

APTITUDE TEST

Architecture, Interior Design & Landscape Architecture

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1.0 INTRODUCTION & BACKGROUND

1.1 The Field of Architecture and Interior Design

The disciplines of architecture, interior design and landscape architecture are broad-based; spanning both the sciences and the arts, and integrates technology and culture. Architects and interior designers should also possess skills that are relevant to all aspects of the built environment, from constructing new buildings, landscapes and interiors to conserving old ones to renewing deteriorated areas. Such broadness is evident in the multiplicity of definitions for the fields of Architecture, Landscape Architecture and interior design focusing on different aspects such as socio-cultural, economic, technological, artistic, and creative aspects. The inclination towards one or a combination of aspects is mainly related to educational systems and job opportunities. However, one thing constant to the design professions is that they are concerned with People, Spaces and Nature. Architecture interior design and Landscape Architecture should not only reflect the society in which it comes into being, but it should influence the way in which the society evolves while integrating harmoniously with the natural environment.

1.2 Studying Architecture

The purpose of studying architecture and interior design is to learn how to make physical changes to our surroundings in order to enhance the quality of the built environment and human experience of life by integrating and harmonizing between different aspects: socio-cultural, economic, historical, technological, environmental, and aesthetic, etc. Within this broad purpose, study and practice of architecture and interior design includes the tasks of providing shelter and environmental protection, appropriate settings for human activities, and creating spaces and forms that are aesthetically pleasing and supportive of social well-being and of environmental integrity. Such important and noble responsibilities require certain capabilities of aspirants to be able to pursue a career in architecture, landscape architecture or interior design.

Ideally, the beginning architecture student will have a solid background in the physical sciences, including mathematics; be able to "conceptualize" at an above-average level; have a strong proficiency in oral and written communication; demonstrate a breadth of interest in the humanities; and be able to draw and sketch with ease. It is doubtful that such a student exists-but even three out of five isn't bad.

Association of Collegiate of Schools of Architecture (ACSA / America)

Architects, landscape architects and interior designers receive their professional education and training in hundreds of schools of architecture the world over. A qualitative survey of admission reveals a number of criteria used in different combinations, and with diverse emphases in all schools of Architecture, Landscape and or interior design. Such criteria reflect institutional and societal values and norms regarding design and its context.

A historical perspective reveals that not much has changed as far as accessibility to architectural education is concerned: schools have always been selective as to who they admit, due to constrained resources as well as a need to set an appropriate threshold for quality of performance. What has changed is the diversity and complexity of yardsticks used to determine suitability and appropriate performance. In yesteryears, design skills – mostly technical presentation skills – were an overriding measure of adequacy (*Beaux Arts* tradition). Today creativity (following the *Bauhaus* and *Vkhutemas* heritage), as well as reasoning power and high general aptitude (prevalent in higher education in general) play a much more important role in determining who will be allowed to acquire architectural education.

(Oliver and Hayward, 1990).

1.3 Admission Criteria

The schools of Architecture, Landscape Architecture and Interior Design use a certain assessment criteria to ensure the suitability of candidate and/or control intake and/or to ensure adequate threshold of preparedness. These criteria could be categorized into:

- **High School Records**

According to the norms in each country, high school records may consist of average grades such as the GPA (Grade Point Average) in the USA, a state-administered final exam such as the Matriculation, or a Baccalaureate (there even exists an International Baccalaureate certificate).

- **Psychometric Tests/General Scholastic Aptitude**

In many countries, university entry applications require that the candidate submit records of a general scholastic and/or psychometric test. Such tests examine various cognitive and scholastic abilities to estimate future success in academic studies. These tests are normally administered by the state or by the universities; examples are the SAT (Scholastic Assessment Test) and ACT (American College Tests) scores in the USA.

- **Special Architecture Aptitude Test**

Many schools use special tests designed to reveal candidates' "aptitude" for architectural studies. Tasks given in those tests pertain to visual memory, spatial organization, drawing abilities, communication capability and design and aesthetic sensitivity. In most cases, these tests are administered by the Architecture Departments themselves.

State of Maharashtra – India	National University of Singapore
Test covers: 1. Free Hand Drawing 2. Visualization 3. Observation 4. Sketching through Memory. 5. Colour and Aesthetic Sensitivity	Test covers 1 Interest 2 Visualization -- a) 2 and 3 dimensional perception, b) structural concepts 3 Visual composition and sketching 4 Design logic and information 5 Design appraisal

- **Portfolios**

A portfolio of design work (where applicable) or other creative work is reviewed in quite a number of schools as part of the requirements for admission into first year or a subsequent year. In some cases, a portfolio is required at more than one point along the way to graduation. Sometimes a portfolio is presented as part of an interview. In some schools the submission of a portfolio is voluntary and is encouraged in border cases.

The Portfolio as described by the Royal Institute of Architects - UK

*You will be expected to present a portfolio of your work at interview, and for many schools this is the **most important factor in offering you a place** on an architecture course.... The portfolio should present a broad mixture of your relevant work, especially sketches and freehand drawings, although it can include anything you think is relevant including photographs, life drawing, models, collages or found objects. Drawing is the essential skill of architecture, and you will be taught how to do the necessary technical drawing and computer aided design, so you don't need to learn these beforehand. Schools are not looking in your*

portfolio for highly skilled architectural work, but for evidence that you have the potential skills to benefit from an architectural education.

- **Interviews**

Interviews of candidates by faculty members and sometimes also advanced students are conducted in several schools. The weight of the interview results varies largely among schools. Sometimes the interview includes the presentation of a portfolio of creative/design work. In some cases interviews are not held at the point of entry into the school, but as part of the process of controlling admission into a higher phase of studies. For example in Beirut Arab University, An interview and an exam in English are required.

The interview as discussed by the Royal Institute of Architects - UK

There are two key areas where a student needs to prepare for the interview with the staff of a School of Architecture. A student need to do thorough research to make sure he/she has good answers to the questions likely to be asked. A student should also put together a portfolio.

Preparing for likely interview questions

Typical interview questions include:

- Why do you want to be an architect?
- Is there a particular architect or specific building you admire?
- Why do you want to study at this school?
- What do you see yourself doing in ten years time?
- What particular skills would you bring to the course?

These questions are designed to check that the students have done their research, have found out about the world of architecture and have made an informed decision. One should be reading the literature about architecture, looking at the RIBA website www.architecture.com, and the websites of the particular schools. This is important because the approach to architectural education differs between schools. The best preparation of all is if one can actually get to talk to an architect. A good time to do this is during Architecture Week when many architecture practices open their doors to the general public. The students should try to get to either the open days or the degree shows of the universities they are interested in. The degree shows allow the students to examine the work of graduating students, which normally take place from May to July and will give the students an excellent idea of the focus and orientation of work in that school.

- **Recommendation Letters**

Letters of recommendation: Letters of recommendation from former or present teachers or persons who are acquainted with the candidate's work and personality may also be required, sometimes in conjunction with a personal statement (statement of intent).

- **Statements of Intent**

Some schools require personal statements explaining why the candidate wishes to study architecture.

- **Written Essays**

A few schools require essays – short ones; or a longer writing assignment is given. The purpose is to test the candidate's ability to clearly communicate ideas and reason about them.

CONCLUSIONS

From the above discussion, it is clear that there are no standardized criteria for the admission to Architecture and interior design. Developing admission criteria to architectural program is a very delicate matter, which should take into account several cultural, educational, and professional aspects. The main aspects of aptitude tests are as follows:

- Schools of Architecture use different criteria to screen and to ensure suitability of candidates.
- Each of these criteria has numerous varieties and may assume a different weight in the overall assessment systems used by various schools.

- Different schools use one criterion or a combination of criteria depending on educational philosophies and social and economic interest
- There is no magic prescribed package for the workable criteria for the admission to schools of Architecture. The criteria that can work for one country on the contrary may not work for another country. In UK, screening depends mainly on Interview and Portfolio, while in the USA Admission is based preliminary on High School Records, and a Scholastic Aptitude test.

Useful Sites

- Association of Collegiate Schools of Architecture (ACSA) – USA
- Royal Institute of Architects (RIBA) – UK
- Who Should Be a Designer? Controlling Admission Into Schools of Architecture, by G. Goldschmidt, R. Sebba; C. Oren & A. Cohen.

2.0 APTITUDE TEST AT THE UNIVERSITY OF BAHRAIN

It is a requirement in the Bachelor of Architecture program, Bachelor of Interior Design Program and the Bachelor of Landscape Architecture Program at the University of Bahrain that the students must pass an aptitude test to be admitted to the program. This section outlines the policy related to the aptitude test at the University of Bahrain.

2.1 APTITUDE VS ABILITY

An **aptitude** is a component of a competency to do a certain kind of work at a certain level, which can also be considered "**talent**". Aptitudes may be physical or mental. Aptitude is **inborn potential** to do certain kinds of work whether developed or undeveloped.

In contrast, **ability** is developed knowledge, understanding, learned or acquired skills or attitude. The innate nature of aptitude is in contrast to skills and achievement, which represent knowledge or ability that is gained through learning. Often it is difficult to set apart an outstanding performance whether it is because of talent or simply because of hard training. However, acquired or natural ability for learning and proficiency in a specific area or discipline can be measured both simultaneously and separately. Aptitude is expressed in interest and is reflected in unguided, undeveloped performance which is expected to be improvable over time with training.

2.2 HOW TO MEASURE APTITUDE FOR CREATIVE PROFESSIONS

Aptitude Tests for students to follow creative academic pursuits are designed to measure creative cognitive capacity. The concept behind these tests is that the question has more than one answer, and everyone can produce outcomes that can be comparably more or less innovative than the other. The differences in outcomes between people is in how innovatively they can respond to the questions and produce novel answers.

What do aptitude tests measure? The tests measure what psychologists refer to as one's fluid and crystalized intelligence and logical and lateral thinking. The theory of fluid and crystalized intelligence suggests that people's intelligence is composed of a number of different abilities that interact and work together to produce overall individual intelligence.

Fluid intelligence is the ability to think and reason abstractly and solve problems. It's more commonly known as 'street smartness' or the ability to 'quickly think on your feet'. This ability is considered independent of learning, past experience, and education. Examples of the use of fluid intelligence include coming up with problem-solving strategies, ability to quickly learn new skills, ability to quickly integrate new information and strategic thinking, etc. The aptitude tests that measures one's fluid intelligence employs the strategies of abstract reasoning in response to an unexpected question.

The second component of intelligence that the aptitude tests measure is crystallized intelligence. Crystallized intelligence is the ability to learn from past experiences and relevant learning, and to apply this learning to a situation. Creative people, obviously, will work in numerous situations that require crystallized intelligence. These include comprehending written reports and instructions, ability to produce reports, ability to use numbers as a tool to make effective decisions, etc. This type of intelligence is based upon facts and rooted in experiences, and becomes stronger as we age and accumulate new knowledge and understanding. There are many aptitude tests that measure different aspects of crystallized intelligence. The most common are verbal reasoning, numerical reasoning, spatial reasoning and mechanical reasoning. This is also related to logical thinking.

2.3 APTITUDE TESTS FOR ARCHITECTS, INTERIOR DESIGNERS & LANDSCAPE ARCHITECTS

Aptitude Tests for architects and Interior Designers would require different kinds of tests that will detect the innate creative talents, rather than abilities for logical reasoning required for engineers. In fact, for architects, landscape architects and Interior Designers, the talents must be more related to spatial and visual fields rather than anything else. Following traits are considered the most relevant in this regard.

Spatial thinking

Spatial thinking refers to the human computational capacity to organize themselves spatially; based on people's own ideas about space, historical experiences in space and communal mental space. It enables them to recognize and anticipate the patterns emerging or approaching by seeing the three dimensional patterns instantaneously.

Spatial reasoning

This timed test measures one's ability to visually manipulate objects. This is used to measure one's ability to efficiently organize a space. It is also used to measure one's ability to identify issues in the place or to solve technical problems.

Spatial Intelligence

Spatial Intelligence is an area in the theory of multiple intelligences that deals with spatial judgment and the ability to visualize with the mind's eye. It is defined by Howard Gardner as a human computational capacity that provides the ability or mental skill to solve spatial problems of navigation, visualization of objects from different angles and space, faces or scenes recognition or to notice fine details. Gardner further explains that Spatial Intelligence could be more effective to solve problems in areas related to realistic, thing-oriented, and investigative occupations. This capability is a brain skill that is also found in people with visual impairment. As researched by Gardner, a blind person can recognize shapes in a non-visual way. The spatial reasoning of the blind person allows them to translate tactile sensations into mental calculation of length and visualization of form.

Spatial Imagination

Spatial Imagination in design demonstrates that an individual's sensory and perceptual engagement with an environment or space is, in part, constructed by their powers of imagination. Spatial imagination works in a specific political and cultural imagination as belonging to the individual designer and user. The results of this contextual understanding will inform and reflect the specific cultural, historical and political diversity and value of the architectural and built environment to the design community and beyond

Visual Thinking

Visual thinking is a way to organize one's thoughts and improve one's ability to think and communicate. It's a great way to convey complex or potentially confusing information. It's also about using tools — like pen and paper, index cards and software tools — to externalize one's internal thinking processes, making them more clear, explicit and actionable.

If one's ideas can't be drawn, they can't be done.

Visual thinking is a vital skill for developing new ideas and designs, communicating those ideas effectively, and collaborating with others to make them real. Drawing is a natural process for thinking, exploring ideas and learning. Every child enjoys drawing — but at some point in our lives we learn that drawing is the province of artists and stop drawing for fear and undervaluing of our abilities.

To think visually, one should possess

- a. A visual alphabet.
- b. A visual grammar for composition.
- c. visual Ideas and imaginations
- d. A storehouse of visuals or images.

Visual Intelligence

What you see is, invariably, what your visual intelligence constructs. Just as scientists intelligently construct useful theories based on experimental evidence, so vision intelligently constructs useful visual worlds based on images at the eyes. The main difference is that the constructions of scientists are done consciously, but those of vision are done, for the most part, unconsciously. Visual intelligence is the ability to visualize the world accurately, modify their surroundings based upon their perceptions, and recreate the aspects of their visual experiences. People with high visual intelligence are good at remembering images, faces, and fine details. Some naturally inherit the traits to observe and 'see' things in detail which others do not see even if it is in front of one's eyes.

Visual Imagination

Visual imagination is the ability conjure up new combinations of images from the already known as well as previously unseen images to create entirely new images. This ability is fundamental for the artists, architects and interior designers to be able to create a new visual world.

Lateral Thinking

De Bono (2009, 2015)¹ writes that there are two kinds of thinking: logical thinking and lateral thinking. Lateral thinking is the process by which new Ideas are generated and problems are solved in hitherto unknown ways. In this, new concepts are created by looking at things in novel ways, while logical ('vertical') thinking carries a chosen idea forward. Lateral thinking takes us sideways ('lateral') provoking fresh ideas by changing the very frame of reference. While vertical thinking tries to overcome problems by meeting them head-on, lateral thinking tries to bypass them through a radically different approach.

As De Bono put it, if logical thinking is to dig deeper and deeper into the same hole to find answers, lateral thinking is to abandon the hole and dig a new one every time an issue is encountered.

Special requirements of the Architecture Program are assessed by the Aptitude Test, which also ascertains if the students admitted to the program could be matched to the program aims and available resources of the department. They are generally screened through the university admission requirements. The aptitude test assesses these traits through (a) logical thinking, (b) drawing skills & (d) visual perception and freehand rendering skills – creative thinking (c) Basic Drawing and Graphic Composition Skills – Spatial cognitive skills (d) Free hand sketch Imagination and proportion abilities – Lateral thinking skills (e) English Language Skills – language and communication skills.

The general profile of admitted students to the Architecture, Interior Design and Landscape Architecture Programs is as follows.

¹ See references to foot notes 1 & 2

General Profile of Admitted Students

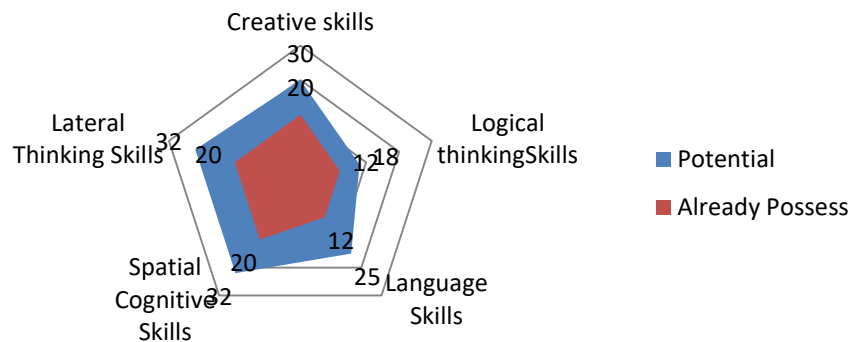


Fig. 1: General Profile of students admitted to Architecture Program
Source: Aptitude Test Policy & SER 2015 submitted to the HEC.

The Department of Architecture and Interior Design envisages that it will be able to enhance the Creative Skills, based on lateral thinking skills to the highest potential through its program. Therefore its Aptitude Test is devised to ascertain to what extent the students possess these traits at the time of the test as well as the degree to which they can be enhanced. As students expected to be engaged in design as a professional activity, the design skills depend on three particular skills, the Creative skills, the Lateral thinking skills and the Spatial Cognitive skills. Most engineering graduates in comparison are expected to possess different set of skills, particularly logical thinking skills, and therefore this testing of the Aptitude for Creativity and Design is essential in ensuring that the admitted students have the right profile. Unless, it is done so, it will be hard to teach Design and other courses that are necessary for inculcating right attitudes and skills necessary to be an architect as a professional.

Hence, the Aptitude Test is conceptualized in this context to enable the sourcing of students who have the greatest potential to be:

‘intellectually imaginative, spatially creative and visually articulate, and communicative’.

In the case of University of Bahrain, a combination of criteria are employed based on practicalities, possibilities and reliabilities:

APTITUDE TEST FOR ARCHITECTURE, INTERIOR DESIGN & LANDSCAPE ARCHITECTURE REQUIREMENTS

Admission to Architecture, Interior Design and Landscape Architecture programs require that the prospective students should pass an Aptitude Test. The Aptitude Test will involve two activities as follows.

1. Design/Drawing Test & Analytical Comment writing.
2. Interview.

The Aptitude Test for the Semester 1 of every academic year will be held on a date to be announced in the first week of the semester. The candidates should bring with them the following.

- a. **A3 Drawing paper (minimum 4)**
- b. **12 Coloured - Colour Pencil Set, or any other material for colouring**
- c. **2B Pencil**
- d. **HB Pencil**
- e. **Eraser**
- f. **Pencil Sharpener**
- g. **Black or Blue Pen**
- h. **Scissor, model knife, cutting back-sheet and glue to cut and paste material.**
- i. **01 no. A3 thicker paper (1 mm max) to mount a paper model.**
- j. **Drawing tools box**
The students must bring all the required material. The Department does not provide any.
- k. **The interview will take place on the same day of the aptitude test. Each interview will take approximately 10 minutes.**
- l. **Students will be asked 3 questions which will ascertain their spatial awareness and consciousness and the ability to articulate a detailed description of an event, a series of events, a place or an imagined situation.**