# Inner Experience of Spaces During Interior Design projects

a
Special Project by

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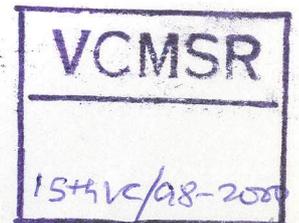
# APPROVAL SHEET

# Abstract

This experiment was a study in the mental imagery and the experience of spaces during the process of interior design. The experiment was not only used to study the potential of mental imagery in interior design, in absence of other media i.e. sketching, but it also makes a comparative analysis of the imagery during architectural design. The experiment is a continuum of the experiments conducted on designers. This experiment was carried out to study interior designers or architects when designing interiors, to ascertain the role of mental imagery which is different in approach and detailing as compared to the architectural design process. This was achieved by using an experienced architect and blindfolding him during the act of design. The conclusions arrived at indicate that the designer was able to use imagery very effectively during the act of design.

**KEY WORDS**

- Mental imaging
- Interior design
- protocol analysis
- architectural stereotype
- metaphors
- transformation and fantasy

# Introduction

Most architects and interior designers consider sketching as an integral part of the working process, but the role of visualization and mental imaging during the early creative phase in design problem solving, has not been totally researched. Sketching is known to offer several advantages as compared to computerised media when designing. Other than representing and recording decisions, it also serves as a display for the designer to react to (Goldschmidt, '92). The experiment attempts to explore the potential of mental imaging in the absence of sketching and also the nature of imaging experience as compared to that in the architectural design process.

Creative processes can benefit from imagery. Reasons are not difficult to seek. Typical attributes of imagery are depictive qualities, possibilities of voluntary control, non-linear nature, spontaneity etc. It also encourages private fantasies and yet it allows simulation, permitting evaluation of ideas .
Two unique properties of mental imagery are:
(1) Experiencing of the mental images is so well integrated with the thinking process that most people are not even aware of it.
(2) It remains a totally private, inner experiences inaccessible to outsiders and inaccessibility of this inner experience has been a major deterrent in its systematic investigations.

Few attempts to indirectly capture this phenomenon during early design problem solving (Athavankar '96, Singh '98) yielded some useful information on role of mental imagery in the act of design. The previous papers, 'Mental Imaging as a Design Tool' by Athavankar '96 ; 'The potential of mental imaging in the architectural design process' by Singh '98;  show that when blindfolded, the designers and architects use their mental imagery as a virtual design studio. They almost live in their mental space and create or manipulate ideas of objects with amazing ease. Continuing on the same lines, this study was designed to ascertain whether the imaging experienced, was as rich as in the other process, especially in Singh's paper , and also the specific role it plays when designing interior spaces.

# Scope of the project

This project is a case account, based on protocol analysis, of an architect cum interior designer assigned with the task of designing the interiors when blindfolded. This is a part of an ongoing project, focusing on the role of mental imaging in design behaviour. These experiments were performed with design professionals, including an architect, industrial designer ( Athvankar, '96) and an advertising designer.

The experiment was designed to study the potential of mental imaging as a source of feedback while designing. It also takes a look at whether imaging offers benefits that serve to display, to react, and to portray the content of design. The project also sets out to make a comparison of the mental imagery experiences in an interior design process with similar experience in an architecture design project. The potential of mental imaging in the architectural design process has already been published ( Singh , '99). There are reasons to believe that imagery experiences would differ when solving architectural and interior design problems. In conceiving architectural spaces, elements like furniture etc. come in as default elements; in interior projects, the architectural spaces appear as default.

The objectives of the experiment were

.......to study the role and potential of mental imaging in the interior design process.

.......to examine whether this inner experience of spaces will enrich the design process;

.......to study the advantages and disadvantages of depending on mental imagery as a feedback while designing.

.......To compare and contrast the mental imaging in the architectural and the interior design process.

# EXPERIMENTAL PROCESS

The subject chosen for the experiment was an architect in his midfifties, who had earlier participated as a subject in the architectural design process (Singh '99). This ensured that the results could be compared between the design process of architecture and interior. He has been practising interior design as well as architecture for the past 30 years. He is referred to as VS.

He initially studied the drawings of the building, in which he was to design the interiors (Appendix A-1). Subsequently he was given a design brief, which asked him to design the interiors for a cafeteria in an existing building of a shopping mall (Appendix 2). The design brief was in the form of textual material and working drawings, in the form of plans and sections of the building. Protocols were recorded on video. The entire process of the design problem and environment was recreated to match the needs of real life design situation as much as possible.

Mental imagery is a personal experience . There are no outward signs, which a camera can catch consistently. Measures were taken to access this imagery without being too intrusive in the problem solving process. The subject was made to rely on mental imagery by depriving him of sketching , which offers a visual and kinasthetic feedback to the subject.

# SEQUENCES AND STAGES OF THE EXPERIMENT

The experiment was divided into two stages for the sake of understanding as below :
(1a) Familiarising oneself with the drawings of the existing building ( Appendix A- I) by studying them and then redrawing (Appendix A-II/A-III) them until the subject was able to reproduce it accurately and describe it fully after being blindfolded.
(1b) Reading the design brief and recapitulating it blindfolded, till the requirements were fairly accurate.
In the stages described below, all time stamps are from the play session unless mentioned otherwise.

*(1a) Familiarising oneself with the drawings. 00:00:00 - 00:31:31*

VS was asked to go through the drawings- floorplans, sections, and site plans of the existing building (from 00:00:00- 00:03:30). VS studied the drawings and clarified doubts from the experimenter who was well acquainted with the drawings. He was then asked to draw out the drawing from memory (00:03:30 - 00:06:06), and during this process he continuously articulated what was being sketched out. The drawing thus

sketched (Appendix A-II), was checked against the original drawings (00:06:06 to 00:11:03). He was asked to redraw from memory till he got the details accurately (Appendix A-III). This lasted from 00:11:03 to 00:17:40 minutes. VS then recapitulated the site from memory after being blindfolded. The experimenter, again made clarifications and additions on the missing information which lasted from 00:18:20 to 00:22:10.

VS was then asked to read the design brief supplied to him. The design brief was supplied, only after the designer studied the drawings, to disallow any kind of preconceived ideas for the design project. The design brief contained textual description of the site, surroundings, material specifications, the problem as well as functional requirements. Doubts were cleared by the experimenter. This process went on from 00:23:10 to 00:26:26. VS was asked to repeat the requirements and details after memorizing them. The experimenter added the missing information and details (00:26:26 - 00:28:36). This process was repeated till VS was able to recall all the details of the site and the design problem.(00: 28:40 to 00: 31:10)

Stage I took 31 minutes and 31 seconds in totality. The designer had to familiarise himself thoroughly with the drawings for him to start on the interior design activity and this stage deservedly took more than the usual time, unlike the other experiments.

*Stage 2- Blindfolded problem solving.*

VS was asked to wear an eyemask and solve the problem blindfolded, as in the previous imagery experiment of A.Singh, where the architect was blindfolded during the act of design. VS had to speak aloud, as he proceeded with the problem solving. He had to retain the eye mask throughout this stage. VS had to rely on his mental imagery, as he could not sketch to develop his ideas. The design process during this stage was iterative in its nature and could be further divided into two sub-units:

(2a) General planning - allocation of spaces (00:31:30 to 00:42:26)

(2b) Detailing - detailing of the interior -furniture, materials, colours, ambience of the place etc. (00:42:26 to 01:14:11). During the second stage he discovered some problems (detailed later in this paper) which he solved by altering the decisions taken in the first sub-unit.

Without becoming too obtrusive, questions in the form of hints and reminders, were asked by the experimenter to help him detail the attributes, which he forgot to mention. Some of these details were visualised of, but not mentioned and some questions appeared entirely new. The whole stage 2, lasted for about 45 minutes from 00:31:10 to 01:14: 26.

*Stage 3 - FInal design Proposal Articulation.*

The subject was asked to summarise the entire design proposal and describe it before the eye mask was removed. During this process he again made minor modifications and additions. The process lasted from 01:14:11 to 01:18:26.

*Stage 4 - Quick Sketching of Design Solution*

After VS was clear about the design, he was asked to sketch the solution (Appendix B) rapidly. This aspect has been referred to in Prof. Athavankar's paper and it was also seen that the differences between the articulated solution and the sketched drawing were minor. He was instructed to inform of any additions to the sketch made, besides what he visualised while sketching (he did not add any element besides what he visualised). The sketching and simultaneous discussion lasted from 01:18:26 to 01:22:30.

*Stage 5 - Video Recording of Replay and remarks*

After the description, he was shown the video recording of the session to comment on the events where he had experiences in his mind's eye. The recording, particularly the verbal clues offered hints which aided the subject to recall his private experiences (Ref: Sachin Patil's paper on Ringside View of Mental Imagery). This is better than a free recall situation and the use of the video aids in a structured recall process. To make the process more clear, questions were also asked by the experimenter at intervals or wherever there was the necessity. The process lasted for nearly 2 hours (00:00:00 to 01:55:26).

There are certain limitations to this method - Value judgements happen often here, some iinformation will never be articulated explicitly, as also the limitatation of time- where sessions become too long.

# ANALYSIS AND CONCLUSIONS

This paper is based on the analysis of protocol and comparison. The experiment was analysed from the point, VS begins to recapitulate from memory the drawings of the building (00:21:48). The protocols contain all the decisions that the architect took while developing his ideas, as also the final description of his solution, narrated before the eye mask was removed. To ensure that he did not miss any details while sketching, the video record of his gestures and verbal description was done. The narration during the replay, externalised the interior designer's inner experience of spaces. These were then analysed to identify the contribution and the role of elements like surroundings, background, light conditions, furniture and most importantly people in his imaging experiences.

The verbal record during the design process served as a cue to recall the nature and details of imaging during the playback session. The entire process displays the non-linearity and the iterative character of design. VS, as in the architectural design problem, started off with the broad allocation of spaces in the building, to be detailed in the course of design. He came out with details of the different areas only when his imagery was accessed (as mentioned earlier, the experimenter hinted and questioned during the process), and from then on he continuously switched back and forth to resolve issues in a non-linear fashion.

The analysis is documented and analysed as in table 1. Play session was transcribed first and later the playback sessions. This was done because the study focuses on mental imaging as a feedback. The data accumulated as in the table, were later analysed for various factors as discussed.

| Protocols of PLAY session | | | | Protocols of REPLAY session | | | |
|---|---|---|---|---|---|---|---|
| time-stamp | verbal record | key phrases | remark | time-stamp | reaction by VS | key phrases | remark |
| 00:25:44 | Oh! It's cafeteria ! | cafeteria | imagery starts here? | (replay time) RT 00:18:21 | image of table & white cloth | image | imagery in beginning is more from preceedence |
| 00:27:00 | Is there any restriction of plinth areas / can car park be converted to dining areas? | car-parks conversion | doubts & question for resolving design issues | (replay time) RT 00:18:21 | very disturbing , because i kept visualising cars parked and people walking between cars and i saw and felt myself. | cars, people walking | personal bias and image bank. |

TABLE I

The tabular column gives in brief the episodes, and these episodes revealed insights into the designer's inner imagery which have then been classified into various factors and analysed. Design continuously keeps evolving and the process has been analysed based on the following factors:

1. Use of metaphors with associated imagery.
2. Precedents and a reliance on the image bank.
3. Transformations with light and colour bordering on fantasy.
4. Imagery experiences in relation to the time of the day.
5. Changes in the way of viewing the building in the mind's eye..
6. Architectural stereotypes in images and their presence.
7. Dynamic elements in imagery- presence of human activity in the imagery.
8. Personal presence experienced in his imagery of spaces.

## 1. USE OF METAPHORS AND ASSOCIATED IMAGERY.

A powerful metaphor dictated the designer's imagery and continued to influence his details of the interiors.

| | PLAY session |
|---|---|
| time-stamp | verbal record |
| 00:51:14 | ...And for exhaust and other things , ventilators are essentially useful........for kitchen.......<br>See what I was trying ......to utilise the existing staircase as a service staircase,and other staircase for visitors.....but it's causing little problem, if staircase is used exclusively as a staircase........it can work, but maybe if I provide a capsule which is self sufficient.............................<br>.......................It s a new image which is coming to my mind - it s round, and it s right at the core of the building. With it is a dumbwaiter or something which connects lower floor to upper floor. |

The instance in this case was the design of the kitchen area and the image that came into VS's mind during the course of design.Totally unrelated images, were made use of by the interior designer to come up with the conceptual or critical idea of the design. Though the metaphor is not very clear when he's describing it, the reaction of VS to this remark in the replay confirms that there was a strong metaphor behind the design and which comes through only when the imagery is accessed. But the remarks match perfectly with what had been said in the play session and there are no new additions as one can see in the replay protocols.

| RE PL AY session | |
| --- | --- |
| time-stamp | Reaction by VS |
| RT 1:04:00 | ..............Here I was actually thinking......exhaust from kitchen.......everything.....Smoke coming out..........A big unit throwing smoke to the outside.......the dumbwaiter going up and down......................<br>.......... ...It was like a machine , a big cylinder , like a compressor. A big machine with only hardware components and a piston going up and down....................<br>.............I saw people - ......actually movements of people..............<br>In the cutout for the capsule ....it was all steel.....the same which I had thought of, but a compressor with people inside......think I was seeing it........ |

The metaphors here are quite clear- the service area or the kitchen, becomes the main activity area, with work constantly going on there, as it does in a compressor and the piston going up and down is actually the dumbwaiter moving up and down and providing food services to the three different dining spaces.This then, became the theme of the entire design- the mechanised hitech look and the other features of design like lighting, colour and space frames.

**This reveals that mental imagery can easily conjure lateral images and fuse them together with the design process with dexterity and ease. Private fantasies which form the core of the design when externalised, show their design connection.**

## 2. PRECEDENTS AND A RELIANCE ON THE IMAGE BANK.

'Precedents' played a vital role in dealing with design issues. Relying on precedents is already shown to be effective in A.singh's paper. VS often dipped into his image bank - a very personalised collection of his perception of images and experiences, which creates distinct differences in solutions between individuals. In designing and describing the service counter of the kitchen area, he says

| RE PL AY session | |
| --- | --- |
| time-stamp | Reaction by VS |
| RT 00:18:21 | ..........The counter, what I saw was the counter of the BBC building in London. |
| RT 01:19:40 | Serving area of the cafeteria...... Building in BBC, London - it was stainless steel, and the people there were the same as I had seen there- they were foreigners. |

The visual image (precedent) of the counter is so strong, that it continues on to become a design element as can be seen.With respect to the service area of the cafeteria, in replay VS talks about the same image which he had in the beginning of the design process.

The image bank governed the way the whole problem was viewed in the beginning. To some extent, it can be said that the image bank behaved as the starting point for the design process, though in cases, sterotypes took over. With respect to the cafeteria, VS says

| time-stamp | RE PL AY session | |
|---|---|---|
| | Reaction by VS | |
| RT 00:18:21 | Image of a table, with white cloth .......Restaurant image -white with napkins which were folded and kept. ..........Outside terrace, visualised something which I had seen before, ......... a Juhu Ville parle restaurant and I saw the outside terrace. | |

In the episode, each of the statements represent his imagery- the first statement is a stereotype, whereas his second statement is a more specific one about the Juhu Ville Parle restaurant whereas his remark to the counter is very specifically a precedent.

Another instance of how much the image bank is strong was the fact that, though the design brief clearly mentioned that the site was in a shopping mall in Bangalore, VS does not see the image of a shopping mall in Bangalore. He not having seen the place, he institutes the 'best possible option'- a conjured up image.

| time-stamp | RE PL AY session |
|---|---|
| | Reaction by VS |
| RT 00:27:24 | Shopping mall on a road similar to Juhu Ville park. Big road with a series of carparks on the side - shopping centre at Juhu when you come from Ville parle in Mumbai. |

The more experienced a person, the more richer his image bank will be and this then gives the designer many more options when designing, provided he can access them during the process.

## 4. TRANSFORMATIONS WITH ARTIFICIAL LIGHT AND COLOUR BORDERING ON FANTASY.

Unexpected feature in transformations also occured in the design process, bordering on fantasy. Light and colour were major features in the fantasy which appear difficult to imagine through sketching.

| PLAY session | | | REPLAY session |
| --- | --- | --- | --- |
| Episode | time-stamp | | Conclusion |
| Articulation of drawings from memory- and on a query to the kind of colours he viewed.. | RT 00:10:07 | I think the building colour was a little brownish, a light brown in colour perhaps. | Evidence of colour even in the architectural sterotypes. Neutral colors were again visualised for lack of details. |
| VS s reaction to his recapitulation of the loft area. | RT 00:06:06 | I saw a continuous slab @ 7 0 height and the slab was darkish... a grey, dark grey. | VS visualised fragments of the building, but in colour. |

| PLAY session | | | REPLAY session |
| --- | --- | --- | --- |
| time-stamp | verbal record | time-stamp | Reaction by VS |
| 00:41:22 | Now for music and other things ......can I use the outside spacce for it? | RT 00:49:14 | ....music was outside ......... saw it as evening and Icould see lights of the juke box.......... jukebox.....jukebox was grey and redstriped. |

Music was a small element of the entire design, but the details he goes into, border on the fantasy again. Its complete in its imagery, from the lights accompanying the music, to the colours and pattern on the jukebox. A classic eg of rich imagery with all the different intangible elements.

| PLAY session | | REPLAY session | |
| --- | --- | --- | --- |
| time-stamp | verbal record | time-stamp | Reaction by VS |
| 00:46:56 | ......and the colours in some areas --there are patches of colours ....and one colour - blue is coming on my mind....a bit of red too. | RT 01:02:18 | Colours in patches ...as colour panels. |
| 00:59:10 | Colour - overall ambience is those bright colours and space frame on upper floor. | RT 01:22:29 | Looking up and below the space frame , the ducts are brownish.Lights kept visualising them as hanging pendant lights of metal and conical. I think initially they were in the ceiling , but later they came down. |

As in the episodes above, VS's description of colour is vivid and fantastic. He mentally goes through a colour catalog , checking out the various colour options, and in the second episode, the colours, lights and services are integrated together in designing the environs. Light and colour and the extent to which the designer gets involved in this aspect, could be taken as a cue in understanding the designer's dependence on his imagery for design decisions. Light and colour are integral parts particularly in interior design (as compared to architectural design) where ambience and environment play a significant role.

## 7. IMAGERY EXPERIENCES AND TIME OF THE DAY.

Interesting to note that, daylight dominated the images when the building was externally viewed. These seemed to automatically change to soft lights of evening or artificial lights when the interiors of the building were designed.

| time-stamp | REPLAY SESSION   -   Reaction by VS |
| --- | --- |
| RT 00:49:14 | .....music was outside , saw it as evening and I could see lights of the juke box. The jukebox was grey and redstriped. |
| RT 1:31:42 | Started visualising........spot lights - throwing light on the ceiling. A small table lamp - round half covered light, with light only on table - yellow colour .....saw it as complete spots of yellow. Complete space with ceiling lights |

The designer creates an ambience in the interior spaces with his imagery of artificial lights.They range from trendy jukebox lights to soft yellow lights of table lamps in the dining area.

There are other instances where he sees complete darkness without the comfort of soft lights in the interior spaces. VS indulges in virtual fantasies of immersive reality in the mind's eye as shown in the episode below.

| PLAY session | | | REPLAY session | |
| --- | --- | --- | --- | --- |
| time-stamp | verbal record | time-stamp | Reaction by VS | |
| 1:04:42 | Upper portion is endless space.....endless space .......and there's dark colour and skeleton of space frame which is there....... | RT 01:34:32 | Above the space which is black, I can just see the space frame and not the triangular concrete roof on top. The form is completely gone , that means I'm not visualising it as a particular form.... | |

The sun which comes out as soon as the designer steps out into the open area, in his imagery,

| PLAY session | | | REPLAY session | |
| --- | --- | --- | --- | --- |
| time- stamp | Verbal Record | time-stamp | Reaction by VS | |
| 1:06:2 | It s going to be sunny most of the time ..........I m thinking of umbrellas which are just put there | RT 01:36:49 | This is where I was on the terrace and i could see lot of sun. Initially when I saw lot of sun,I thought ....this is not the place to sit...so I thought of a covered area. | |

Also in the final description of the design, VS describes the time of the day when he's viewing the building, is evening with lights. So there's this constant change of light conditions which depend a lot on the way the spaces will be put to use. Since the terrace areas are out in the open, he thinks of the umbrellas as an obvious solution for protection from the sun and this might be the reason for him viewing the external areas as sunny though he could have imagined a night scene on the terrace.

## 5. CHANGES IN THE WAY OF VIEWING THE BUILDING

There is a constant change in the architect's way of seeing the architectural spaces of the building . The same is initially treated as a drawing in plan, which subsequently transforms into a three dimensional form.

During the play session before the designing commenced, VS recapitulated the building from memory [00:18:20 -- 00:22:10]. In the replay session, he was asked how he had visualized the building.

| PLAY session | | REPLAY session | |
|---|---|---|---|
| time-stamp | Verbal Record | time-stamp | Reaction by VS |
| 00:19:00 | Windows on the south side , three on the right side ............Cutout  or a bridge which opens into right hand space and there's a window on the upper floor also........ | RT 00:03:05 | Essentially i remembered the windows in plan only. The bridge also i remembered in plan. |
|  |  | RT 00:04:30 | ...Just recalling what i saw and I'm recalling them as drawings only |

As one can see, Vs views the building here as an **architectural space seen from the top** as in a **two dimensional drawing or plan.** In another episode, VS's mentions about  a  ventilator and his corresponding reaction of viewing the **architectural space from inside** as a **section** and **from below** is seen.

| PLAY session | | REPLAY  session | |
|---|---|---|---|
| time-stamp | Verbal Record | time-stamp | Reaction by VS |
| 00:20:21 | .....Ventilator shown in section | RT 05:04:00 | .....Yeah, I saw the section. Typical drawings. .....Building  looked finished . Looking up I saw columns and ceilings on stilts. |

Later in the project when , VS is describing the various areas of the cafeteria  ...

| PLAY session | | REPLAY  session | |
|---|---|---|---|
| time stamp | Verbal record | time-stamp | Reaction by VS |
| 00:38:14. | .......Suppose i take kitchen in the centre , right in the centre is the core from which I serve these three spaces and from outside, visitors .....they go up and visit these spaces. | RT 00:46:51 | ........ I was looking from the top as at a cardboard model |
| 00:42:02 | ... Cutout which is there , if I remove the wall partly , that is the party room and the dining spaces connect itself visually at the upper level | RT00:52:3 | ....Seeing in 3D as a  full scale model. Had removed the wall , and i am seeing it as a core or 3D model. |
| 00:43:46 | .... Now the service points like toilet and staircase in the centre. Yeah, on Left hand side I can keep the toilets on and at the upper level . | RT 00:54:40 | Viewed the toilet placements as a 3D model. |

These are then the various episodes where VS actually quotes, viewing the various architectural spaces as a **three dimensional model** or a **two dimensional drawing,** as in the beginning. This indicates the ease with, which he views areas and spaces as a **virtual design studio** in his mind. There may be instances where he's viewed the different areas with constant change in form and which may not have been accessed.

## 2. ARCHITECTURAL STEREOTYPES AND THEIR INTRUSION INTO IMAGERY.

Experiences of concrete imagery of spaces and building forms were common even at a very early stage. Surprisingly, these experiences occured much before the spatial issues were even touched , almost as early as recalling drawings from memory started. Most of this imagery was built on 'stereotype ' of architectural and interior spaces.

| PLAY session | | REPLAY session | |
|---|---|---|---|
| time-stamp | Episode-  Articulation of drawings from memory when blindfolded | time-stamp | Reaction by VS |
| 00:21:48 | On being asked , about the nature of his imagery........ | RT 00:05:44 | When I said open to sky staircase, I did visualise the space, there I visualised the openess. |
| to | On questioning about the ventilator , loft and cantilever.... | RT 00:06:06 | .. Loft - there I did feel the real height  and I felt it to the human scale, and i was in space at that time. |
| 00:25:44 | About the staircase inside........ | RT 00:10:07 | ...Visualised a typical steel railing, but it was not so, it was a concrete one as u said. |

These stereotypical  experiences, some of the episodes of which are cited above, remain the same, irrespective of the kind of design problem. Preceedences on the other hand are context dependent and are largely derived from the designer's image bank. And as seen in the last instance, specifications when not given are substituted by stereotypes.

During this early imagery, the built environment is only seen in parts. These are fragments which are there in architectural design and they can be termed as architectural stereotypes. These stereotypes will remain the same irrespective of the kind of design problem, and though they occur in parts in the beginning, over a period they fall into place. Also there is a specific difference between architectural stereotypes and precedents. As described, there are instances of these stereotype in VS's imagery.

| PLAY session | | REPLAY session | |
|---|---|---|---|
| time-stamp | Episode - Articulation of drawings when blidfolded | time- stamp | Reaction by VS |
| 00:21:48 | On being questioned about the terrace and its view in the mind's eye. | RT 00:09:00 | It was something like an open terrace, unfinished and I saw the door - a typical wooden door. Terrace floor was grey tiles, and a parapet did'nt come into picture. Terrace was not visualised as an overall thing, it was restricted to door and that vision. |

Images initially reported were more as independent fragments, as in the case above. Neutral spaces- the grey tiles for eg, are built as an environment for one's decisions in the design process.These fragments and neutral spaces were integrated into a coherent building space as the design progressed. Another reason for intrusion of sterotypes and fragments could be, because the drawings leave a lot to be filled in. They were basic architectural drawings without details,specifications or colour information.This early imagery which occurs then is more for understanding and analysis of the design problem than for design solution.

## 8. DYNAMIC ELEMENTS IN IMAGERY- PRESENCE OF HUMAN ACTIVITY IN THE IMAGERY.

Dynamic elements appear as almost default elements in the interior design project. During the entire design act, there are various dynamic elements in the form of human beings moving around, elevators moving up and down, smoke coming out of the kitchen etc. Since interior design deals directly with people and their immediate surroundings, and is designed for the purpose of influencing the humans in a particular way, it could be a reason for VS to have dynamic elements in his mental imagery. Sound as a dynamic element contributes to the ambience and imagery of the process.

| time-stamp | REPLAY SESSION --    Reaction by VS |
|---|---|
| RT 00:20:21 | People going between cars to reach the restaurant. .... |
| RT 00:49:41 | Music in the waiting area. people watching and I could hear the music being played. People were moving up and down and from inside to outside. |
| RT 01:04:00 | Smoke from the exhaust. A big unit throwing smoke outside............the dumb waiter going up and down. |

self→people
when?

Imagery seems to be full of presence of people in nearly all spaces in the imagery. People appearing varied from nondescript figures to people dressed up in a particular style in the imagery. At times, VS was quite detailed in his description, stating whether the person was a male/female, his/her activity and the dress/clothes he was wearing. For eg, in the reception area, VS says

| time-stamp | REPLAY SESSION -- Reaction by VS |
|---|---|
| RT 00:33:18 | The word that I had read, reception, so.....essentially it was person standing there and receiving, a steward type. |
| RT 01:55:06 | See well dressed young people in white dresses/shirts and jeans and all that, sitting and taking their food. No girls, strange! |

VS's remarks during the design process seem to suggest that he initially made use of the presence of people for understanding and analysis ( Eg. RT 00:20:21) and in the latter part of the design process for evaluation purposes (eg. RT 01:55:06).

## 3. Personal presence in imagery of spaces.

An interesting aspect of the designer's imagery experiences was his personal presence in spaces. Beside reports, the language of the designer give indications of his presence in the spaces in both, Play as well as Replay sessions. He changed his location within spaces with amazing rapidity.

| PLAY session | | REPLAY session | |
|---|---|---|---|
| time-stamp | verbal record | time-stamp | Reaction by VS. |
| 00:23:47 | Episode - articulation of drawing and to a query about the building........... | RT 00:10:07 | Standing down and looking at the building. ...........Building looked finished, looking up I saw columns and ceiling on stilt |
| 00:35:14 | I am visualising that there are umbrellas and tables which is outside on terrace area ...... | RT 00:29:30 | Umbrellas was on terrace. I'm sitting under an yellow and red umbrella . Was on the terrace sitting at the table, looking down at the road |
| 00:38:14 | Suppose I take kitchen in the centre , divide right in the centre , is the core from which I serve these three spaces and from outside, visitors - they go up and they visit these three kind of spaces | RT 00:46:51 | When once I went up and saw the space, looking from the top, kitchen on the right hand side, then I moved back and visualised upper and lower floor together. But I did not like the look. |

As one can observe, VS continuously keeps moving about in the building and he relates everything to himself and his position in the spaces. From locating himself on the floor and looking up, to locating himself in space, everything is done with considerable ease in his imagery. Different aspects of the design from Architectural stereotypes to detailing were all part of the imagery, and all these are related, with himself at the centre of the activity.

Some of the other observations which came through the process are as follows:

## 1. Personal bias or personal preferences and their role in the imaging and design activity.

A designer has his own idiosyncrasies, which are powerful enough to dictate certain design features. In the eg. below , VS's dislike of carparks, leads to his doing away with the parking layout.

| time-stamp | |
|---|---|
| RT 00:26:10 | ..........Had not liked the image of the parking layout ..Trying to remove the lot ..so I was trying to fit it on the right. |

These biases are very specific to the designer and probably would not come through as forcefully in the sketching process.

## 2. Significance of North point ?

Unexpectedly, orientation or the north point turned out to be important to the designer, in the interior design problem too. In the beginning of the design process, North was a reference point to him. But later in the process, design elements for shade like umbrella etc (RT 1:06:20) are borne out of the north point and are thoroughly detailed out.

## 3. Absence of gestures.

One would expect excessive usage of gestures as the subject was blindfolded, but Vs is probably an exception and he refrained from using gestures and sat with hands folded. The same observation was noted in A.Singh's paper where the subject was the same.

## 4. Mental arithmetic and imagery. etc...

There are instances in the process where the designer makes calculations(00:33:40) etc. On being questioned , in replay VS (RT 00:26:21) remarks that calculations were just figures and arithmetic to him, where he does not see anything in the mind's eye.

**'VIRTUAL FANTASIES OF IMMERSIVE REALITY IN THE MIND'S EYE'** - all the observations from the use of metaphors, to daylight and imagery experiences, to the designer's personal presence in his imagery, his 'walkthrough' through spaces, the presence of dynamic elements etc all contribute towards immersing the designer in a  world of fantasy and virtual reality. The blindfolding probably helps in the designer's immersion into virtual reality in his mind's eye much more than it would if his eyes were wide open.

Now we move on to, **a comparitive analysis of the imagery in the architectural process and the interior design process**. A.singhs' paper is being referred to for the analysis of imagery during the architectural process. Also, since the same subject VS is involved in the interior design process, and the situation is the same , comparison becomes legitimate.  Analysis has been done here as a tabular column of comparisons, where imagery and nonimagery issues are dealt with separately. Imagery issues have also been categorised as similar and dissimilar issues.

**Imagery Issues - Similarities.**

| | ARCHITECTURAL DESIGN | INTERIOR DESIGN |
|---|---|---|
| 1 | VS started designing with the tree as focus- leading to lawn-reception and design proceeded that way.  He visualises the lawn as an element with the tree and later in the design, he retains this element. These early images were more as independent fragments or visualization in parts, which as the design progressed got integrated into a coherent built space. | Personal bias / precedents governed the interior design process.VS starts designing by removing the parking lot in front of the building. |
| 2 | 'North' and his reference to it, played an important role for his orientation. This is understandable in an architectural design problem, because the building will probably have to be oriented based on the North. | 'North' assumes significance even in an interior design problem. This could probably be the idiosyncrasy of the designer, for whom 'North' happens to be a reference point from where he relates to everything. Sunlight issues in the form of umbrellas for shade,  were detailed out w.r.t the North direction. |
| 3 | Changes in the imagery from 2D drawings to an image or a 3D form. In the early part of the process, VS views the designed areas as blocks without details.<br>'Walk through's were a part of the architectural design process . | Changes in the images of the building: WRT description of the site, the building  site was treated as a drawing in plan. It transformed into a 3D form, during the design process.Later stages, architect aften switched between seeing the interior space as a scaled down model and a full scale walk-through. |

| | ARCHITECTURAL DESIGN | INTERIOR DESIGN |
|---|---|---|
| 4 | Design is a non-linear process and iterative in its nature | Interior design imagery is also iterative and nonlinear in its nature. |
| 5 | Image bank plays a vital role in the way the design proceeds. For eg..Decorating the lobby with crafts and hangings were triggered by image of the high walls of a fort and banners. | Image bank played as important a role in the interior design process. For eg , the counter of the cafeteria derived from the BBC building in London, though visualized int the beginning continues on to become a design element. |
| 6 | Personal presence in spaces occurs quite often in the design process. | Presence of the designer in his imagery happens often and most of the times , he's viewing not just the designed space but also other people in his imagery. |

## Imagery and Similarities between

| | ARCHITECTURAL DESIGN | INTERIOR DESIGN |
|---|---|---|
| 1 | 'Grid' played a role in remembering drawings- in architectural design. 'Grid' was also the module of design and it played a creative role too. For eg, VS assumes a setback of the site to be of 10m, to which he admits in replay to hav taken from the grid in the drawing. | Grid' became just a  tool for remembering/ memorizing the drawing, and it assumes no significance even in the latter part of the design process. |
| 2 | 'Richness of Image'  in the form of detailing was present, but was not accessed enough.It is possible that they were not articulated aloud, because the designer probably assumed they were insignificant,in the larger design problem of architectural spaces. | 'Richness of Image'  in the form of detailing elements in a space was very high, as compared to architecture design process.This could be due to the fact that architectural elements/ spaces are already present and just details to these spaces have to be added, so the mind remains free to think about the details. |
| 3 | Alternatives or solutions that are generated. This was part of the initial process of working with independent fragments. Alternatives with different perspectives from the inside and the outside. E.g. The compound wall. From inside- seats are bare wiih no specific wall height. But from outside- he sees high wall with trees. | Solutions came as alternatives and each of them were checked and then discarded, moving on to newer solutions. Constant evolution of design. Eg. Positioning of the kitchen. Different positions  were tried before deciding on central location. The image of it changes later to match the ambience. |
| 4 | Intangible things like Sun, noise and colour which are not very apparent in sketching, come out in imagery. | More evident here- nature of the problem and they are also accessed by the experimenter by interruptions.Richness of imagery in the form of ambience created because of the intangible elements like music, light etc came through strongly here |

## Imagery and Similarities between.....(contd)

| | ARCHITECTURAL DESIGN | INTERIOR DESIGN |
|---|---|---|
| 5 | 'Daylight': Evident only in certain aspects of design and during specific segments in the protocols. | Time of the day played a very significant role. Most of the time when he was outside and looking at the building terrace, it was daylight. But when he was designing the interiors, there was artificial lighting, with different kinds of lights, in different positions in the interiors which made up the ambience. |
| 6 | Materials used conventionally as building elements. But there are instances, where VS talks about the finish and colour of stones for walls etc. | Materials as elements of designed details: VS Goes through a mental catalogue of materials with different kind of finishes and colours and he picks on the appropriate one. |
| 7 | People as a part of images was evident clearly, only once during the entire design process. | People formed a major presence in the entire designing act. Nearly no place where people were not present.People varied from general to specifically dressed, women, men, couples etc |
| 8 | Sound: Just as noise, to be cut off. VS suggests a high wall on the railway side and in the replay he remarks that this was to cut off noise. No other mention of sound has been done. | The designer in his mind s eye, could hear the sounds of people talking, of the T.V and music from the jukebox coming out at different instances during the process. Imagery and Design involved different senses. |
| 9 | Use of metaphors was not seen in the architectural design process. | Use of metaphors during the design process. Designer's escape into a world of fantasy, during the process. |
| 1-0 | In case of architectural design, imagery began only when he was actually blindfolded and started design. | The imagery started off when he was familiarizing himself with the drawings, even without knowing what the design brief was, with the architect moving about and feeling the space. Though he does not start designing here, the imagery he has contribute to the design process. |

**Non-Imagery Issues**

| | | INTERIOR DESIGN |
|---|---|---|
| 1 | Numbers and figures: mental arithmetric and calculations were Numbers and figures: mental arithmetric and calculations were devoid of imagery. eg. calculations of areas and rooms | Mental arithmetic was devoid of imagery. They were just figures.E.g. Calculations of car parks. |
| 2 | A curious absence of gestures. | Absence of gestures, except in replay when he's explaining certain things to the experimenters. |

The comparitive study of the imagery during the design process of architecture and interior design reveal the richness of imagery which is present in the interior design process, but, which is not usually accessed in the architectural process. If all the details of imagery could be accessed, it opens up a whole new world of fantasy, vivid colours, finetuned details, people etc.Efforts should be done to design a device, perhaps, to access this imagery.

## SIGNIFICANCE OF THE RESULTS :

**1**. The experiment points to the important role that mental imaging plays in the creative phase (atleast when sketching is not used). Mental imaging offers opportunities for fantasizing, with great speed and versatility.

**2**. Research in cognition has focused the relation of mental imagery experiences with creative processes. the potential of this area of research remains largely untapped. Its pedagogic significance has so far remained unexplored.

**3**. Some of the other Possible Conclusions are as below.

1. If mental imagery plays a creative role, can it be clearly understood, so that

   i. it is used more consciously in creative phase.

   ii. new pedagogic tools can be developed to make a designer aware and make use of imagery.

A. This will need creating 'learning situation' where designers can perform corresponding operations required. i.e. ability to view spaces, buildings and interior elements from several standpoints in quick succession. Walkthrough them and see them as drawings, models, full scale spaces etc. The paper suggests other details but all this is with his "Personal Presence".

B. In situations where fragments of images are peiced together to create a coherent space.

C. Use simulation to test the ideas using people in the imagery.

D. Practically to peg one's designs, learn to access precedents, transform and then use them.

E. Learn to fantasize...metaphors.

F. Learn to visualize ambience of spaces with different lighting conditions, colours etc.

G. Learn to make aesthetic judgements far quicker than in sketching.

H. Improve the vividity of the "images" that you conceive.

  A whole course can be conceived, which fine-tunes this skill, and which can go hand in hand with development of sketching, drawing and CAD skills, unfortunately this area happens to be neglected.

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One of the few pages which thankfully does not talk about the project. But,for the people mentioned in this page, the project would not have to come to this last page at all.

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Last but not  the least, my family and friends from back home for just being there, no matter what.

OPEN AREA.

42'0"

3'3"

27'0"

6'0"

Services - water supply and sanitary.

W₁ W₁ W₁ W₁ W₁ W₁ W₁

MEZZANINE FLR.
at +9'0" from Grd. Flr. lvl.

UP
30"

D₂
SERVICE ENTRY.

D₁
MAIN ENTRANCE
M (rolling shutter).

PARKING

UP
3'0"

ENTRANCE.

ROAD

GROUND FLOOR

W₁  W₁  W₁  W₁  W₁  W₁  W₁  W₁  W₁  W₁
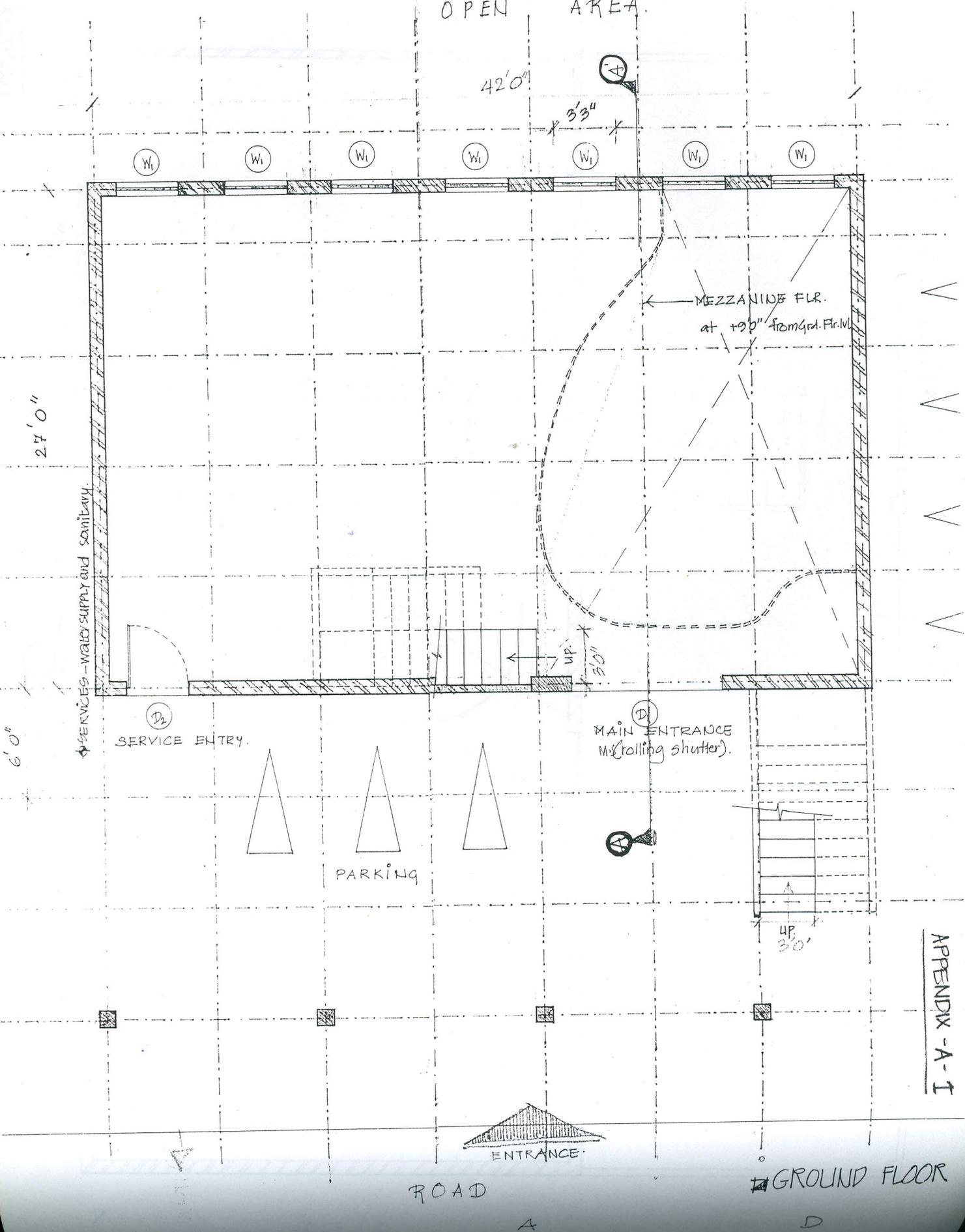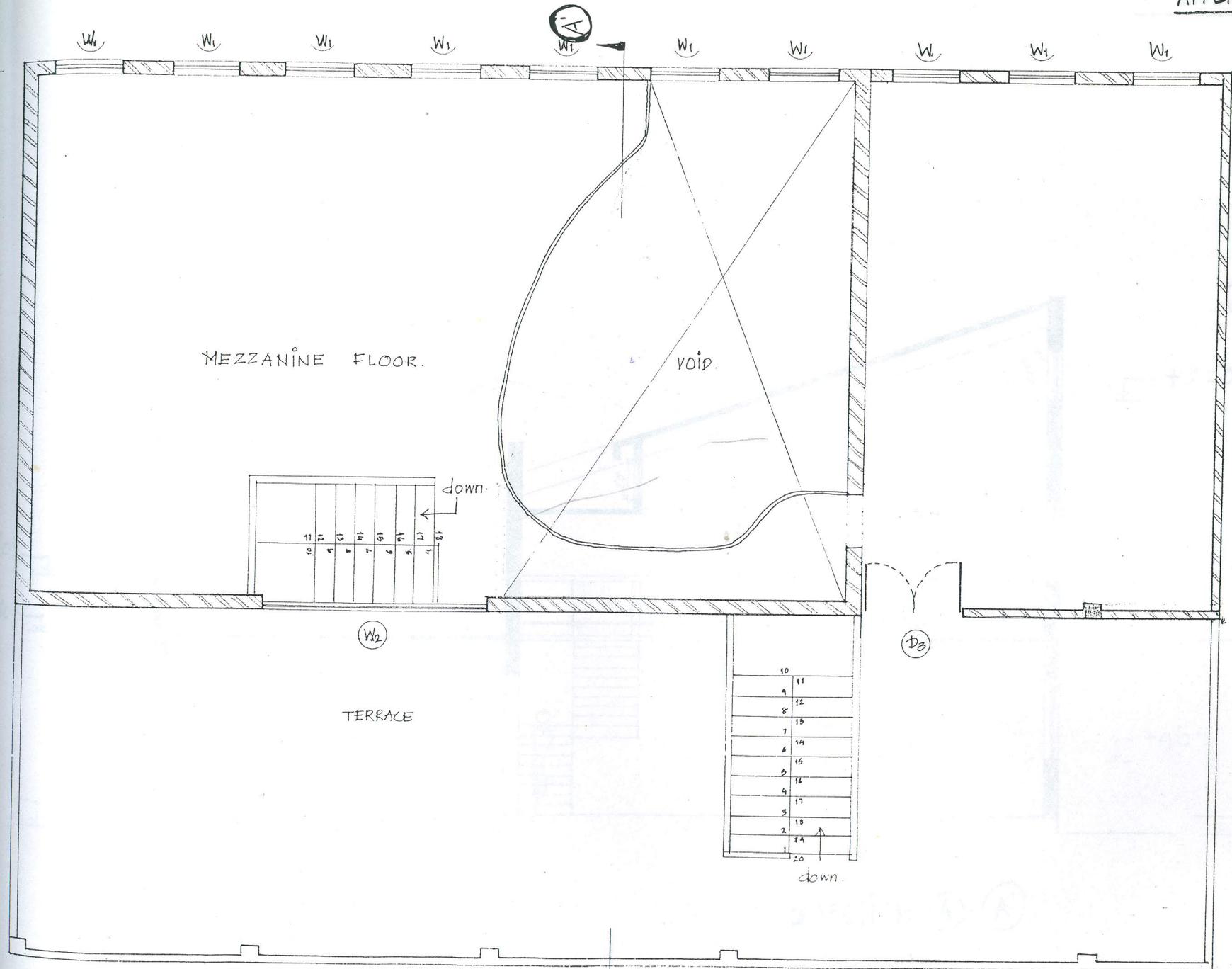
MEZZANINE FLOOR.

VOID.

down

TERRACE

W₂

D₃

down

MEZZANINE FLOOR PLAN.

+25'0"

+22'0"

+15'0"

+13'0"

+10'0"

+10'0"

+4'0"

+0'

+1'0"

+0'

SECTION Ⓐ-Ⓐ'
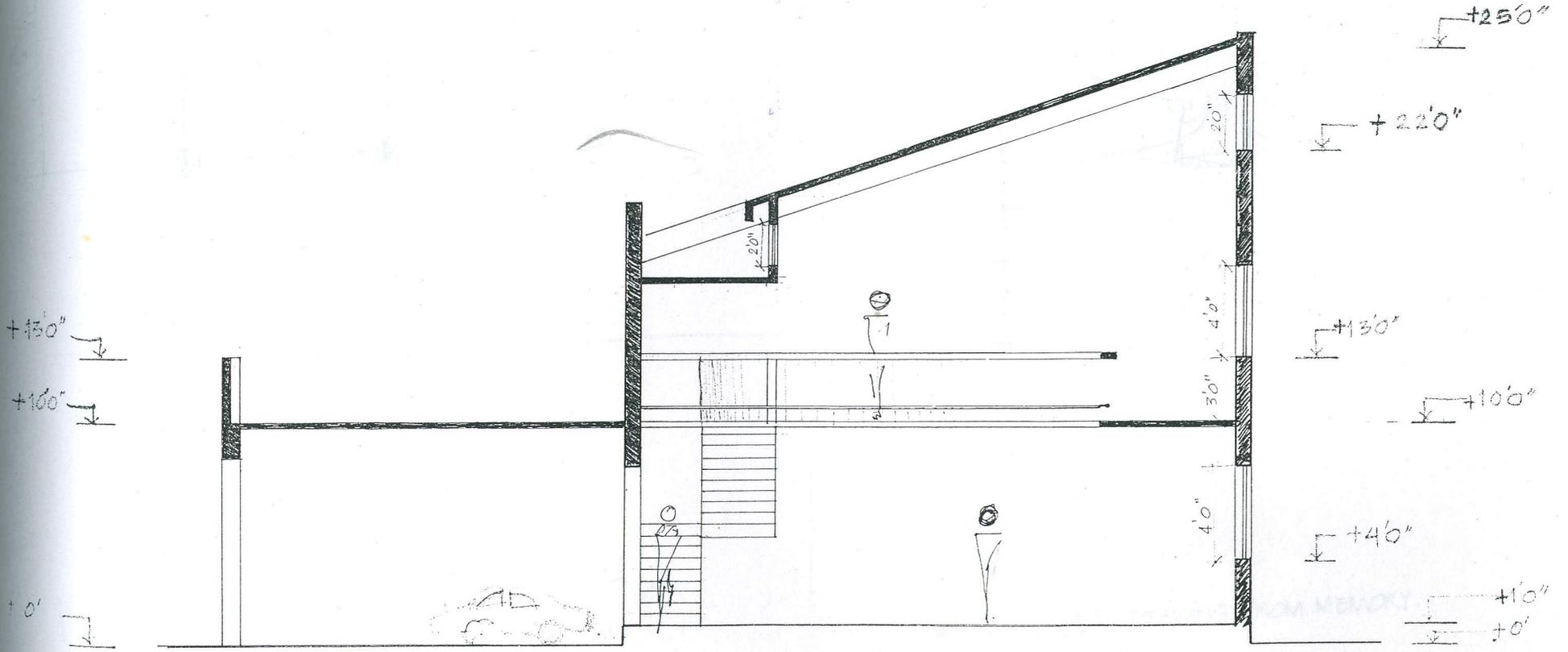
TRIAL ① - DRAWING FROM MEMORY.
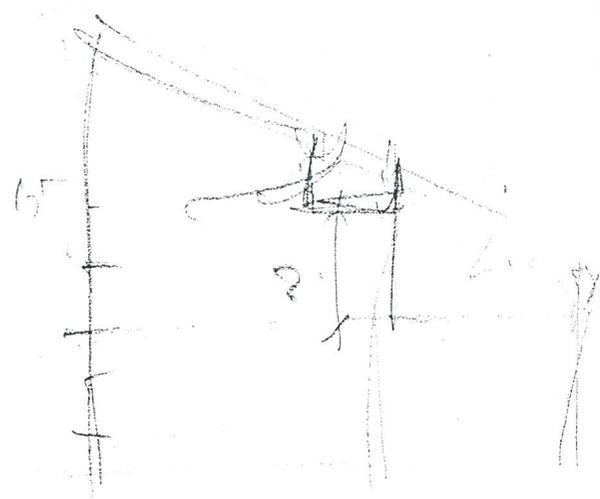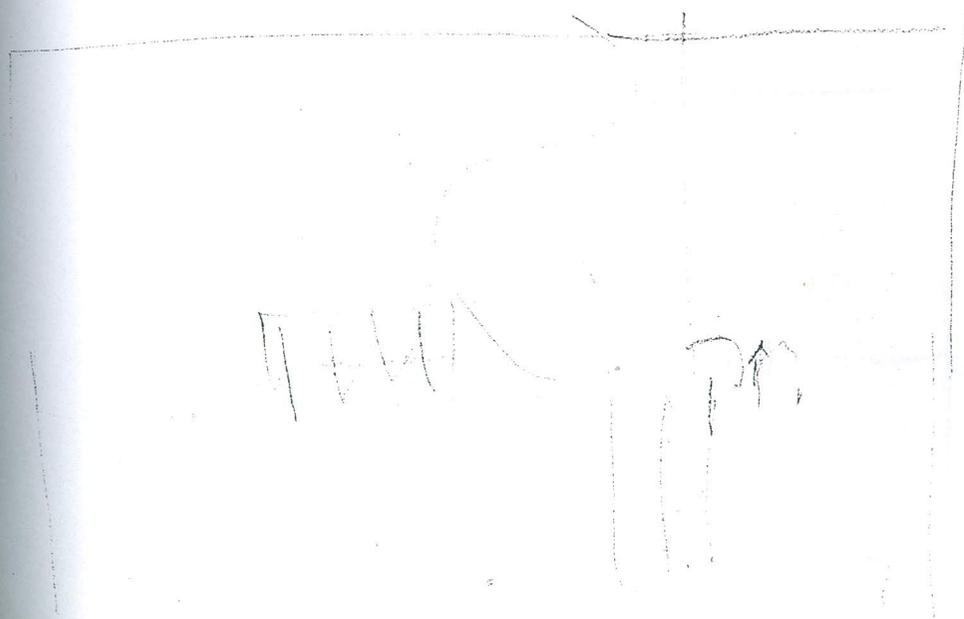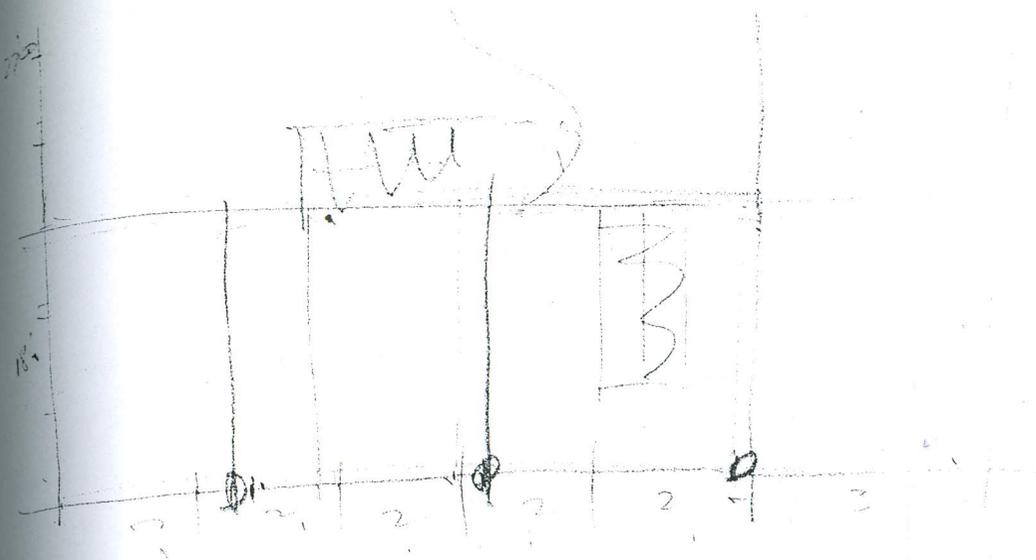
TRIAL ② - DRAWING FROM MEMORY.

# DESIGN PROBLEM

## Site Description:-

The building is located in a Shopping Mall very close to a Software Technology Park in Bangalore. The climate of Bangalore is cool and temperate. The area of the building is approximately 1850 sqft. The plans and section of the building are as shown in the drawings.

-- The building has a road on the North side and open ground on the South side. Services- sanitary , water supply etc. are available on the Eastern side.

-- Ground floor consists of a parking area and enclosed built area of 634 sqft. Two staircases lead to the first floor - an external and an internal staircase.

-- Specifications of the building:
  - RCC columns and beams.
  - 230 thick brickwalls with cement plastering.
  - RCC staircase.
  - MS Rolling shutter for a 10' wide opening on the ground floor.
  - Other openings have blockboard shutters.
  - Windows are Aluminium sliding windows . Ventilators too have aluminium frames.
  - Flooring - tiled mosaic flooring.

## Design Problem :

Design a cafeteria in this building. The cafeteria will be frequented by a lot of young professionals from the nearby software technology park.

-- The cafeteria should have an atmosphere which allows them to relax and spend some time. A music area or a jukebox can be thought of.

-- The materials and the furniture for the cafeteria should make the cafeteria look 'exclusive' and a 'high end' eat-out.

-- The cafeteria should serve approximately 80-100 people at a time.

-- A party hall for 25-30 people also to be provided for get together of the professionals and other foreign visitors.

## Requirements :

1. Kitchen cum store of approximately 180 sqft.
2. Lobby and reception - will double as a waiting area.
3. Toilet facilities .
4. Party Hall.
5. Dining area comprises of three different kinds of spaces-
     - Informal eating spaces in the form of outdoor terraces.
       - Self-service or fast food area.
       - Formal dining area.
6. A Serving counter for self-service has to be provided for.

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1. EXTERNAL OPEN TO SKY STAIRCASE.
2. INTERNAL STAIRCASE.
3. KITCHEN.
4. SERVICE COUNTER
5. CUT-OUT WITH GREENERY.
6. TOILET BLOCK.
7. DINING AREA.
8. CAR PARKING.
9. MAIN ENTRANCE
10. OUTSIDE COVERED AREAS.
11. CONFERENCE / PARTY HALL.
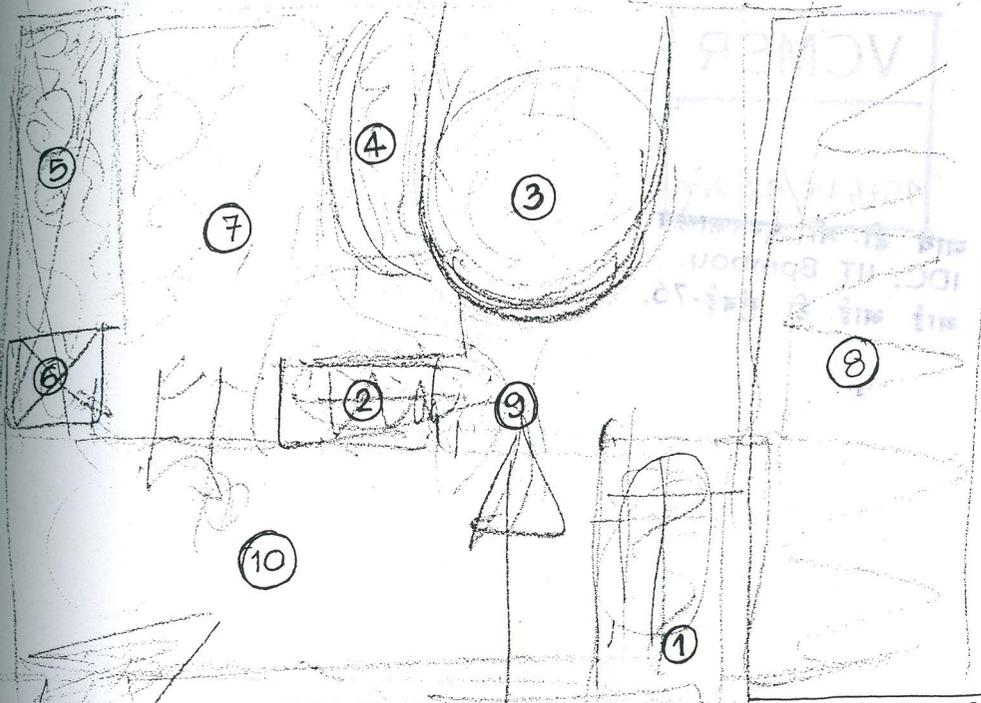
GROUNDFLOOR LAYOUT
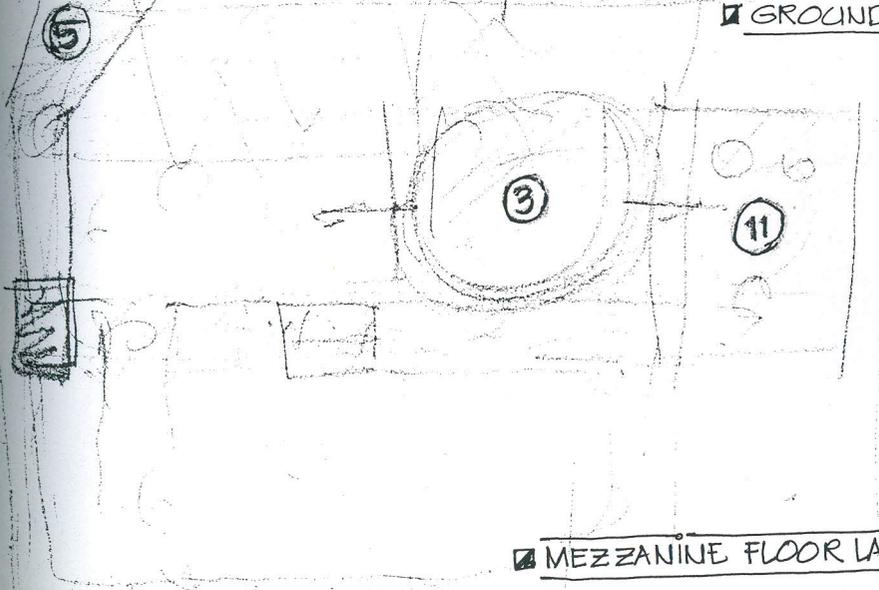
MEZZANINE FLOOR LAYOUT

FINAL DESIGN SOLUTION.

SECTIONAL ELEVATION