joshi	109	Kalpe/Bhamburda Wale	NOT DISCUSSED	C
		110	Priya Mane	NATUROPATHY CENTER	B
21	Ar. Archaee Verma	111	Siddharath .S. Byasagi	MULTI SPECIALITY HOSPITAL AT HERE. PUNE	A
		112	KSHITIJA UTEKAR	(SPORTS COMPLEX) Krida Sankul at Mahad. Karjat	C
		113	Pavik Mane	NATIONAL INSTITUTE OF DESIGN PUNE	E
		114	Riya Agrawal	WELLNESS RESORT AT BODA CHAWRI KANHA	C

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