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INDIAN ARCHITECTURAL THEORY

CONTEMPORARY USES OF VASTU VIDYA

VIBHUTI CHAKRABARTI

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Foreword

G.H.R.Tillotson

Vastu Vidya is an Indic theory of architecture. The Sanskrit term describes a body of knowledge, sustained, developed and modified by successive generations of architects through the course of many centuries. The term is not the name of only one book or text; it implies a tradition of knowledge which has at various times been ordered and expressed (and so is handed down to us) in a range of texts, with a variety of titles. Some of these texts have formed a focus of study – by linguists interested in investigating their literary content, by art historians hoping to find in them keys with which to unlock some of the problems of interpreting the great monuments of India's past, and (more lately) by architects and others in search of assistance in meeting the challenges of the present and the future. This timely book by Vibhuti Chakrabarti makes important interventions in a number of continuing debates around these texts and their uses, and it draws attention to the relation between these so far somewhat disparate debates in ways which are illuminating to – and certainly ought not to be ignored by – anyone who is interested in Indian thought or design.

The first thing which distinguishes this book from previous studies of Vastu Vidya is the range of texts that are considered. Many of the most scholarly works to date focus on individual texts to furnish us with translations and much valuable information regarding (for example) specific iconographical prescriptions; naturally, many have noticed the parallels and even common material that exist between various texts, and they have commented on them; but this is the first work to take a broad range of texts and explore their commonality by means of specific textual reference and detailed analysis. The texts used here include six that are amongst the best known and most complete – the *Mayamata*, the *Manasara*, the *Samarangana Sutradhara*, the *Rajavallabha*, the *Vishvakarmaprakasha* and the *Aparajitaprccha*; but besides this canonical group, many other cognate texts, and works on other related topics, have also been referred to.

From this comparative approach emerge two important conclusions. The first will perhaps find ready acceptance, confirming as it does what many have long supposed to be the case: that the various texts considered are not entirely discrete works but merely different expressions of a single body or tradition of knowledge which was disseminated by a variety of means (of which the composition of the texts themselves was but one), and that the divergences – one might even say inconsistencies – between them are matters of detail that can be explained by the exigencies of the times and places of their various compositions. Thus Vastu Vidya as a science exists (or existed) independently of any particular written account of it, and perhaps even of any written account of it; and yet at the same time it was never a fixed or inflexible system, but one which accommodated regional diversity and historical change, and both aspects of this evolution are reflected wherever and whenever it was written down.

Some of the texts survive only in a fragmentary state, and the second major conclusion of the author's comparative method may prove a little more contentious: that taken as a whole Vastu Vidya represents a complete system of design, covering all those aspects of the architectural process which are capable of being expressed in words. This does not necessarily mean that any given fragmentary text must once have contained all of those sections which can be found in others, for it is easily conceivable that some texts were originally intended only as partial accounts of the whole system, other parts being well understood by the anticipated audience. What it does mean is that the science which stands behind any given textual expression of it was never in itself fragmentary but contains a complete building code. Each of the various aspects of this code – the training of the architect, the scales of measurement, the selection of the site, the consecration of the ground and laying of the plan, the adjustment of orientation, the selection of materials and the construction of various types of buildings – is considered by the author in turn, in the same sequence that they would be treated in a paradigmatic Vastu Vidya text.

The presentation of such material in this form would alone make this a valuable book, but here it serves also to prepare the ground for the author's second major objective, which is to consider and evaluate some uses and applications of this traditional body of knowledge in continuing building practice today. In these sections, the author has chosen to concentrate on 'secular' – that is to say domestic and civic, rather than sacred – architecture. This distinction is not intended to imply a separation of the sacred and the secular domains in human experience, and the author of this volume would be the last person to lose sight of the fundamentally religious character of the texts concerned; rather, the distinction acknowledges an observable separation in contemporary building practice,

and the 'secular' uses of Vastu Vidya are selected as an object of inquiry because it is here that the greatest diversity is to be found.

For, one of the most remarkable phenomena in the world of Indian architecture in recent times is the range of people who invoke Vastu Vidya, who appeal to it to provide a rationale or legitimation for their activities. They include pandits and Vastu consultants who market advice on the construction or modification of houses and factories, and some of whom compose and publish new Vastu Vidya treatises in modern languages such as Hindi and English. The services of these people are greatly in demand in today's urban India, and most bookshops contain a shelf-full of their writings; such people might be seen – and certainly some see themselves – as the direct descendants of the authors of the texts of the past. Other contemporary users of Vastu Vidya include architects searching for a context within which to rationalise (or by which to justify) their designs; architectural historians who use it in their attempts to explain the principles underlying the buildings of the past; and conservationists and craftsmen who seek guidance from it in their efforts to restore or to revivify the heritage.

In her analysis of the activities of these various groups, Dr. Chakrabarti shows how each of them applies Vastu Vidya only partially. Ignoring the holistic nature of the original science which they invoke, they select only that aspect which most suits their own purposes. The element that is chosen for emphasis varies according to the group. Thus the pandits or Vastu consultants, for example, give primary importance to matters of orientation, that is to the question of where each functional element within a house or place of business should be situated, in relation to the points of the compass. Certainly, orientation was always a crucial factor within the textual tradition of Vastu Vidya, as the author's study of it makes clear; but, as she also shows, it never previously stood alone or even paramount, but played a part along with other factors in a multi-layered system, an interactive complex, which is thrown out of its long-established balance by the consultants' choice of emphasis. Nor is this a minor change. The tradition of knowledge from which these consultants derive both their inspiration and their authority – if the author's analysis of its texts be correct – is not a sort of menu, offering pieces of advice *à la carte*, so that each can make a selection according to individual taste, but a complete and integrated system. Adherence to only one part – even if that adherence be strict – amounts to a violation of the whole.

For the architects of today's urban India, by contrast, Vastu principles of orientation are less often a source of inspiration than an inconvenience, and it is not these they seek when they invoke its aid. Like architects all over the world, they are faced by a general loss of confidence in the supposed

power of Modernism to meet all the challenges of the industrialised world (a disillusion into which – contrary to the profession's mythology – they were led, not followed, by their clients), and they need therefore to find out alternative paradigms within which to conceive and present their designs. Some architects in India – and they include a number of the region's most sophisticated and acclaimed designers – have turned to Vastu Vidya for this purpose. But again, as Dr. Chakrabarti's analysis reveals, their reading and application of its system are partial and selective. They turn to it not for guidance on matters of orientation or how to use 'traditional' materials (where they remain broadly content to pursue the modern methods in which they were trained), but often for no deeper purpose than to borrow an alternative vocabulary for the necessary task of justification. To this end, the chief merit of Vastu Vidya is that it bears the recognisable stamp of authentic Indian identity, whilst remaining sufficiently obscure – and so impressive – to their less informed clients. Sometimes indeed the vocabulary remains purely verbal: it is simply a matter of describing in mystifying terminology a design which owes nothing whatever to the ideas which that terminology originally defined. More often, the borrowed vocabulary permeates the visual level too, though even here it can remain superficial, and may be no more than the drawing of certain old symbols on walls and ceilings. In its most developed and arresting applications, the architect's Vastu Vidya vocabulary is a more thorough and complex programme of organization and ornament. But nowhere in this domain is the whole system of Vastu Vidya deployed on its own original terms; how far the architect follows it remains a matter of personal choice, since for the most part architects are reluctant to surrender the prerogative which the Modern Movement gave them of being wholly in command. They can be distinguished from the pandits by those aspects of Vastu Vidya which they select, but they share with them the act of selection itself, and thus the destruction of the coherence of the system whose aid they seek.

Lest it be thought that these comments betray a professional rivalry, I should add that architectural historians too remain very far from applying a comprehensive understanding of Vastu Vidya to their analysis of the buildings of the past. It has long been a commonplace to interpret the planning of India's sacred architecture (together with some isolated examples of urban morphology and palace design) in terms of the vastupurushamandala; but Vastu Vidya is no more reducible to mandala planning than it is to orientation or to imagery, and we have a long way to go in exploring and explaining how its principles permeate other aspects of past building design. Perhaps the most unself-concious use and understanding of those principles is to be found amongst craftsmen, especially

some of those now engaged in programmes for the restoration of old buildings. Amongst them alone is to be found a continuous thread, an actual survival rather than a re-adoption of the body of knowledge that is Vastu Vidya. But even this survival is fragmentary and partial, focusing as it does on the selection and preparation of appropriate materials, and the correct execution of certain conventional motifs. Like all the other contemporary users of Vastu Vidya, the craftsmen concentrate on just those elements which their current role requires, discarding or ignorant of the greater whole.

From this brief resumé of the author's critique of contemporary practitioners, it will be apparent that, though always based securely on scholarly foundations, the book also advances a somewhat polemical purpose. Dr Chakrabarti does not conceal her views that Vastu Vidya has a role to play not only in interpreting the architecture of the past but also in building that of the future, and that its use should continue to be based on an understanding of its indivisible system rather than on the selection of details which seem convenient now.

One obvious objection to this stance would be to say that if the manner in which Vastu Vidya is deployed has changed, from the holistic to the partial, then such a change is justified by changes in the modern world; one cannot expect an ancient system, devised for conditions which no longer obtain, to continue to operate without modification, and it is proper for our age to make whatever use of it seems helpful to the world in which we live. But the counter-objection to this view is already contained within the author's analysis of the texts, since, as already noted, by comparing a range of texts, she shows that, although indivisible, the Vastu Vidya tradition was never static; that it was never simply or monolithically 'ancient', for it always incorporated change; that it showed itself capable of adapting to differing circumstances across regions and through the course of many centuries, without abandoning its essential integrity. There is therefore no logical reason why more recent changes should present a threat to that integrity or unity, unless we choose to let them. Herein lies the value of locating the debate about contemporary uses of Vastu Vidya within the frame of a scholarly knowledge of it: the supposition that social or technological changes must occasion changes in how Vastu Vidya is applied is shown to be founded on a misconception of the tradition itself, and of how it has functioned in the past. In this connection, the author also points out that it is pertinent to ask who is experiencing the sense of change, and where it is felt. In some important respects the world of the craftsman has changed less in recent times than that of the architect, and before we therefore dismiss the craftsman as redundant we might pause to consider the value of what we thereby dismiss, and the role of the architectural

profession in actually bringing about changes which we might imagine to be inevitable.

A second and more fundamental objection to the author's stance might come not from those who merely beg leave to employ Vastu Vidya in their own uninformed manner, but from those who are sceptical that a traditional system can have any relevance at all in the modern world. One of the nostrums of modern architectural training has been that tradition cannot supply solutions, that any given design project should be conceived as a problem, the solutions to which will be specific to the site. Thus there are architects who suppose that Vastu Vidya cannot help them, as it offers only general or ideal prescriptions rather than site-specific solutions. But the study of the actual content of Vastu Vidya that is offered by this book shows that this view too is based on a misconception. It is perfectly true that Vastu Vidya deals in ideals, in paradigms for design, but much of its detail is concerned to show how those paradigms can be approximated in any given conditions, how any specific site is to be managed in the light of guiding ideals. If Vastu Vidya assumes or urges that certain principles are paramount, this does not render architecture abstract or any less practical, for it also shows us how practically to achieve those principles; and viewed from the architectural jungles which most of us inhabit such an approach is not without its appeal. In any event, the test of the potential relevance of Vastu Vidya today can only be made on the basis of knowledge – not a guess – of its nature.

The question of how, or even whether, to employ Vastu Vidya in contemporary design is only one of the debates to which this book makes a timely contribution. Another, conducted mostly by art historians, concerns the relation that existed in the past between Vastu Vidya on the one hand, and the built tradition on the other. If that relation was close then clearly we will need a knowledge of the texts to understand historical buildings; but if in fact the texts do not seem to afford us much assistance, might we suppose that Vastu Vidya was never really intended as a practical guide to architects and was merely a literary genre? This debate tends to focus (with almost wearisome persistence) around a single question, which is often summarised in the form, 'was Vastu Vidya prescriptive or descriptive?', that is to say, did Vastu Vidya attempt to legislate for and guide the development of the built tradition, or was it a way of rationalising and codifying developments after the event? Finding specific and direct correlations between texts and actual buildings, and indeed noting discrepancies between them, are both interesting exercises in themselves but do not settle the question: if you favour the prescriptive view you can point to the correlations as examples of obedient adherence, while dismissing the discrepancies as occasioned by ignorance or lapse; but if you

prefer the descriptive view you can seize on the discrepancies as evidence that craftsmen were not much guided by texts, and account for the correlations by acknowledging that the writers were sometimes capable of describing what they saw.

In so far as both sides of this argument seek to privilege one aspect over another, to establish either the texts or the buildings as coming logically prior to, and so generating, the other, the terms of the debate are misguided. Consider for a moment the practicalities of building and writing and it will be acknowledged that one cannot build anything at all unless one has a system, a method or code by which to build, and yet equally one cannot construct such a system unless one has material and actual processes to codify. The one does not generate the other; each presupposes the other. Logically, they are not sequential but indivisible. Vastu Vidya in fact contains much of both prescription and description, but it is neither in the senses implied by the traditional debate, for it is neither a set of previously established principles on which architecture comes into being, nor a verbal rationalization of built form. Rather, Vastu Vidya is a theory of architecture. In calling it that I mean that its relation to architecture is comparable to that of grammar to language: it is quite literally inconceivable to have one without the other.

To admit that, is to acknowledge the importance of Vastu Vidya to our understanding of the buildings of the past; and it will then also have to be admitted that its importance is not always reflected in art-historical writing, where its role is customarily simplified or even ignored. Given that (unlike aspects of the Western classical canon) it is not now so well and widely known that it can be assumed, we may require a new procedure or style of analysis which considers Indian built form in terms of the theory which informs it, and which it embodies. For that task, we will require a greater knowledge of the content of Vastu Vidya itself, and it is to be hoped that art historians – no less than architects – will gladly seize on the opportunity that is presented to them by the publication of Vibhuti Chakrabarti's stimulating and provocative book.

Preface

The objectives of the book are to understand *Vastu Vidya* as a programme of architecture and to analyse its contemporary applications and relevance. *Vastu Vidya* or the ancient Indian knowledge of architecture has its first textual evidence in the *Rig Veda* and survives today as a continuing tradition, through its fragmentary application by astrologers, craftsmen, conservation architects and priests. It also continues to inspire architects and builders, who apply individual interpretations or reinventions of it, guided by the vantage of their professional expertise.

The application of *Vastu Vidya* is explained in terms of the contribution the building principles of the programme make towards influencing the resultant built form. While an active level of the principle could be read in its architectural translation, a passive level may not influence the built form and its application is not bound by the built form it is applied to. For example, an active level of *Vastu Purusha Mandala* is as a design grid that influences the layout of the building and dictates its horizontal and vertical limits, thereby influencing the built form. Whereas, the foundation laying and the house warming ceremonies conducted as the part of the design programme also use *Vastu Purusha Mandala*, but could be performed regardless of the type of the built form, and so this application could be termed as architecturally passive. This is one of the reasons why the principles regarding rituals at various stages of construction continue today for buildings that architecturally do not draw upon *Vastu Vidya*. The role of what may seem today, by virtue of its application, a passive influence, significantly contributes within the *Vastu Vidya* programme towards instilling a commitment to comply with a strict adherence to the norms. However, the present book intends to explore the norms that impart active influences, along with their rediscovered meaning expressed through its fragmentary application evident today.

The first objective of the book necessitates decoding the generalities of the building principles, and treating them as a design system, because of

the interdependency of the principles that is inherent in the methodology *Vastu Vidya* employs. For example, the interlace of links between the orientation of the functions, the division of the site using the *Vastu Purusha Mandala*, the proportions of the building, and its typology, are mutually interdependent in their application. The typology depends on the proportions, the proportions are derived from the site superimposed by the *Vastu Purusha Mandala*, the *Vastu Purusha Mandala* dictates the layout and the orientation of the functions. If for instance, the *Vastu Purusha Mandala* is used without its function that dictates the proportions of the building and its layout, then architecturally its influence becomes passive.

Today, wide ranging applications of *Vastu Vidya* are witnessed that have found a niche within the prevalent codes of practice. While some aspects cast an active influence, others with its reinvented usage are altered to a passive level application. If some architects regard it as an impingement over their design freedom, others use it to lend symbolism to the design concept. And the craftsmen, astrologers, and priests use specific subsets of the subject. This was apparent from the interaction with the various practitioners during the fieldwork, and from the contemporary textual and architectural works that derive from *Vastu Vidya*. A correlation of the rediscovered and reinvented principles, to the collated framework of *Vastu Vidya* is to bring out the change in the role the principles play with its acquired function. This is also to analyse those aspects of the prescriptions like the building elements etc., that are not included in the contemporary texts. For example, the translation of *Brahmasthana,* traditionally envisaged as a central open space, is today architecturally expressed as a lobby space in a 'modern' home that favours a balance between 'tradition' and 'modernity'. A traditional building though may not comply with all the prescriptions, but could be set apart due to the consistency of its architectural idiom. A 'modern' building would also not apply all the principles, but incorporate the chosen aspects with a variable meaning depending on the discretion of the practitioner. Consequently, the connotations of the dictates that resulted in a certain building typology, today, do not hold the same architectural expressions.

Since this study is a first attempt of its kind, and because of the absence of a comprehensive compilation of the general building principles to refer to, it involves grasping that aspect of the subject that deals with its prescriptive rather than its descriptive content. Within the fold of *Vastu Vidya*, the architecture of temples, forts and palaces have been subject to atypical 'detailed delineations', and along with the application of town planning principles find negligible continuity in the present scenario. It is the architecture of the common man or secular architecture which is the seedbed of its expression today. Arriving at generalities entails a study of

representative texts, the choice of which is primarily guided by its authority, origin, and contemporary use. The main purpose of the textual study of the research is to learn and understand the building principles from the texts.

The collated principles are decoded by analysing them not so much as a set of exacting prescriptions, but as a practicable architectural methodology. Subsequently, establishing the principles as design tools that lead on to generate an architectural frame. Comprehending the norms as implements of an architectural design system besides its significance as an esoteric set of codified vocabulary, brings out its usage and influence on the built form. Although, the past studies on *Vastu Vidya* do provide the complexity of the symbolism it entails, discussion on the mechanism of the architectural translation of the norms embodying a cosmological model is insubstantial. For example, the *Purusha* on the *Vastu Purusha Mandala*, lying upside down pressed down in place by several divinities, provides a rough blueprint to plot various features of the site and the layout of the house facilitated by an anthropomorphic relationship it establishes with the designer. Therefore, it also works as a tool enforcing the process of mental imagery, apart from its mythological and symbolic import. Viewing *Vastu Vidya* as a design system would highlight such tools it presents, that may be analogised to a set of working drawings in a typical architectural office.

The textual research culminates with a primary source from Rajasthan still in use by the craftsmen, astrologers and other contemporary practitioners of *VastuVidya*. The *Vastu Vidya* texts use notational system of language to lay down the prescriptions. Interestingly, these notations that apparently seem open to individualised meaning and expression yielded a fairly consistent building typology termed as traditional, whereas the contemporary literature often presents a fixed expression in the form of drawings. Within the contextual and textual framework of Rajasthan, the contemporisation is analysed, and its reinvention and rediscovery studied.

Certain limitations borne out of the very nature of the study are taken into account. Although the intention is to probe into the practicality of the architectural programme that presents itself as prescriptions of a 'given' cosmological model, practicality (or what may seem practical today) is not the only import it possesses. Therefore, certain principles may seem as inconsistencies due to an attempt to analyse what may be beyond logic. Because of the textual discrepancies, and the inconsistencies between theory and practice, or the application of a building principle that is common knowledge and therefore does not require textual validity, we may be unable to explain certain aspects analytically.

The numerous discrepancies and contradictions encountered in the translated texts are resolved by relating to its original version in Sanskrit,

and with the help of other primary sources to arrive at a set of generalities. It is beyond the scope of the present study to enlist all the textual inconsistencies and their resolutions.

Generalisations of the contemporary context are based on primary surveys and interaction with practitioners along with a matter-of-course experience of an architect and student of *Vastu Vidya*. Since no studies dealing with the aspects that this research intends to investigate are available, concern for evidence based on experience and observation seen as an opinionated one is an actuality. This work may, therefore, be naturally prone to the predicaments of generalisations, as would any other that engages such analyses.

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A Survey of Texts, Ancient and Modern

Vastu Vidya or the ancient Indian knowledge of architecture is as old as the *Vedas* that belong to the period 1500–1000BC. Its first textual evidence is in the *Rig Veda*, where *Vastospati* or the protector of the house is invoked.[1] The rituals associated with architecture are also described in the later *Vedas, Sutras, Purana, Tantras, Vastu Shastra* and its compilations till the 15th century AD, and are even today a part of the construction process.[2] The date of its emergence as a specialised science dealing with architecture is speculated to be much before the advent of the 1st century AD; by then it had fully developed technically.[3] Most of the material of the period between the 6th century BC to the 6th century AD is lost, with its fragmented portions used in the later works of *Vastu Vidya*.[4] The two streams of *Vastu Vidya*, the *Nagara* and the *Dravida* schools, became distinct only after the 6th century AD, and *Vastu Vidya* of one school "imitated" the other explaining a common basis of their indigenous development.[5] This also indicates the "prevalence all over India of common architectural traditions which may be called the fundamental principles of the Indian *Vastu Vidya*"[6].

The primary sources chosen for the study are to understand these fundamental principles of *Vastu Vidya*, to analyse the blueprint it provides for a design system. It is not only *Shastra* or one text, but the entire *Vidya* or corpus of knowledge which forms the blueprint that has been adapting itself to the regional, social and political variations it encountered in the past, and is the very basis of its continuation and contemporary use. *Vastu Vidya* texts, whether they are recensions of earlier texts or a compilation based on various texts, follow a consistent similarity in the layout and

1 *Rig Veda*, VII. 54.1.
2 Bhattacharya, T. P., *The Canons of Indian Art*, Ch.1, p2.
3 *Ibid.* p126.
4 *Ibid.* pp129,138.
5 *Ibid.* pp144,148.
6 *Ibid.* p190.

classification of its contents. The texts involved in the study are chosen on the basis of their origin, authority, and relevance to contemporary usage.

Manasara, an exhaustive treatise on architecture was written during the Gupta period of Indian history – 450-550AD[7]. The significance of *Manasara* here is in its system of proportionate measurement, and the version used here is the one edited and translated by P.K.Acharya. Though its normative approach is similar to other texts, its descriptive content attributed to its concern with Indian royalties, royal palaces and temples is unique.[8] While differentiating between the descriptive and the prescriptive norms in the text, it is its professed adherence to proportions and a measurement system which is of underlined significance here.

Samarangana Sutradhara, fulfils the need for a text expounding secular architecture as it is regarded as probably the most systematic work on this branch.[9] Related to the *Nagara* school of architecture, written around the 11th century AD, it is attributed to Bhojadeva who was probably the king Bhoja of Dhara.[10] Though the text provides elaborate classification of secular architecture, its manipulative allocation for various caste groups could be assigned to its author being a ruler. This is also evident in its detailed classification of sites based on various occupations.

Rajavallabha by Sutradharamandana, is of special importance not only because it belongs to the 15th century AD after which the history of *Vastu Vidya* cannot be traced,[11] but also because its author refers to himself as a *Sutradhara* or a draughtsman in the text.[12] He also addresses *Vishvakarma*, the divine architect as a *Sutradhara*.[13] This work amply reflects his technical expertise and knowledge of geometry. Moreover, *Rajavallabha* is referred to by traditional craftsmen even today in Rajasthan. Commissioned by Raja Kumbhakarna of Mewar, this work also discusses 'defence' architecture.

Apart from the above texts, *Brihat Samhita, Narada Samhita, Vasturatnavali, Vishvakarmaprakasha, Brihadvastumala, Mayamata, Aparajitaprccha, Vastumanikya Ratnakara, Griharatna Bhushana, Nutana Laghu Shilpa Sangraha, Shilpashastram, Vedha Vastu Prabhakara, Vastu Vidya, Vastu Prabandha, Vastu Sarani* and *Vastusara Prakarana* are consulted to resolve many discrepancies and inconsistencies, keeping the textual objective in mind. Moreover, the works on fundamentals of North Indian astrology, *Ayurveda,*

7 Acharya, P. K., *Indian Architecture*, pp160-198. The controversy about its exact dating is discussed by N. Shukla, T.P. Bhattachrya and Bruno Dagen. However, it is of little consequence to the present research.

8 See Acharya, P.K., *Architecture of Manasara*, Manasara series IV, Ch. XL, XLI, IXX, XXX and XXXII, and Shukla, D.N., *Vastu Sastra*, vol. I, p157.

9 Mitra, Haridas, *Contribution to a Bibliography of Indian Art and Aesthetics*, p 228

10 *Ibid.*

11 Bhattacharya, T.P., *The Canons of Indian Art*, pp143–144.

12 *Rajavallabha* XIV.43.

13 *Ibid.* I.4.

Veda, Vedanta, Upanishad, Purana help in deciphering the notations to interpret their basic meaning.

The various treatises on architecture elaborate in detail the stages of building construction. The basic order or layout of *Vastu Vidya* texts is more often than not similar. The differences in the content of the texts are attributable to the periods and regions in which they were written, and the expertise or interests of the writer of each text. "The verbal codification of standardised messages yield novel messages to suit unexpected situations within the parameters of the given ideology."[14] These unexpected situations or differences are incorporated within the broad framework of the corpus of knowledge. Therefore, a typical format of a *Vastu Vidya* text that reflects its underlying parameters of building design could be illustrated. Described below very briefly are those norms for building construction that deal with dwellings, which is the main focus of the present work.

The text starts with an invocation of Lord *Vishvakarma* (Figure 1), the divine architect, and goes on to describe the architectural team.[15] The team usually consists of four experts who are said to have their mythological origin from *Brahma*, the four headed supreme creator of the world. The four are *Sthapati, Sutragrahin, Takshaka and Vardhaki*. The *Sthapati*, the master builder or architect, directs the construction. He should be well versed in all traditional sciences, healthy in mind and body, and free from all vices. He should be truthful, joyous and friendly, and possess integrity of mind and body. The *Sutragrahin* or the surveyor is the son or the disciple of the *Sthapati*, and should always be ready to carry out his orders with expertise. He should be skilful in measurement by the *Sutra* or cord and *Danda* or rod as applied to buildings in their vertical and horizontal proportions. He should know the traditional sciences and be an expert in drawing. *Takshaka*, the carpenter and sculptor, cuts and carves, and is versed in working with wood, stone, iron, brass, copper, gold, silver and clay. He should be learned, kind, faithful and sincere towards his work and his team. *Vardhaki*, the expert at painting adds to the work accomplished by *Takshaka*. He like the rest, should have the knowledge of traditional sciences and be capable of good judgement.

After the team has been chosen, land is chosen for building the house.[16] The land should be free from worms, white ants, rats, skulls, bones and shells. It should have a pleasant smell, taste, colour and appearance. There are numerous guidelines prescribed for choosing a piece of land that would bring happiness, growth and prosperity. The guidelines examine the size,

14 Umberto Eco, *Function and Sign: The semiotics of Architecture*, in Broadbent and Jencks (eds), *Signs, Symbols and Architecture*, p 39.

15 See Ch.I. Architectural Team.

16 See Ch.V. Site Considerations.

FIGURE 1 Lord Vishvakarma, the divine architect (*Rajavallabha*, 1911)

shape, sound, taste, colour, smell, vegetation and topographical features that indicate its suitability for dwelling upon. Prescribed also are some easy and practical soil tests, which are conducted on the site to examine its compactness, fertility, porosity, oxygen and clay content. The land according to the result is categorised as superior, ordinary or an inferior one.

Calculations[17] are made before the commencement of the work on site to determine the auspicious *Nakshatra* or stars, *Vara* or day, *Tithi* or date, *Aya* or income, *Vyaya* or debt, and *Ayu* or age. In all such formulae, the yielded remainder is of prime significance and it is the remainder that

17 See *Ayadi Formulae* in Ch. II. System of Measurement.

determines the auspiciousness. These formulae consider the width and length of the chosen land which is then adjusted to arrive at a set of favourable results applied for the commencement of work.

The units of measurement[18] (Figure 2) used for the construction are the multiples of *Angula* or the width of the middle phalange of the middle finger of the officiating priest, which is about 1.9 cm. Twelve *Angula* make a *Vitasti* or span, two times *Vitasti* make one *Hasta* or hand, and four *Hasta* are equal to one *Danda* or rod which is equal to 6′–0″.

The orientation of the site is established on an auspicious day and marked on the levelled site by drawing a circle around the peg (Figure 3). The intersection points of its shadow in the morning and evening are

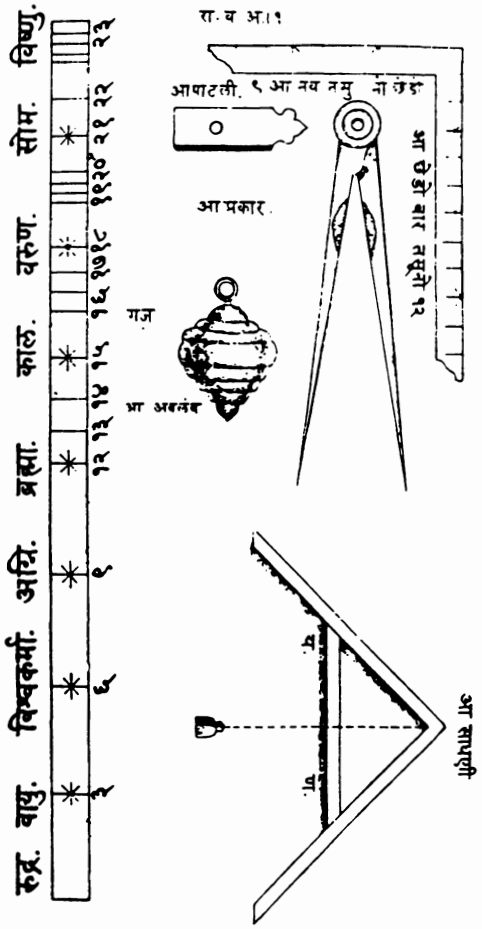

FIGURE 2 Sutrashtaka, the tools of measurement (*Rajavallabha*, 1911)

18 See Ch. II. System of Measurement.

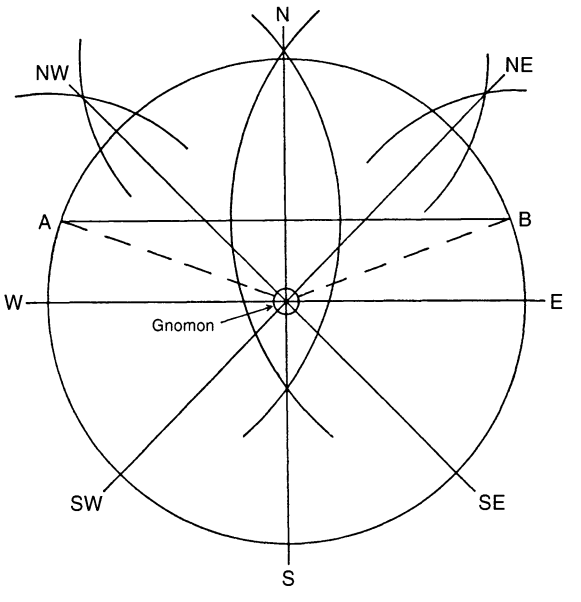

FIGURE 3 Determining the cardinal points with a Gnomon (*Mayamata*, 1985)

marked on the circle. These points are joined up to determine the east-west axis.[19] The significance of the directions is reflected in the principles that dictate the orientation of various functions of the house.[20]

Once the orientation of the site is established, the *Vastu Purusha Mandala*[21] (Figure 4) is superimposed on the site. The *Vastu Purusha Mandala* can be regarded as the master grid for design. The *Mandala* is the grid in its ideal form of a square, and symbolises the *Purusha* or the cosmic man who is pressed down on each of its subdivisions by various divinities. This has a symbolic, a functional (Figure 5), as well as a ritualistic bearing on the house. The *Manduka*, the 64 square grid, and the *Paramsayika,* the 81 square grid, are used for the design of dwellings. This *Mandala* is drawn on the site with the help of a cord and smaller pegs, the details of which are elaborated in the texts. Therefore, the *Mandala* with all the subdivisions, on the purified and sanctified site, indicates the form of the house.

The house is built around a central open space, ruled by *Brahma*, as depicted on the Mandala. Each side of the square holds one range of the house. Depending on the scale of the house, additional grids are added to make it a seven or a ten range house[22] (Figure 6). The length, width and

19 This method of ascertaining the cardinal directions is today obsolete, replaced by an 'efficient' and 'handy' magnetic compass. See Ch.IV. Orientation.

20 See Ch. IV. Orientation.

21 See Ch. III. *Vastu Purusha Mandala.*

22 However, some texts for example, *Samarangana Sutradhara* and *Vasturajavallabha* are more elaborate in their discussion of the built form, than texts such as *Vasturatnakara* and *Vishvakarma Prakasha.*

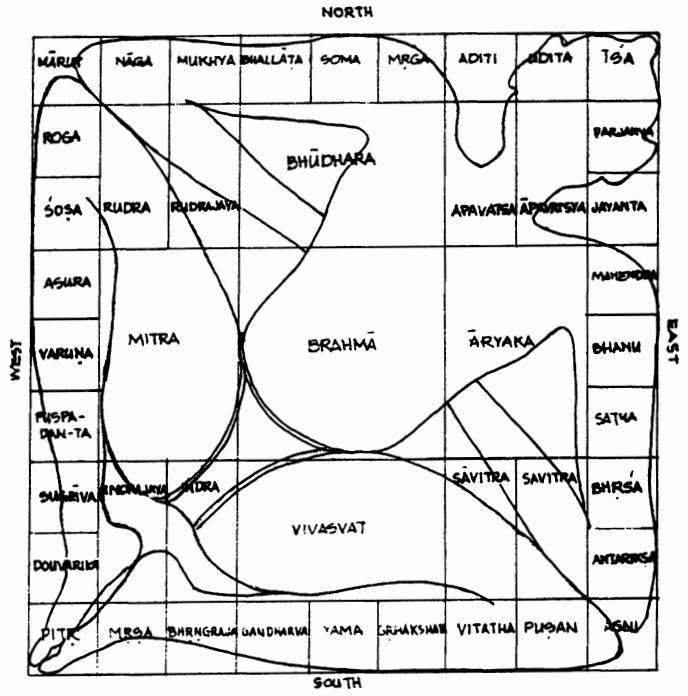

FIGURE 4 Vastu Purusha Mandala of 91 squares

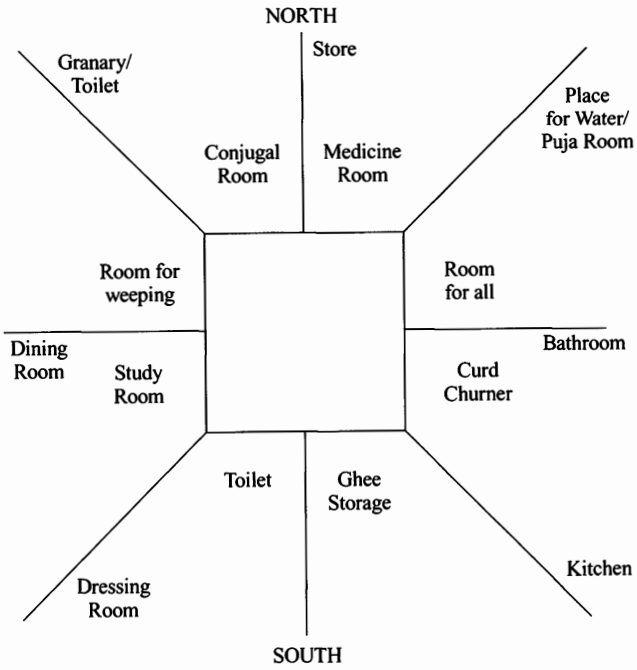

FIGURE 5 Orientation of various functions (Author)

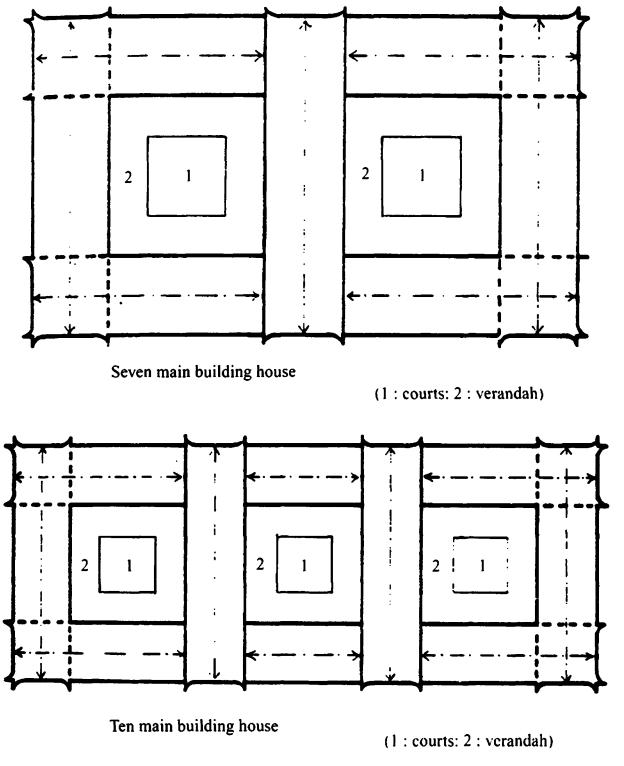

FIGURE 6 Seven and ten range houses (*Mayamata*, 1985)

height of the ranges and the verandas are of the prescribed proportion.[23] (Figure 7)

The roof is constructed in stone, brick, wood and thatch depending on the scale and occupancy of the building. The shape and dimension of each piece must conform to the prescriptions. The dictates of the construction technique aims at a perfect joinery system. To determine the specifications for the entablature that is laid out to connect the pillars and support the roof, *Manasara* suggests six different ways, each with six different alternatives to choose from. The choice depends on the type of the building. The pillar may be circular, square, rectangular, pentagonal, hexagonal, octagonal, twelve faced, sixteen faced, or fully ornamental. The dimensions for the capital, base and socle are proportional to the height of the pillar. They are further subdivided into smaller parts of specified dimension. Each of the building elements is carefully chosen to be in tune with the house type[24], similar to the choice of each musical note in a *Raga* or a musical composition.

23 See Ch.VII. Defining the Built Form.
24 See Ch.VII. Defining the Built Form.

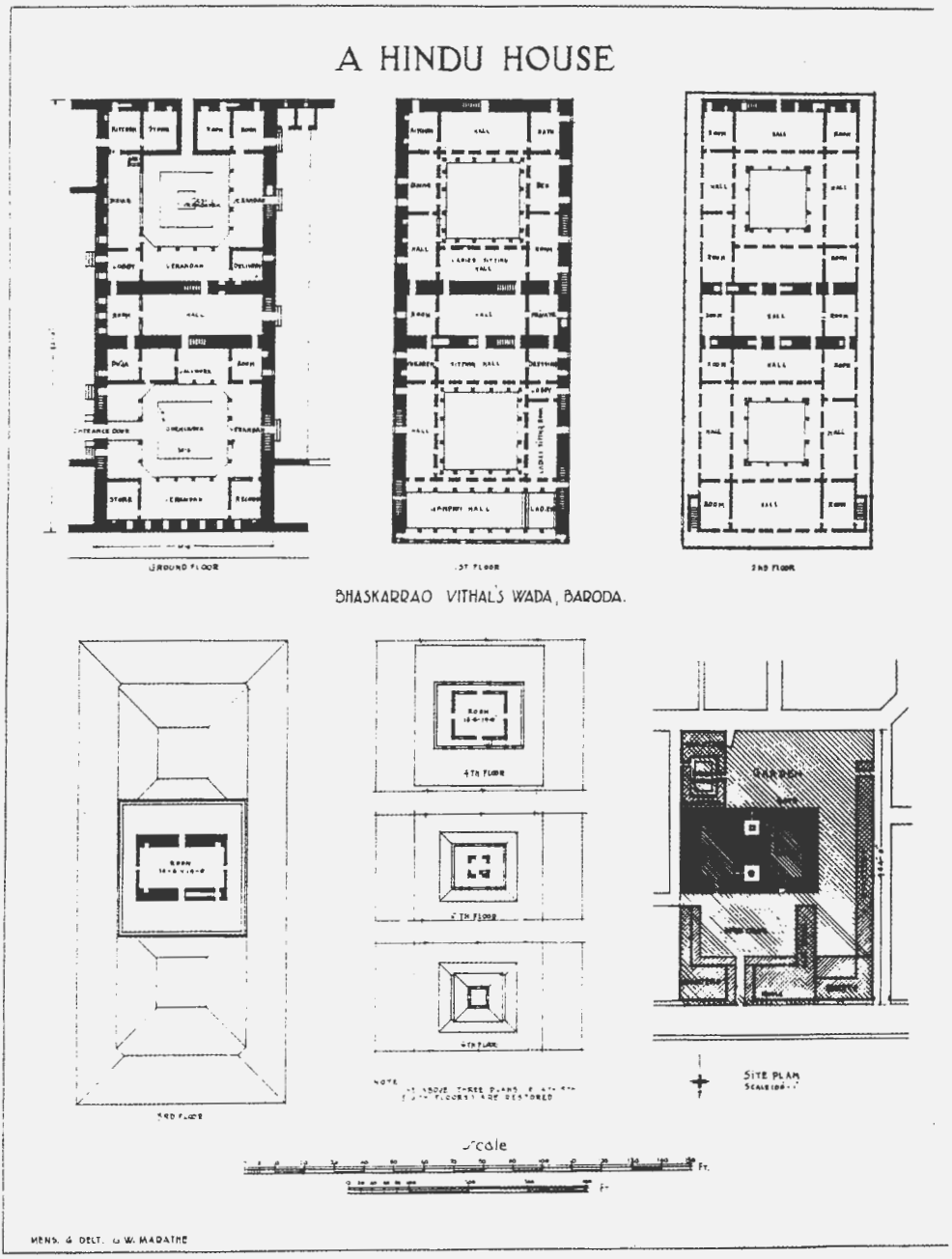

FIGURE 7 A seven range house with two courts (Batley, 1973)

The characteristics of the building materials[25] are detailed out to enable the right choice. The bricks should be compact, uniformly baked, free from any cracks, and so on striking should produce a ringing sound. The method of baking bricks is clearly specified. For construction in timber, the wood is examined on the basis of its colour, taste, bark, its origin and place of growth. The stone used for construction should be of a uniform colour, dense, smooth and deeply embedded in earth. These qualities imply that it should be mature.

Each stage of the construction process begins with a ritual ceremony that is conducted at an auspicious time. The architect and the householder participate in the ceremonies which are undoubtedly an integral part of the construction process. The rituals indirectly ensure a disciplined pursuit of the building norms.

Although the various texts on *Vastu Vidya* are similar in their layout of the building norms, the adaptation of the dictates varies according to the region it is applied to. The regional variation occurs in terms of incorporating the physical form determinants like the climate, topography, availability of the building materials, the cultural needs of the people, superimposed over the underlying principles of *Vastu Vidya*. To illustrate this, two regions with vastly different climatic, topographical and cultural parameters could be compared to show how *Vastu Purusha Mandala*, the basic design grid (Figure 8), for instance, presents two different solutions (Figure 9) suitable for each region.[26]

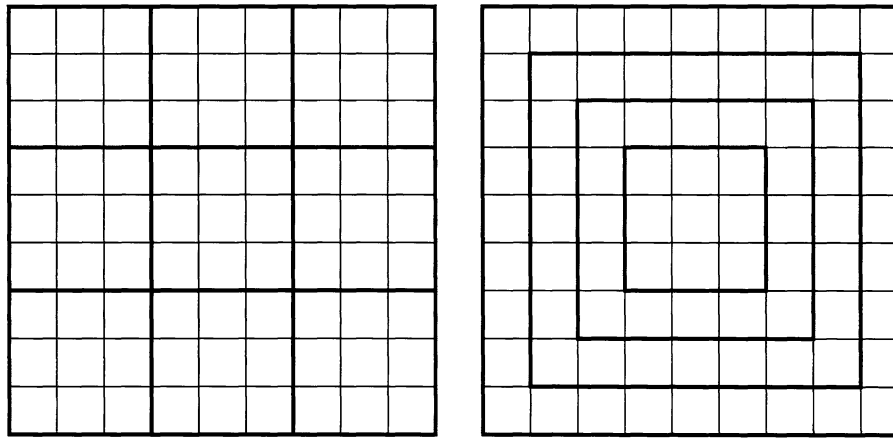

FIGURE 8 Two ways of looking at the 9 × 9 grid (Author)

25 See Ch.VI. Building Materials.

26 Based on primary site surveys in Rajasthan and Kerala; *Spandana reports*; Kukreja, C.P., *Tropical Architecture;* Nair, Maya, *A Study of the Traditional Nayar Homes of Kerala.*

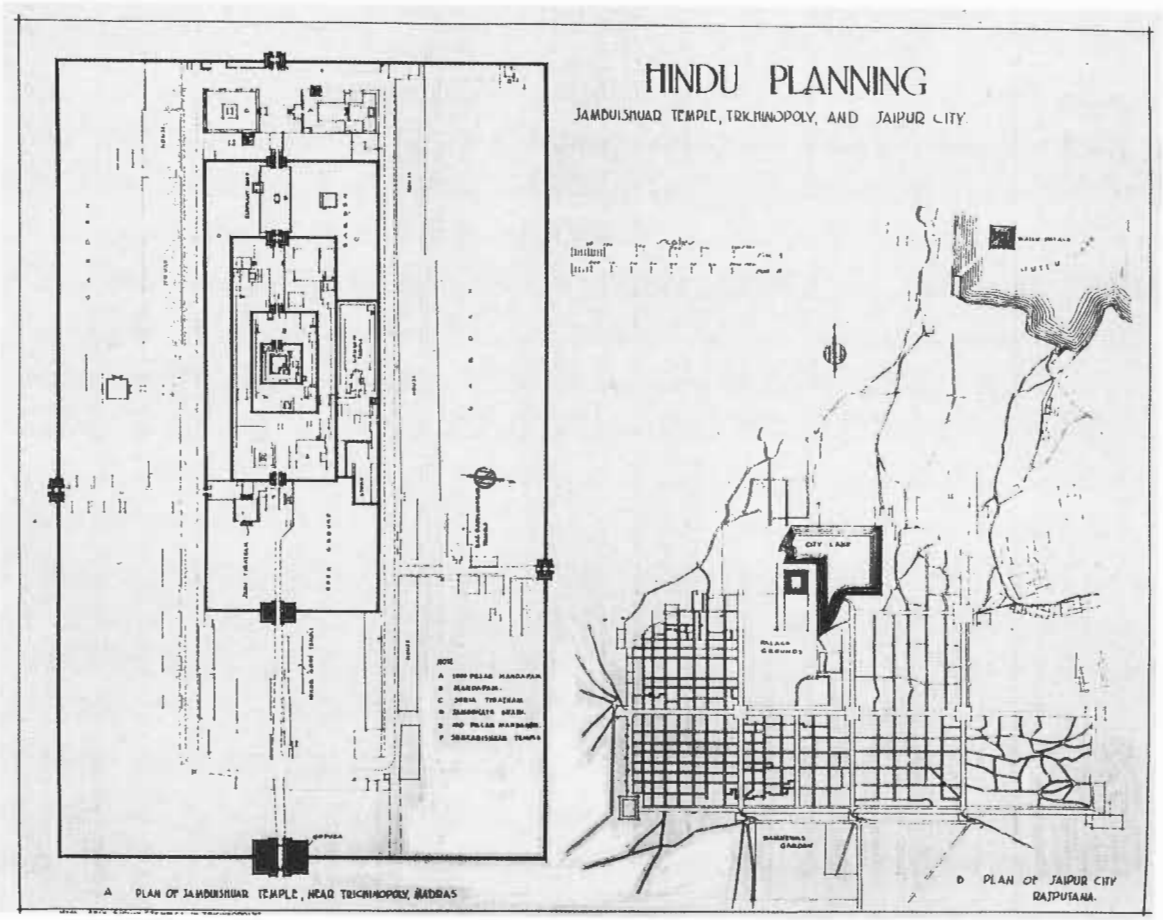

FIGURE 9 Two kinds of planning principles (Batley, 1973)

In Rajasthan where the climate is largely hot and arid, it evolves into an introvert built fabric using stone as the major source of building material. The courtyard type of house (Figure 10) or *Haveli* (as the name perhaps originating from *Hava* or wind suggests) utilises the air movement generated by convection due to high temperature to reduce the discomfort. Here the *Vastu Purusha Mandala* is perceived as a pattern of squares in which the central squares are ruled by *Brahma*. These central squares form the courtyard around which are built the rooms opening inwards, inhaling cooled air. The walls are usually 2ft. or more in thickness, stone clad over brick and lime masonry, and so generate a time lag in the process of conduction of heat. As a result, in the day time, the thick walls and roof prevents the sun's rays from heating the interior. By the early morning hours, when the outside temperature drops unbearably

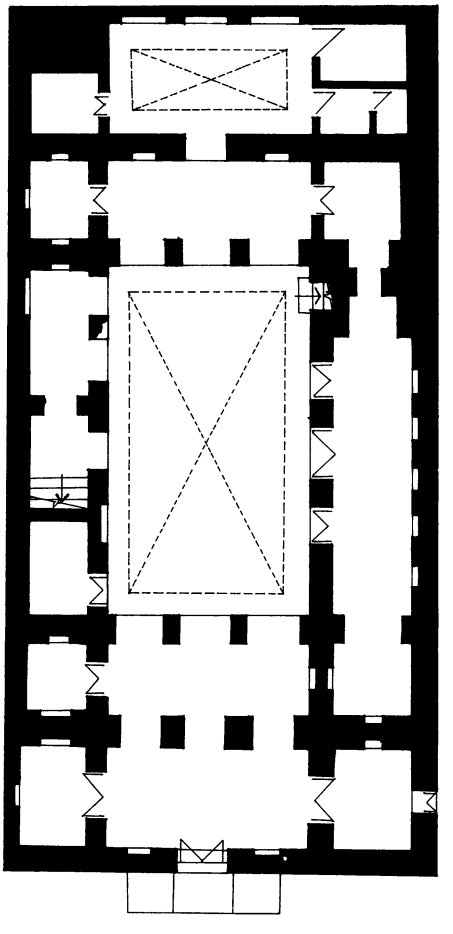

FIGURE 10 A Haveli in Rajasthan (Author)

low, the heat stored in the thick walls is discharged by reradiation, making the interior thermally comfortable. The compact built fabric further helps by keeping the common shared walls cool. Apart from working as a lung for the house, the courtyard is a semi private open space that is used extensively for various household activities. This control is dictated by the *Vastu Purusha Mandala.*

The maximum spanning limit of the stone slab, or more generally speaking, the constraints presented by the characteristics of the building materials could be suggested as one of the factors that control the proportions of the *Haveli*. This means that the size of the room is determined by the slab, and since the ratio of the built and open space is dictated by the *Vastu Purusha Mandala*, it could be inferred that the norms are controlled by, or more correctly, adapting themselves to, the regional peculiarities.

In Kerala where the climate is generally wet and humid, the building principles cater to the needs of a different set of constraints. Here the *Vastu Purusha Mandala* is perceived as a square that broadly consists of three concentric zones around the central square, the *Brahmapadam* (Figure 11).

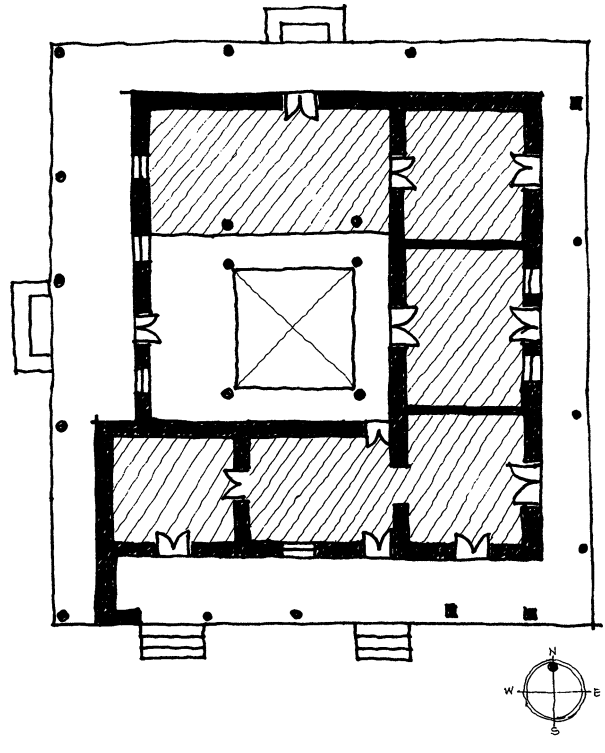

FIGURE 11 A house in Kerala
(Author)

The *Brahmapadam* is occupied by *Brahma*, and is left open as a courtyard. Around it is the *Deva Vithi*, or the zone for God, which forms the inner veranda. Surrounding the *Deva Vithi*, is the *Manushya Vithi* or the zone for Man, which is the middle ring where the main structure is built. The outermost ring is the *Paishacha Vithi* or the zone for demons, considered auspicious for building the structure. This kind of planning ensures large outer and inner verandas around the central open space, that generate air circulation. This renders the dwelling comfortable by reducing the humidity. The *Paishacha Vithi* also ensures adequate setback area between two adjacent houses to create a loose built fabric facilitating air circulation, as well as exposing maximum wall area to keep it free from humidity. The primary source of building construction is timber guided by this science, a part of which deals with the guidelines to achieve perfect joinery of the members of the roof.

This adaptation could be studied by correlating the architectural interpretation of the strict prescriptions of *Vastu Vidya* on the one hand, to the variables that control the built form typical to the region on the other. This could discover the rationale and help appreciate the suitability of the design solutions that thus emerge.

From the vast resources of *Vastu Vidya*, two distinctive streams of its architectural application can be observed in the contemporary situation. The practitioners are the modern *Sthapati*, or the *Vastu* consultant as he is referred to, and the modern 'Indian' architect in search of his identity. Despite relying on the same resource of knowledge, they have both been able to create a separate niche for themselves, one quite oblivious of the other, and yet a part of the same continuing tradition.

The *Vastu* consultants follow a mystic approach while illuminating the *Vastu Vidya* norms. They lay more stress on the orientation principles[27] and the defects in the building that could have serious implications. Their main aim is to achieve maximum growth and prosperity by strict application of the auspicious elements and the removal of the inauspicious components of the building. This popular profession that caters primarily to the businessmen in the urban milieu is hardly a decade old, with its 'demand' having grown rapidly in the past five years. While the knowledge of the principles could still be recalled as 'childhood experiences' of *Vastu Vidya* by the present generation who had long discarded this 'obsolete' way to build, it was but a basic 'matter of fact' for many households in the previous century.[28]

Potluru Krishna Das, a former engineer turned *Vastu* consultant, states in his book entitled *Secrets of Vastu* (1989), "personal magnetism is

27 See Ch.IV. Orientation.
28 See Padfield, J.E., *Hindu at Home*, pp8–10.

accentuated and revitalised to optimum levels when one is charged with the overall cosmic influence of the building built as per Vastu norms."[29] He describes the application of Vastu Vidya norms as "tailoring the cloth of destiny"[30]. The main part of the book professes emphatic adherence to the principles that dictate the placement of various functions of a building in a proper direction. He also illustrates the application of orientation principles to modern factories, offices and apartment buildings.

Another practitioner of this stream is C.H.Gopinatha Rao, who believes, "to ensure long life for buildings, there is need to apply the science: to calculate the auspicious time for commencement of work, placement and measurement of rooms, position of entrance doors, fixation of date of house warming etc."[31] He also adds, "By adopting astrological norms, the owner of the house and his family can derive peace, pleasure and prosperity"[32]. His book entitled *Astrology in House Building* (1986 I edn, 1992 II edn), apart from the calculations for the derivation of the auspicious time, considers the selection of house sites, planning principles, good and bad omens, and the interpretation of dreams.

Other books apart from the two mentioned above are: The *Secret World of Vaasthu* by Gouru Tirupati Reddy (1994, there is also a Telegu and a Hindi version); *A Glimpse of Practical Vaastu* by B.N.Reddy (1992 I edn, 1995 VI edn); *Dharnidhar's Vastu Guide* by D.D.Sharma (1994), *Bhartiya Vastukala* by Brijmohan Dammani (1994), *Bhartiya Bhavan Nirmana Yojana* by Nanda Kishore Jhajharia (1994), *Hidden Treasure of Vastu Shilpa Shastra and Indian Tradition* by D. Murlidhara Rao (1995 I edn, 1996 V rept.); and *Vastuvigyanam* by Umesha Shastri (1989).

Most of the books (Figure 12) in circulation today are written in English, some of them in Hindi, with the exception of *Vastyvigyanam* which is in Sanskrit and Hindi. These books do not follow the layout and classification of the contents of a typical *Vastu Vidya* text, and, as their names suggest, reveal the 'secret' of *Vastu* in an 'easy-to-use' handbook. They sometimes also provide 'ready made' solutions of designs of houses (Figure 13), apartments, shopping complexes, industries (Figure 14), and hotels in the form of drawings, thereby fixing the architectural expression of the norms. In all these contemporary books, there seems to be a total neglect of any discussion of typology, form, aesthetics, building elements, materials of construction and the system of proportionate measurement. Interestingly, these features are the main focus of some of the contemporary architects in their quest for an 'Indian' identity.

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29 Das, Potluru Krishna, *Secrets of Vastu* p15.
30 *Ibid.* p12.
31 Rao, C.H. Gopinatha, *Astrology in house building.* First page of the 'Introduction'.
32 *Ibid.* Second page of the 'Introduction'.

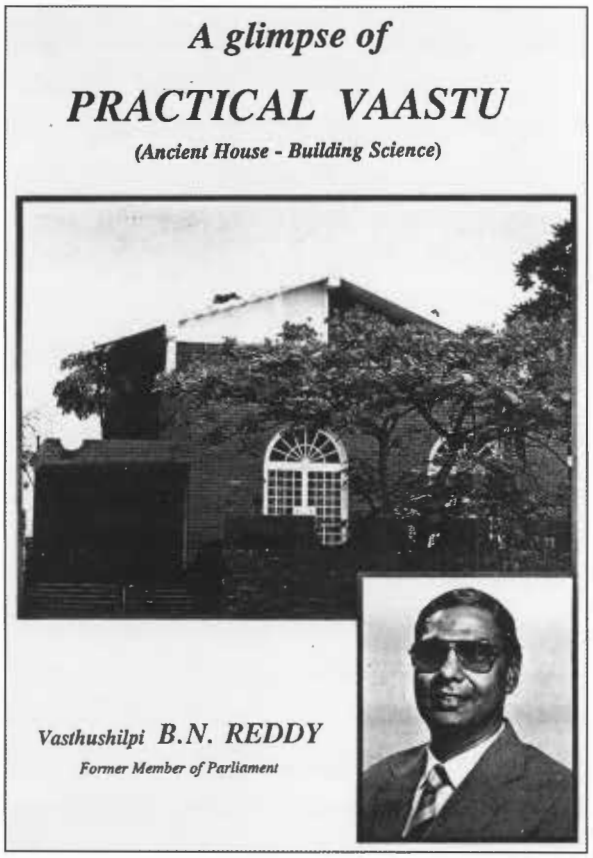
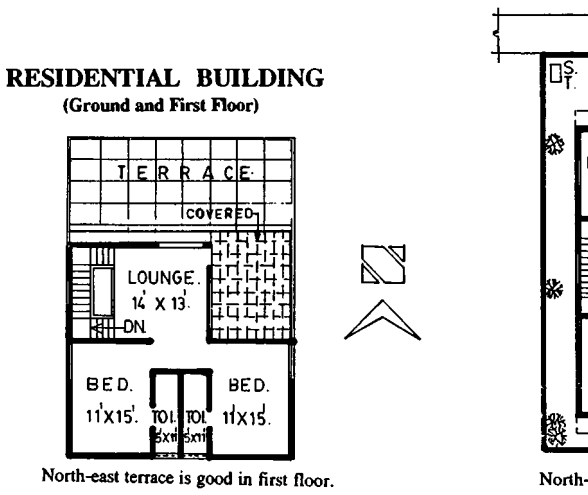
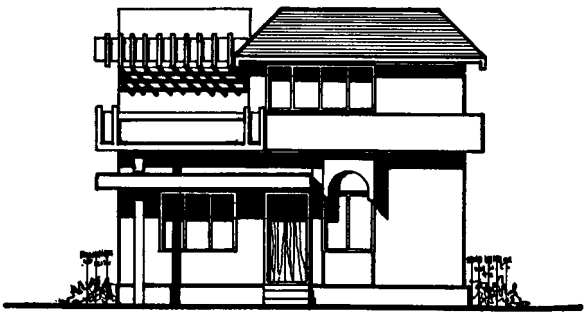


FIGURE 12 Cover of a contemporary book on Vastu (Reddy, 1993)

Courtyards, clusters, street patterns, gateways, terraces, play of light and shade, axial grid planning resembling the Vastu Purusha Mandala, have inspired architects such as B.V.Doshi, Charles Correa, and Raj Rewal, to name a few. Rewal feels that "Contemporary solutions can be based on a kit of parts, comprising doors, windows, walls, balconies etc. and the manner of their assembly can provide the rich variations."[33] He compares the methodology to the way the prefabricated building elements are used in Jaisalmer to create its 'traditional' ambience. The typology of Jaisalmer however, was a result of the collaboration of the designers, builders, craftsmen and users, all of whom followed the 'traditional' programme of architecture. It is interesting to study how the 'modern' architects today are reinventing meaning and usage of the chosen fragments of *Vastu Vidya* and its built representations, to make design statements of their identity.

33 Taylor, Brian Brace, *Raj Rewal*, p28.





- North-east pergola is lower than the rest of the roof level.
- South-west roof level and parapet wall should be a bit higher than the other sides.
- Staircase in North-west should not be taken above the 1st floor, because the headroom will be higher than the roof level of South-west bedroom, which is not correct.

FIGURE 13 Design of a 'modern' house based on Vastu (Reddy, 1993)

Thus, tentatively it could be suggested that today, one set of practitioners of architecture are concerned with the part of *Vastu Vidya* that deals with the orientation principles and the astrological application, and another with their own perception of its visual and aesthetic appeal and the spatial organisation of the built form. But, if the contemporarised version of *Vastu Vidya* does not exist in its entirety, could it continue to function just as an impingement over the design freedom when practised by the Vastu consultants, or as a mere 'glamour' factor of the designs of the 'Indian' architects? Could the essence of *Vastu Vidya* be extracted to grow into a complete alternative ideology, and thereby overcome the conflict and fragmentation evident today?

An attempt is needed towards bringing together both the streams to form a renewed resource of architectural knowledge applicable to the contemporary context. The present study of the building principles

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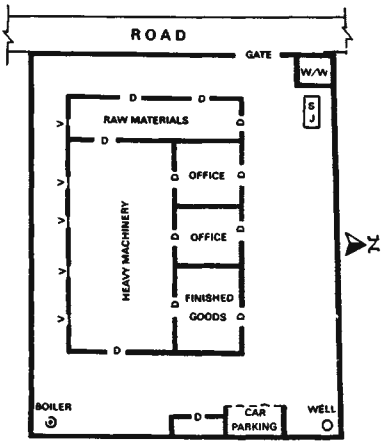

१. मेनगेटः उत्तर-पश्चिम
२. ट्यूब वेलः उत्तर-पूर्व
३. वाच एन्ड वार्डः उत्तर-पश्चिम
४. भट्टीः दक्षिण-पूर्व
५. ओवर हेड टैंकः उत्तर-पश्चिम
६. जमीन की ढलान और पानी का बहावः उत्तर-पूर्व की ओर

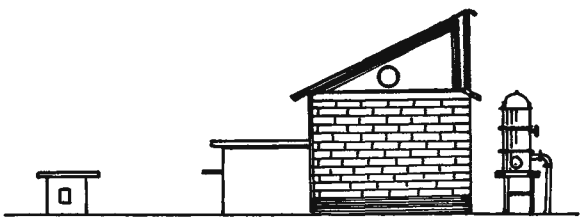

FIGURE 14 Layout of a factory based on Vastu.
(N.K. Jhajharia, 1994)

primarily aims at the appreciation and understanding of the architectural programme that *Vastu Vidya* presents, to explore its contemporary application. This is a first attempt of its kind and is in agreement with P.K.Acharya, who says, "The writer, however, takes the liberty to conclude this preface by reiterating the fact that this (*Manasara*) is, like the medical works, the most practical of all Sanskrit treatises, and with the hope that a trial may be given to its methods and principles, its rules and regulations, because the foreign imitation in architecture for a millennium has proved more or less unsuccessful and uneconomical."[34]

34 Acharya, P.K., *Architecture of Manasara*, Manasara series IV, Preface pLIX.

CHAPTER ONE

Architectural Team

The architectural team here refers to a collaboration of specialists that contribute their skills to realise the translation of a design concept. It becomes imperative that each expert understands and follows the principles of the programme the concept is envisaged in. A simple instance of this is that, say, the services of a structural engineer, an electrician, plumber, and so on, besides that of an architect, required for a house designed in a modern urban context, are all unified by the underlying dictates of the prevalent architectural programme. The electrician would be required to know, for example, about the installation of an air conditioner, which in a different context of a rural setting is quite irrelevant. Similarly, a stone mason who contributes to the construction of say, a traditional *Haveli*, may be of little relevance to the realisation of a design envisaged in modern materials like concrete, steel and glass. The specialist services required for the realisation of the design are largely created on the foundation of the architectural programme followed, and a specialist of one programme may be defunct for the other. This is in reference to two programmes – the traditional supported by *Vastu Vidya*, and the 'modern' Indian one supported by the prevalent architectural education and practice.[1] Therefore, a traditional builder may not be proficient in the design of a modern house, and the 'modern' architect may not be adept in the traditional design idiom. While the basic role of the architectural team, which is to design and construct, may not change with the programme employed, the associated expertise required would vary. This could also be gleaned from the representative texts on *Vastu Vidya* which describe the qualifications of the various experts, most of which today are considered redundant.

1 See Bhatt and Scriver, *After the Masters: Contemporary Indian Architecture*, Mapin, Ahmedabad, 1990.

The Traditional Team

Manasara (II.1-39) and *Mayamata* (V.14-25) describe the four specialists that comprise the architectural team, as the *Sthapati, Sutragrahin, Takshaka* and *Vardhaki*. The *Sthapati* or architect conceptualises the overall design scheme and directs the rest of the team. He must possess a scholastic aptitude and a firm grasp over all the *Shastra*, as his qualification is that of an Acharya[2] or teacher, and must "know the ancient authors . . . and the whole country; he must have crossed the ocean of the science of architecture".[3] He is the "Guru" of the other three experts,[4] whose instructions are backed by the knowledge and a theoretical base in the *Veda*, *Vastu Shastra* and subjects like astrology and mathematics. He is followed with respect by the rest of the team as "to them, it is Vishvakarman in person who is revealed through his aspect".[5] His supremacy in the hierarchy of the team is explicit, "without them he can do nothing",[6] but equally, "without the technicians led by the architect nothing beneficial can be embarked upon here below, but with them as with a guru, mortal beings attain deliverance".[7] This also indicates an underlying division in the architectural team, with the *Sthapati* on one side and the other three, led by the *Sutragrahin* on the other.

The vital link between the concept and the physical form, is the *Sutragrahin* or one who holds the cord. An expert in drawing and learned in *Shastra*, the *Sutragrahin* initiates the implementation of the design concept. Being a disciple or a son of the *Sthapati*, he understands the instructions and follows them without conflict. He draws the scheme and "knows how to make the rod and the rope fly and how to measure length, height and proportions".[8] He is the guru or director of the other two specialists. The role of the *Vardhaki* is as the name suggests, to add to the work of the *Sutragrahin*. He is an expert in painting and masonry. He assembles the pieces that are cut and carved by the *Takshaka*. The *Vardhaki* is the guru of the *Takshaka*. The other attributes, almost common to all, besides the knowledge of the *Veda* and *Shastra*, are the virtues of the idealised professional – honesty, compassion, skill, purity, strength, freedom from envy and greed, generosity, health, attentiveness and freedom from all vices.

In *Samarangana Sutradhara* (VIII.1-22), however, the persona of the *Sthapati* incorporates the roles and skills of the entire team. This eleventh

2 *Manasara* II.31
3 *Mayamata* V.14b-18a.
4 *Manasara* II.21
5 *Mayamata* V.22b-24
6 *Ibid.*
7 *Mayamata* V.25
8 *Mayamata* V.18b-19

century text does not attribute the requisite skills to four different personae. It has been suggested by R.N.Misra that the texts elucidate an earlier tradition, which at the time of writing may already have been extinct.[9] After the Gupta period, the textual evidence of the guild system is scarce, as buildings of a monumental scale inevitably required a large number of artisans.[10] With the team no longer limited to four experts, attributing the accountability to one person was necessary. Also the inscriptions on the monuments do not bear the name of the *Sthapati*, but of the *Sutradhara*,[11] indicating a dilution of the strictness in the roles of the experts. Therefore, the textual description of the role of the *Sthapati* is not of one person, but of the attributes that are required to facilitate design and execution, which may either be distributed among four experts or concentrated in one person. This is further indicated by the qualifications of the expert that remains consistent in essence, varying predominantly in the presentation of the subject by the author of the text.

The *Sthapati*, according to *Samarangana Sutradhara*, must know the *Shastra*, the theoretical basis, including mathematics, astrology, *Chhandas* or metres, crafts and the working of mechanical devices. The importance of the knowledge of both theory and practice is underlined, as the knowledge of only the *Shastra* without knowing its application, makes the *Sthapati* like a coward in a battlefield. And if the *Sthapati* practices without the knowledge of the *Shastra*, he is misled easily like a blind person.[12] He must practice without greed, anger, jealousy and bias. He is also required to be proficient in eight skills of drawing, painting, carving, wood-work, stone-work, metal-work, masonry, and sculpting.[13]

As is indicated above in the *Manasara* and *Mayamata*, the *Sthapati* and the rest of the team were the personified precepts of theory and practice, where the *Sutragrahin* formed the link between the two. The designation of *Sutradhara* bears a close relationship with *Sutragrahin*. The *Sutradhara* adopts a key role in Sanskrit plays, where he delivers the prologue which is outside the story, greets the audience, provides the information about the author, the play, its context and the significance of its performance.[14] The role of the *Sutragrahin* in the building process is similar to that of the *Sutradhara* in the performance of a drama. *Sutragrahin* ties the author and the actors in the play of architecture, where the author is the *Sthapati* and the actors are

9 Misra,R.N., *Ancient Artists and Art Activity*, 1975. p37

10 *Ibid.* p33

11 *Ibid.* p36

12 *Samarangana Sutradhara* VIII.6-10

13 *Ibid.*VIII.20-22. Carving is distinguished from wood-work, as wood-work includes the skill of carpentry, which may not employ the skill of carving. Similarly, a distinction is made between masonry employed in the construction of walls with stone, bricks and mortar, and stone-work.

14 Cf. Rangacharya, A., *Introduction to Bharata's Natyasastra*, p66, as used in Misra, *Ancient Artists and Art Activity*, 1975. p38.

the skilful artisans. The composition of his role necessitates a thorough knowledge of the vocabulary of the *Sthapati*, and of the artisans as well. This is also indicated by *Rajavallabha* (15th century AD), written by Sutradhara Mandana, where Vishvakarma is described as the divine *Sutradhara* and not the architect.[15] The attributes of the *Sutradhara* are talent, dexterity in all kinds of work, knowledge, lack of greed, and calm, and he is twice-born or a Brahmin.[16] The superlative position of the *Sthapati* is finally surpassed by the all-dexterous *Sutradhara*, facilitated also by the apparent remoteness of the *Sthapati* from the actual construction process. Parallels of this could be found in the contemporary situation, where numerous buildings are designed and constructed by non-architects, like draughtsmen, engineers, contractors, or builders, who are otherwise envisaged as a part of an architectural team.

Contemporary Users

Today the practice of *Vastu Vidya*, albeit continuous, is fragmented beyond recognition. Indicative of this fragmentation is its use not as a whole architectural programme, but in bits and pieces that have little role to play in the definition of the contemporary architectural idiom.[17] Its negation as an obsolete architectural programme in the recent past, has led to its usage in a secondary sense, where it is not allowed to interfere with the individualistic perception of the design problem and its solution – now resolved by modern methodology. It is not a part of the curriculum or discussion in any of the main architectural schools in India, and exposure to its built representation is via modern parameters of architectural appreciation. Besides the modern architect, the team of experts, whose collaboration is quintessential to the realisation of the *Vastu Vidya* programme of architecture, have resorted to insulated individual practices. They too are fast disappearing primarily due to their perceived irrelevance to the needs of modern India. Some of the fragments of *Vastu Vidya* have adopted new meanings, where their fundamental purpose is obliterated by a kind of ritualism fashioned to hastily satisfy an inner conflict without the complementary architectural manifestation. Its complete redundancy as an architectural programme, which in its long history had thrived with the variables of climate, topography, life styles, as well as the social, political

15 *Rajavallabha* I.4

16 *Ibid.*I.41

17 See especially Bhatt and Scriver, *After the Masters: Contemporary Indian Architecture*, Mapin, Ahmedabad, 1990; Tillotson,G.H.R., *The Tradition of Indian Architecture: Continuity, Controversy and Change Since 1850*, Yale University Press, London, 1989. pp 127-147.

and economic situation of its land, render all the allied building crafts superfluous.

The practitioners[18] who today use or make references to *Vastu Vidya* could be identified as the following: the 'Indian' architect, who in search of his identity makes emphatic references to the traditional building vocabulary; the *Vastu Pundit*, who provides guidelines largely regarding the orientation principles that dictate the layout of the building; the astrologer, for whom *Vastu Vidya* belongs to the same tradition as astrology, and the points of intersection between the two allow its practice in oblivion to the architecture it yields; the traditional craftsman, who today is bereft of the tutelage of the traditional team, and finds application of his skill primarily in the conservation of old buildings; conservation architects, who document and analyse monuments for the sake of repairing and preserving them, and art historians who analyse them to develop a theoretical discourse on their history. The above are not strict categories, but some of the more apparently defined types of users, identified to discuss their individual usage of the finely fragmented corpus of *Vastu Vidya*.

Broadly speaking, while the astrologers, craftsmen, conservation architects and scholars use scooped-out parts of *Vastu Vidya* in more or less its original intent, the 'Indian' architect and the contemporary *Vastu Pundit*, reinterpret and reinvent the principles, to fit them comfortably within a different architectural programme.

The quest for identity of the modern architect in India stems from the peculiarity of the very birth of this profession. In 1896, in the Sir J.J.School of Architecture, a two-year course was instituted to train draughtsmen and tracers who would aid the execution of buildings in British India.[19] Its expansion to a five-year course carving the basic shape of architectural education saw fruition in 1922. Here in particular, a collateral study of comparison between the classical styles of Europe and India was ushered, in a hope that "the more clearly the principles of Composition Proportion and General Design underlying Grecian monuments are understood the more clearly will Indian Students be able to grasp the principles which

18 What follows is not a critique of the practitioners, but an observation and understanding of the practice helped from the inside of the profession of an architect, and from the outside of it as a student of *Vastu Vidya*. Further, only some instances of practitioners and the part of their work that draws upon *Vastu Vidya* is discussed here, and it is in no way a collation of the entire gamut of contemporary architectural and non-architectural practices. The focus is that of an overview of the general temperament of the contemporary practitioners towards *Vastu Vidya*, and not a discussion on the exceptions to the overriding norm. To take the discourse as a criticism of the individuals discussed below, would be a misinterpretation. The discussion of the contemporary uses of *Vastu Vidya* by these practitioners continues in all the subsequent chapters.

19 Narwekar, S.J., Architectural Education in India, in *Seminar on Architecture*, Lalit Kala Akademi, New Delhi, March 1959. p93. Also see Norma Evenson, *The Indian Metropolis: A View Toward the West*, Yale University Press, 1989.

underlie the classical works of their own country".[20] This exercise was one of comparing the physical veneer of Indian architectural form to that of the well documented classical orders of Europe, without the former being backed by an appreciation of the context of the architectural programme and philosophy instrumental in its generation. This also suggested that all classical architectural styles could be analysed by the universalised parameters of architectural appreciation. It also assumed that the nature of the Indian classical style could be adequately judged by the European design sensibility, and its underlying principles could be superimposed to learn about the Indian design sensibility.

In general, this strained correspondence to the European yardstick of appreciation is reflected in P.K.Acharya's significant work on the compilation and translation of *Manasara*, where he draws numerous parallels between Greco-Roman architecture and the 'architecture of the *Manasara*'. The idea influenced the work where "One chapter is devoted to the columns, which are divided into five classes as in the western system, and their component parts into eight mouldings exactly like those of the Greco-Roman orders".[21] The visual association of the Indian columns with the Greco-Roman was also discussed by Ram Raz in 1834 in the first ever elucidation of the 'Silpa Sashtra'.[22] Here the instances are used to familiarise the reader with a classical style of Indian architecture via European examples, mostly owing to the nature of the work which was for "the European reader to form an opinion of what that system may once have been".[23] The purpose of the work on *Manasara* by P.K.Acharya, however, was "to get a reliable version of the standard work on Indian architecture scientifically edited and properly elucidated",[24] but the organisation and approach of the Greco-Roman design influenced not only the compilation, but also the interpretation of *Manasara*. Both the above works quite naturally manifest the necessities of the time they were written in.[25]

The process of comparison and critical appraisal using a non-Indian gauge is embarked upon without the 'home-work' of adequate

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20 Hill, S. Woods, The School of Architecture of the Bombay School of Art, in *The Bombay Revival of Indian Art* by W.E.Gladstone Solomon, not dated, conjectured as published in 1924, Bombay. p131

21 Acharya,P.K., *Architecture of the Manasara*, Manasara series IV, Oriental Books Reprint Corporation, Delhi, 1980 (IIedn.), Originally published in 1934. Preface p49.

22 Raz, Ram, *Essay on the Architecture of the Hindus*, Indological Book House, Varanasi, 1972. p22, 24, 37-40.

23 Captain Harkness in the preface of the *Essay on the Architecture of the Hindus* by Ram Raz, 1972.pV

24 Acharya,P.K., *Architecture of the Manasara*, Manasara series IV. Preface ppxiii

25 While the influence of the social and political background on the works on Indian architecture and indeed of architecture itself could not be overlooked, here the focus remains that of an overview of the road of ideologies that the architecture in India has traversed to arrive today at the centre of the pertinent question of its identity. This generalised overview overlooks smaller instances of defiance of the overriding influence on architecture.

documentation, compilation and analytical study of various texts in their context of the conceptual philosophy behind the generation of architectural form. In the absence of extensive collation necessary for establishing the classicism of the Indian architectural design in its own right, the sanction of the well documented Greco-Roman classicism was quickly adopted – as it would also prove that Indian architecture was on a par with the West, and therefore was worth appreciation. Apart from the subtle undercurrents of validity and sanction, clearly the appreciation is of the representative examples of the architectural form, and not of its vocabulary.

Meanwhile, the "native" traditions in the arts and crafts received much sympathy from Frederick Growse, E.B.Havell, Claude Batley, Lockwood Kipling, and Robert Fellowes Chisholm, among others. Claude Batley and Walter Sykes George, were "worried by the influx of inappropriate Western architectural thinking", which had influenced the setting up of architectural institutions in India.[26]

The independence of India from British rule brought with it an opportunity to start on a clean slate, at least in terms of the definition of its attitude towards indigenous architecture. This time architectural ideology was caught between one of 'modern', functional and scientific buildings in consonance with the Modern West on the one hand, and one of the austere simplicity of the 'village' India on the other.[27] However, rural India as idealised by M.K.Gandhi, provided little scope for the application of the fascinating new technology and of the modern vocabulary the architects were educated in. The curriculum prescribed in the various architectural institutions had been "framed so as to give complete knowledge of both architectural and technical subjects to the students. Buildings of multifarious nature such as flats, factories, schools, colleges, libraries, offices, municipal buildings, museums, art galleries, hospitals, theatres, hotels, public halls, stadia, aerodromes etc. which an architect is called upon to design involve a lot of technology. He must avail himself of the most modern method of construction and materials such as pre-stressed concrete, mushroom concrete, shell concrete, aluminium etc. We are passing through a mechanical age and the days of bullock cart speed are gone."[28] The modern architect found a niche in the development of modern India, where the fortress of this rather new profession was

26 Meade,Martin, Europe in India, *Architectural Review*, August 1987.pp30-31. For further details see Tillotson,G.H.R., *The Tradition of Indian Architecture: Continuity, Controversy and Change Since 1850*, Yale University Press, London, 1989.

27 Curtis, William, *Balakrishna Doshi-an Architecture for India*, 1988.p159. Broadly speaking, the two architectural ideologies were influenced by the urban-based views of Jawaharlal Nehru and the rural-based views of M.K.Gandhi.

28 Narwekar, S.J., Architectural Education in India, in the *Seminar on Architecture*, Lalit Kala Akademi, March 1959. p94

guarded by new technology, new vocabulary and altogether a new architectural sensibility. Nothing in this realm was rooted in India, and therefore there was no room for the traditional builder in this exercise. Any effort towards exploring and contemporarising the classical architectural tradition was thwarted by the unfamiliarity of the architects with traditional design principles, and was rejected in the name of obsolescence.

A specimen of this new ideology – the design of Chandigarh – was welcomed by Jawaharlal Nehru as a creative approach "not being tied down to what has been done by our forefathers and the like, but thinking out in new terms, trying to think in terms of light and air and ground and water and human beings, not in terms of rules and regulations laid down by our ancestors".[29] While the terms of light, air, ground, water and so on were intrinsic to the traditional programme of architecture, as they would be to any other programme concerning architecture, the perception and the architectural consequence of these terms was newly imported to echo the modern movement in the West.

This also meant that the architect need not worry about indigenous architectural idioms at all, and ironically for him, the freedom of India heralded complete freedom from traditional Indian architecture. The architect's relationship with traditional Indian architecture was severed before it could grow. This was clearly a choice of free India, before which it could justifiably be blamed on the British rule.[30] Scientific rationale wiped out the validity of the traditional ethos; for example the natural elements like the sunlight, wind, and rain were now mere scientific entities that participate in the biological process of living beings,[31] rather than constituents in a traditional perception that had given birth to the Indian forms of architecture, dance and music. The role of the architect was and continues to be, by using the new perception to "study and understand the traditions of a people within a region, to consider local conditions and, in some cases, to force certain changes in the life of the people by his knowledge of a healthy and refined life."[32]

In 1962 the American architect Louis Kahn was invited to design the Indian Institute of Management in Ahmedabad. Henceforth, the architects' work, influenced by the styles of Louis Kahn and Le Corbusier, was primarily reinterpretation of these Indian samples of modern architecture.

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29 Inaugural address by Jawaharlal Nehru at the first seminar on architecture on 17-21 March 1959, New Delhi, *Ibid*.p8

30 Doshi (1965) in Curtis, William, *Balakrishna Doshi- an Architecture for India*, New York,1988. p158

31 Ghadlali,J.H., Effect of Climate on Architectural Expression, *Seminar on Architecture*, Lalit Kala Akademi, March 1959.p156

32 Doshi (1960) in Curtis,William, *Balakrishna Doshi- an Architecture for India*, New York, 1988. p159

K.T.Ravindran explains it as a mere 'stylistic reductionism', where the architecture of Le Corbusier is reduced to "deep exposed concrete fins or awkwardly curved sun shades, or by the more adept to mere proportions of apertures"; association with Louis Kahn's style is recalled in the usage of brick facades with circular openings, "in geometric wastefulness in plan, in endless repetitions of the arch, circle and the triangle".[33] This has been consistently followed as for "three decades now Indian Masters of innovative imitation have garlanded each other in exclusive forums, given each other gold medals and lauded each other's imitations as originals in jury reports."[34] The traditional idiom for the modern architects in the short history of the profession became the works of the foreign architects of the post independence period, and subsequent contributions are largely a tribute to the architectural interpretations of the movement presented by Le Corbusier and Kahn.

The role of the traditional building craftsmanship had already been dismissed, as is apparent from the first seminar of architecture after independence inaugurated by the Prime Minister, Jawaharlal Nehru, which was held to resolve the vital issues of architecture. Here it was recommended that "the Government should realise that the use of obsolete styles and their economic implications are beyond our economy and irrelevant to our needs".[35] The obsolescence of traditional craftsmanship was voiced as follows:

> "In the olden days, the system of ornamentation employed to cover up the massive structure, was the result of the efforts of craftsmen, carving and modelling for the enrichment of surfaces which otherwise looked depressing on account of the huge inert masses, considered so essential for strength. With increased technological knowledge and consequent decreased factors of ignorance, the structures have less inert masses and therefore less need for such decoration. This is the reason why the modern buildings are plainer and depend upon precision of outline and perfection of finish for their architectural effect. Also, now that decorative enrichment can be done either by moulding or by machinery, there is not the same virtue in these decorations as they lack the variety and the personal touch of craftsman."[36]

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33 Ravindran, K.T., Indigenous India, *Architectural Review*, August 1987.p63
34 *Ibid.*
35 Report of the Seminar on Architecture, Lalit Kala Akademi, New Delhi, March 1957.p11
36 Rao, D.Subba and R.S.Dighe, Effect of Technology on Architecture, *Seminar on Architecture*, Lalit Kala Akademi, New Delhi, March 1957.p139

Amidst this fervour and fascination for the usage of new technology and the architectural expressions, there were instances of theoretical 'soul searching'. Especially those architects who were connected with the West, felt a loss of their identity. B.V. Doshi, who had worked with Le Corbusier and Louis Kahn, felt that "Rapid technological and scientific developments have led to a total rejection of age-old ways, substituting in their place a rootless expression of mere industrial functionalism. This has given us an art and architecture that is more or less uniform throughout the world."[37] Contributing to this is the expanding influence of the media and communication. For an Indian architect whose work may be featured in a foreign journal among other architects who belong to the West, the issue of identity and distinctiveness becomes even more critical. To make the design concept attractive, emphatic references to the well-publicised Indian monuments, and esoteric vocabulary to enrich its description are used. Correa speaks of Ivan Illich, who has "written eloquently about the vital conceptual differences between the cleansing waters of ancient myth and the H2O that is pumped hydraulically through our municipal pipelines", and believes that the "prosaic architecture we create today is not due just to the banality of the forms we construct but also to the mundane briefs we address."[38] He also wonders if "the magnificent *kund* at Modhera *would* have the same impact on us if it were built for some other purpose-say a drive-in theatre?"[39] Also a clear distinction between the physical and the spiritual aspect of the building is invented. Doshi, who has been preoccupied with rationalising the physical, intellectual and psychic aspects of architecture, talks about the spaces that "activate the human psyche and induce it to sink towards the centre, the mythical world of man's primordial being."[40] Anant Raje attempts a resolution of the material realm and the spiritual realm explaining that the "spaces in plan which seem to be out of any rationale are often intimately connected with the way of living and need to be rediscovered."[41] D.K.Bubbar distinguishes between the physical part of the building and its spirit.[42] Charles Correa distinguishes the same as the "visibilia" and the "invisibilia", saying that "Since, according to the Vedic thought, the world we see is only part of our existence, the forms and events we perceive are significant merely to the extent that they help us understand the nonmanifest layers that lie beneath, the magic diagrams, the

37 Doshi (1960) in Curtis William, *Balakrishna Doshi:An Architecture for India*, 1988.p159
38 Correa,Charles, The Public, the Private and the Sacred, *Architecture+Design*, Sept-Oct.1991.p95
39 *Ibid.*
40 Doshi (1986) in Curtis, William, *Balakrishna Doshi: An Architecture for India*, 1988.p165
41 Raje, Anant, Sources and Interpretations, *Reflections:The Indian Institute of Architects-National Convention*, Gujarat Chapter, Ahmedabad, 1987.p41
42 Amaral, O., Oh! Sacrosanct Space, *Indian Express*, Bombay, May,31,1994.

yantras, explain the true nature of the cosmos."[43] The spiritual and the material, invisible and the visible find a subtle translation as the plan and the elevation of the building. It is largely in the plan of the building where most of the references to traditional vocabulary and its built representations are carefully tucked away, not to be expressed in the form to avoid visual pastiche.[44] The spiritual aspect manifests itself in theoretical references, where the *'Vastu Purusha Mandala'* is used for the grid and words like *Shunya* and *Bindu*, are sprinkled over the description of the conceptual basis of the design, along with attractive images of Indian symbols and monuments[45] – altogether an impressive recipe for asserting the 'Indian' identity. Since the vocabulary largely has a theoretical purpose and its architectural expression stays well within the fold of the modern individualistic design sensibilities, its new usage is suitably described as "reinventing the myth".[46] And since today the perception of this invisible realm is subject to the individual usage of traditional imagery, the 'Indian' architect feels the need to explain the transformation of the myth employed, lest it may not be recognised.

Although it echoes the rationale of the implied distinction between the form and function in the popular slogan of the modern movement, 'Form follows Function', the function of the references to tradition are not bold enough to find their way to the form. The architects continue to view the traditional Indian architecture from the filters of the modernist parameters of appreciation, so whether the 'Indian' sentiment is expressed visually or conceptually, it risks the label of pastiche.

Those considered above are a more privileged category of modern architects, who contemplate over design ideology, while for the larger section of professionals the client asserts his own convictions and taste, albeit generated by the popular trend and financial constraints. Many a time the conflict between the concept of the architect and his client translates itself into a risk of losing the project. Often the client brings in the *Vastu Pundit*, who would, for reasons unknown to the architect, change the entire layout of the design. This hurts the design sensibilities of the modern architect. He may try to rationalise the changes in the design by locating a scientific basis – for instance Doshi who "has begun a five year study to get to the bottom of *Vastu* but from what he has seen so far, he believes that when a house does not conform with it, problems such as marital discord or ill-health do arise".[47] Or he may dismiss it, if he can afford to, as a "load

43 Correa,Charles, The Public, the Private and the Sacred, *Architecture+Design*, Sept.-Oct.1991.p92
44 Tillotson, G.H.R., *The Tradition of Indian Architecture*, 1989. pp139-142
45 Cruikshank, Dan, Variations and Traditions, *Architectural Review*, 1987.p57
46 Charles Correa in the above.
47 Dhillon, Amrit, Vastu Shastra: Plotting the Future, *India Today*, July,1995.p81

of nonsense".[48] Just as the architect was beginning to settle down with his modern ideologies and asserted that he was "completely against any directive, government or otherwise, which in any way interferes with the working of the architect",[49] he was confronted with the mumbo-jumbo[50] of another professional who would not only challenge his design, but also be incomprehensible. He finds that his client whose undivided attention he enjoyed and whom he could educate in the refined life style his design embodied, was now equally concerned with the implementation of the suggestions made by the *Vastu Pundit*.

Much before the profession of the modern architect existed in India, an instance that captures the encounter with the *Vastu Pundit* is portrayed by J.E.Padfield in 1908. Apart from showing that the profession of the *Vastu Pundit* never disappeared[51] even though for the 'modern' architect it did not exist, interestingly, his account closely matches the way it would be viewed by a 'modern' architect and the media today. It is as follows:

> "There are regular professional persons called the Vastu Shastris (doctors of building), generally of the goldsmith caste, whose business it is, for a consideration, to give all correct measurements and directions, in due accordance with the ritual, to those about to erect new dwellings. I heard of the celebrated member of this profession and sent for him, as I wished to see his books and to make his acquaintance. At first he declined to come, as he feared Europeans. He thought he might be beaten or not well-treated, but, on being assured that he would meet with nothing but kindness, he consented to come. He was the most respectable looking old man and, being of the goldsmith caste, he wore the thread of dvija, or twice born but, as he had not brought his books, I did not get much information from him. He promised to come again but failed to do so, the reason being that he was hastily summoned to a distant village on the south of the Kistna river. It appears that a certain man, who was building a new house, had fallen ill, and he sent in haste for this doctor-not a doctor for his body, but a doctor for the house! Something must have gone wrong in the calculations, or something or other of the new building, and hence this blow from the offended deity concerned. Money was sent to defray the expenses of this celebrated Shastri, but he would not go until he was assured that his advice would be followed, even if it meant pulling down portions of

48 S.K.Das in the above, p83
49 C.M.Correa, Architectural Expression, *Seminar on Architecture*, March 1959.
50 S.K.Das in Dhillon, Amrit, Vastu Shastra: Plotting the Future, *India Today*, July, 1995.p83
51 A.G.K.Menon, *Ibid.*p81

the building already erected. How he fared in this expedition I have never heard; but it appears that some time ago the same person was sent for to attend another case, the result of which brought him great fame. A certain house owner had recently entered a new house which he had built, and within a month felt very ill. It was thought that something must be wrong with the building, and his house-doctor was sent for. Having considered the case, the doctor decided, by virtue of his science, that there was a snake in a certain beam of the building. The reptile had entered the hollow part of the beam which had been plugged up by the carpenter, and was there languishing, and hence the calamity. A snake charmer was summoned, the beam was sawn through and a reptile, which turned out to be a cobra, was drawn out by the snake charmer and placed in an earthen vessel. It was there fed with milk for some ten days until it revived and recovered its vigour, when it was taken away to a suitable place and set free. The patient recovered in proportion as the cobra's strength revived, and within a few days he was quite well. The wisdom and skill displayed by our friend in this case was much praised and he was suitably rewarded. These simple stories are here narrated for what they are worth. The people fully believe in them, and they serve to show the superstitious notions that are still entertained in connection with Hindu dwellings."[52]

It is only in the last five years or so, that the print media[53] felt the need to include it as a recent development, and today many are "jumping on the (east-facing) band-wagon-some because they can see lucrative opportunities in it".[54] The publicised practice especially in the urban context is shrouded in mystery and a deep sense of awe and bewilderment leading to veneration, as is apparent from the following:

"In the mid-70's when industrialist O.P. Bhartiya broke down portions of his house and relocated the kitchen and bedroom because a south Indian pundit told him the new configuration would be beneficial to him, he had to put up with a lot of ridicule. Today he is among a bunch of industrialists who swear by the ancient Indian

52 Padfield, J.E., *The Hindu at Home: Sketches of Hindu Daily Life*, B.R.Publishing Corporation, Delhi, 1975 (rept.), 1908 (Iedn.).pp3-4

53 See for instance Dhillon, Vastu Shastra: Plotting the Future, *India Today*, July, U.K.1995. pp81-83; Kurup, Jayashree, The House that Stars Build, *Saturday Times*, New Delhi, December 10,1994; Ramachandani, Mahesh and Ella Datta, A Popular Mantra for Builders, *Business Standard*, vol.XX No.91; Mathews, Neelam, Living with the Elements, *Hindustan Times*, New Delhi, January 21, 1995.

54 Dhillon, Vastu Shastra: Potting the Future, *India Today*, July,1995.p83

> building guidelines known as vastu shastra . . . . Or suffer discord in the family as in the case of a house in Shanti Niketan that Bhartia rejected, but a princely family took on, despite warning. The family is now believed to be suffering marital discord!"[55]

Neither the numerous claims for its effectiveness nor statements from sceptics are supported with adequate textual and contextual co-ordinates. Far from it being projected as a part of an architectural programme, its image as a 'magic wand' is helped both by its practitioners and its users. Although this part of Vastu Vidya has its share of believers and non-believers, quacks and experts, as is true with astrology and Ayurveda, its practice today is unprecedented in terms of its application outside the architectural programme to which it belongs, doctored to fit comfortably inside any kind of architectural envelope.

It could be suggested that while the modern 'Indian' architect was grappling with the question of his identity, the modern users too were beginning to feel frustrated with the purely functional and scientific basis of their existence that modernism in India ushered in. For instance, the architectural ambience of the father of a modern businessman had been denounced together with all the overt trappings of his traditional life style. The son moved into a new house and expanded his business in a new factory with new technology, built by the new architect in the new modern style. But gradually he felt uprooted, and looking for convenient ways to deal with the frustration, turned to Vastu:

> "Vastu seems to have advanced from its rural origins and moved into the urban milieu through city businessmen frustrated that their hard work was not really yielding rewards commensurate with the effort being put in. As word went round, Vastu Shastra became something ordinary people and businessmen came to adopt almost like a religious faith, hesitant to take a decision about where to put the sofa or the desk in the office until they had sought enlightenment in Vastu."[56]

As the 'Indian' architect was beginning to give shape to the theoretical distinction of the spiritual and the material realm of architecture, the businessman looked for professionals who would cater to the spiritual realm of the architecture which had not been as yet addressed by his architect or at least was subject to an individual perception of what the

55 Kurup, Jayashree, The House that Stars Build, *Saturday Times*, New Delhi, December 10,1994.
56 Dhillon, Vastu Shastra: Plotting the Future, *India Today*, U.K., July 31,1995.p83

'spiritual' meant as its basis lacked the time-tested authority of tradition. Consequently, the new breed of *Vastu* consultants who would negotiate the 'spiritual' without completely disturbing the 'material' envelope of his life style, and wherever necessary would be willing to find quick and easy solutions like conducting a ritual, or burying a swastika symbol, or adopting solutions from *Feng Shui* (the Chinese science of geomancy) to take care of the defects in the building, were soon in demand. Some call it "Cosmic architecture" to escape the questionable basis of their practice and expand the hunting ground for quick and easy solutions to suit modern usage. One practitioner, "seen as *the* proponent of Vaastu in Bombay" believes that "No one can practise Vaastu Shastra, no one is practising it . . . No one should write books about it," and the conversation follows with further explanation of his perception of what Vastu is all about:

> "If there aren't roads on all four sides of the house, that's not Vaastu. So, you'd have to design a country to get the perfect Vaastu house. Right. And for that matter India is all wrong according to Vaastu. The mountains are in the north where the water should be and the water is in the south." Neeraja Shah (his client) is horrified at this. "So India will never do anything in life?" Arya (the Vastu consultant) is gnomic but reassuring, "India will always be supported. We have three seas to support us." (Explaining about 'cosmic architecture', he says) "I am not worried so much about the depletion of ozone and oxygen as I am about our tampering with the magnetic field of the city. That's what's causing all the problems of Bombay." But to get this clear. Cosmic architecture is a holistic system of architecture. Practically everything that a rationalist would call unscientific goes into it. Numerology, magnetic fields, cosmic energy, symbolism, the five elements, astrology, colours, shapes, everything comes into play when Arya remodels houses to permit "the energy to flow."[57]

And if the suggestions mean giving up something that was materially extremely dear to the client and to the architect who is designing the building, then it is attributed to the *Vastu Pundit*, who is too rigid and impractical. The use of modern materials – thin concrete walls with huge glass openings, and (to remedy the thermal discomfort which they cause) the air-conditioners in every room – are but some of the crucial symbols of modernity for the upwardly mobile. The use of expensive polished granite for instance, as a flooring material and as a cladding for the facade for the more affluent, is gradually being removed because the *Vastu Pundits* declared

57 Mendes, Ivan, India is all Wrong According to Vaastu, *Times of India*, June (conjectured), 1995.

that it causes depression, and soon easier solutions like covering it with an equally expensive carpet, are sought. This 'out of sight-out of mind' approach is also followed for structural elements: the defect of a concrete beam directly over the head may be resolved by covering it with a false ceiling. The high consultation fees charged by the practitioners and their hectic schedules also contribute towards making the advice precious and revered. One consultant, for example, claimed that "he'll be in London advising the managers of two famous restaurants – the Bombay Brasserie and Chutney Mary – before flying to Paris to dispense advice to fashion-designer Pierre Cardin, at £500 per hour, on a manufacturing plant he's setting up in Milan".[58] Expensive is Good. Interestingly, the idea of expensive being synonymous with good, was and is still utilised in the promotion of concrete as a better building material. B.L.Dhama quoted a Rajasthani proverb *'Songa roe bar bar Mahnga roe ek bar* (The cheap cries again and again, the dear only once)', that is used to justify the usage of costlier cement, concrete and iron, as against cheaper indigenous materials.[59]

The usage of seemingly scientific phrases like the 'magnetic field' and 'cosmic energy', and the 'New Age' vocabulary, apart from the bid to give the dictates a validity, seems an inversion of the motivation by which the 'Indian' architect uses words like *Mandala* and *Vayu*, instead of the modern terminology. The vocabulary used by the *Vastu Pundits* is to project scientific validity and a modern appeal, whereas the 'Indian' architect uses it to impart a symbolic Indian-ness to his modern design. The effort of the *Vastu Pundit* is, as it were, trying to modernise, while that of the 'Indian' architect is towards Indian-isation, in complete oblivion of each other. However, if the 'need' is rooted in India, the future may see a meeting point of the two, and if not, India may have to borrow from the West, besides the material realm of architecture and technology, its spiritual realm as well.

58 Dhillon, Vastu Shastra: Plotting the Future, India Today, U.K., July 1995. p81
59 Dhama, B.L., *Domestic Architecture*, Ajanta Printers, Jaipur, 1962. preface

CHAPTER TWO

System of Measurement

The *Vastu Vidya* role of the system of measurement is to achieve harmony between the absolute and the quantifiable. The knowledge of the absolute is channelled to 'know' the quantifiable through *Pramana* or the instrument of valid knowledge. Measurement mediates finality to an architectural concept, similar to the spoken word that provides a frame over which the canvas of thought is stretched. Measure 'fixes' as well as 'evaluates'. It fixes the variable by providing a unit that encases the expanse into a fold derived from a standard value – by relative evaluation.

According to Indian philosophy, the foundation of *Mana* or measure is *Pramana* or the instrument of valid knowledge. The ways of 'knowing' are *Anupramana* or perception through the five senses and mind, *Anumana* or inference, *Upamana* or analogy, and *Agama* or word of authority.[1] The six perceptions which are olfactory, gustatory, visual, tactual, auditory, and mental, rest on the physical presence of the object perceived. The mind is a participant with each of the other five senses, and could be trained as the mind of the *Yogic* to cross the barriers of time and space, past and present. Inference is flawless reasoning on the basis of effects, causes, and phenomena which are neither a cause nor an effect. *Agama* or the word of authority (for example the *Veda* and the *Shastra*) is the verbal testimony on the basis of which a judgement could be made. All of the above instruments validate knowledge or *Vidya*. *Vastu Vidya* too uses these instruments at various stages of building construction, for example, testing soil by the use of the 'sense-experience' and drawing inferences on the basis of the *Shastra*.[2] *Upamana* or analogy could be discussed as the various associations with numbers that appear in Indian thought, as these associations influence

1 Saha, B., *Studies in the Pramana-Ratna*, Calcutta, 1991, pp154–228; *Pramanacandrika* p49; *Yoga Sutra* 1.7,41 in Sarasvati, Swami S.P., *Patanjali Raja Yoga Sutra*, New Delhi, 1975, p318.

2 See Ch.V Site Considerations

Pramana, and manifest in architecture. What follows is an illustration of some of the associations.[3]

One is the creator, the universal being, "the One, the Onefold, the only One. In him all the Gods become unified."[4] One in conjunction with numbers ending with zero imparts auspiciousness. *Shaguna* or an auspicious gift of money is made in numbers ending with one, such as eleven, twenty-one, thirty-one and so on. Two is the union of forces – the *Purusha* or the cosmic Man and *Prakriti* or nature. Two represents duality and opposites in man and woman, day and night, right and left, above and below, front and back, north and south, east and west. Union of two opposites is required for fertility and creation.

Three is the trinity of *Brahma, Vishnu* and *Shiva,* and their respective creative, preservative, and destructive powers. There are three *Guna* or qualities – *Sattva*, which has an ascending quality, *Rajas* the expanding quality, and *Tamas* the descending quality. "The building arises, ascends in height according to the *Sattva Guna* and expands its perimeter as far as *Rajas* requires it."[5] Three are the realms of creation – the earth, nether world and heaven; three powers of the self – *Iccha* or will, *Gyana* or knowledge and creation, and *Kriya* or action; three points represent a triangle, the symbol of fire; *Trikala* is the triad of time – the past, present and future.

Four is associated with the four cardinal directions – East, South, West and North; four *Prahar* or quarter parts of a day; four pursuits of man – *Dharma* or duty, *Artha* or material success, *Kama* or desire, and *Moksha* or salvation; four Varna or personality traits – *Brahmin, Kshatriya, Vaishya* and *Shudra*; four corners make a square, symbolizing earth and stability.

Five symbolizes the *Pancha Mahabhuta* or the five elements – Earth, Water, Fire, Air and Space; five senses are sight, odour, touch, taste and hearing; five sensory experiences are *Shabda* or speech, *Sparsha* or touch, *Rupa* or visual, *Rasa* or taste, and *Gandha* or smell; five *Kosha*[6] or sheaths of the human body are *Annamaya Kosha* or the sheath of food, *Pranamaya Kosha* or the sheath of vital air, *Manomaya Kosha* or the sheath of mind, *Vigyanamaya Kosha* or the sheath of understanding, and *Anandamaya Kosha* or the sheath of bliss.

The sixth sense represents mind and intuition; six seasons – summer, rainy, autumn, dewy, winter and spring – make a year. Seven are the horses

3 The information is collated especially from Abbot, J., *Indian Ritual and Belief*, New Delhi, 1979, pp284–309, and Aryan, K. C., *Basis of Decorative Element in Indian Art*, New Delhi, 1981, pp74–82. Each number has positive as well as negative aspects associated with it. This largely depends on the context of its usage and therefore a general rule that labels it auspicious or inauspicious cannot be applied. For example one is the universal being and God, but one man is incomplete and represents solitude.

4 *Atharva Veda* XIII.4.12–21, as in *Mantramanjari*, p661.

5 Aryan, K.C., Basis of Decorative Element in Indian Art, 1981 p74.

6 *Paingala Upanishad* II.5 in Radhakrishnan, S., *The Principal Upanishads*, 1953 p910.

of Surya or the Sun; seven days of the week; seven musical notes; the *Saptamatrikas* or the seven mother godesses; seven principal centres of pilgrimage; seven types of tastes are pungent, salty, bitter, mixed, sweet, sour and astringent.[7] Eight are the quarters of space: north-east, east, south-east, south, south-west, west, north-west, and north; eight are types of bonds: *Karuna* or compassion, *Moha* or enchantment, *Lajja* or shame, *Shila* or convention, *Varna* or caste, *Kula* or community, *Ghrina* or disgust, and *Bhaya* or fear. *Navagraha* or the nine planets are Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Ascending node and the Descending node; *Navarasa*[8] or nine aesthetic tastes are *Shringara* or erotic, *Hasya* or comic, *Karuna* or empathetic, *Vira* or heroic, *Rudra* or furious, *Bhayanaka* or terrible, *Bibhitsa* or odious, *Adbhuta* or marvellous, and *Shanta* or tranquil.

Similarly there are associations of ten with *Dashavatara* or incarnations of Vishnu, eleven Rudras, twelve zodiac signs, and so on. Any number by adding its constituent digits can be reduced to a single digit number, and interpreted on the basis of its associations, such as with alphabets, zodiac signs or directions.[9] The numbers that add up to nine hold a special significance, "for example, 18 Puranas, 27 Lokas or Mandalas, 9 Riddhis, 18 chapters of Srimad Bhagavadatgita, 9990 stanzas of Tulsidas' *Ramacharitamanas*, 108 beads of the rosary".[10]

Odd numbers are preferred over even numbers. Pradakshina or the circumambulatory ritual is auspicious in odd numbers; offering and gifts 'should' be in odd numbers; odd numbers represent continuity; "in houses of men, cubits, pillars, beams and other elements of that type are of odd numbers";[11] odd number of units of measurement is *Uttama* or superior.[12]

Whatever the assigned value maybe, measurement in space and time requires a starting point of reference – a point from which the co-ordinates are drawn. A point or *Bindu* which in itself remains non quantifiable, lends quantity due to its movement. *Bindu,* the symbol of *Akasa Tattva*[13] and associated with speech, whether as a *Madhyabindu*, the central point as in the *Brahmasthana* of the *Vastu Purusha Mandala*,[14] or as a *Sadhana Bindu* that occupies a spiritual significance, is the ever pulsating source and abode of rest for everything.[15] It is the point of initiation that has the potential for continuity or movement, and together with its point of rest forms a unit in the relevant context of space and time.

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7 Bhat, M.R., *Fundamentals of Astrology*, p14.
8 Zimmer, Heinrich, *Artistic Form and Yoga in the Sacred Images of India*, 1984 p199.
9 See Chapter V. Site Consideration.
10 Aryan, K.C., *Basis of Decorative Element in Indian Art*, p81.
11 *Mayamata* XVI.50
12 *Vishvakarma Prakasha* II.88, IV.28.
13 Element ether. See Ch.IV Orientation.
14 See Ch.III *Vastu Purusha Mandala*.
15 Vatsyayan, K. (ed.), *Kalatattvakosa*, Delhi, 1992 p24.

Measurement of Space

The unit of measurement provides standardised values to compare this movement in terms of the fixed values. The units of measurement of linear space are defined by four major texts in similar terms as follows:[16]

8 atoms = 1 speck of dust
8 specks = 1 tip of hair
8 tips = 1 louse
8 lice = 1 grain of barley
8 grains = 1 *Angula* (¾″) or digit
12 *Angula* = 1 *Vitasti* or span of a hand
2 *Vitasti* = 1 *Hasta* (18″) or forearm
4 *Hasta* = 1 *Danda* or pole
2000 *Danda* = 1 *Kosha*
2 *Kosha* = 1 *Gavyuti*
2 *Gavyuti* = 1 *Yojana*
100,000 *Yojana* = Earth

The entire realm of space is divided into three – earth, mid-space and heaven; or nether world, earth and heaven, measured by the three *Pada* or strides of *Vishnu*.[17]

As in the above, the smallest unit of measurement, the atom is "the smallest particle of dust that comes to sight, when the sun passes through the interstice of a window".[18] This smallest unit is also considered as a standard time unit.[19] The *Manangula* or the *Angula* as a measure is "a multiple of an atom, defined as that which can be perceived by the vision of those who have mastered their senses".[20] The *Angula* unit holds special significance in architectural design as it is the smallest unit derived from the human body, and "is equal to the middle phalanx of the middle finger of the officiating priest".[21] There are three types of *Angula* – large, medium and small, measuring eight, seven and six grains respectively. Since one *Hasta* or forearm equals twenty-four *Angula*, there are three types of *Hasta* depending on the type of *Angula* used.[22] The large *Hasta* is used for measuring towns and villages, the medium *Hasta* for palaces and houses,

16 *Mayamata* IV, *Samarangana Sutradhara* XI.4–5, *Manasara* II.40–58, *Rajavallabha* I.39.
17 *Kalatattvakosa*, Delhi, 1992.pp150,128,251–252.
18 *Brihat Samhita* LVIII.1.
19 *Bhagvata Purana* III.11.5–15, as in *Kalatattvakosa*, Delhi, 1992 p218.
20 *Mayamata* V.2.
21 Ibid. V.11–12.
22 *Samarangana Sutradhara* II.1–5, *Rajavallabha* I.34.

and the small one for vehicles, cots, thrones and weapons.[23] It is quite evident from the above that the size of the object to be measured dictates the unit of measurement. For an ordinary house the forearm of the craftsman, and for a house made of thatch the forearm of the owner sets the standard unit of measurement.[24]

Hasta is also measured as the length of the forearm from the elbow to the tip of either the middle finger, first finger or the little finger.[25] This large, medium and small *Hasta* is another way of providing the three variations, which as discussed above, could otherwise result from the three types of *Angula* measuring eight, seven or six grains (Figure 15). A *Hasta*

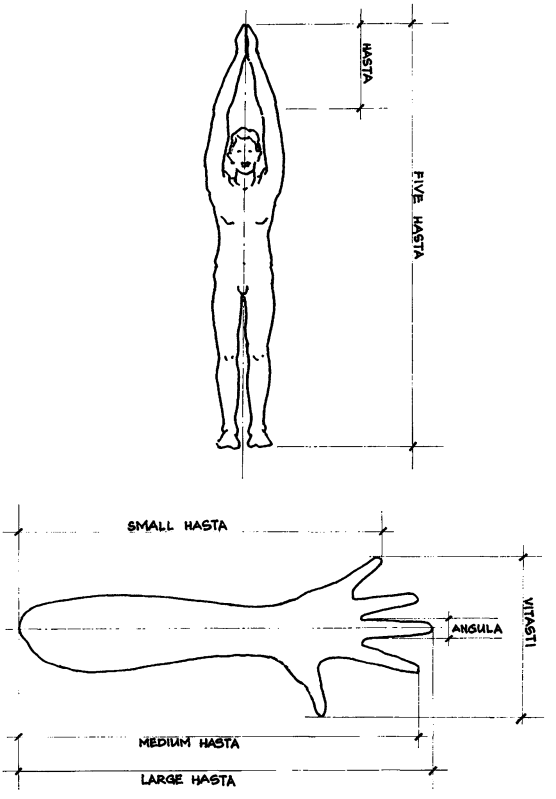


FIGURE 15 Hasta as a unit of measurement (Author, after *Vishvakarma Prakasha*)

23 *Rajavallabha* I.34 has incorporated this variation in the description of three types of scales as explained below. Also see *Samarangana Sutradhara* XI.31–39 for various uses of the three *Hasta*. *Mayamata* V.8 and *Manasara* II.40–58 describe the types as *Prajapatya*, *Dhanurmushti* and *Dhanuragraha* of 25, 26 and 27 *Angula* respectively, which are similar variations of the *Hasta*, and *Vishvakarma Prakasha* IV.30 describes *Hasta* with *Angula* of nine, eight, seven and six *Parva*.

24 *Rajavallabha* III.2.

25 *Vishvakarma Prakasha* II.42.

measures one fifth of the height of a man (Figure 15) with his arms stretched upwards.[26] The basis of measurement of buildings is the *Hasta* unit.[27]

The *Sutrashtaka* (Figure 16) or the eight tools of measurement are scale, rope, cord, plumb line, tri-square, compass, level, and sight.[28] The scale and the rope are of a prescribed length and are measuring tools, while the rest are used for examining the site and for geometrical construction.

The *Gaja* or the scale is one of the eight tools of measurement, and is one *Hasta* long. The scale (Figure 17) has eight divisions called *Parva*. Each *Parva* has three *Matras* or unit divisions of one *Angula* each. This *Angula* division on the scale may measure eight, seven or six grains that form the three types of

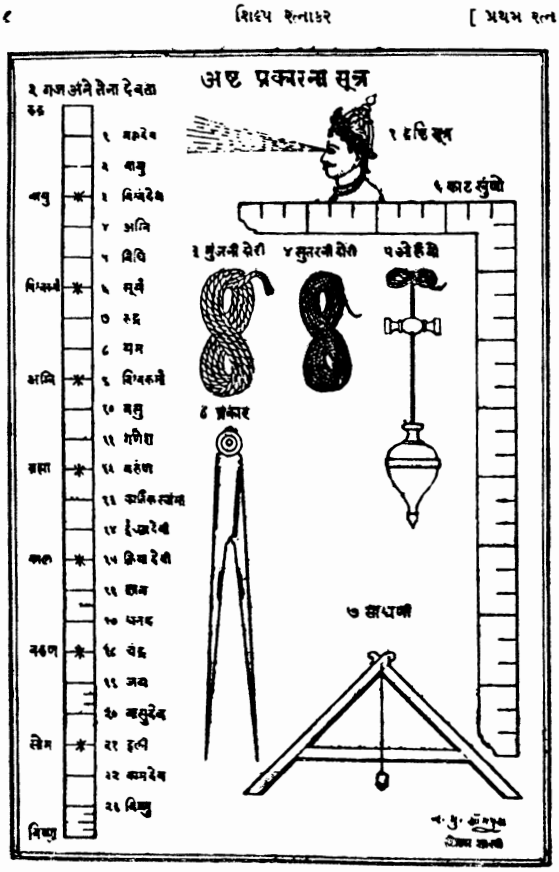


FIGURE 16 Sutrashtaka, the eight tools of measurement (*Silparatnakara*)

26 *Ibid.*
27 *Samarangana Sutradhara* XI.1–3.
28 *Rajavallabha* I.40, *Samarangana Sutradhara* XI.

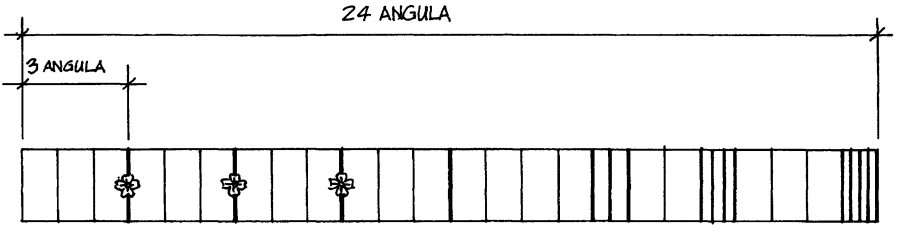
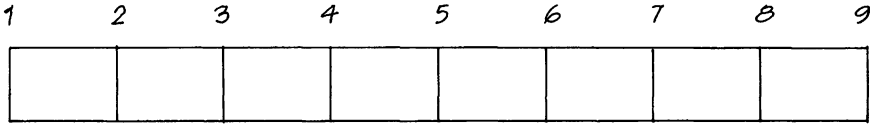


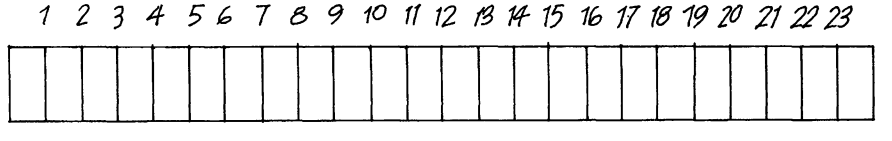
FIGURE 17a Divisions of the Scale
(Author, after *Rajavallabha* I. 33–35; *Samarangana Sutradhara* XI. 6–12)



The 9 deities corresponding to the above numbers are:

1. Rudra
2. Vayu
3. Vishwakarma
4. Agni or Vanhi
5. Brahma
6. Kala or Yama
7. Varuna
8. Chandrama or Dhanada
9. Visnu

FIGURE 17b Deities presiding over the nine calibrations of the scale
(Author, after *Rajavallabha* I. 35; *Samarangana Sutradhara* XI. 13–14)



The 23 deities corresponding to the above numbers are:

1. Shiva
2. Vayu
3. Vishwadeva
4. Agni
5. Brahma
6. Surya
7. Rudra
8. Yama
9. Vishwakarma
10. Vasu
11. Ganesha
12. Varuna
13. Kartikeya
14. Iccha
15. Kriya
16. Gyana
17. Kubera
18. Chandrama
19. Jaya
20. Vasudeva
21. Balabhadra
22. Kama
23. Visnu

FIGURE 17c Deities presiding over the 23 internal calibrations of the scale
(Author, after *Rajavallabha* I. 36)

FIGURE 17 Hasta scale

scales – the *Uttama* scale of the large *Angula*, the *Madhyama* scale of the medium *Angula*, and the *Adhama* scale of the small *Angula*. The nine points of division of the scale are presided over by *Rudra, Vayu, Vishvakarma, Agni, Brahma* in the centre, *Kala, Varuna, Chandrama* and *Vishnu*[29] (Figure 17). Interestingly, on one side of the central division presided over by Brahma are the deities that rule the plots in the cardinal directions of the *Vastu Purusha Mandala*, and on the other side are the deities that rule the corners. *Kala* or *Yama, Varuna, Chandrama* and *Vishnu* are associated with the respective southern, western, northern and eastern plots of the *Vastu Purusha Mandala*, and *Rudra* or *Shiva, Vayu, Vishvakarma* or ancestors, and *Agni* preside over the respective north-eastern, north-western, south-western and south-eastern plots of the *Vastu Purusha Mandala*, and Brahma, the deity of the central division of the scale rules over the central plot of the *Vastu Purusha Mandala*. The scale is, as it were, a linear representation of a two dimensional grid of the *Vastu Purusha Mandala*.

The markings ruled by these divinities 'should' not fall under the craftsman's hand and the material he is measuring.[30] This implies that the lines on the scale must be clearly visible during the process of measurement. The first four *Parva* on the scale are marked by flowers, and four *Parva* are equal to a *Vitasti*. The fifth *Angula* from the centre is further subdivided into two parts, the eighth *Angula* into three parts and the twelfth or the last *Angula* into four parts. Therefore, the basic units available for measurement from the scale are one *Hasta*, one *Vitasti*, one *Parva*, one *Angula*, half *Angula*, one third *Angula*, and a quarter *Angula*. The scale is one, half or one and a half *Angula* in width, and made of wood that is free of knots, without cracks, hard and strong.[31] "After selecting the wood, it should be dipped in water for three months", and then shaped into a solid piece of 1 *Angula* × ½ *Angula* in cross-section.[32]

Towns and cities are measured in *Danda* as the size of the land dictates the employed unit of measurement.[33] The *Sutra* or rope measuring 8 poles[34] is primarily used to lay out the divisions on the plot. *Sutragrahin* or the one who holds the cord, "knows how to make the rod and the rope fly and how to measure length, height and proportions".[35] The thickness of the measuring rope is one *Angula*. A plumb line is used to examine the

29 *Rajavallabha* I.34, *Samarangana Sutradhara* XI.13–14. The variations in the texts regarding the ruling divinities could be overlooked as they are either synonyms of the same divinity, or derived from associations. The important aspect of the number of divisions and their architectural significance remains constant.

30 *Rajavallabha* I.37, *Samarangana Sutradhara* XI.15–18.

31 *Samarangana Sutradhara* XI.6–27, *Rajavallabha* I.33–38.

32 *Manasara* II.61–65.

33 *Rajavallabha* III.2.

34 *Mayamata* VI.14–15. One *Danda* or pole is equal to four *Hasta*.

35 *Mayamata* V.18–19.

verticality of the structure, a level to observe the difference of level between two points, a compass and a tri-square to geometrically construct guidelines such as a perpendicular, circle, octagon and so on, and finally, an important tool for measurement is sight. Visual examination, the first tool of measurement is the trained eye of the architect, who has thoroughly imbibed the entire system of measurement, and "must measure rigorously".[36]

Measurement of space entails movement in a particular direction, and movement in space is also a movement in time. Moreover, the sense of direction is largely governed by the rising and the setting sun, and it is the apparent movement of the sun that defines the broad measurement of time in terms of day and night. Therefore, architecture as the resultant crystallisation of measured space, is also an expression of captured time – encapsulation of a unit from infinity and eternity in the dynamism of space and time.[37]

Measurement of Time

The synchronisation of time dictated by the 'heavenly bodies' to human activity, is to achieve harmony between the micro and the macro level of the cosmos, as "By Time blows the cleansing Wind, through Time the vast Earth has her being. The great Heaven has his past in Time."[38] In the kingdom of 'heaven', the Sun and the Moon are the royal couple, representing the soul and the mind of the *Kala Purusha*, the cosmic time.[39] It is the Sun and the Moon that create and define day, night, fortnight, month, seasons and year.[40]

The atom, the smallest unit of measurement of space, in motion is the smallest unit of measurement of time. A moment is the "time taken by an atom in motion in leaving one point in space and reaching the adjacent point."[41] A moment is also a *Nimesha* or batting of an eye lid.[42] These small moments add up to make *Ahoratra* or the day-night period constituting

36 *Mayamata* V.13.

37 See Snodgrass, Adrian, *Architecture, Time and Eternity – Studies in the Stellar and Temporal Symbolism of Traditional Buildings*, Vol.I, Aditya Prakashan, Delhi, 1990 pp136–137.

38 *Atharvaveda* XIX.54 as in *Mantramanjari* p219.

39 Bhat M.R., *Fundamentals of Astrology*,1967 p 219.

40 The astrological principles are simplified, as their relevance here is to understand its architectural usage only. The basic principles discussed below are based on *Fundamentals of Astrology* by M.R.Bhat, *Bhartiya Jyotisha* by Nemichandra Shastri, *Astrology and Religion in Indian Art* by Swami Sivapriyananda, the astrological content of the selected *Vastu Vidya* texts, and discussions with Umesha Shastri, a practising astrologer in Rajasthan during the field study.

41 *Yoga Sutra Bhashya* III.52 as in *Kalatattvakosa* p190.

42 *Samarangana Sutradhara* XI.49, *Vishnu Purana* I.3 and *Manu Smriti* I.64 in *Kalatattvakosa* pp217–218.

twenty-four *Hora* of one hour each, and thirty *Muhurtas* of forty-eight minutes each. The units of time are as follows:[43]

15 *Nimesha* = 1 *Kashtha*
30 *Kashtha* = 1 *Kala*
30 *Kala* = 1 *Muhurta* (48 minutes)
30 *Muhurta* = 1 *Ahoratra* or a day-night period
1 *Ahoratra* = 24 *Hora*
1 *Ahoratra* = 60 *Ghati* (1 *Ghati* = 24 minutes, and therefore 1 hour = 2½ *Ghati*)
1 *Ahoratra* = 8 *Yama* or *Prahara* (1 *Prahara* = 3 *Hora* or hours)
1 Lunar day = 2 *Karana*
15 *Ahoratra* = 1 *Paksha* or a lunar fortnight
2 *Paksha* = 1 *Masa* or a lunar month
2 *Masa* = 1 *Ritu* or a season
3 *Ritu* = 1 *Ayana* (the period of the Sun's progress in the north or south of the ecliptic)
2 *Ayana* = 1 *Varsha*[44] or year or one divine day
360 days of God = 1 divine year

The above reflects the relationship between the micro time and the macro time; with the time cycle pattern remaining the same, the micro time spirals, as it were, to the larger scale of the macro time of the divine, adopting near timeless proportions. God's moment is man's day and night – "His closing of eyes along with the opening of the eyes (*Nimesha*) is both the day and night."[45]

One lunar month comprises two *Paksha* or phases called the *Shukla Paksha* which is the waxing or bright phase, and the *Krishna Paksha*, the waning phase of the moon or the dark phase. The *Tithi* or a day is one *Kala* or act of the moon. The *Shukla Paksha* begins the day after the *Amavasya*, from *Pratipada* or the full moon day. The *Krishna Paksha* or the dark phase begins after the *Purnima*, from *Pratipada* to *Amavasya*. The names of the days apart from the first and the last day of the phases are after numbers. They are *Pratipada*, *Dvitiya* or the second day, *Tritiya* or the third day, *Chaturthi* or the fourth day, *Panchami* or the fifth day, *Shashthi* or the sixth day, *Saptami* or the seventh day, and so on to *Chaturdashi* or the fourteenth day, *Purnima* or the last day of the *Shukla Paksha*, and *Amavasya*, the last day of the *Krishna*

43 Also see *Samarangana Sutradhara* XI.49–53. Most texts are unanimous in the description of the units from *Muhurta* onwards. In the *Rig Veda* I.164.48, *Ahoratra* is the smallest unit of time.

44 "The common Indian synodic year has about 354 days, but to match it with the solar year of 365 days an extra month (*Adhika masa*) is added every third year." – from *Astrology and Religion in Indian Art*, by Swami Sivapriyananda p39.

45 *Kalatattvakosa*, p237.

Paksha. *Shukla Paksha* or the bright phase is preferred over the *Krishna Paksha* or the dark phase.

The names of the days are also based on their ruling planets. The *Vara* – *Ravivara, Somavara, Mangalavara, Budhavara, Brihaspativara, Shukravara* and *Shanivara* – are the names given to Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, ruled by the planets Sun, Moon, Mars, Mercury, Jupiter, Venus and Saturn respectively. The name of the day is based on the planet that rules its first *Hora*. Thursday, Monday, Wednesday and Friday are *Saumya* or gentle, while Tuesday, Saturday and Sunday possess a *Krura* or a fierce personality.[46]

The twelve lunar months derive their names from the *Nakshatra* or the star constellations. The *Nakshatra Masa* or the lunar month is measured by the time taken by the moon to pass through the asterism, and the name of the month is after the asterism in which the moon reaches its full phase. For example, *Vaishakha* is the month in which the moon appears full in the *Vaishakha* star. The date of commencement of these months obviously does not correspond with that of the 'standard' calendar months. The twelve lunar months and the seasons are given in Table I.

The planets traverse the circle of the zodiac divided into twelve parts of thirty degrees each. Each part represents a *Rashi* or a zodiac sign. The entire zodiac is represented on the body of the *Kala Purusha* (Figure 18) – the body of cosmic time. Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius, and Pisces, rule the head, face, neck, arms, heart, stomach, abdomen, genitals, thighs, knees, shanks,

TABLE I

'Traditional' Months	'Standard' months	Season
Vaishakha	April – May	*Grishma* or Summer
Jayeshtha	May – June	
Ashadha	June – July	*Varsha* or Rainy
Shravana	July – August	
Bhadrapada	August – September	*Sharata* or Autumn
Ashvina	September - October	
Kartika	October – November	*Hemanta* or Dewy
Margasira	November – December	
Pausha	December – January	*Shishir* or Winter
Magha	January – February	
Phalguna	February – March	*Vasanta* or Spring
Chaitra	March – April	

46 Shastri, Nemichandra, *Bhartiya Jyotisha* p110.

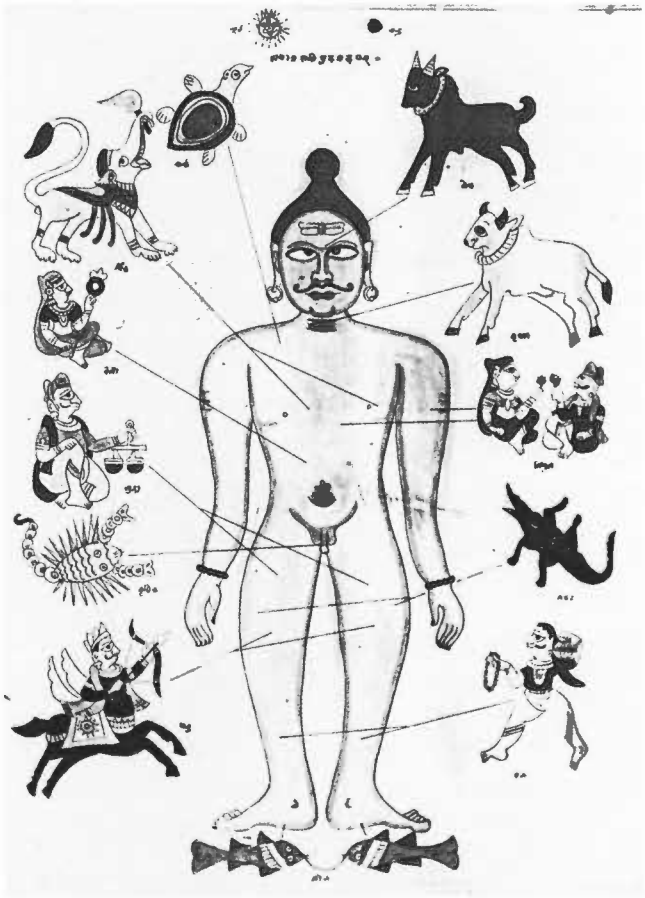


FIGURE 18 Rashi Purusha (Swami Sivapriyananda, 1990)

and feet, respectively. The belt of the zodiac contains twenty-seven *Nakshatra* or star constellations,distributed over the twelve *Rashi*. Each *Rashi* therefore has two and a quarter stars, or in other words nine quarter stars. A *Rashi* is divided into nine *Pada* or *Charana*, of a quarter star each. For all astrological calculations, the count of the *Rashi* commences with *Mesha* or Aries, and of the *Nakshatra* with *Ashvini*, as *Mesha* rules the head of the *Rashi Purusha* – the cosmic Man of the zodiac (Figure 18) and *Ashvini* is the head of the *Nakshatra Purusha* – the cosmic Man of the asterisms (Figure 19). The counting order of the *Nakshatra* is: 1.*Ashvini*, 2.*Bharani*, 3.*Krittika*, 4. *Rohini*, 5.*Mrigsiras*, 6.*Ardra*, 7.*Punarvasu*, 8.*Pushya*, 9.*Ashlesha*, 10.*Magha*, 11.*Purvaphalguni*, 12.*Uttaraphalguni*, 13.*Hasta*, 14.*Chitra*, 15.*Svati*, 16.*Vishakha*, 17.*Anuradha*, 18.*Jayeshtha*, 19.*Mula*, 20.*Purvashadha*, 21.*Uttarashadha*, 22.*Shravana*, 23.*Dhanishtha*, 24.*Satabhisaj*, 25.*Purvabhadrapada*, 26.*Uttarabhadrapada*, 27.*Revati*. An auspicious *Nakshatra* is chosen

for the commencement of construction, as it would be for any other activity.[47]

The number of the *Nakshatra* that fall between the *Nakshatra* of the householder and the *Nakshatra* of the house are counted and divided by nine; if the remainder is 1, 3, 5, or 7, then the house is not suitable for the householder.[48] Remainders 2, 4, 6, 8, and 0 are auspicious. Here, it is important that the counting starts with the *Nakshatra* of the householder, and not with that of the house, and the above order of the *Nakshatra* is followed.

There is 'enmity' between *Uttaraphalguni* and *Ashvini*, *Svati* and *Bharani*, *Rohini* and *Uttarashadha*, *Shravana* and *Punarvasu*, *Chitra* and *Hasta*, *Pushya* and *Ashlesha*, and between *Jayeshtha* and *Vishakha*. These should be avoided in the construction of a palace, house, *Asana* or seat, and cot.[49] For example, for a householder whose natal star is *Uttaraphalguni*, a house of *Ashvini Nakshatra* is not suitable.

Nakshatra is also associated with a *Yoni*, each represented by an animal. *Yoni* of *Ashvini* and *Shatabhisaj* is *Ashva* or horse, of *Svati* and *Hasta* is *Mahisha* or bull, of *Purvabhadrapada* and *Dhanishtha* is *Singha* or lion, of *Bharani* and *Revati* is *Gaja* or elephant, of *Krittika* and *Pushya* is *Mesha* or ram, of *Shravana* and *Purvashadha* is *Vanara* or monkey, of *Uttarashadha* and *Abhijit*[50] is *Nakula* or mongoose, of *Rohini* and *Mrigashiras* is *Sarpa* or snake, of *Jayeshtha* and *Anuradha* is *Mriga* or deer, of *Mula* and *Ardra* is *Shwana* or dog, of *Punarvasu* and *Ashlesha* is *Bilava* or cat, of *Purvaphalguni* and *Magha* is *Mushaka* or rat, of *Vishakha* and *Chitra* is *Vyaghra* or tiger, of *Uttaraphalguni* and *Uttarabhadrapada* is *Gau* or cow.[51] The 'enmity' between the cow and the tiger, between the bull and the horse, between the dog and the deer, between the lion and the elephant, between the monkey and the ram, between the rat and the cat, and between the mongoose and the snake, should be avoided between a man and his wife, a king and his orderly, and between a household and his house.[52]

Each *Nakshatra* has an associated *Nadi* (Figure 20) or pulse. The three types of *Nadi* are *Adi*, *Madhya* and *Antya*. *Jayeshtha, Mula, Ardra, Punarvasu, Shatabhishaj, Purvabhadrapada, Uttaraphalguni, Hasta, Ashvini* are associated with *Adi Nadi*; *Mrigshiras, Pushya, Chitra, Anuradha, Bharani, Dhanishtha,*

47 Calculation of auspicious time, casting a *Kundali* or an astrological chart, interpretation of a horoscope, interpretation of the various permutations and combinations of the stars and the planets and their effects, are astrological aspects that do not contribute directly to the architectural programme of *Vastu Vidya*. Though *Vastu Vidya* and astrology are correlated and complementary, as subjects they are distinctive, and command individual authority. Therefore a discussion of all the aspects of astrology is beyond the scope of this study.

48 *Rajavallabha* III.10.

49 *Rajavallabha* III.15.

50 *Abhijit* is an intercalary asterism.

51 *Rajavallabha* III.17; Shastri, Nemichand, *Bhartiya Jyotisha* p392–393.

52 *Rajavallabha* III.19.

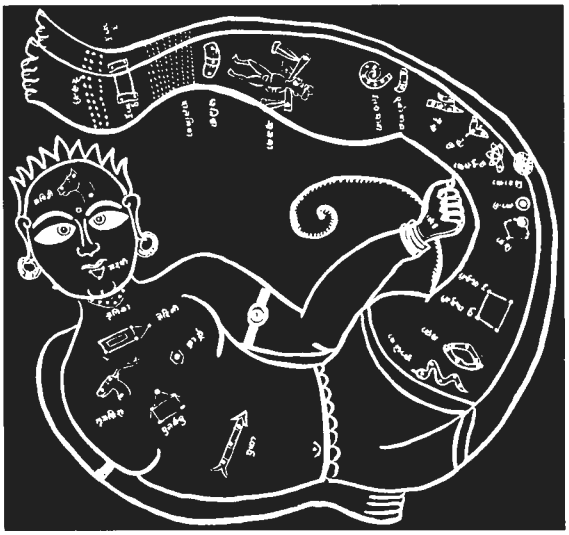


FIGURE 19 Nakshatra Purusha
(Swami Sivapriyananda, 1990)

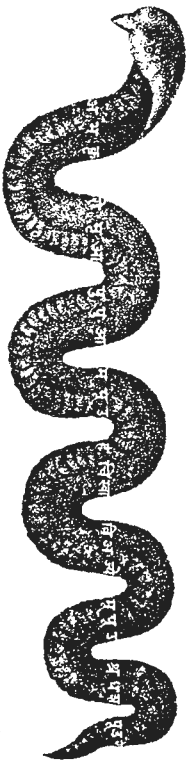


FIGURE 20 The three Nadi
(*Rajavallabha*, 1911)

Purvashadha, Purvaphalguni and *Uttarabhadrapada* are in the *Madhya Nadi*; while *Krittika, Rohini, Ashlesha, Magha, Svati, Vishakha, Uttarashadha, Shravana* and *Revati* are associated with *Antya Nadi*.[53] It is inauspicious for a man and a woman contemplating marriage to have the same *Nadi*, but it would be auspicious for a man to have same *Nadi* as his friend, his servant, his house and his town.[54]

Each *Nakshatra* has an associated *Gana* or group, which are three types – *Deva* or divine *Gana*, *Manushya* or human *Gana* and *Rakshasa* or demon *Gana*. *Shravana, Pushya, Ashvini, Mrigshiras, Anuradha, Svati, Revati, Hasta* and *Punarvasu* are the *Nakshatra* of the *Deva Gana*; *Bharani, Rohini*, the three *Purva*, the three *Uttara* and *Ardra* are of the *Manushya Gana*; *Mula, Vishakha, Krittika, Magha, Chitra, Dhanishtha, Shatabhisaj, Jayeshtha*, and *Ashlesha* are of the *Rakshasa Gana*. *Manushya* and *Deva Gana*, and the *Nakshatra* of the same *Gana* are compatible, whereas *Rakshasa* and *Manushya*, and *Rakshasa* and *Deva Gana* are not compatible with each other.

53 Shastri, Nemichand, *Bhartiya Jyotisha*, p394–395.
54 *Rajavallabha* III.23.

The counting order of the zodiac signs commences with *Mesha* or Aries – 1. *Mesha* or Aries, 2. *Vrishabha* or Taurus, 3. *Mithuna* or Gemini, 4. *Karkata* or Cancer, 5. *Simha* or Leo, 6. *Kanya* or Virgo, 7. *Tula* or Libra, 8. *Vrishchika* or Scorpio, 9. *Dhanus* or Sagittarius, 10. *Makara* or Capricorn, 11. *Kumbha* or Aquarius, 12. *Mina* or Pisces. Their associated *Mahabhuta*[55] or elements are 1. Fire, 2. Earth, 3. Air, 4. Water, 5. Fire, 6. Earth, 7. Air, 8. Water, 9. Fire, 10. Earth, 11. Air, 12. Water.[56] Fire and Air, and Earth and Water are mutually compatible, whereas Earth and Fire, Water and Fire, and Water and Air, are not. It is auspicious if the zodiac of the house is seventh, tenth or eleventh from the zodiac of the householder, and inauspicious if it is second, fifth or sixth from the zodiac of the householder.[57] Correlating this prescription to the elements associated with the zodiac signs reveals that the seventh, tenth and eleventh zodiac from any chosen zodiac possesses a compatible associated element, and the associated elements of the second, fifth and sixth zodiac sign from the chosen are incompatible.

Aries and Scorpio are ruled by Mars, Taurus and Libra by Venus, Gemini and Virgo by Mercury, Cancer by Moon, Leo by Sun, Sagittarius and Pisces by Jupiter, Capricorn and Aquarius by Saturn. There are three kinds of relationship amongst the planets – friendship, neutrality and enmity. Sun, Mars, Moon and Jupiter are 'friends'.[58]

Cancer, Pisces, and Scorpio are of *Brahmin Varna*, Leo, Aries, and Sagittarius are of *Kshatriya Varna*, Taurus, Virgo, and Capricorn are of *Vaishya Varna*, Gemini, Libra, and Aquarius are of *Shudra Varna*. The hierarchy of the *Varna* in the descending order is *Brahmin, Kshatriya, Vaishya,* and *Shudra*, and they are born out of the mouth, arms, legs, and feet of the *Purusha* or the cosmic man.[59] The *Varna* of the house and the *Varna* of the wife should not be superior to the *Varna* of the householder.[60]

The zodiac signs and their constituent stars with their *Pada* or quarters, and their ruling planets are given in Table II.

Various methods of scrutinising the relative position of the stars and the planets in transit are followed. *Hora* system divides the zodiac into two parts of fifteen degrees each, *Drekkana* is the division of the zodiac into three equal parts of ten degrees each, *Navamsha* is the division of nine parts with each part of the *Rashi* occupied by a quarter star, *Dvadamsha* is the division of the *Rashi* into twelve parts, and *Trimsansha* is the division into thirty parts. These methods could be compared to drawing co-ordinates to

55 Also see Chapter IV. Orientation.
56 Here the number prior to the element denotes the zodiac in the above order.
57 *Ibid.* III.12.
58 *Rajavallabha* III.13.
59 *Rig Veda* X.90; *Purusha Sukta* in *Mantramanjari* p76.
60 *Rajavallabha* III.16.

TABLE II

Zodiac Signs	Nakshatra			Ruling Planet of the Zodiac Sign
Mesha (Aries)	Ashvini	Bharani	Krittika	Mars
(4+4+1= 9 Pada)	4	4	1	
Vrishabha (Taurus)	Krittika	Rohini	Mrigsiras	Venus
	3	4	2	
Mithuna (Gemini)	Mrigsiras	Ardra	Punarvasu	Mercury
	2	4	3	
Karkata (Cancer)	*Punarvasu*	Pushya	Ashlesha	Moon
	1	4	4	
Simha (Leo)	Magha	Purvaphalguni	Uttaraphalguni	Sun
	4	4	1	
Kanya (Virgo)	Uttaraphalguni	Hasta	Chitra	Mercury
	3	4	2	
Tula (Libra)	Chitra	Svati	Vishakha	Venus
	2	4	3	
Vrishchika (Scorpio)	Vishakha	Anuradha	Jayeshtha	Mars
	1	4	4	
Dhanus (Sagittarius)	Mula	Purvashadha	Uttarashadha	Jupiter
	4	4	1	
Makara (Capricorn)	Uttarashada	Shravana	Dhanishtha	Saturn
	3	4	2	
Kumbha (Aquarius)	Dhanishtha	Satabhisaj	Purvabhadrapada	Saturn
	2	4	3	
Mina (Pisces)	Purvabhadrapada	Uttarabhadrapada	Revati	Jupiter
	1	4	4	

locate a point in a 'time-space' grid. The accuracy and detail depends on the number of co-ordinates drawn, and the interpretation of the located point in time. The predictability of the movement and position of the stars and planets that astrology assumes, facilitates prediction and planning for the future. The interpretation is based on the significance of the planets and the stars, and their relative positions.

As with the measurement of space, the definition of a reference point for the measurement of time is the location of the point in the established grid of 'time-space'. For example, the ideal length of a human life is one hundred and twenty years, distributed among the nine planets which influence the life span, in an order commencing with Sun. The Sun's influence lasts for six years, the Moon's influence for ten years, Mars' for seven years, *Rahu*'s for eighteen years, Jupiter's for sixteen years, Saturn's for nineteen years, Mercury's for seventeen years, *Ketu*'s for seven years,

and lastly, Venus' for twenty years. The time of birth establishes the star one is born under. The planet associated with that star would dictate the commencing planet of the above cycle of life. So for one person the former years of life may begin under the influence of Moon, while for another the first planet may be Mars, all depending on the position of the time of birth in the 'cosmic space'. Subsequently, the relative movement of the planets and the stars, and the micro-cosmic order dictated by the time of birth, indicate the resultant effect imparted on the life of the *Jataka* or candidate. The characteristics of the zodiac, stars and planets, the compatibility within each group, their positions of strength, the effect of Moon in conjunction with other planets and stars, are some of the factors that are analysed to pronounce the outcome.

The astrological *Guna* or qualities necessary for a successful marriage of a man and a woman, are also applied to determine the compatibility of the householder with his house. The relationship between the householder and his house, is similar to the relationship between a man and a woman in a marriage, and the astrological calculations aim at analysing the quality of the relationship between householder and his house.[61]

Ayadi Formulae

The astrological calculations pertaining to architecture reveal the union and treatment of the canvas of time and space as one. The Ayadi formulae for the calculation of *Aya, Vyaya, Nakshatra, Vara, Tithi, Ayu, Yoni, Gana, Yoga, Varna*, and *Nadi*, are some of the aspects analysed to assess the *Guna* or qualities of the house. Most of the above are also employed to evaluate compatibility between a man and a woman in marriage. While for a human being, the time and place of birth would dictate the *Nakshatra* or the star one is born under, it is the measurement of the site that yields the *Nakshatra* of a house or a site. The *Ayadi* formulae consider the area[62] of the site measured as a conceptualised micro-cosmos, to position it spatially in the

61 *Brihadvastumala* XCI.11; *Rajavallabha* III.12–15,19; *Vasturatnakara* IV.1. The only difference is the consideration of the type of *Nadi*, which is an important aspect in a marriage as it indicates conception of a child. According to *Rajavallabha* III.23, 'Same *Nadi* of a man and a woman (contemplating marriage) causes death, whereas for a servant, friend, house and a town, same *Nadi* is auspicious.'

62 There are varying opinions about the consideration of area or length and breadth, or perimeter for the *Ayadi* calculation. For variations see *Manasara* IX.68–73, *Mayamata* IX.9–24, also enumerated by D.N.Shukla, in *Vastu Sastra-Hindu Science of Architecture*, pp211–217. The discussion of the *Ayadi* calculation is based on – Shastri, Nemichandra, *Bhartiya Jyotisha*. p406; *Rajavallabha* III.; *Samarangana Sutradhara* XII.11–70; *Vasturatnakara* V.20–21; *Vasturatnavali* p90–95; *Vishvakarma Prakasha* II.41–87. The variations are overlooked to focus on the role of the *Ayadi* calculations, rather than on the textual inconsistencies. The divisors in the formulae are more often than not consistent.

'space-time' grid, as "That which is above the heaven, that which is beneath the earth, that which is between these two, heaven and earth, that which people call the past, the present and the future, across space is that woven like warp and woof".[63]

First the area, the multiplication of the length and breadth of the plinth line in a relevant *Danda*, *Hasta* or *Angula* unit, or with the *Hasta* of the householder taken as the standard unit, is calculated.[64] Fractions, if any, should be rounded off to the nearest whole number, by including or excluding the *Angula* unit.[65] The following are examples of calculations in which the remainder determines the *Guna* or quality that decides the suitability of the dimensions:

Aya or income is based on the remainder obtained from the division of the area by eight (Area / 8). *Aya* calculates the quality of direction that presides over the site.[66] The divisor eight represents the eight directions, which are east, south-east, south, south-west, west, north-west, north and north-east. The eight *Aya* are *Dhwaja*, *Dhumra, Singha, Shwana, Vrishabha, Khara, Gaja* and *Dhwanksha,* corresponding to the remainder *1, 2, 3, 4, 5, 6, 7,* and *8* or *0*, respectively. The odd remainders are auspicious.

Nakshatra is the remainder obtained from multiplying the area by eight and dividing it by twenty-seven (Area × 8 / 27) . The divisor here represents the twenty-seven *Nakshatra*, and the remainder indicates the number of *Nakshatra* counted from *Ashvini* as the first *Nakshatra*. From the *Nakshatra*, other characteristics like the zodiac, the three *Gana* (*Devagana, Manushyagana* and the *Rakshasagana*) and the four *Varna* of the house are assigned and compared to those of the householder to study the compatibility of the two. The same *Gana* indicates friendship.[67] Conflict between the *Nakshatra* and the planets of the house and the householder, or between those of the man and his wife, is not beneficial.

Vyaya or expense or debt, is the remainder from dividing the *Nakshatra* by eight, which is dividing the area by twenty-seven. The remainders indicate the three types of *Vyaya-Yaksha* when the remainder from the *Vyaya* calculation is less than the remainder from the *Aya* calculation; *Rakshasa*, when the *Vyaya* remainder is the same as the *Aya* remainder; and *Paishacha*, when the *Vyaya* remainder is more than the *Aya* remainder. As the names suggest, *Yaksha* or the lower *Vyaya* is preferred.

Vara or day is indicated by the remainder from multiplying the area by nine and dividing it by seven (Area × 9 / 7). Here the divisor represents

63 *Brihadaranyaka Upanishad* III.8.4, as in Radhakrishnan, S., *The Principal Upanishads*, London, 1953, p231.
64 *Rajavallabha* III.2.
65 *Vishvakarma Prakasha* II.81.
66 Discussed in detail in Chapter IV on Orientation.
67 *Rajavallabha* III.14.

the seven days of the week with Sunday associated with remainder one, Monday with two, Tuesday with three, and so on. Sunday and Tuesday are not beneficial.

Tithi or date is indicated by the remainder obtained by multiplying the area by eight and dividing it by fifteen (Area × 8 / 15). Here the divisor represents the fifteen lunar dates, with remainder one associated with the first date of *Pratipada*, two is *Dvitiya*, three is *Tritiya*, and so on. *Chaturthi, Navami, Chaturdashi*, and *Amavasya* are inauspicious.

Ayu or the vital age is the remainder from multiplying the area by eight and dividing it by one hundred and twenty (Area × 8 / 120). Here the divisor represents the ideal age of a human being. The higher the value of the remainder, the longer is the life of the house.

The remainder from *Dravya* or matter, which is equal to the area multiplied by eight and divided by twelve (Area × 8 / 12) , 'should' be more than the remainder from *Rin* or debt which is equal to the area multiplied by three and divided by eight (Area × 3 / 8).

Yoga is indicated by the remainder from multiplying the area by four and dividing it by twenty seven (Area × 4 / 27). The inauspicious are *Vishkhambha (1), Atiganda (6), Shula (9), Ganda (10), Vyaghata (13), Vajra (15), Vyatipata (17),* and *Vaidhriti (0* or *27).*

A house should possess at least three positive qualities of *Aya, Nakshatra* and *Ayu*.[68] If the area of the site does not produce a positive result, then it could be altered by reducing or increasing the area in the unit employed in the calculation.[69] If the area in *Hasta* is considered for the *Ayadi* calculations, it should not be altered by a few *Angula*, but altered by a few *Hasta*.[70] Another way of arriving at an auspicious area measure for the site is to work backwards, which is by taking the *Nakshatra* of the householder as the reference point and calculating a suitable area. It is even easier to simply refer to the *Pindasarani* or tables of area[71] (Figure 21) and choose the suitable area nearest in dimension to the area proposed. The proposed area however is proportionate to a larger whole, for example, the area of a king's house is one sixteenth of the area of the town.[72]

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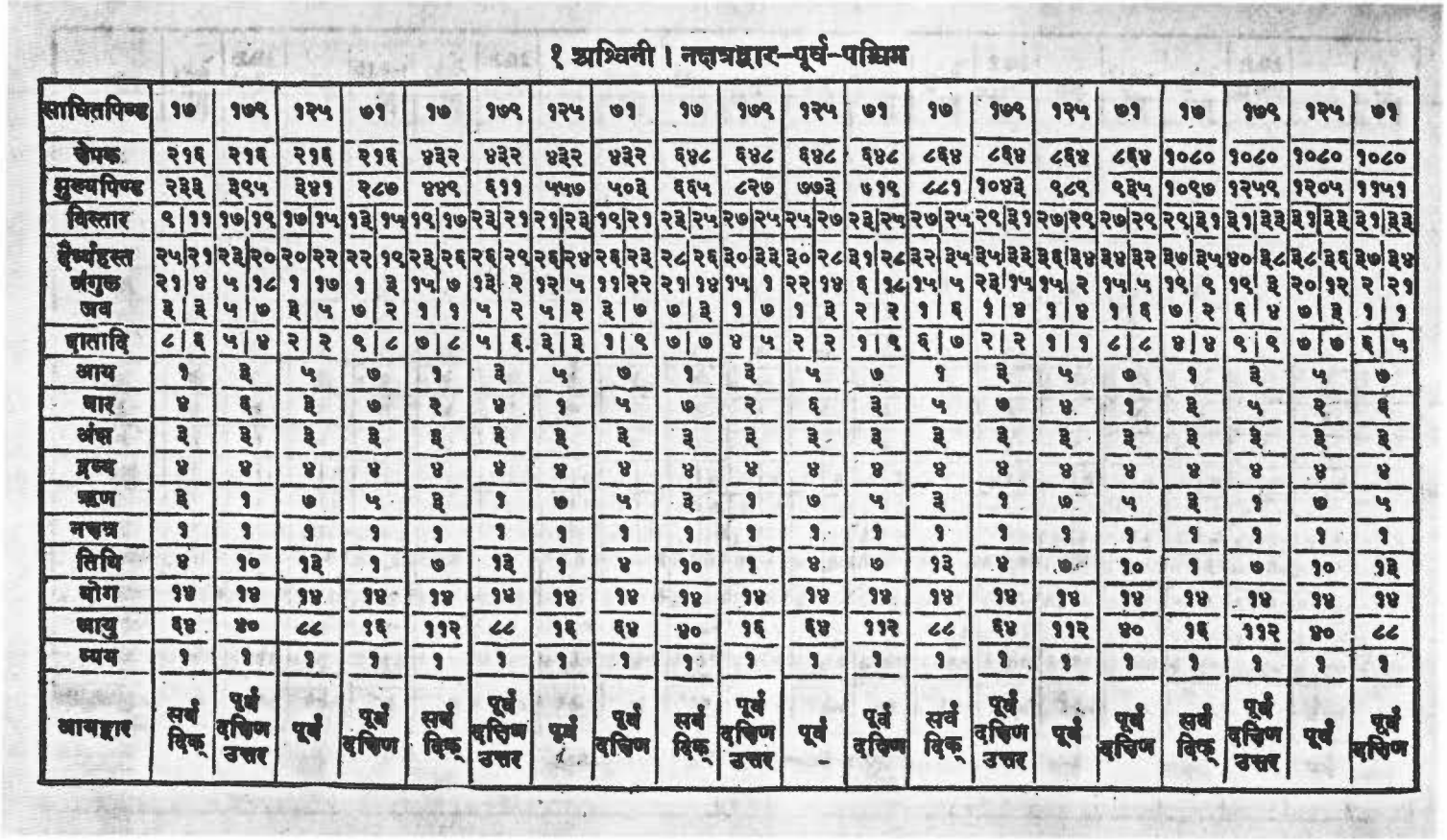
68 *Rajavallabha* III.23.

69 *Rajavallabha* III.27.

70 Although according to *Vishvakarma Prakasha* II.92–93, and *Vasturatnavali* p93–95, *Ayadi* calculations apply to houses with width between eleven and thirty-two *Hasta*, its discussion in all the texts on *Vastu Vidya* does not justify its limited usage. *Ayadi* calculation is made not only for the building, but also for rooms, furniture, images – practically every piece of construction that covers space. Apart from the *Vastu Vidya* texts, most astrological texts lay out these calculations for assessing the *Guna* of the proposed site.

71 *Rajavallabha, Vasturatnakara, Brihadvastumala* – these are some of the texts that have included the *Pindasarani* for quick reference. They also form a part of the texts on astrology that discuss the astrological considerations for a house.

72 *Rajavallabha* IV.36.



१ अश्विनी । नक्षत्रद्वार-पूर्व-पश्चिम

साधितपिण्ड	१७	१७९	१२५	७१	१७	१७९	१२५	७१	१७	१७९	१२५	७१	१७	१७९	१२५	७१	१७	१७९	१२५	७१
क्षेपक	२१६	२१६	२१६	२१६	४३२	४३२	४३२	४३२	६४८	६४८	६४८	६४८	८६४	८६४	८६४	८६४	१०८०	१०८०	१०८०	१०८०
मुख्यपिण्ड	२३३	३९५	३४१	२८७	४४९	६११	५५७	५०३	६६५	८२७	७७३	७१९	८८१	१०४३	९८९	९३५	१०९७	१२५९	१२०५	११५१
विस्तार	९ | ११	१७ | १९	१७ | १५	१३ | १५	१९ | १७	२३ | २१	२१ | २३	१९ | २१	२३ | २५	२७ | २५	२५ | २७	२३ | २५	२७ | २५	२९ | ३१	२७ | २९	२७ | २९	२९ | ३१	३१ | ३३	३१ | ३३	३१ | ३३
दैर्घ्यहस्त	२५ | २१	२३ | २०	२० | २२	२२ | १९	२३ | २६	२६ | २९	२६ | २४	२३ | २३	२८ | २६	३० | ३३	३० | २८	३१ | २८	३२ | ३५	३५ | ३३	३६ | ३४	३४ | ३२	३७ | ३५	४० | ३८	३८ | ३६	३७ | ३४
अंगुल	२१ | ४	५ | १८	१ | १७	१ | ३	१५ | ७	१३ | २	१२ | ५	११ | २२	२१ | १४	१५ | १	२२ | १४	६ | १८	१५ | ५	२३ | १५	१५ | २	१५ | ५	१९ | ९	१९ | ३	२० | १२	२ | २१
जव	३ | ३	५ | ७	३ | ५	७ | २	१ | १	५ | २	५ | २	३ | ७	७ | ३	१ | ७	१ | ३	२ | २	१ | ६	१ | ४	१ | ४	१ | ६	७ | २	६ | ४	३ | ३	१ | १
द्यूतादि	८ | ६	५ | ४	२ | २	९ | ८	७ | ८	५ | ६	३ | ३	१ | ९	७ | ७	४ | ५	२ | २	१ | ९	६ | ७	२ | २	१ | १	८ | ८	४ | ४	९ | ९	७ | ७	६ | ५
आय	१	३	५	७	१	३	५	७	१	३	५	७	१	३	५	७	१	३	५	७
वार	४	६	३	७	२	४	१	५	७	२	६	३	५	७	४	१	३	५	२	४
अंश	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३	३
द्रव्य	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४	४
ऋण	३	१	७	५	३	१	७	५	३	१	७	५	३	१	७	५	३	१	७	५
नक्षत्र	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१
तिथि	४	१०	१२	१	७	१३	१	४	१०	१	४	७	१३	४	७	१०	१	७	१०	१३
योग	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४	१४
आयु	६४	४०	८८	१६	११२	८८	१६	६४	४०	१६	६४	११२	८८	६४	११२	४०	१६	११२	४०	८८
व्यय	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१	१
आवहार	सर्व दिक्	पूर्व दक्षिण उत्तर	पूर्व	पूर्व दक्षिण	सर्व दिक्	पूर्व दक्षिण उत्तर	पूर्व	पूर्व दक्षिण	सर्व दिक्	पूर्व दक्षिण उत्तर	पूर्व	पूर्व दक्षिण	सर्व दिक्	पूर्व दक्षिण उत्तर	पूर्व	पूर्व दक्षिण	सर्व दिक्	पूर्व दक्षिण उत्तर	पूर्व	पूर्व दक्षिण

FIGURE 21 Example of a Pindasarani table (*Vasturatnakara*, 1988)

System of Relative Proportion

Area constitutes two potential variables of width and length. Quantifying one and establishing the relationship of the width to the length, quantifies both the variables. The suitability of the width of the plot depends on the social status of its occupant; for example, the width of the king's plot would be more than that of his minister's, and therefore the hierarchy of width is a reflection of the hierarchy in the social structure. For the 'ordinary people' – the *Brahmin, Kshatriya, Vaishya*, and *Shudra* – the width is thirty-two, twenty-eight, twenty-four and twenty *Hasta* respectively,[73] and the respective lengths are (W+W/10) or a square, (W+W/8), (W+W/6) and (W+W/4), where 'W' stands for width.[74] Width is the primary basis for the derivation of all the other dimensions in a building. The building adopts the rhythm of proportionate measurement initiated by the dimension of the width. As the length and the height of the building are the derivatives of the width, the width should be a whole number in *Hasta* unit.[75] (Refer to Table III and Table IV for two methods of derivation.) The

TABLE III (Manasara XI.6–40) The dimensions are in Hasta.

One Storeyed Building															
	Small Type					Intermediate Type					Large Type				
	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Width	2	4	6	8	10	4	6	8	10	12	6	8	10	12	14
Length	3	5	7	9	11	5	7	9	11	13	7	9	11	13	15
Height	2(Width) or equal to Width														
Two Storeyed Building															
	Small Type					Intermediate Type					Large Type				
	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Width	5	7	9	11	13	6	8	10	12	14	7	9	11	13	15
Length	6	8	10	12	14	7	9	11	13	15	8	10	12	14	16
Height	2(Width) or equal to Width					1+3/4(Width)					1+1/2(Width) or 1+1/4 (Width)				
Three Storeyed Building															
	Small Type					Intermediate Type					Large Type				
	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Width	8	10	12	14	16	9	11	13	15	17	10	12	14	16	18
Length	9	11	13	15	17	10	12	14	16	18	11	13	15	17	19
Height	2(Width) or equal to Width					1+3/4(Width)					1+1/2(Width) or 1+1/4 (Width)				

73 *Rajavallabha* IX.30–36.
74 *Rajavallabha* IX.36; *Samarangana Sutradhara* XXIV.19–20; *Manasara* III.18–30.
75 *Vishvakarma Prakasha* II.90.

TABLE IV (Rajavallabha IX.30–36) All dimensions in Hasta (H) and Angula (A)

For Kings:	Increment by 8H and Proportion Length = (1+1/4)Width				
Width	108H	100H	92H	84H	76H
Length	135H	125H	115H	105H	95H
For Prince:	Increment by 6H and Proportion Length = (1+1/3)Width				
Width	80H	74H	68H	62H	56H
Length	106H 16A	99H 16A	90H 16A	82H 16A	74H 16A
For Soldier:	Increment by 6H and Proportion L = (1+1/6)Width				
Width	64H	58H	52H	46H	40H
Length	74H 16A	67H 16A	60H 16A	53H 16A	46H 16A

width of the wall is one sixteenth part of the width of the building.[76] The height which is either equal to the width or its derivative,[77] is further subdivided into parts that are allocated to the plinth, column, and entablature.[78]

The suitable site proportions that conform to the *Ayadi* calculations are also followed to decide the proportions of the internal rooms, where each room reflects the proportions of the site. This implies that a grid that divides the entire site into aliquot subdivisions dictates the internal layout, which is one of the primary functions of the *Vastu Purusha Mandala* grid. The *Vastu Purusha Mandala* not only provides the lateral and transverse coordinates on the site, but also governs the proportions of the internal divisions and enforces the relative proportion of the covered and open spaces. For example, the size of the internal courtyard, which is the central nine squares in a *Paramsayika Mandala* (81 square *Mandala*), would increase or decrease, corresponding to an increase or decrease in the area of the site. So, a larger site would have a larger courtyard, or more than one small courtyards. Therefore, *Vastu Purusha Mandala* is a measure and houses are 'measured' by the *Vastu Purusha Mandala* of eighty-one *Pada* or plots.[79] The central courtyard is the measure of the house, as it reflects the dimensions of the site, the difference in the level of various parts of the house, the site declivity, and the symmetrical placement of the building elements.[80] The traditional craftsmen in Rajasthan regard the courtyard as a measure of perfection achieved in the construction of the house, as even a minute 'defect' of improper alignment or deviation from the verticality of

76 *Rajavallabha* V.11; *Vishvakarma Prakasha* II.161.
77 *Vishvakarma Prakasha* II.116; *Manasara* XXXV.21; *Rajavallabha* V.15.
78 *Rajavallabha* V.18.
79 *Samarangana Sutradhara* XVI.3; *Vishvakarma Prakasha* IV.40; also see Chapter III. Vastu Purusha Mandala.
80 See the concept of Vedha in Chapter VI. Defining the Built Form.

the building, becomes conspicuous on comparison of the four sides of the courtyard.[81]

Having set a skeletal framework of co-ordinates, the various intricacies of the design of building elements are quantified within this three dimensional grid of relative measurement. The width, length, and height of each element bears a relationship, direct or derived, with every other building element. This implies that the broad framework of proportions of the entire building could be reconstructed on the basis of the dimensions of any one of the building parts. This building part however, must be a modular unit of the building – a module that is a derivative as well a contributor to the building as a whole, and belongs to its system of relative proportion. Within this framework, the architect or the craftsman applies his own discretion and personal insight[82] that makes the building distinctive.

Contemporary Application

Today the values assigned for the dimensions of a building are in terms of absolute numbers rather than relative proportions. It would be impossible to draw a framework of relative proportions for a 'modern' building, simply because 'modern' architects do not use a framework that is derived from one world view. They do, however, consult the standard of building dimensions, and in India the 'foreign' building standards are used nation-wide by the 'modern' architect. Though the measurements are derived from the human form, the building standards lay out only the minimum and optimum dimensions required for any activity. However, there is no upper limit to the area or space allocation. The 'modern'[83] architect works between the minimum dimensions set by the building standards, and the maximum-covered-area regulations, and number of floors-to-area-ratio (F.A.R.) regulations, set by the local municipal authorities. Negotiating his design between these lower and upper limits set by the building codes and urban planning respectively, he certainly does not 'need' another system of measurement that would further limit the freedom of the individualistic design concept.

The role of dimensions in an architectural concept is generally based on the design motivation of the building. For example, for a builder, who sells ready-made apartments which includes the design as a part of the package,

81 Based on primary survey in Rajasthan. Premji Mistri, a traditional craftsman often describes houses in terms of the measurement of its courtyard, such as "house of seven and a quarter *Gaja* (Hasta) *chowk* (courtyard)".

82 One of the qualities a *Sthapati* or an architect must possess. See Chapter I on Architectural Team.

83 A 'modern' architect is the 'city' architect whose education as well as practice revolves around 'western' standards. See Chapter I. Architectural Team, on the various practitioners of architecture.

the cost per unit area is a 'measure' of a good design. A design in which there is minimum wastage of materials is a good design. For instance, if a floor of a room is made of tiles that measure eight inches by eight inches each, then if the size of the room is a multiple of the floor tile, there would not be any wastage. So, the modular unit for the size of the room is the size of the tile. This is not to suggest that the architect is not concerned with the wastage of building materials, but to say that while an architect would not willingly surrender his design freedom to achieve efficiency in the usage of materials, and for a builder though the novelty of design would certainly help 'sell' the project, it would not be his primary focus. As the advancement of technology broadens the horizon of choice of building materials, along with the design feats that could be achieved with the near endless possibilities the new building materials present, the ground for a system of measurement is individual discretion, rather than a norm.

The difficulty in adopting the *Vastu Vidya* system of measurement commences with the basic unit itself. Though the traditional craftsmen do not use the 'foreign' building standards, and 'know' the dimensions of the building materials and measurement of the building in *Angula* and *Hasta*, their tools are marked in feet and inches. And, where the unit of an inch is subdivided on the scale into eight parts known as a *Tassu*, an *Angula* could be measured off as six *Tassu* or three-quarter inch; but if the subdivision of the inch is into ten parts, scaling off an *Angula* would not be as accurate. The craftsman, however, relies largely on his knowledge of relative proportions, and as long as he is building with the traditional materials like stone and wood, there would not be much conflict of units. However, if the materials are 'modern', then even the system of relative proportions may not be applicable in its entirety. For example, the prescribed width of wall is one sixteenth of the width of the building, and say for a site of thirty-two *Hasta* wide, a wall of two *Hasta* or three feet is normal for a *Haveli* built in stone. On the other hand, for a 'modern' building where the walls are not load-bearing and even a four and a half inch wall would suffice the structural requirement, a three feet wall would certainly be a waste of both material and site area.

The entire domain of auspicious dimensions becomes invalid as soon as a different unit is adopted without its proper conversion. The difference between a *Hasta* and a *Gaja* or a yard is almost blurred, and even in translations of *Vastu Vidya* texts, a *Hasta* is translated as a cubit, and an *Angula* as an inch.[84] The accuracy in the usage of the *Hasta* unit from a metric scale, used by the 'modern' architect today, makes the conversion

84 In the translation of *Samarangana Sutradhara* XI.6–10, in Hindi, D.N.Shukla translates *Parva* as inch; P.K. Acharya in the English translation of *Manasara* II.50–65, uses cubit, and calls a scale "The yard-stick (lit. cubit-measure)".

even more remote. Moreover, the entire gamut of architectural components like the processed building materials such as the planks of wood, slabs of stone, bricks, and so on, and fixtures used inside the building, follow the metric unit, which renders the adoption of the *Hasta* unit and the *Vastu Vidya* system of relative proportion superfluous.

The relevance of the application of the *Ayadi* formulae is not unanimously supported even among its practitioners, reflecting the fragmentary application of *Vastu Vidya*. While some *Vastu* consultants are avid practitioners of these formulae as they believe that "It is the subject of Astrology that helps man to understand his fields of fortune or areas of adversity",[85] others do discuss the subject but argue that if the total length of the building is more than thirty two *Hasta*, "it is not necessary to apply the Ayam rule".[86] Some dismiss it by arguing that the concept had become an impediment for certain individuals wanting to build a house, by making them ineligible to possess a house on the basis of their horoscope,[87] and many choose not to discuss the subject at all.[88] However, the *Vastu* consultants who do follow the calculations, do not insist upon the conversion of the area to the *Hasta* unit, and follow the same rules for the area calculated in square yards and square metres.[89] This implies that the calculations and their interpretation for an area that measures nine hundred *Hasta Hasta* (or square *Hasta*) which is about 188.24 square metres, would be identical to the area that measures nine hundred square metres.

Many consult astrologers for the calculation of a suitable area for the site, which is one amongst the many activities which cannot be undertaken without a prior consultation with an astrologer, as "Today, the most popular astrological works are the almanacs (pancanga) which set out daily astrological information about solar days (vara), the corresponding lunar days (tithis), the passage of the sun and the moon through the lunar mansions (naksatras), lucky planetary conjunctions (yoga), and special lunar half days (karanas) for performing domestic rituals and religious festivals".[90] For the calculation of a suitable site, astrologers consult the *Pindasarani* or the tables of the *Ayadi* calculations in *Hasta* and *Angula* unit after the actual measurement of their client's *Hasta*. For a small dwelling or a house the *Nakshatra* of the householder is taken as the reference point for the analysis of compatibility. Many 'modern' day issues regarding the

85 Rao, C.H.G., *Astrology in House Building*, Madras, 1992, in the Introduction.
86 Das, P.K., *The Secrets of Vastu*, Secunderabad, 1989 p125
87 Reddy, G.T., *The Secret World of Vaasthu*, Hyderabad, 1994 p37
88 Reddy, B.N., *A Glimpse of Practical Vaastu*, Hyderabad, 1993; Sharma, D.D., *Dharnidhar's Vastu Guide*, Bombay, 1994; Dammani, B., *Bhartiya Vastukala*, Bikaner, 1994; Shastri, Umesha, *Vastuvigyanam*, 1989. Though Umesha Shastri is also a practising astrologer apart from being a *Vastu* consultant, he believes that the *Ayadi* formulae are obsolete.
89 Rao, C.H.G., *Astrology in House Building*, pp46–56; Das, P.K., *The Secrets of Vastu*, pp 120–125.
90 Sivapriyananda, Swami, *Astrology and Religion in Indian Art*, New Delhi, 1990 p17.

ownership of the house are resolved, and "the horoscope of the person in whose favour the document is registered is to be examined".[91] If the building is owned by a trust, then the *Nakshatra* of the trust is calculated on the basis of the date of its foundation.

The system of measurement is also utilised by the conservation architects, who prior to the repair of the building, make measured drawings of the dilapidated structure. The conflict between the unit of measurement used during the construction of the structure, and the unit used for its drawings, not only hampers the accuracy of the drawing, but also would be of little help in its reconstruction. A measurement system calibrated on the basis of any one of the elements of the building to be conserved, would unfold crucial dimensions of the entire structure which could be used for its reconstruction, extension, and even assessment of its style.

Although from the above it may seem that for the 'modern' architect the system of measurement prescribed by *Vastu Vidya* is now obsolete and its usage redundant, stray instances of its application do still arise – from a belief that "these principles are the foundation of our culture and must be regenerated and revitalised";[92] or because of the *Vastu Pundit* who insists on the calculation of certain *Ayadi* formulae to which the 'modern' architect must comply; or because in an effort towards defining his identity, the architect leans on the nostalgia of "the majestic beauty of the Taj Mahal, the palaces of Jaipur, even his simple village mud house",[93] and so demonstrates a fragmentary usage of the system based on individual discretion.

According to D. K. Bubbar, an architect based in Bombay, a building consists of a physical part of materials and design, and a spiritual part which must be traditional. He uses *Ayadi* formulae to ascertain the auspiciousness of a site, and explains that "There are 13–14 formulae. Earlier I used to work with 7. But with my experience over the past 25 years, I have found 9 very effective for my purpose." Since according to him the "truth of Architecture" is that the buildings belong to the present and the spaces to tradition, he designs "on the system of Bauhaus, but spaces and proportions, the interiors and placement of furniture and other items, I now take the help of Chinese thought".[94] At prima facie it is rather difficult to discern the usage of traditional principles in the design of his buildings, as the subtlety of its 'traditional spirit' does not seem to influence the aesthetics and typology of its form at all. Unless accompanied by an explanatory note, his buildings are like any other 'modern' building.

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91 Rao, C.H.G., Astrology in House Building, 1992. Appendix.
92 Shah, Ranvir, Reinterpreting the Old, in *Inside Outside*, New Delhi, April 1993.
93 Amaral, O., Oh! Sacrosanct Space, in *Indian Express*, Bombay, May 31, 1994.
94 *Ibid.*

The RASAM (Research Academy for Science and Art, Mamallapuram) group, believes that "Vastu tradition is the technology of India" and their work towards revitalisation and regeneration of the *Vastu* tradition is primarily expressed through imitation of age-old motifs and design proportions, using more convenient materials like sand-papered brick and wooden mouldings instead of stone, which "proved to them that the Vastu traditions had the capability to adopt and work with the newer tools and technology".[95] Thus they lie at the other end of the spectrum. They have taken up the challenge of adoption of the newer tools for *Vastu* traditions, rather than the reinvention of *Vastu Vidya* principles in keeping with contemporary architectural requirements, materials and tools. Here, the distinction between *Vastu* tradition adopting newer technology, and newer technology that is interwoven with the newer life style, adopting *Vastu* tradition , though subtle, is consequential. Also with a change in any of the *Vastu Vidya* design parameters, a modification in the other rules of the system is imperative. For example, due to the inter-relationship of the system of proportion to the building materials, a change of building materials would require a modification in the prescription of relative proportions.

So in both the above representative examples of usage of the *Vastu Vidya* system of measurement – with Western design sensibilities, and its application to imitate traditional designs using modern tools – the question of continuity of traditional building ethos remains unanswered. As architecture cannot be viewed in isolation from the prevalent life style it inhabits, the issue of continuity of traditional architecture is that of a marriage of contemporary design facility to the traditional idiom, and not a dichotomous existence of contemporary design requirements and traditional spirit as separate. The issue is contemporarisation of the traditional programme of architecture in its entirety, and not a reversion of the building style to that of the past that would also entail a reversion of life style.

The primary function of the system of measurement as prescribed by *Vastu Vidya* is to form a basic network of lines within which the form flowers. In its contemporary application, on the one hand where its influence is ritualistic rather than architectural, the primary function is defunct; and on the other, where it facilitates building replicas of the past, the architectural style would not be in consonance with the contemporary ritual of life it must support.

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95 Shah, Ranvir, Reinterpreting the Old, *Inside Outside*, New Delhi, April 1993.

CHAPTER THREE

Vastu Purusha Mandala

The *Vastu Purusha Mandala* provides the grid that facilitates the inception of the design, and in addition to being the 'architect's square pad' where the concepts crystallise, each of its lines and divisions hold within them layers of meaning, within which the intricacies of design unfolds. The *Vastu Purusha Mandala* adopts the shape of the site,[1] and this functional attribute of the *Mandala*[2] active in the mind of the designer in its ideal form of a square, acquiring a different shape in reality, is a primary example of the inherent flexibility. Not only does it adopt the site constraints, it adopts the parameters of design requirements of as diverse a context as a hot and arid Rajasthan, and a wet and humid Kerala, as well as the variation of building materials, functional requirements, and the social and political context it is used in.[3]

The *Vastu Purusha Mandala* is an amalgamation of three constituent concepts: *Vastu*, the consecrated site or the canvas of its operation in an ideal form of a square, the purpose, the theme, the *Nama*; *Purusha*, the mediator and the principle of form or *Rupa*; and *Mandala*, the mechanism of its application, or *Karma*. The different *Nama-Rupa* pairs are the specialised expressions of the universal principle of the cosmos that dictates the given idea or concept as in *Kala Purusha* – the *Kala* or time is the *Nama*, and *Purusha* its mediator.[4] Though "this world is a triad of *Nama*, *Rupa* and *Karma*,"[5] *Vastu Vidya* aims towards harmonising these constituent concepts into its universal notion of existence. This world view enacted in every process of creation is characteristic of traditional Indian art, which is

1 *Rajavallabha* II.3.

2 *Mandala* here and below, refers to the *Vastu Purusha Mandala* only.

3 The overall consistency in the principle of the *Vastu Purusha Mandala* described in the *Vastu Vidya* texts, reflects its sustained efficacy in the contextual variation of space and time.

4 Baumer, Bettina (ed.), *Rupa-Pratirupa*, Delhi, 1982 pp28,34. Also see Ch.II System of Measurement.

5 *Brihad Aranyaka* I.63, in Radhakrishnan, S., *The Principal Upanishads*. p183.

"neither anthropomorphic (or anthropocentric) nor naturalistic (or cosmocentric), but aims at con-forming (anurupa) to the divine archetype (the original Purusa) which is itself reflected in man and in the cosmos."[6]

The various grids of one square, four squares, nine squares, sixteen squares, and so on, are the representations of the basic design principle of the *Vastu Purusha Mandala*, cohering to the symmetry with accretion of the number of subdivisions. The application associated with each type of *Mandala* bears an association with the intricacy of the design involved. The bigger the site or building (if the internal spaces are large), the fewer are the co-ordinates required to subdivide it. With the increase in intricacy and complexity, the co-ordinates too are adequately increased, and so sites for villages, palaces and towns are subdivided into sixty-four squares, all houses into eighty-one squares, pavilions into a hundred squares, and wells into one hundred and sixty-nine squares.[7] Within this broad subdivision of the site, the smaller internal divisions are subdivided again to fill in the intricacies of the design details. For example, a town is planned on the lines set out by either the *Manduka Mandala* of sixty-four squares, *Paramashayika Mandala* of eighty-one squares, or *Sthandila Mandala* of forty-nine squares, depending on the proportions of the site;[8] all houses within the town are planned on the *Paramshayika Mandala* of eighty-one squares;[9] while a window within a house is carved around the co-ordinates of the subdivision of its opening into eighty-one squares or forty-nine squares.[10] The design principle followed in the process that commences at the macro-level of a town, to the micro-level of a window, reflects the specialised uses of the grid within the absolute principle of *Vastu Purusha Mandala*.

This *Mandala* is a grid in the ideal form of a square, with an amorphous *Purusha* or the cosmic Man pressed down on it on each of its subdivisions by the ruling divinities. Developing from one square, the number of squares follow an arithmetic progression of 4, 9, 16, 25, 36, 49, 64, 81, 100, and so on to the thirty second type of *Mandala* with 1024 square subdivisions.

The Subdivisions

In the *Mandala* of a single square called *Sakala* (Figure 22), the guardians of the four directions, East, South, West and North, which are *Aditya* or Sun,

6 Baumer, Bettina ed., *Rupa Pratirupa*, 1982 p33.
7 *Rajavallabha* II.4.
8 *Manasara* IX.166–169.
9 *Ibid.* VII.71–75.
10 *Ibid.* XXXIII.586–589.

Yama or God of death, *Varuna* or God of waters, and *Soma* or Moon, rule the four sides that make the square. This *Mandala* is used in constructions for the ritual of worship of fire, dining, and ancestral worship. The second called *Pechaka* (Figure 22) is the *Mandala* of four plots and is used for structures for domestic worship and public bathing. In this *Mandala*, the eight half sides of the square are ruled by *Isha, Aditya, Agni, Yama, Pavana, Varuna, Gagana* and *Soma*,[11] in the clockwise order starting with the north-eastern side.

The third *Pitha Mandala* (Figure 22) of nine plots is ruled by the *Isha* in the north-east, Sun in the east, *Agni* or personified fire in the south-east,

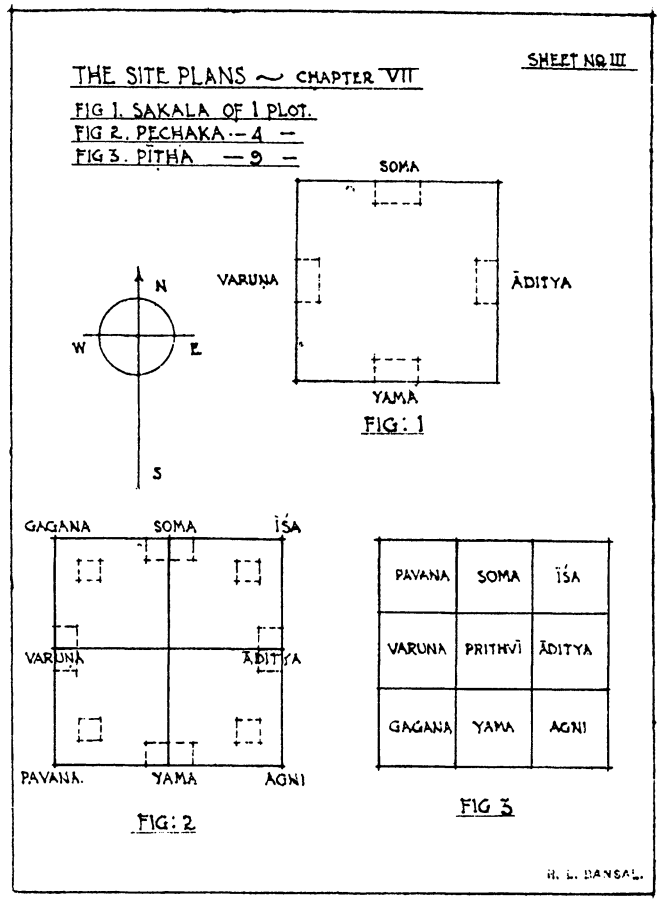

FIGURE 22 Sakala, Pechaka and Pitha Mandala (Acharya, 1980)

11 It is not clear why *Manasara* places *Gagana* in the north-west and *Pavana* in the south-west in this particular *Mandala*, when *Gagana* is associated with south-west and *Pavana* with the north-west elsewhere in *Manasara* and in other texts on *Vastu Vidya*.

Yama in the south, *Gagana* or the personified sky in the south-west, *Varuna* in the west, *Pavana* or the personified wind in the north-west, and *Soma* or the moon in north, with the central plot occupied by *Prithvi* or the personified earth.

In the fourth *Mandala* called *Mahapitha* (Figure 23), additional divinities are introduced. *Brahma* in the centre occupies four plots. The plots adjacent to the eastern boundary of the plot of *Brahma* are ruled by *Apavatsa* and *Aryaka*, south of *Brahma* are *Savitra* and *Vivasvat*, west of *Brahma* are *Indra* and *Mitra*, and to the north of *Brahma* are *Rudra* and *Bhudhara*. The plots that are adjacent to the outermost boundary of the *Mandala*, starting from the north-eastern plot in a clockwise order are ruled by *Isha*, *Jayanta*, *Aditya*, *Bhrisha*, *Agni*, *Vitatha*, *Yama*, *Bhringaraja*, *Pitri*, *Sugriva*, *Varuna*, *Shosha*, *Maruta*, *Mukhya*, *Soma* and *Aditi*. The additional divinities that occupy what could be referred to as the peripheral plots are related to the divinities of the previous nine-square *Mandala*. For example, to the left of *Aditya* or the Sun in the east, is *Jayanta*, the son of *Indra*, who is also the guardian of the eastern direction. To the left of *Agni* is *Bhrisha*, the God of desire, represented by planet Venus, which rules the south-eastern direction. *Agni* or fire is related to *Kamaagni* or the fire of desire. To the left of *Yama* is the

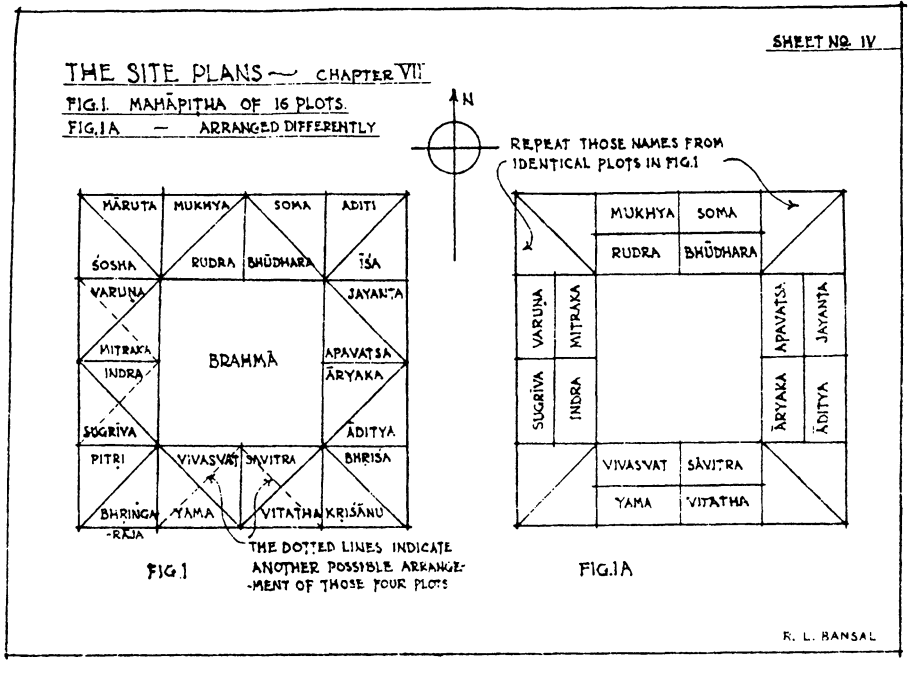

FIGURE 23 Mahapitha Mandala (Acharya, 1980)

another divinity of demonic attribute – *Vitatha*, the personified unrighteousness. To the left of *Pitri* is *Bhringaraja*, the son of the guardian of the southwestern direction.

The twenty-five squares *Upapitha Mandala* (Figure 24) is a direct derivative of the above, with each of the above twenty-five divinities occupying one plot each. In the *Ugrapitha Mandala* (Figure 25) of thirty-six squares, and the *Sthandila Mandala* (Figure 26) of forty-nine squares too, the divinities are as above, with the difference in the number of square plots allotted to each.[12]

Both the *Chandita* or the *Manduka Mandala* (Figure 27) of sixty-four squares, and the *Paramashayika Mandala* (Figures 28a-e) of eighty-one squares have plots of forty-five deities, and the subsequent ones are treated as *Chandita*, in case of an even-numbered *Mandala*, and as *Paramashayika* in the case of an odd-numbered one.[13]

As in the above and also for the subsequent ones, the textual description of the *Vastu Purusha Mandala* expedites the process of visualisation of the design scheme that operates in the mind of the designer, leading it towards a controlled and regulated solution. The ritual of allocation of the divinities to the plots is conducted in three stages: allocation in the central plots, the middle ring, and the peripheral plots. In the *Mandala* of eighty-one squares (Figures 28a-e), *Brahma* occupies the central nine plots, surrounded by *Aryama* on the east, *Vivasvat* on the south, *Mitra* on the west and *Bhudhara* on the north – occupying six plots each. In the plots at the north-eastern corner of the middle ring are *Apa* and *Apavatsa*; at the south-eastern corner are *Savitri* and *Savitra*; at the south-western corner are *Indra* and *Indraja*; at the north-western corner are *Rudra* and *Rudraja* – occupying two plots each. All deities that constitute the peripheral ring occupy one plot each. Commencing from the north-eastern corner of this outermost ring are the plots of *Isha, Parjanya, Jayanta, Mahendra, Bhanu, Satya, Bhrisha,* and *Antariksha* on the eastern periphery; *Agni, Pushan, Vitatha, Grihakshata, Yama, Gandharva, Bhringaraja* and *Mrisha* on the southern periphery; *Pitri, Douvarika, Sugriva, Pushpadanta, Varuna, Asura, Shosha,* and *Roga* on the western periphery; *Maruta, Naga, Mukhya, Bhallata, Soma, Mriga, Aditi,* and *Udita* are on the northern periphery.[14]

The descriptive introduction of the divinities of the *Mandala* (Figure 28a-e) is as follows,[15] starting with the thirteen inner divinities: ***B**rahma* in

12 The description of the above seven *Mandala* is based on *Manasara* VII.

13 *Manasara* VII.71–75.

14 *Manasara* VII.110–154; *Mayamata* VII.33–40,58; *Rajavallabha* II.10–13. *Samarangana Sutradhara* (XIV.1–14) differs in the number of plots allocated to *Jayanta, Brisha, Vitatha, Bhringaraja, Sugriva, Shosha, Mukhya* and *Aditi*, and in the names of few of the divinities (See Figure). Also see Kramrisch, Stella, *Hindu Temple*, Vol.I, part II and III.

15 In addition to the works cited above, *Brihat Samhita* LIII.43–50; *Bhartiya Jyotisha* p106; Dowson, *Hindu Mythology and Religon*, 1991; *Samarangana Sutrdhara* XVII.13–32, are the souces of the above collation. The names of the divinities occuring on the *Mandala* are marked with their first letter in bold.

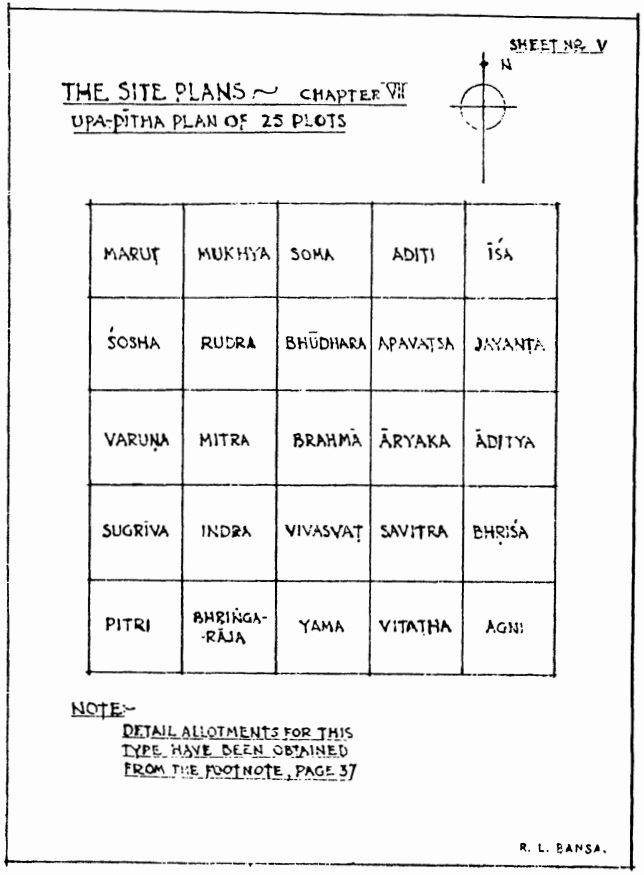

FIGURE 24 Upapitha Mandala (Acharya, 1980)

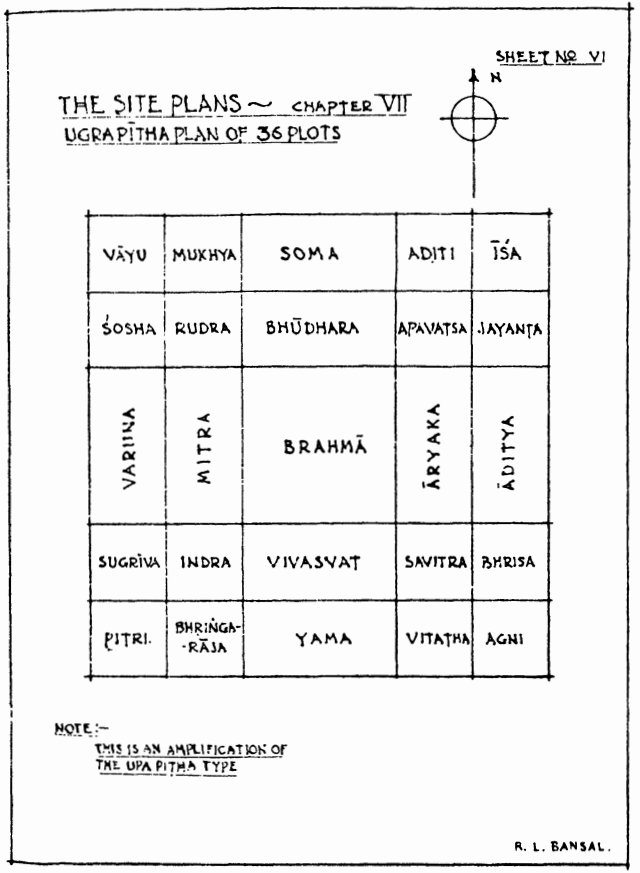

FIGURE 25 Ugrapitha Mandala (Acharya, 1980)

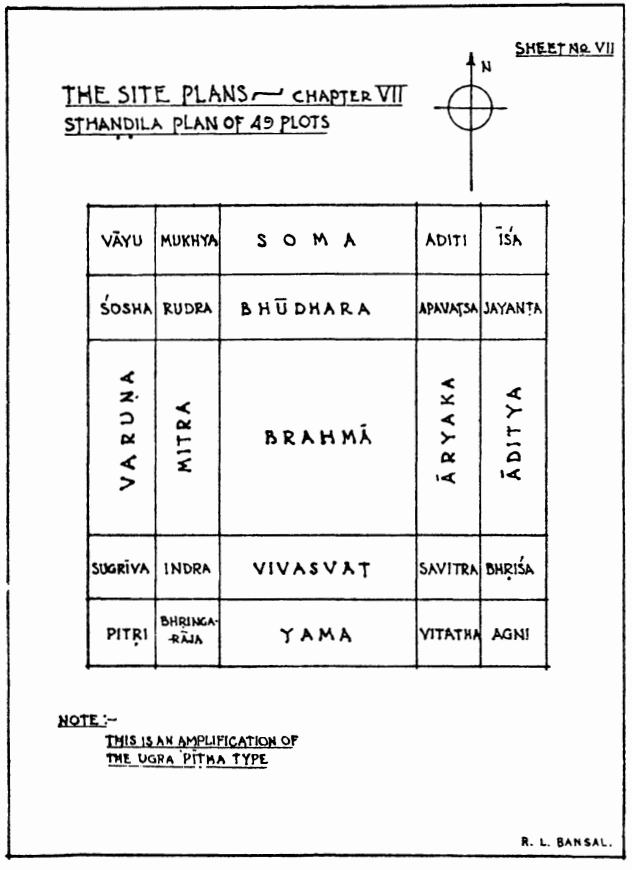

FIGURE 26 Sthandila Mandala (Acharya, 1980)

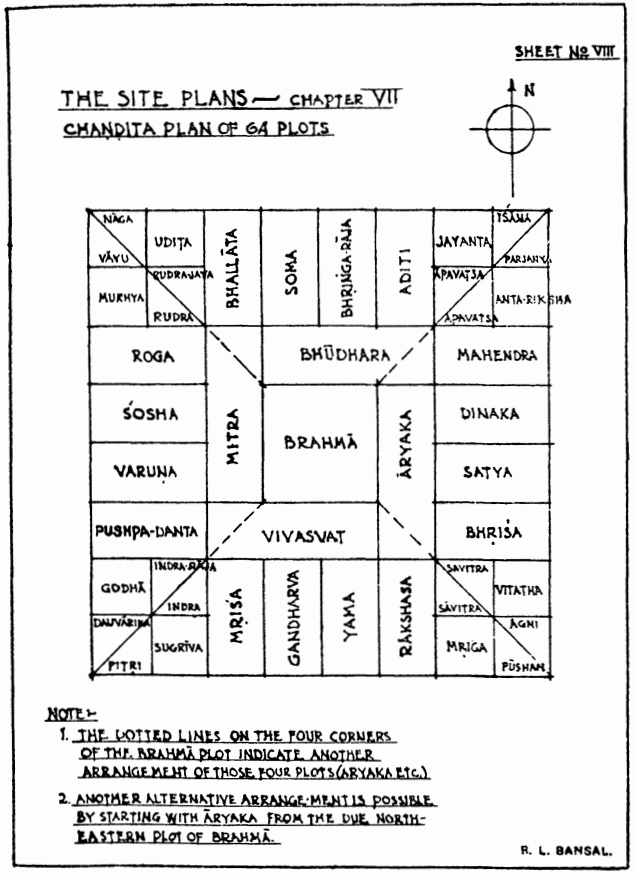

FIGURE 27 Chandita Mandala (Acharya, 1980)

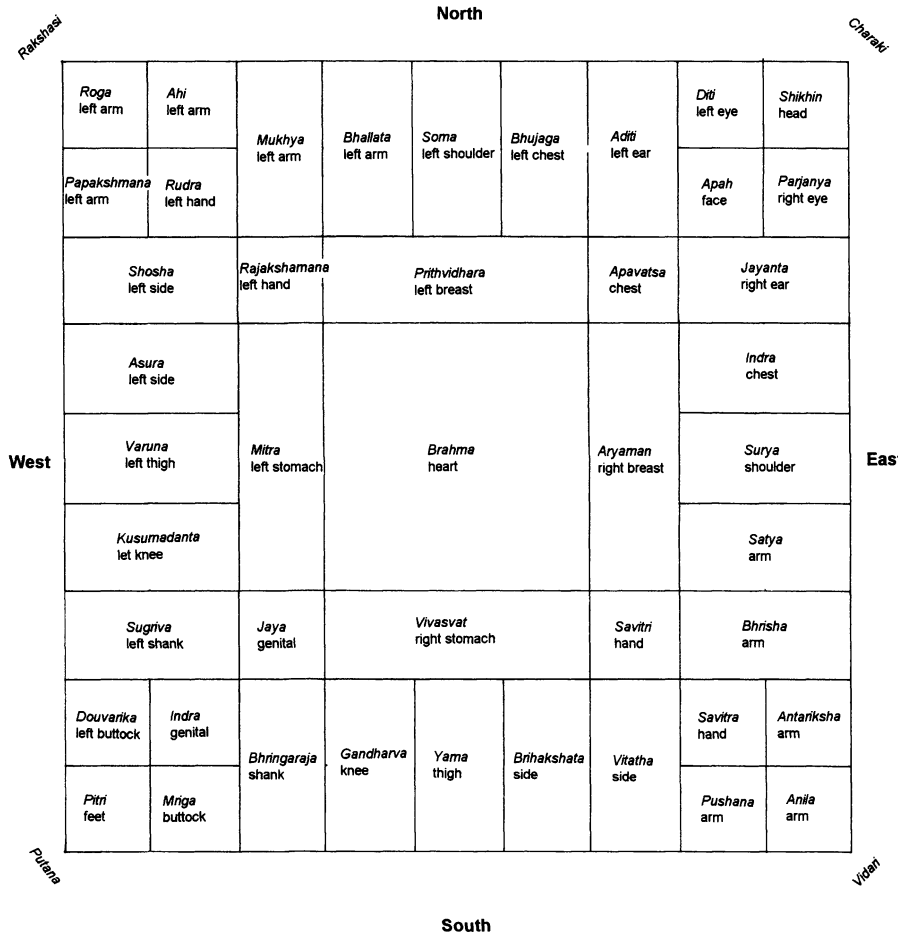

FIGURE 28a Paramashayika Mandala after *Brihat Samhita* (Author)

the centre is the divine creator; ***P**rithvidhara* or ***B**hudhara* is the king of the serpent race, and upholder of the earth from below; ***A**ryaman* is one of the *Adityas*,[16] the eternal sustainers of the luminous – the sun, the moon, the stars, the dawn, the day – and also rules the lunar asterism of *Uttaraphalguni*; ***V**ivasvan* is the Sun God, but also *Mrityu* or death; ***M**itra* is one of the *Adityas*, and rules the lunar asterism of *Anuradha*; ***A**pa* is *Himalaya*; ***A**pavtasa* is the daughter of *Himalaya* and the consort of *Shiva*, *Uma*; ***S**avitri*, the holy verse of the *Veda* is mother *Gayatri*; ***S**avitra* or ***S**avita* is

16 The number of *Aditya* has grown from the six of the *Veda- Mitra, Aryaman, Bhaga, Varuna, Daksha* and *Ansha* (sometimes *Indra, Dhatri* and *Savitri* are included) to the present twelve named mainly after the sun representing the sun in the twelve months of the year. Dowson, J., *Hindu Mythology and Religon*, 1991 p4.

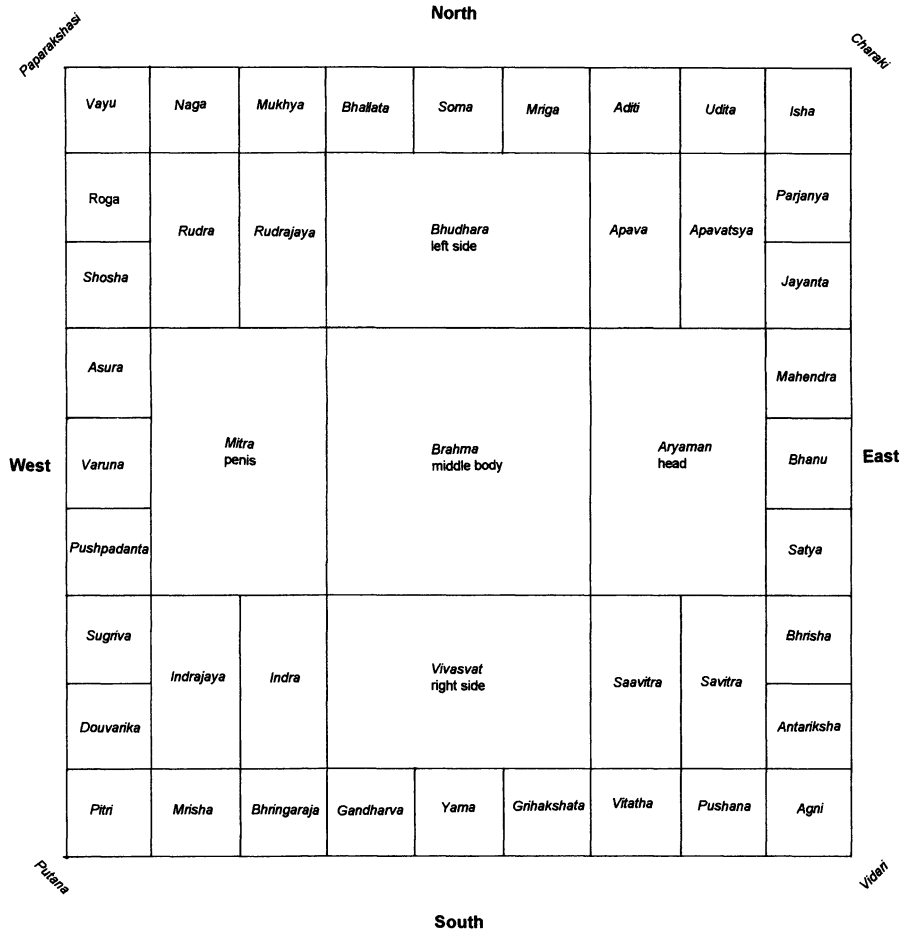

FIGURE 28b Paramashayika Mandala after *Manasara* (Author)

one of the *Adityas*, the name for the Sun and goddess *Ganga*; ***I**ndra* is *Hari* or Lord *Vishnu*; ***J**aya* is the son of *Indra*; ***R**udra* is the God of storms, the vital breaths, Lord *Shiva*; ***R**udrajaya* or ***R**ajayakshama* is the son of *Shiva*, God of war, *Kartikeya*.

Turning to the thirty-two divinities arranged on the boundary of the *Mandala*, and starting from the north-east corner, ***I**sha* or *Ishana*, is a name for *Shiva*, (*Ishana* is also a form and name of ***A**gni*, and ***S**hikhin* is *Agni*); ***P**arjanya* is the rain personified, and also an *Aditya*; ***J**ayanta* or ***J**aya* is the son of *Indra*; ***I**ndra* is the guardian of the eastern quarter, the personified atmosphere, the ruling divinity of the lunar asterism of *Jayeshtha*, also called ***M**ahendra*; ***A**ditya*, ***S**urya*, ***R**avi*, and ***B**hanu* are the names of the Sun God, who rules the eastern direction, and *Surya* is the ruling divinity of the lunar

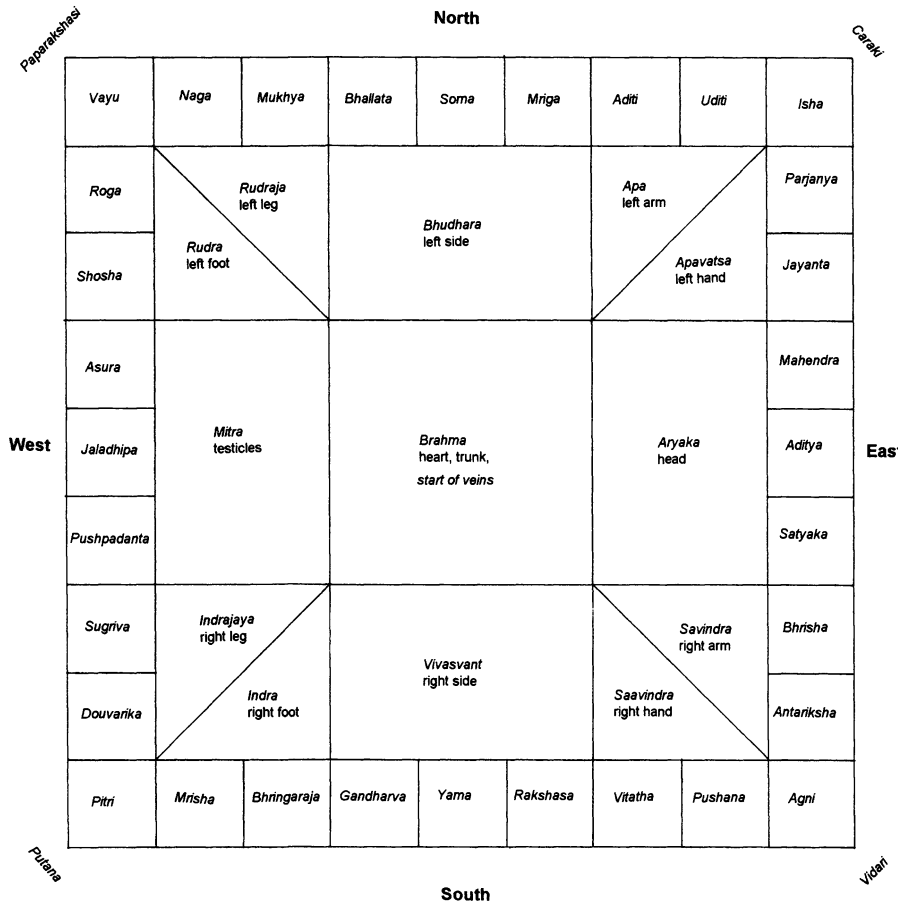

FIGURE 28c Paramashayika Mandala after *Mayamata* (Author)

asterism of *Hasta*; ***S**atya* is *Dharma*, the harbinger of good, a personification of religion and morals, the absolute truth; ***B**hrisha* is *Kama Deva*, the God of desire; ***A**ntariksha* or ***N**abha* or ***A**kasha* is the sky.

On the southern boundary: ***A**gni* is the personification of Fire, the father of ***A**nala* or fire is ***A**nila*[17] or *Vayu* or wind, and *Agni* is the ruling divinity of the lunar asterism of *Krittika*, and the guardian of the southeastern quarter; ***P**usha* or ***P**ushana* is the nourisher, the *Matrigana* or the group of the divine mothers, and is also the ruling divinity of the lunar asterism *Revati*; ***V**itatha* is *Adharma*, the negation of *Dharma,* personification of unrighteousness; ***G**rihakshata* is *Budha* or Mercury,[18] and is sometimes

17 *Anila* is the south-eastern divinity in *Samarangana Sutradhara* XIV.1–14 and *Brihat Samhita* LIII.43–50.

18 *Budha* or Mercury here is the mythological personification of the dark bodied son of *Soma*, the moon. *Budha*, the planet, gaurds the northern direction. See Ch.IV.Orientation.

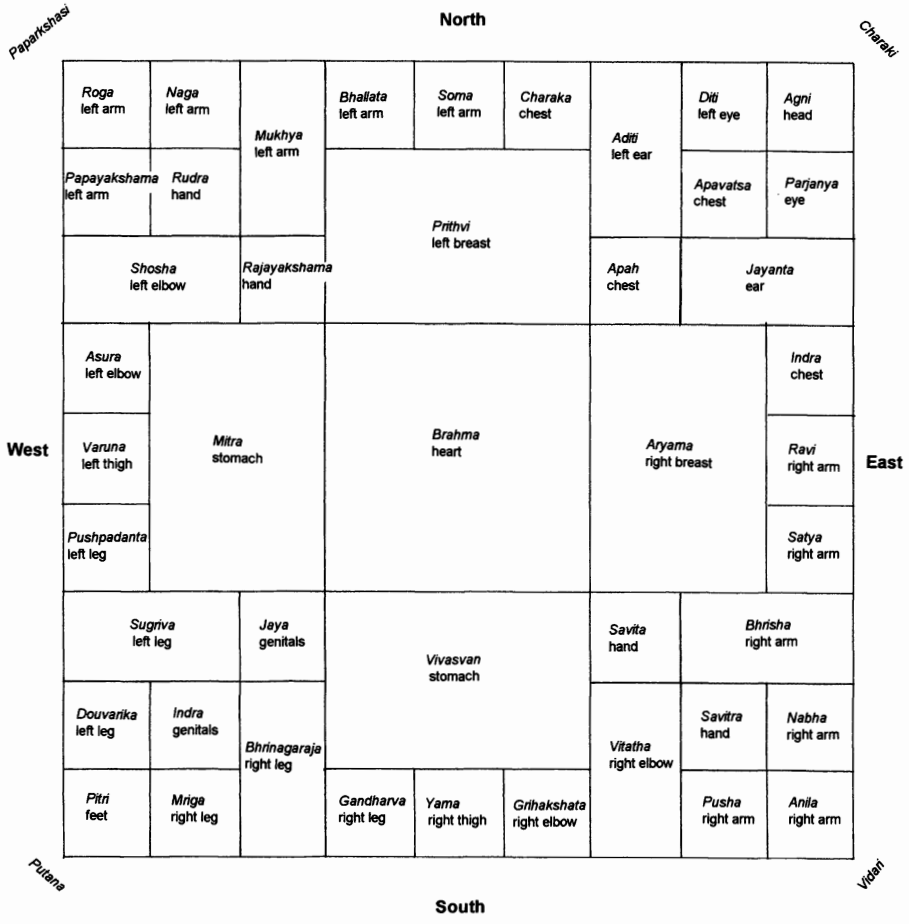

FIGURE 28d Paramashayika Mandala after *Samarangana Sutradhara* (Author)

replaced by ***R**akshasa*[19] or demon; ***Y**ama* is the god of death, the guardian of the southern quarter, and the ruling divinity of the lunar asterism of *Bharani*; ***G**andharva* is *Narada*, the chief heavenly musician and the messenger between gods and men, who is also known for promoting misunderstanding between them; ***B**hringaraja* is the son of *Nirritti* or destruction; ***M**riga* is the *Ananta* or the timeless, the *Swayambhu* or the self born, sometimes replaced by ***M**risha*;[20] ***P**itri* are the Fathers and ancestors, and also the ruling divinity of the lunar asterism of *Magha*, or *Niritti*[21] the guardian of the south-western quarter denoting destruction and exit from life.

19 *Mayamata* VII.33–41.

20 *Ibid*; *Manasara* VII.142.

21 The southwestern corner is referred to as *Pitri Kona* or corner, and *Nairitti Kona* or the corner of *Niritti*.

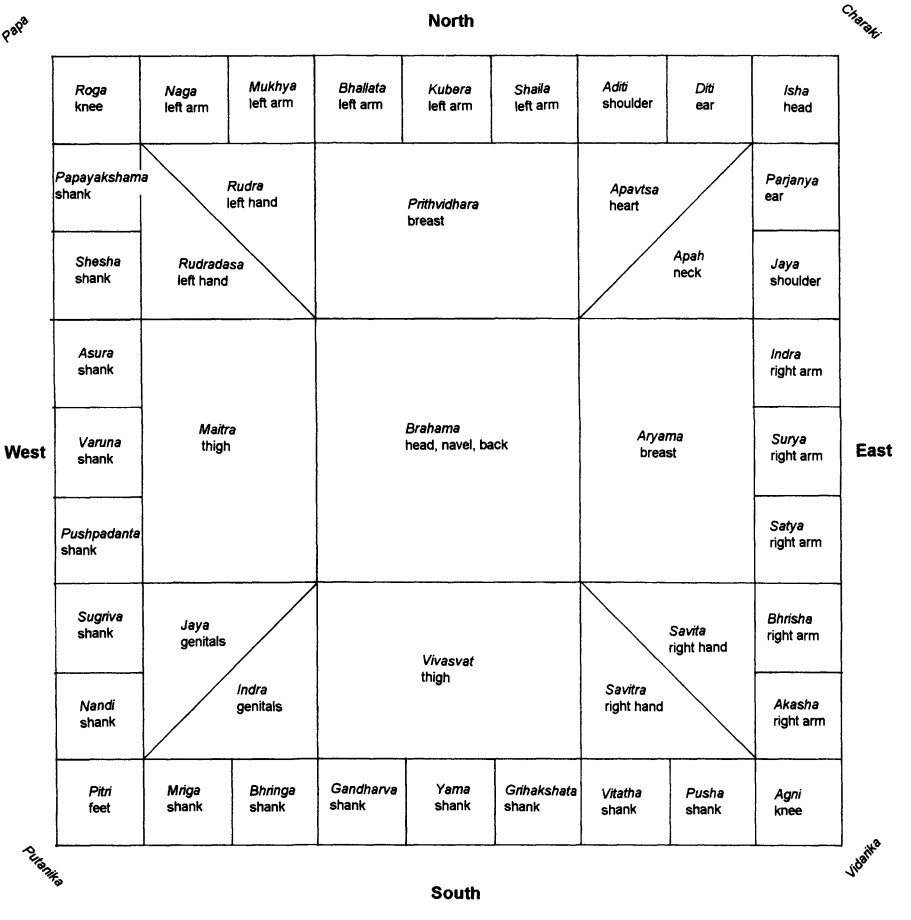

FIGURE 28e Paramashayika Mandala after *Rajavallabha* (Author)

On the western boundary: ***D**ouvarika* is *Nandi*, the bull of *Shiva*; ***S**ugriva* is *Manu*, the progenitor of Mankind, son of ***V**ivasvan*; ***P**ushpadanta*, the flower-tusked, is one of the chief attendants of *Shiva*, and as *Garuda*, the vehicle of *Vishnu*; ***V**aruna* is the god of seas and rivers, the guardian of the western quarter, and ruling divinity of the lunar asterism of *Shatabhisaj*; ***A**sura* is the demon who swallowed the sun and the moon, *Rahu*;[22] ***S**hosha* is *Shanishchara*, the son of Sun, possessing saturnine quality; ***P**apayakshama* is *Kshaya* or the personified destruction by consumption; ***R**oga* is Jvara or fever, and is sometimes replaced by ***V**ayu*[23] or wind, which is the guardian

22 *Rahu* is also one of the planets, king of meteors and the gaurdian of the southwestern quarter.
23 *Mayamata* VII.33–41; *Manasara* VII.149.

of the north-western quarter and the ruling divinity of the lunar asterism of *Svati*.

On the northern boundary: ***N**aga* is *Vasuki*, the king of serpents, and the ruling divinity of the lunar asterism of *Ashlesha*; ***M**ukhya* is *Vishvakarma*, who imparts generative power, and rules the lunar asterism of *Chitra*; ***B**hallata* is *Chandra* or moon, who is the ruling divinity of the lunar asterism of *Mrigashira*; ***S**oma*, who is moon, here is ***K**ubera*, the protector of wealth and the guardian of the northern quarter; ***M**riga* or ***S**haila* is the deer-complexioned one, and in *Samarangana Sutradhara* is replaced by ***C**haraka* described as *Vyavasaya* or occupation; ***A**diti* or the boundless is *Lakshmi*, the goddess of abundance, and rules the lunar asterism of *Punarvasu*; ***D**iti* the bound, is a complementary association of ***A**diti*, and is sometimes replaced by ***U**dita*,[24] who is *Shankara* or *Shiva*.

The outer divinities are *Caraki* in the north-east, *Vidari* in the south-east, *Putana* in the south-west, and *Paparakshasi* in the north-west, and are located outside the Mandala at its corners like pegs stretching the *Mandala*.

The *Chandita* or *Manduka* of sixty-four squares and the *Paramshayika* of eighty-one are of prime significance, not only because of their prescribed application in the construction of houses,[25] but also because the subsequent types adhere to the same number and layout of the divinities, differing only in terms of the number of plots allocated to each divinity. For example, in the *Mandala* of one hundred and forty-four squares, twenty-four plots are allocated to *Brahma*, eleven plots each to the four divinities adjacent to the sides (*Aryama, Vivasvat*, and so on), one and a half plots each to the eight divinities that occupy the adjacent corners, and two *Pada* or plots each to the divinities that border the *Mandala*.[26]

The suitable position of the door is decided in terms of the divinities that border the sixty-four square and the eighty-one square *Mandala*. The latter, however, is preferred due to a centered location of the guardians of the eight directions. A general rule of constructing the door in the sixth plot from the right corner of the front of the house,[27] derived from a detailed method of analysing the implications of the door position, is often adopted (see Table V).[28]

The flexible zone in the *Mandala* is between its border, fixed by the door positions, and its core defined by the plot of Brahma; and as the examples

24 *Samarangana Sutradhara* XIV.1–14; *Brihat Samhita* LIII. 43–50.

25 *Manasara* VII 71–75; *Rajavallabha* II.4; *Samarangana Sutradhara* XIV.3.

26 *Rajavallabha* II.15. The description of the *Mandala* of a hundred squares, one hundred and forty-four squares, and one hundred and sixty-nine squares, in *Rajavallabha* (II.10–16) is in terms of the number of plots allocated to *Brahma*; to the divinities adjacent to the sides like *Aryama, Vivasvat* and so on; to the divinities in the adjacent corners like the pairs of *Apavatsa* and *Apa, Savitra* and *Savita*, and so on; and the divinities that lie adjacent to the boundary.

27 *Vasturatnavali* VII.1.

28 *Brihat Samhita* LIII.71–75; also in *Vasturatnatnavali* VII.2–6, *Vasturatnakara* VIII.23–27.

TABLE V Door positions (The asterisks indicate the suitable positions)

EAST							
Shikhin danger from wind /fire	*Parjanya gain of women/birth of daughters	*Jayanta immense wealth	*Indra royal favour	Surya extreme wrath	Satya falsehood	Bhrisha cruelty	Antariksha theft
SOUTH							
Anila/Anala few children	Pusha slavery	Vitatha mean life	*Brihakshata increase of children and consumption	Yama fierceness	Gandharva ingratitude	Bhringaraja penury	Mriga destruction of power and children
WEST							
Pitri trouble to sons	Douvarika increase of enemies	Sugriva no acquisition of wealth or children	*Pushpadanta prosperity	*Varuna increase of wealth	Asura danger from king	Shosha loss of wealth	Papayakshama ill health
NORTH							
Roga death or imprisonment	Naga increase of enemies	*Mukhya influx of wealth	*Bhallata possession of virtues	*Soma children and wealth	Bhujaga enmity with son	Aditi flaw in wife	Diti poverty

(Figures 28a-e) from various texts indicate, the variations, as well as the deviations, occur in the middle band.

The eighty-one square *Paramashayika Mandala* is, as it were, an expanded representation of a fundamental spatial expression of the eight cardinal directions. The regents of the eight directions namely north-east, east, south-east, south, south-west, west, north-west and north, are also the divinities that occupy the peripheral plots that occur on the eight axes of the *Mandala*: the Sun in the east; *Agni* or fire in the south-east; *Yama* or the God of death, in the south; *Pitri* or the ancestors in the south-west; *Varuna* in the west; *Vayu* or wind in the north-west; *Kubera* in the north; and *Isha* in the north-east. These are the *Dishapati* or the rulers of the directions. The divinities holding plots adjacent to the guardians of directions, possess related attributes of the regents themselves. One of the reasons given for preference of the eighty-one square *Mandala* over the sixty-four square *Mandala*, is that the regents of the eight directions occupy the plots that are centred on the axes of the *Mandala*[29] (compare Figures 27 and 28a). If the 9×9 *Mandala* is viewed as a detailed version of the 3×3 *Mandala*, then each of its eight squares are 'led' by the rulers of the eight cardinal directions, and each one-third division is an exact reflection of its larger whole in terms of the directional associations.

In the process of allocation of plots to the various divinities, the mind traverses spirally from the centre to the periphery of the *Mandala*, following a circumambulatory path[30] as "it is known that the order for awarding of places is in accordance with the pradaksina".[31] This systematic pattern aids in establishing a mental record of the position of forty-five deities, which with a random allotment would be difficult.

The ritual process of the allocation of the divinities on the *Mandala* (conducted in three stages from the inner, to the middle to peripheral plots, on a grid of squares constructed by lines that run from east to west and north to south) conjures up a duality in the perception of the *Mandala* -- as a grid of squares and as a division of the square in three concentric zones. Architecturally, this duality is exercised in the planning of a town, for example. For a town site of greater length than breadth, the *Paramashayika Mandala* of eighty-one squares is used to divide the site into four concentric zones (Figure 29). The central nine plots are of *Brahma*, the sixteen plots that surround it are *Daivika* or of Gods, twenty-four plots surrounding *Daivika* are known as *Manusha* or of Man, and the peripheral

29 *Rajavallabha* V.25.

30 All representative texts follow the identical stages of allocation of plots to the divinities, starting from the centre to the periphery, in either two rounds of twelve inner and thirty-two outer dieties, or three rounds of inner, intermediary and outer plots of divinities.

31 *Mayamata* VII.48.

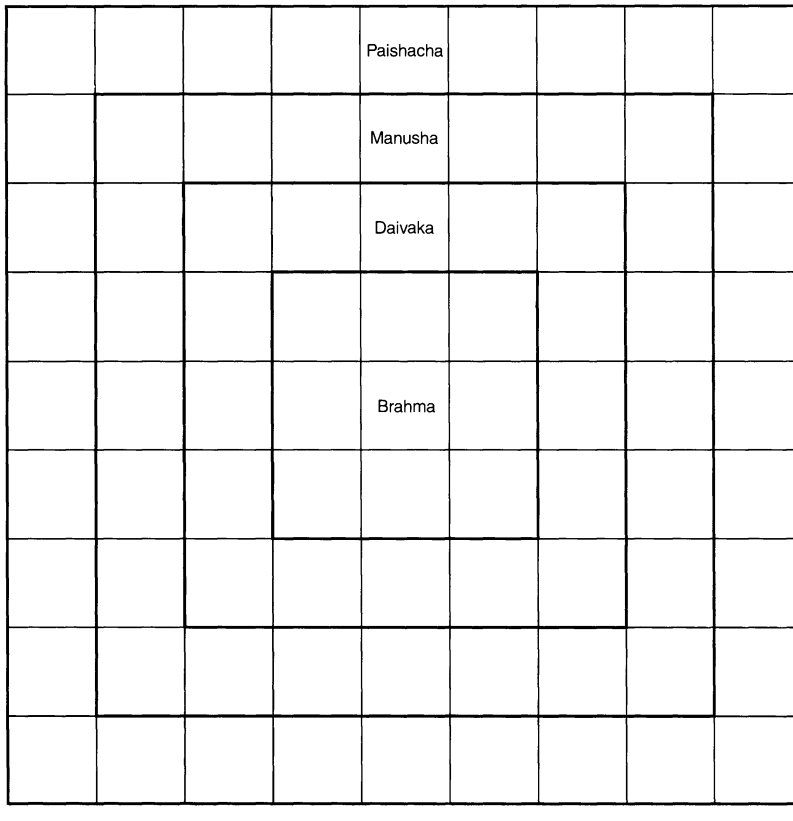

FIGURE 29 Concentric divisions of the Paramashayika Mandala (Author)

zone surrounding *Manusha* are the thirty-two plots known as *Paishacha* or of Demons.[32]

A living illustration of this is observed in the traditional houses of the climatically diverse regions of Kerala and Rajasthan.[33] Kerala, where the hot and humid climate necessitates light and airy construction to promote ample air circulation, the large outer and inner verandas planned concentrically around a central courtyard are an innovative regional variation within the broader frame work of *Vastu Vidya*. Another is the *Haveli* of Rajasthan, where temperature is generally hot and conditions arid. Here the hostile hot wind and the scorching sun are shut off by heavy construction with minimum openings in the outer shell of about two feet thick walls. Here the planning echoes the square grid of the *Mandala*.

32 *Manasara* IX.174–177.
33 Based on primary site surveys.

The significance of the divinities is explained in terms of their mythological connotation,[34] and the relationship of the divinities that occupy the peripheral plots to the *Nakshatra* or lunar asterisms. Though there is a similarity between the deities that govern the lunar asterism with the divinities on the *Mandala*, the number of *Nakshatra* are twenty-seven, and the peripheral divinities are thirty-two in all. This is theoretically resolved by repetition of *Vishakha* thrice, and *Revati*, *Bharani* and *Ashvini* twice each, to arrive at eight lunar asterisms corresponding with eight peripheral divinities in each of the four cardinal directions.[35]

Another interpretation is in terms of a 'scientific' rationale that relates the divinities on the plot to the radiant energy of the sun. This theory asserts that the Indian sages "had the knowledge of the decomposition of solar white light into the visible and invisible spectral regions . . . . The visible spectrum had distinctive names with specific functions; the present day science has the seven divisions which are distinguished by colour only. Western science has no parallel with the changes which these seven rays undergo during diurnal motion of the Sun at its several periods",[36] and this spectrum is expressed as divinities on the *Vastu Purusha Mandala*.

The divinities allocated on the grid of the *Mandala* provide a notation to each plot which bear symbolic and mythological references, accentuated by the ritual ceremonies conducted at commencement and completion of construction. The divinities are propitiated by the offerings unique to each. Each subdivision of the site is codified by a deity, the implication and meaning of which the practitioners recognise, understand and implement. The layers of meanings both in terms of its ritual import as well as its architectural bearing, is common knowledge to its practitioners, whether the usage is a ritual ceremony conducted by a priest, or an architectural planning principle adopted by the designer, and "Just as words were an inappropriate notation for discussing shape, drawing or diagrams would probably be inappropriate for a discussion of meaning and purposes".[37] The usage of a highly organised and developed professional vocabulary is indicative "not only of the need for a specialised vocabulary, but also of the existence of an intellectual content in that profession's process."[38]

So, if the prescription recommends the *Naga* quarter for building the granary,[39] the designer would associate it with the north-western direction and also would be able to derive the approximate proportions it would adopt. Having divided the site by the grid, each plot is cognized by the

34 See Kramrisch, Stella, *Hindu Temple*, part II and III.
35 *Ibid.* pp32–34.
36 Mankad, P.A., in the introduction to *Aparajitaprccha of Bhuvanadeva*, Baroda, 1950. pXIV.
37 Wade, John, *Architecture, Problems and Purposes*, 1977 p254.
38 *Ibid.* p283.
39 *Manasara* XXXVI.70.

propitiatory offering made during the ritual that follows; for example, grains offered to *Naga* possess a symbolic and a ritualistic meaning leading towards its functional significance. Similarly, *Vivasvat* is offered Ghee, and the plot it occupies is the zone for building a study; *Isha* is offered Ghee and cooked rice, and is the plot for building a temple in the house.[40] This *Vastu Puja* ritual is followed during the consecration of the site, digging, conceptualising the design, on entering the house, and planning of towns, villages, temples and palaces, and before the commencement of any type of architectural work.[41]

The Body

Further fortifying this mental imagery is the relationship of the deities to the corresponding parts of the body of the *Purusha*. The divinities keep the body of the *Purusha* pressed on to the ground (See Figures 28a-e, the parts of the body are indicated in the drawings). According to the mythology, the *Purusha* who possessed great strength and posed a threat of destruction, is contained by the Gods, who keep him pressed on to the earth.[42] The head of the *Purusha* positioned in the north-east is ruled by *Brahma* (as *Isha*); his ears by *Parjanya* and *Diti*; neck by *Apah*; shoulders by *Jaya* and *Aditi*; breasts by *Aryama* and *Bhudhara*; right arm by *Indra, Surya, Satya, Bhrisha* and *Akasha*; left arm by *Naga, Mukhya, Bhallata, Kubera,* and *Shaila*; right forearm by *Savitra* and *Savita*; left forearm by *Rudra* and *Rudradasa*; thighs by *Vivasvat* and *Maitra*; navel and back by *Brahma*; genitals by *Indra* and *Jaya*; knees by *Vanhi* or Agni and *Roga*; right shank by *Pusha, Vitatha, Grihakshata, Yama, Gandharva, Bhringa* and *Mriga*; left shank by *Nandi, Sugriva, Pushpadanta, Varuna, Asura, Shesha* and *Papakshama*; feet by *Pitri*.[43]

The *Purusha* lies on the site with his head facing downwards, and it is considered "dangerous" to place the *Purusha* facing upwards.[44] The reversed position of the *Purusha* facing the ground apart from its mythological connotation, seeks to establish an anthropomorphic

40 *Rajavallabha* II.28,33 and V.44. All texts on *Vastu Vidya* prescribe the ritual emphatcally.

41 *Samarangana Sutradhara* XVIII.27–28.

42 Various versions of the mythology are collated in Kramrisch,Stella, *The Hindu Temple*, Vol.I. pp 73–78. Also in *Rajavallabha* II.1.

43 *Rajavallabha* II.5–6; Similarly also in *Samarangana Sutradhara* XVII.1–10; *Manasara* VIII.253–265; *Brihat Samhita* LIII.43–50; *Mayamata* VII.49–56. *Samarangana Sutradhara, Rajavallabha* and *Brihat Samhita* associate all the body-parts of the *Purusha* to all the plots on the *Mandala*, but in the description given by *Manasara* and *Mayamata*, the *Purusha* does not occupy the peripheral zone at all. The projected visual imagery of the *Purusha* in *Rajavallabha* is most specific and organised in its description.

44 *Manasara* XXXV.189–190.

correspondence with the body of the practitioner, who looks down at the site and conducts the ritual of building facing east – in alignment with the *Purusha*. This facilitates the association of the right and the left sides of the *Purusha* to that of the practitioner.

The established association of the parts of the body of the *Purusha* to the divinities on the *Mandala* is similar to the allocation of the *Nakshatra* on the *Nakshatra Purusha*, and *Rashi* on the *Rashi Purusha*, with a significant difference that the *Purusha* here performs an architectural function too. The correlation of the functions allocated to the various plots of the *Mandala* with the nature of the body-part of the *Purusha* provides a rough zonal map that is easy to reckon and implement.[45] For example, the head is where a place of worship is located; the two legs bear the weight of the two principal ranges of the house on the southern and the western sides; the central plots of *Brahma*, the creator, is the navel of the *Purusha*, which is left open to sky symbolising the supremacy of *Brahma* and also the vulnerability of the navel, as "the navel being the centre of all the veins is one of the most delicate parts".[46] The construction process that at its various stages acknowledges the *Purusha* principle through the extensive ritual ceremonies, yields a design that not only responds to the parameters set out, but is the architectural translation of the principle itself. The house then becomes the body of the *Purusha* – its limbs are the limbs of the *Purusha*, its centre is the chief centre of the *Purusha*. Also, the householder identifies his own body with the body of the *Purusha*, as well as the 'body' of the house. This association is applied to detect any impurity or defect the house may possess, and "If at the time of query, the owner of the house scratches a limb, it should be understood that the corresponding part of the house (in contact with the limbs of the Vastu-purusa) has some affliction or hurt".[47]

A flaw in any part of the house would result in an infliction to the corresponding body-part of the householder,[48] and "the wise must avoid tormenting His limbs with the 'limbs' of the house, if not, sorrows innumerable will fall upon the limbs of the owner of the house."[49]

The comparative study of the *Vastu Vidya* texts reveals varying efforts towards defining the form of the *Purusha* to be reproduced graphically – to explain in exact terms of a drawing the position of the *Purusha* on the *Mandala*. From a complete absence of any graphic description of the *Purusha* on the *Mandala*,[50] to its description as a "hump backed, crooked

45 See Ch.IV Orientation.
46 Vatsyayan, Kapila ed., *Kalatattvakosa* p35.
47 *Brihat Samhita* LIII.59; *Vishvakarma Prakasha* IV.28.
48 *Samarangana Sutradhara* XXXV.20-22.
49 *Mayamata* VII.55–56.
50 *Paushkara Samhita* (fifth century A.D.) in Apte, P.P., *Vastupurushamandala in the Paushkara Samhita and Brihat Samhita*, in K.K.A. Venkatachari ed., Agama and Shilpa, Bombay, 1984. pp132–148.

and lean"[51] figure, and its description in terms of right and left eyes, ears, arms, legs, laterally positioned on two sides of the diagonal of the square,[52] and finally to a specification of the position of the head, feet, and the points of conjuction of the elbows and the knees in relation to the four corners of the square,[53] in addition to the description of the position of the deities on the body parts – all this is a process leading to a certain kind of iconisation of a functional attribute and principle (Figure 30a). The popular imagery used today is graphically most articulate (Figure 30d).

The Lines

The principle of the *Purusha* is enveloped in lines that stretch from east to west and north to south and diagonally joining the corners. The *Purusha* and the *Mandala* are inseparable – its body parts are the plots of the *Mandala*, and the lines that define the plots are its veins.[54] Each line is denoted by a name, for example in a *Paramashayika Mandala* of eighty-one squares, *Shanta, Yashovati, Kanta, Vishala, Pranavahini, Sati, Sumana, Nanda, Subhadra*, and *Susthita*, are the ten lines that extend from east to west, and *Hiranya, Suvrata, Lakshmi, Vibhuti, Vimala, Priya, Jaya, Kala, Vishoka* and *Indra* are the lines that extend from north to south.[55] The lines marked on the site and their points of intersection are of a prescribed thickness[56] and drawn in a clockwise order.[57]

The lines of the *Mandala* must not be covered by any material and their 'affliction' is forbidden.[58] The lines of the *Mandala* are a physical entity and the prescription of keeping them unobstructed renders them as a reference grid to be reckoned with during the construction process, and afterwards for prospective alterations and extensions to the building design.[59] Also, the lines of the *Mandala* that define each plot and the *Mandala* itself, are the physical boundary of what it holds within it. Subsequently, all construction is within the set boundaries, and their 'affliction' implies a negation of the limits set by it. As the Mandala is the interpreted site, its lines are a component of the site that hold within it the play of the built form.

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51 *Manasara* VII.263–265.
52 *Samarangana Sutradhara* XVII.1–20.
53 *Rajavallabha* II.2.
54 *Vishvakarma Prakasha* IV.18–21,22–24; Agni Purana CV.2–4; in *Samarangana Sutradhara* XV.21–33, the border lines and the orthogonals are referred to as the *Mahavamsha* or the great backbone, and *Vamsha* or the backbone of the *Purusha*.
55 *Vishvakarma Prakasha* IV.18–21.
56 *Brihat Samhita* LIII.65; *Samarangana Sutradhara* XV.21–36.
57 *Brihat Samhita* LIII.104.
58 *Samarangana Sutradhara* XV.33–36.
59 Pillai, G.K., *The Ways of the Silpis*, 1948 p234.

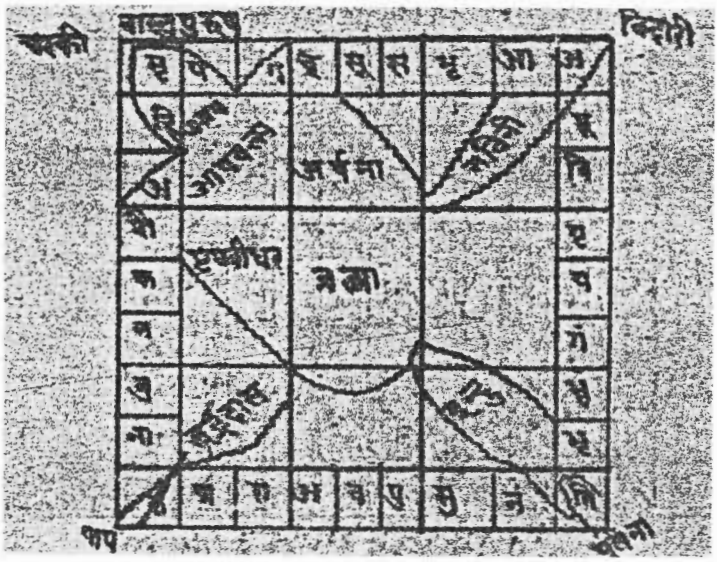

FIGURE 30a The graphic imagery of the Purusha (*Rajavallabha*, 1911)

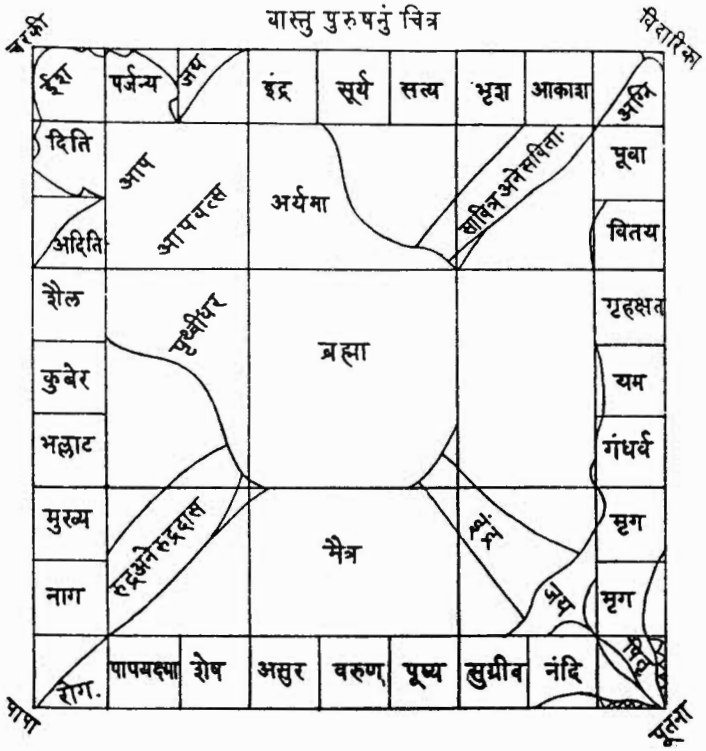

FIGURE 30b The graphic imagery of the Purusha (*Rajavallabha*, 1911)

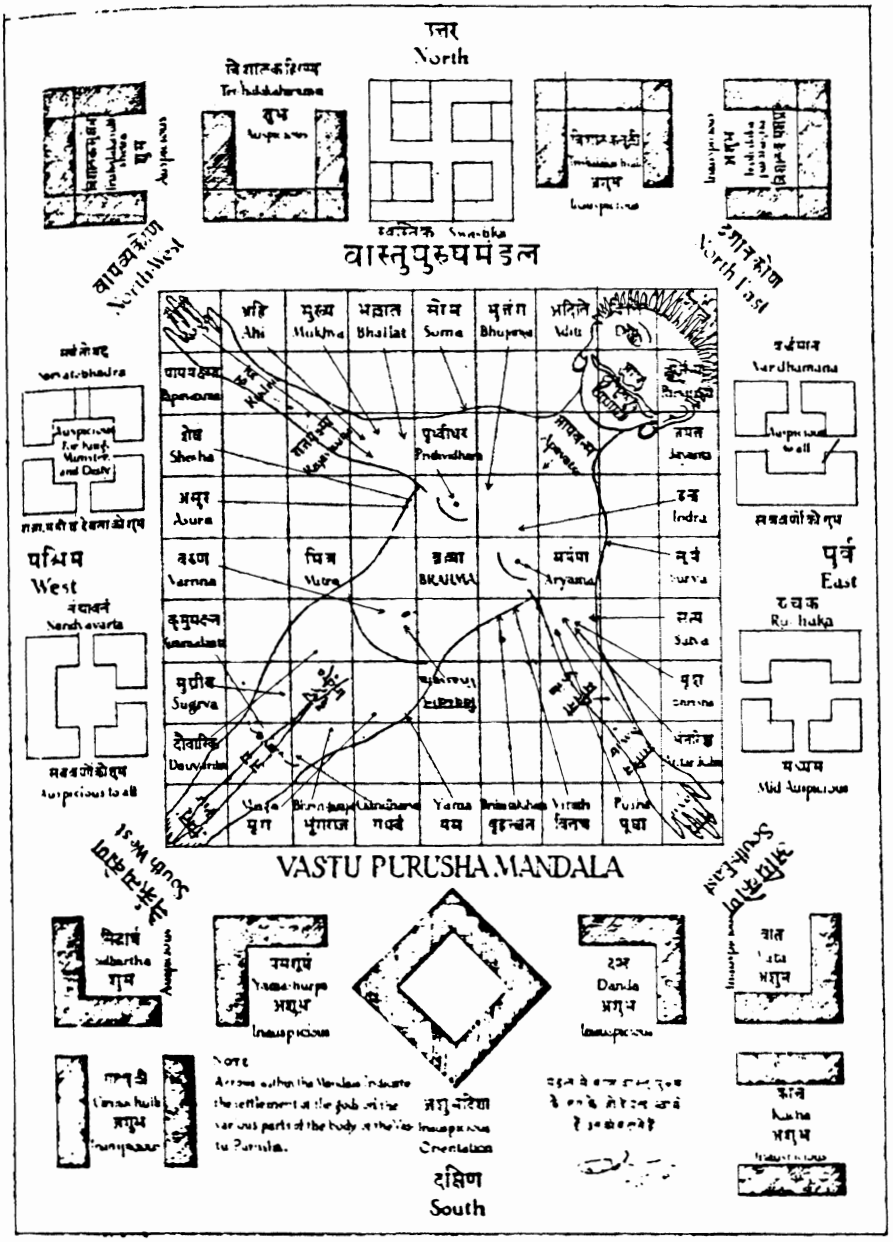

FIGURE 30c The graphic imagery of the Purusha (*Dhama*, 1962)

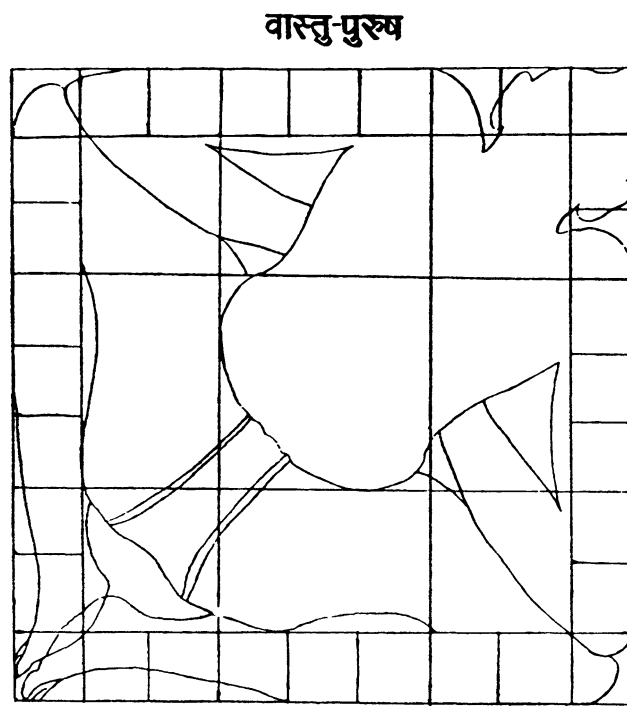

FIGURE 30d The graphic imagery of the Purusha (*Shukla*, 1965)

The central points of the plots that occupy the face, head, heart, two breasts, and navel are the *Marma Sthana* or the vulnerable spots of the *Purusha*, and their 'affliction' of any kind should be avoided.[60] The *Marma Sthana* according to *Ayurveda* are those vulnerable parts of the body which should not be operated upon.[61] However, the *Mahamarma* or the most vulnerable spot is the navel, where the two main diagonals intersect each other in the plot of *Brahma*, the centre of the house.[62] The location of the most vulnerable spot is articulated in various ways: as the four plots around the intersection of the two diagonals of the site divided into sixty-four squares;[63] as the central plots of *Brahma*;[64] or as the nine points of intersection of the diagonals connecting the plot of *Roga* and *Anala*, *Pitri* and *Shikhin*, *Shosha* and *Vitatha*, *Mukhya* and *Bhrisha*, *Jayanta* and *Bhringaraja*, and *Aditi* and *Sugriva* in the *Mandala* of eighty one squares[65] (Figure 28a), where all these nine points are within the central plot of *Brahma*. Therefore

60 *Samarangana Sutradhara* XVI.6–7.
61 Wise, T.A., *Hindu System of Medicine*, 1860 p69.
62 *Ibid.*XVI.11–23.
63 *Rajavallabha* II.19.
64 *Vishvakarma Prakasha* V.27.
65 *Brihat Samhita* LIII.63–64.

the most vulnerable area is the plot of *Brahma* as "in the centre of the site are found the vulnerable points and the heart which is *Brahma* and it is from there that the veins start."[66]

Contemporary Application

To the 'modern' architect[67] in search of his Indian identity, the *Vastu Purusha Mandala* seems to be the most popular solution that satisfies the urge to 'root' the building in tradition. The conscious evasion of the usage of traditional motifs, expressing the strong dislike of visual pastiche,[68] has led to another kind of pastiche: the conceptual one. The underlying principles of the *Vastu Purusha Mandala* are as foreign to the Indian architect as the parameters of design and architectural appreciation he employs. Yet the esoteric complexity of *Vastu Vidya* has a 'magical' appeal that provides a convenient way to theoretically root the design in tradition, whilst also aborting its usage by limiting it to a grid, so that the visual label of 'modernity' could be retained.

The endorsement of the 'magic' that the *Vastu Purusha Mandala* supposedly holds, originates from the very source that forms the basis of architectural education today – the parameters of the 'modern' West. For example, in one of the most elaborate and authoritative works on the exploration of the complex symbolism inherent in the concept of the *Vastu Purusha Mandala*, by Stella Kramrisch, the *Mandala* is referred to as a magic diagram.[69] This description, together with the impressive terminology used, is for an architect who wishes to learn about the Indian way of building, overwhelming bordering on being incomprehensible. The scholarly observation that "All existence is reflected in this magic square"[70] mystifies the myth which for its traditional practitioner is not separate from reality. For, say, a priest and a craftsman, the conviction in the system and the motivation behind its application are not due to its magical quality or the sense of wonderment in the complex mythological symbolism, but stem from the fundamentals of his education ingrained in his life style. The magical quality of the *Vastu Purusha Mandala* is an invention of an outside observation, which is almost non-existent for its practitioner.

At the other extreme (utilitarian as opposed to ethereal) is an interpretation and translation of the *Vastu Purusha Mandala*, as merely

66 *Mayamata* VII.54.

67 Only those projects of the contemporary architects in which there has been an application of *Vastu Purusha Mandala*, are discussed below to study its role today.

68 Tillotson, G.H.R., *The Tradition of Indian Architecture: Continuity, Controversy and Change since 1850*, Yale University Press, London, 1989. p136.

69 Kramrisch, Stella, *The Hindu Temple*, Vol.I, pp35,67.

70 Volwahsen, *Architecture of the World: India*, p44.

ground-plans. In order to establish the relevance of *Vastu Vidya* as a 'science' and to sustain parameters of judgement where "in the ultimate analysis a thing that fits in with its functions is beautiful, whether it is a human being or whether it is a house",[71] there arises the concept of the *Vastu Purusha Mandala* and its various types as ground plans and site plans.[72] This provides templates which have the dual potential of interpretation of old monuments and conceptualisation of the new. This epithet of ground plan blurs the difference between the plan of the house based on *Vastu Vidya* (which in reality may not be geometrically a perfect square grid), and the interpretation of any structural grid as *Vastu Purusha Mandala*, conjectured as based on a *Vastu Vidya* because of its geometric similarity with the textual 'ground plans'.

The *Vastu Purusha Mandala* has been employed by scholars for the geometric interpretation of monuments (Figure 31). They have shown ways of unearthing the *Mandala* underlying the design. Any apparent defiance of the uniformity and regularity of the grid pattern of the *Mandala* by the monument is attributed to its creative usage, and to site exigencies.[73] But the principle of the *Mandala* coexists with the other principles, of orientation, system of measurement, form, and so on, constituting the *Vastu Vidya* programme for architecture. The implementation operates through a projected mental imagery. Therefore, the adequacy of superimposing the geometry on the plan of the building in its post-mortem analysis to discern the usage of the entire programme is questionable. Nevertheless, the fundamental approach reveals one methodology for the interpretation of buildings.

The interpretation of the planning principles of Jaipur (Figure 31), suggests its architects' response to the site that could not accommodate all the nine squares of the *Mandala*.[74] The nine-square *Mandala*, and its precedental usage that justifies playing around with the squares, seems to have become synonymous with the usage of the *Vastu Purusha Mandala*, which in turn is synonymous with rooting the design in tradition. The architects today make emphatic suggestions about how they want the nine squares of their building design to be looked at, and how any deviation from the regularity is to be read – as it is one essential ingredient of Indian-ness.

One closely associated example of a contemporary building that draws upon the interpretation of Jaipur is the Jawahar Kala Kendra designed by

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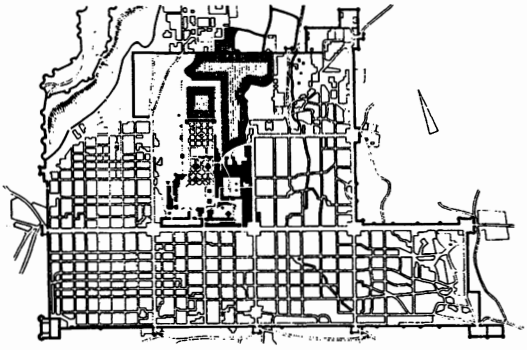
71 In the inaugural address by Jawaharlal Nehru, Prime Minister, at the first seminar on architecture after independence in March, 1959, where the issue of the formulation of a national policy on architecture was discussed by leading architects of the time. Published by Lalit Kala Akademi, New Delhi.

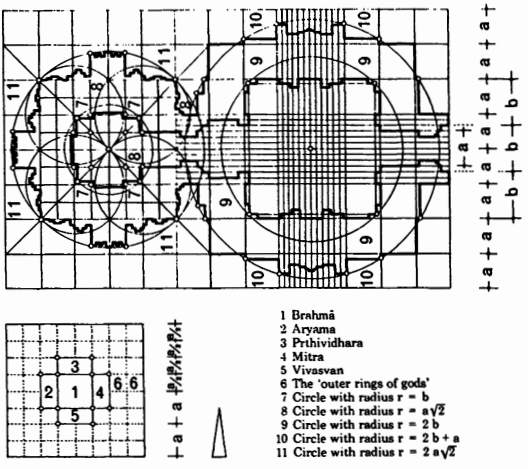
72 P.K. Acharya's translation of *Manasara* (VII); Bhattacharya, T.P., *The Canons of Indian Art*, 1986 p220; D.N. Shukla's translation of Samarangana Sutradhara (XVI), 1965.

73 Volwahsen, *Architecture of the World: India*, pp48–49.

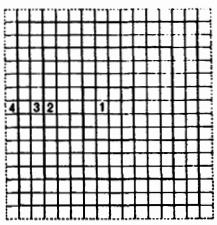
74 *Ibid.* p48.

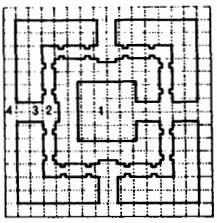
Plan of the city of Jaipur





The Brahmeshvara temple at Bhuvaneshvar, its grid and the proportions resulting from it.





1) Brahmā = 1) Sanctuary (garbha-griha) with interior pradakshinā-patha
2) Spheres of the gods = 2) Circumambulatory path (exterior pradakshinā-patha)
3) Sphere of humans = 3) Circuit wall
4) Sphere of demons = 4) Terrace

The south Indian padmagarbha-mandala and the cella at Tanjore have the same geometrical divisions

FIGURE 31 Geometric interpretations of the city of Jaipur and monuments (Volwahsen, 1969)

Charles Correa (1986). "Based on the *vastupurusha mandala* of the Vedic *shastras* where architecture is conceived as a model of the cosmos, the specific *mandala* invoked here is the *navagraha* consisting of nine squares."[75] The design of the arts centre is based on a broad grid of nine squares – but not the *Pitha Mandala* of nine squares where *Aditya* or the sun, *Agni* or fire, *Yama*, *Gagana* or the sky, *Varuna, Pavana* or wind, *Soma, Isha*, and *Prithvi* or earth occupy plots in the east, south-east, south, south-west, west, north-west, north, north-east, and centre respectively.[76] Correa's *Mandala* has the *Navagraha* or the nine planets – Jupiter, *Rahu*, Saturn, *Ketu*, Mercury, Moon, Mars, Venus, and Sun, respectively in the plots in the above directions (Figure 32). This is presumably because Vidyadhar, the architect of Jaipur, who was also a mathematician and an astronomer, is supposed to have "applied astronomical principles to the layout of his city".[77] However, there is no evident relationship of its square divisions to the nine planets, whereas in Correa's design, "Each square relates to a planet and each square contains functions relating to that planet".[78] The interpretation that the projecting eastern square in the layout of Jaipur is due to the hill that lies diagonally opposite in the north-west of its site, prompted Correa to shift the north-eastern square in his design.[79] And the architectural work of the reinvented *Mandala*, indeed of *Vastu Vidya*, stops here.

What takes over within the nine squares is the freedom to express the influence of Alvar Aalto, of Le Corbusier, of visual drama,[80] of 'modern' theatrics. For a craftsman from the old city of Jaipur, who also is one of the users, the building is intimidating, as it makes no concession to his sensibilities, nor celebrates his building skills. Other non-architect users, who are unable to decipher the imagery and the context of its usage are in awe of the stark exterior and labyrinthine interior.[81] The gap generated in the communication of architecture with its users is the difference between the vocabulary of the architect and that of its context. Without any accompanying explanation, it is difficult for any non-architect user to appreciate the plethora of symbolism employed in the design, which the architect contends "will presumably be apparent to observers of perception and sensibility".[82] Perhaps perception and sensibility conditioned by the modernist style of architecture, and not necessarily by any traditional

75 Grover, Satish, Jawahar Kala Kendra, Jaipur, *Architecture + Design*, Sept-Oct, 1991.p18.
76 *Manasara* VII.60.
77 Cruickshank, Dan, Variations and Traditions, *Architectural Review*, August, 1987. p57.
78 *Ibid.* Quotation of Charles Correa.
79 *Ibid.*
80 Grover, Satish, *Architecture+Design*, Sept.-Oct. 1991 p17.
81 Based on interviews on site with its users.
82 Charles Correa, in response to the question of the relation of the Jawahar Kala Kendra to India's traditional architecture, its plan to the Jaipur city, and to 'Vedic Navagriha Vastupurushamandala' (dt.13 January, 1992).

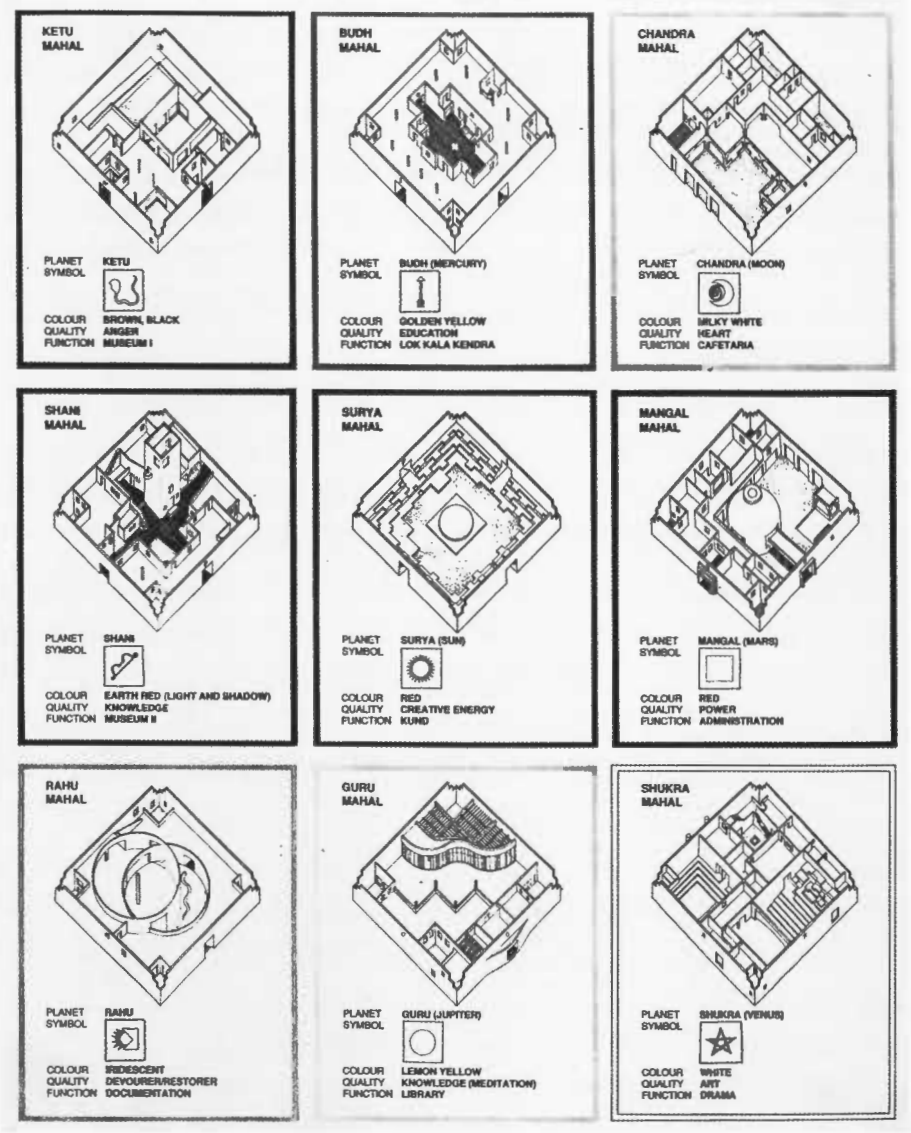


FIGURE 32 The nine squares in the design of Jawahar Kala Kendra (*A+D*, 1991)

architectural idiom, would be helpful. The "reinvention of the myth"[83] employed in the design makes the 'mundane' functional requirements attractive, as the architect understands that "The prosaic architecture we create today is not due just to the banality of the forms we construct but also to the mundane briefs we address".[84]

There are similar dichotomous concerns about 'modernity' and 'tradition' for B.V.Doshi, the architect of Vidyadhar Nagar, the satellite town for the city of Jaipur. He urges designers to "take examples of the known masters from the West and the East",[85] where at the very outset, the 'West' stands for 'modernity', and the 'East' for 'tradition'. This is even more evident in the design concept of Vidyadhar Nagar (1984, Figure 33), where an attempt is made towards a "synthesis of reformist urbanism of Le Corbusier with its emphasis on nature, circulation and hygiene – the 'essential joys' of light, space and greenery; . . . [and] the ancient urbanism of India with its tight streets, urban courts and mixed uses".[86] This implies that the examples from the building tradition of India are bereft of the "essential joys", and so it is this principle that needs to be expressed in the "new *Mandala* form that alluded to the recycling of the spiritual energies".[87] Inspired by the old city of Jaipur, Doshi based his plan on the very grid of nine squares that was adopted by his predecessor, Vidyadhar, for the older city. The study of the older city was reinterpreted in a modern vocabulary of lighting angles, social uses, dimensions, facades and so on; while an older vocabulary is used to address the mundane architectural components of the planning grid as a *Mandala*, tight street patterns as "ancient Indo Aryan practice as gleaned from reading of the scriptures", water as the source of life and energy resembling a *lingam* from a temple.[88] It is true that the "modern Indian architect needs a vocabulary to deal with contemporary realities",[89] but with the system of education that teaches the Western parameters of architectural appreciation, the usage of Indian vocabulary remains skin deep.

Another contemporary design which uses the *Vastu Purusha Mandala* to make references to the "Indian culture", is the Computer Science and Engineering Department (1994)[90] (Figure 34), at the Indian Institute of Technology, Bombay. The architect makes references to the *Vastu Purusha*

83 Charles Correa in Cruickshank, Dan, Variations and Traditions, *Architectural Review*, August, 1987. p57.
84 Correa, Charles, The Public, the Private and the Sacred, *Architecture + Design*, Sept-Oct, 1991.p95
85 From Doshi's diary dt.10/8/72, in Curtis,W., *Balakrishna Doshi: An Architecture for India*, 1988. p29.
86 *Ibid.* p44.
87 *Ibid.* p44.
88 *Ibid.* p146.
89 *Ibid.* p172 is from the author's postscript entitled:The Future of Indian Architecture.
90 The discussion of the building is based on the interview of its architect Sen Kapadia in Keswani,K., Focussing on Philosophy, *Indian Achitect and Builder*, November, 1994 pp14–23.

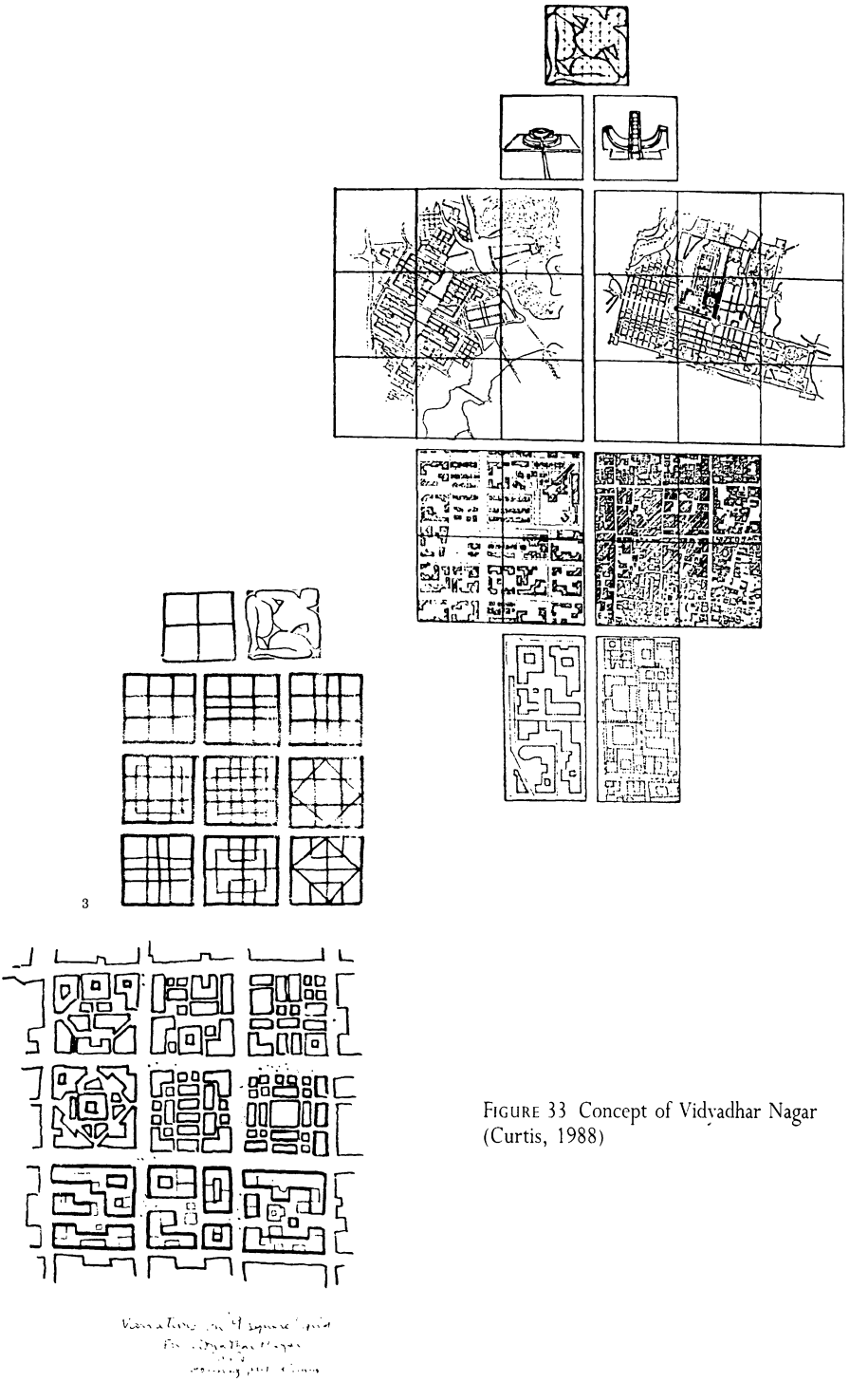


FIGURE 33 Concept of Vidyadhar Nagar (Curtis, 1988)

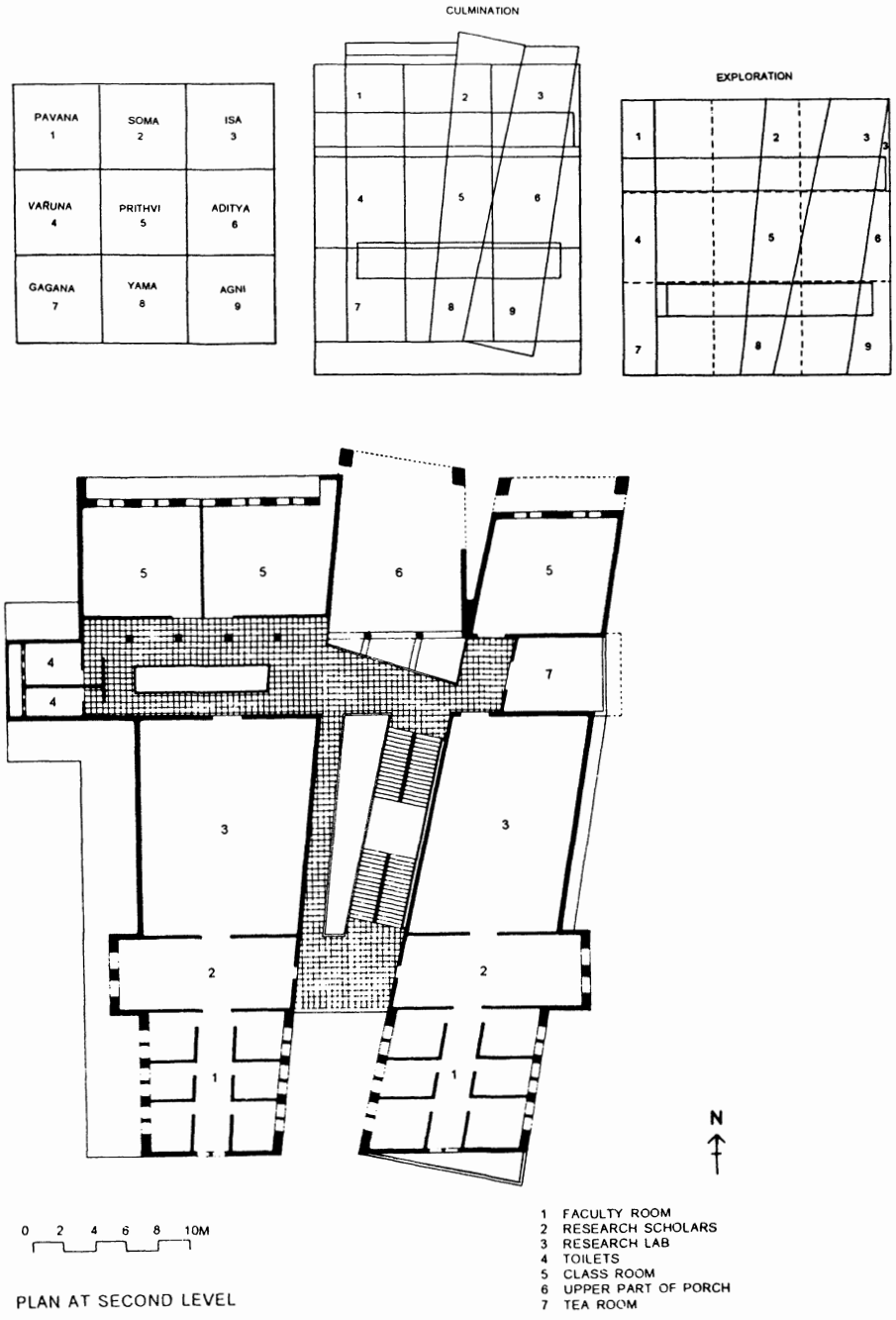


FIGURE 34 Play of the 3 × 3 Mandala, IIT, Bombay (*Indian Architect and Builder*, 1994)

Mandala as the diagram of nine squares representing cosmic elements. His nine squares are the plots of the divinities as in the *Pitha Mandala*, but like Correa's *Mandala* is called the *Navgraha* or the nine planets. The southern boundary of the building is reduced, and the northern facade is expanded to induce air flow -"an invitation to *Vayu*", and also to let in ample northern light which is the 'scientific' rationale behind a Gaumukhi[91] building. Consequently, "the plan expands beyond the dictates of the Navgriha, to add contemporary shifts."[92]

Here the intended link of the building to Indian culture is "not to make the building like a western architect would – a very polished, fine object seen from outside."[93] The architect feels that "in the West, they have the technology, the money and also the 'look at me' syndrome", which the Indians and their buildings don't. This resulted in an austere exterior, with colour and metal trusses in the interior to replace ornamentation, and to "lend special personality to static box-like rooms and allow building to become architecture."[94] The architect opposes any visual references of the "use of red stones and arches from Jaipur", as that would be "too literal a translation and no transition to modernity."[95]

The symbolic, spiritual, and the ritualistic roles of the *Vastu Purusha Mandala* are intrinsic to its principle but so are the potentials of the functional and architectural roles it possesses. In other words, the emphasis is on the secondary functions of the *Vastu Purusha Mandala*, at the expense of what in architectural terms must be its primary functions. The usage of the *Vastu Purusha Mandala* in the above examples, due to an absence of a significant link with the architectural expression followed by the architects, is a new kind of ritualism, where the *Mandala* has little to do with the derivation of the form and building elements. This ritual is incorporated in the design process without it interfering with the form. At this level, this usage is similar to the ritual of the *Vastu Puja* conducted, even today, throughout the length and the breadth of India, with great reverence at the commencement and completion of the building, irrespective of the type and vocabulary of the architectural envelope.

The *Vastu Purusha Mandala* used by D.K.Bubbar,[96] an architect based in Bombay, is the *Asana Mandala* of a hundred squares, on which he provides

91 See Chapter V. Site Considerations.

92 Sen Kapadia in Keswani,K., Focussing on Philosophy, *Indian Architect and Builder*, November, 1994. p18.

93 *Ibid.* p20.

94 *Ibid.* p19.

95 *Ibid.* p20.

96 The following discussion is based on Amaral,O., Oh! Sacrosant Space, *Indian Express*, Bombay, May 31, 1994, which is an interview of the architect, and the partcipation in the five days workshop entitled 'The Vedic Wisdom in Architecture', organised by the School of Planning and Architecture, New Delhi, 6–10 March, 1995, where the architect was its chief conductor.

the imagery of the hump backed, crooked and lean posture of the *Purusha*, the presiding spirit (Figure 35). The nine *Marma Sthana* is derived by the intersection of the six diagonals as prescribed in *Brihat Samhita*,[97] where the context of the description is the eighty-one square *Mandala*. Consequently, the diagonals of his *Mandala* are not parallel to each other, and all the nine vulnerable points are not located within the plot of *Brahma*, as compared to the general norm. These nine points are at the head, penis, stomach, both the knees, one of the thighs, heart, and both shoulders of the *Purusha*, which also explains the particular image of the *Purusha* on this "corrected" version of the *Mandala*. Describing the *Purusha* as "the presiding spirit, which lies in a particular bent posture, creating 9 Marma Sthalas (nerve points) which must not be tormented",[98] the concept of the *Brahmasthana* and its architectural translation as a courtyard, is replaced by the idea of protecting these nine points around which the internal walls of the building could meander. Although it could be conjectured that the use of the hundred square *Mandala* helps negotiate the decimal system of measurement prevalent today, it is used along with "the help of Chinese thought" for the spatial orientation of functions, and the "system of Bauhaus" for the design of what he calls the physical part or architecture, as in his view, "buildings/Architecture belongs to the era – the present, and the spaces to tradition."[99] His distinction between the treatment of space and its container as two separate entities allow his buildings to be visually modern – in line with his contemporaries.

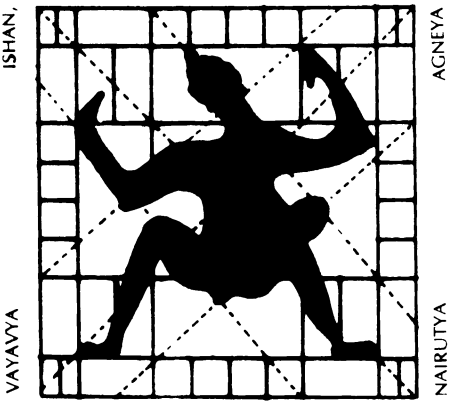


FIGURE 35 Reinventing the Mandala (*Indian Express*)

97 Discussed above.
98 Amaral., Odelle, Oh! Sacrosanct Space, *Indian Express*, May 31, 1994.
99 *Ibid.*

Another issue hampering an unrestricted attempt at exploring the contemporarisation of the *Vastu Vidya* programme of architecture, is the question of its 'scientific' validity. This is primarily due to the nature of its fragmentary application and its significance removed from its architectural consequence. Today, when the traditional world view is being challenged or explained in terms of a scientific one, the acceptance of the building principles seems to rest on their scientific validity, as explained by a leading Delhi-based architect, S.K.Das – "When I design a building, I have a certain reasoning, an ideology. Why should I disturb it with *Vastu* ideas which are not well-reasoned and are unscientific?".[100] The veneer of respectability and purpose that a scientific explanation provides to the age-old system, legitimises its usage by raising it on the pedestal of modernity. Prabhat Poddar, an architect and a geobiologist at Pondicherry, believes that "All ancient cultures had developed an understanding and knowledge of the subtle effects of various energy fields and incorporated these into their structures and buildings which survive today, and whose study help us rediscover this ancient knowledge, and more important, its application – the *raison d'etre* for these ancient architectural practices".[101] Based on the measurement of the positive and negative energy radiations, he proposes ways and means of harmonising and neutralising them. Even the choice of the suitable *Mandala* could be based on the energy field measurements of the nine *Marma Sthana*, which varies with the number of square subdivisions of the site, its shape and its orientation, and the method of derivation of the nine points (the two methods being the standard one as prescribed in *Brihat Samhita*, and the other is Bubbar's).[102] His consultancy as a 'Vastu expert' is based on the scientific sanction facilitated by the instrument used to measure the subtle energy fields of the animate and inanimate objects,[103] which also provides him the freedom to choose and test the building beliefs from any part of the world. For him the issue is not of context or style, but that of scientific proof.

In the domain of the 'Vastu Pundit' or the 'Vastu consultant', where there is no room for scientific speculation and modern design ideologies, the conflict he faces with the architect is partly due to the wider demand for a set of 'rules of thumb' that would fit in as constraints on the design problem, and also due to the rudimentary difference in the vocabulary that

100 Dhillon, Amrit, Vastu Shastra- Plotting the Future, *India Today*, U.K., July 31, 1995.

101 Poddar, Prabhat, The Mysterious Energies Within and Around Us, *Architecture + Design*, July-August, 1991 p31.

102 These experiments are recent and unpublished. Their discussion here is to illustrate the nature of work in progress. Prabhat Poddar is the director at the Geobiology Research Centre for Applied Scientific Research at Pondicherry.

103 Ramchandani, Mahesh and Ella Datta, A Popular Mantra for Builders, *Business Standard* Vol.XX, No.91.

stems from the difference in the very nature of their practices. More often than not, the *Vastu* consultant takes charge of the 'spiritual' side of the building and the architect of the 'material' side. This distinction, also characterised in the examples cited above, is workable as far as the two do not interfere with each other. But, since both are intrinsic subjects of *Vastu Vidya*, in practice this demarcation has led to uneasy situations where the *Vastu* consultant would discourage any discourse by casting a shroud of mystery and saying that "it is not so easy to unfold the in-depth secrets of this 81 division chart even by the learned scholars".[104] Architects like Sumeeta Srinivasan, whose clients insist on consulting a *Vastu pundit*, find that "The pundit refuses to explain anything . . . . So, rather than have my design scrapped by a pundit, I started reading books on the vastushastras".[105] To avoid such a situation, her logical advice is that "it would be wise to prepare a Vastu grid and overlay it with other factors influencing the design such as functional needs, climate, client preferences, etc."[106] The role of the Vastu grid here, is planning the location of the various functional requirements of a house.[107]

While some *Vastu* pundits choose square grids with varying numbers of subdivisions to mark the suitable locations for various functions (Figure 36), others use the triangular subdivision for the same, without any[108] discussion of the concept of the *Vastu Purusha Mandala*. Consequently, the conceptual idea is replaced by numerous 'thumb rules' adding to the apparent complexity of the subject. With the effort towards contemporarisation, the inherent meaning and implications of the associated notations have adopted a revised meaning of auspiciousness. For example, the suitable door positions where the prospective effect is "royal favour and danger from the king", is now replaced by "favours and harassment from the government"; the "gain of women", originally considered auspicious, is not so any more, by the popular breed of practitioners; the door in the plot of *Vitatha*, unsuitable due to its effect of "ingratitude and meanness", is considered a favourable location according to one popular *Vastu pundit*.[109]

For those practitioners who are astrologers, the locations of the doors are based on the study of the position of the sun in various *Rashi* or zodiacs, and the associations of lunar days to the four directions.[110] In correspondence with the changing planetary and stellar position, the

104 Potluru, *The Secrets of Vastu*, 1989 p107.
105 Srinivasan, Sumeeta, The Modern Vastu, *Architecture + Design*, Sept-Oct 1991 p65.
106 *Ibid.* p68.
107 *Ibid.* p67.
108 With the exception of Potluru's book on *The secrets of Vastu*, none of the books by the *Vastu* pundits discuss the significance of the *Vastu Purusha Mandala*.
109 Sharma, D.D., *Dharnidhar's Vastu Guide*, p32.
110 Nemichandra, *Bhartiya Jyotisha*, p404.

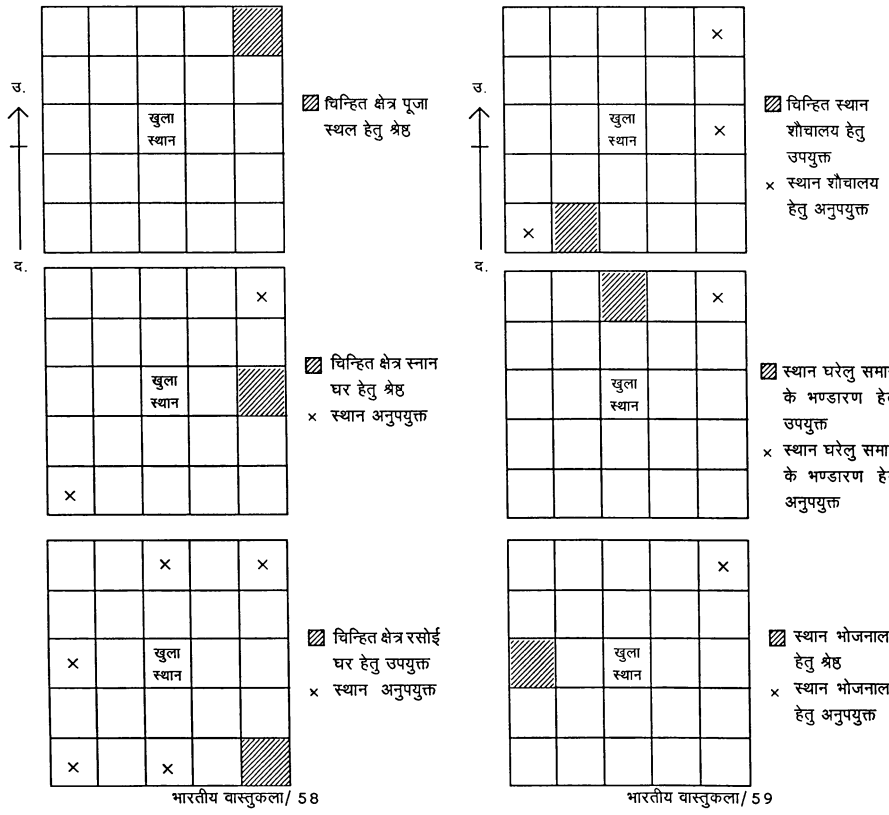


FIGURE 36 Suitable and prohibited locations for various functions (Dammani, 1994)

astrological *Vastu Purusha* sleeps for four months during which the construction is avoided, and changes his position with the movement of the Sun through the zodiac.[111] The direction of the door is based on the zodiac of the householder and the time of construction. After deriving the direction, the width or the length of the house is divided into nine parts that belong to the nine planets allocated in clockwise order to Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn, *Rahu* and *Ketu*. The suitable positions are in the part occupied by Mercury, Jupiter and Venus, which is the central one-third portion of the relevant width or length.[112]

111 Rao, *Astrology in House Building*, 1992 pp 65–66. It is suggested that the concept of *Rahu Chakra* and the *Vastu Naga* or serpent, used for the calculation of the commencement of the building and for *Shalya Shodhan*, the site purufication rites, are often mistaken as the concept of the *Vastu Purusha* of *Vastu Vidya*. *Rajavallabha* (I.22), for instance, explains the concept of the serpent shaped *Vastu Purusha* which changes its position with the movement of the zodiac. See Ch.V Site Considerations.

112 *Ibid*. 32–36.

For Premji Mistri, a craftsman based in Rajasthan, the relevance of the *Vastu Purusha* is for the location of the various functions, and he is quite amazed to discover that a 'modern' architect is not convinced by his reason for relocation of a toilet (that it should not be on the head of the *Purusha*). According to him, the dimensions and the alignment of the courtyard in a house is of prime significance. He describes houses in terms of the courtyard size, around which the expansion of the house is uniform and regular. Though the size achieved is largely due to the limitations of, say, the building materials used, which include stone slabs of ten to twelve feet in length for the roof, the essence of its form and a controlled approach to design seems to inform his knowledge of the principle of the *Vastu Purusha Mandala* as a part of *Vastu Vidya*. For him, unlike his urban and sophisticated contemporaries, the usage of the *Vastu Purusha Mandala* is an inherent concept not driven by the urge to resolve the conflict between 'tradition' and 'modernity', but an inherited design tool to be conformed to.[113]

113 Based on the field study.

CHAPTER FOUR

Orientation

In Indian thought, the cardinal directions hold a particular significance. The householder on entering his new home seeks this blessing:

> "From the eastern direction I summon a blessing to the glory of this House. Praise to the Gods, the praiseworthy, forever and ever! From the southern direction, from the western direction, from the northern direction, from the depths below, from the heights above, I summon a blessing to the glory of this House. Praise to the Gods, the praiseworthy, forever and ever!"[1]

Understanding the import of the directions leads on to analysing the various associations that reveal the essential attribute the directions possess and manifest in the form of the exacting orientation prescription laid down by *Vastu Vidya*. The various associations given[2] to the eight cardinal directions, therefore, help elucidate the orientation principles of *Vastu Vidya*. The study of the qualities of the 'directional associates' revealed through astrology (Figure 37) at the cosmic level of planets, stars and zodiac signs, and through *Ayurveda* (Figure 38) at the microcosmic level of a human body, could be extended to understand its reflection in the

1 *Atharva Veda* IX.3, as in *Mantramanjari* pp 292–293.

2 Collated from the following sources, with the intention of portraying the basic character of each direction:

Swami Sivapriyananda, *Astrology and religion*, pp41, 89.
Nemichandra Shastri, *Bhartiya Jyotish*, pp110–112, 215.
T. A. Wise, *Hindu System of Medicine*, pp30–31.
Heinrich Daath, *Medical Astrology*, pp1–21.
Brihatsamhita, XV.1–25, LIII.119.
Naradasamhita, XXXIII.9.
H. N. Somani, unpublished paper.
Bhat, M. Ramakrishna, *Fundamentals of Astrology*, pp13–14.

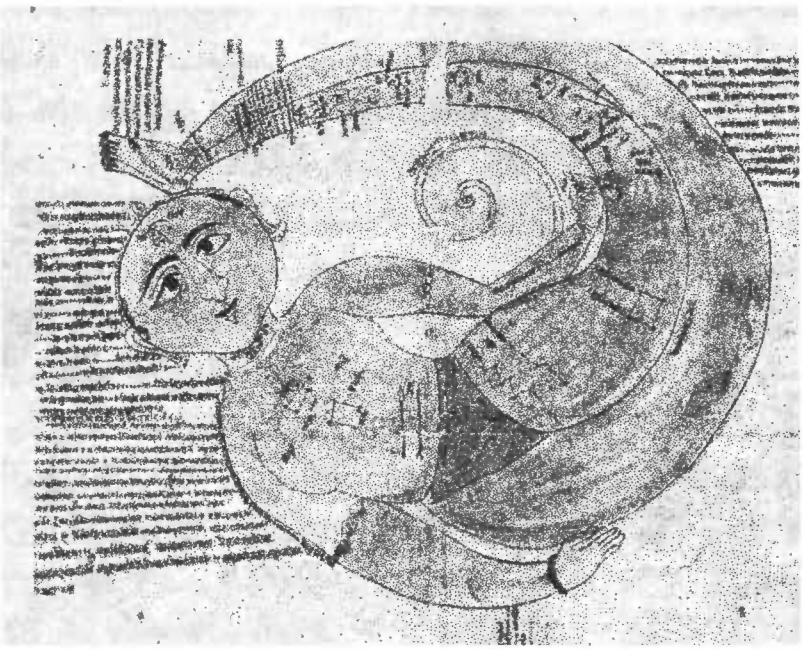


FIGURE 37 Kaala Purusha
(Tantra Foundation)

intermediary sheath of man-made construct – the architectural built form (Figure 39):

> "Facing you, O House, who are facing me, I approach you peacefully:
> Sacred Fire and Water are within, the main doors to Cosmic Order."[3]

North-east, east, south-east, south, south-west, west, north-west, and north – the principal directions – are dealt with in this sequence moving clockwise along the sides of the square *Mandala*. The north-east, however, belongs to the east, the south-east to the south, south-west to west, and the north-west to the northern direction.[4] The significance of this lies here in the flexibility it provides for classification; for example the eight planets are associated with the directions, whereas the twelve zodiac signs correlate to four cardinal directions viz. east, south, west and north, with east including north-east, south including south-east, and so on.

3 *Atharva Veda* IX.3.
4 *Visvakarmaprakasa* VII.46; Also *Brihat Samhita* LIII. p 480.

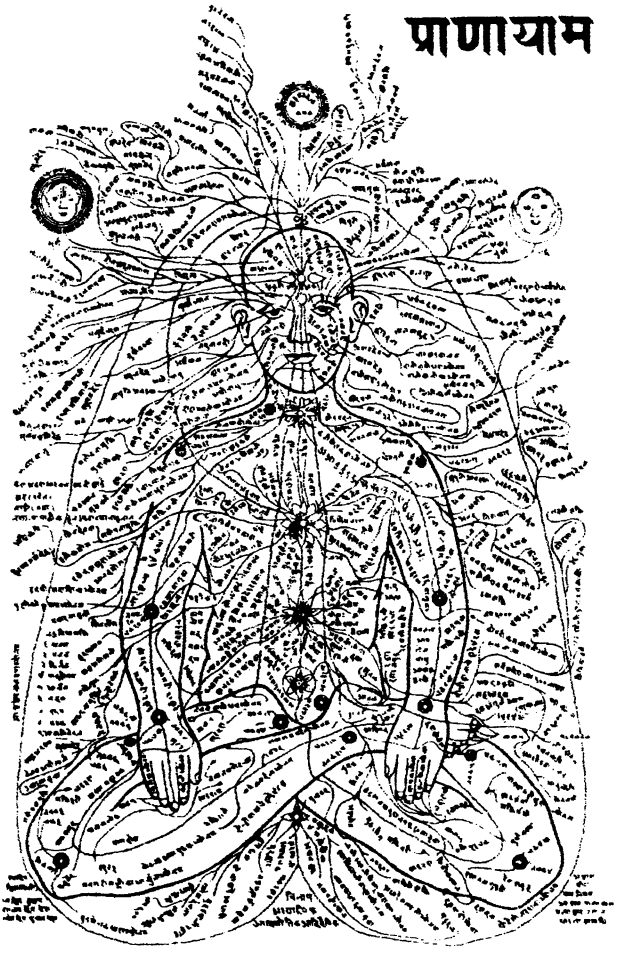


FIGURE 38 Energy channels of the subtle body (Tantra Foundation)

Eastern Direction

The associated *Mahabhuta*, or primary element, of the east is Fire which is red in colour, symbolised by a triangle, and associated with sight. Predominant in the part between the navel and heart in the body, presided over by *Rudra*, fire promotes hunger, thirst and insensibility. The attributed qualities of fire are sound, tangibility, visibility, digestion, passion, valour, strength and goodness.

Aries, Leo and Sagittarius, the fire *Rasi* or zodiac[5] signs associated with the *Kshatriya Varna*[6] and male gender, rule this direction. Fire signs

5 According to the Indian system of astrology.

6 *Varna* here is astrologically deduced and is different from *Jati* or class. It is indicative of personality traits derived from time of birth. See Nemichandra Shastri, *Bhartiya Jyotish*, pp19.

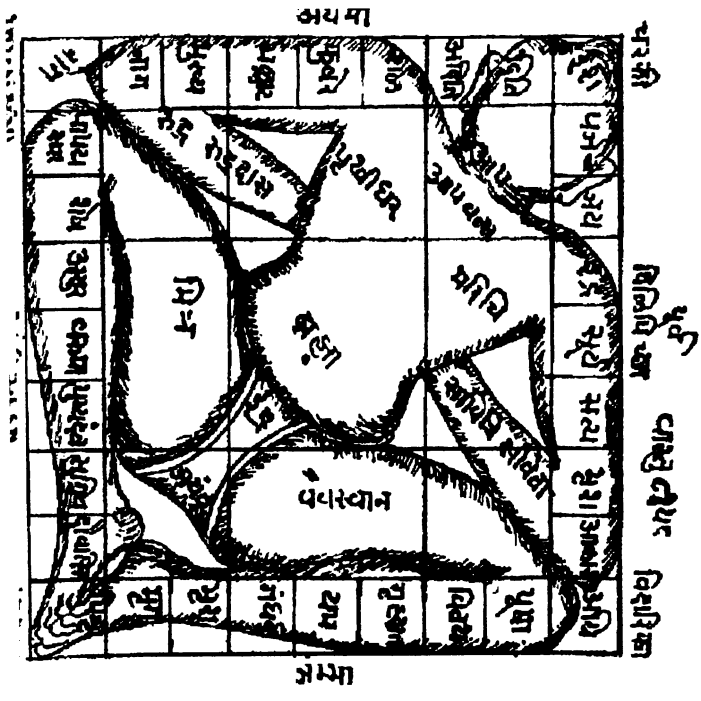


FIGURE 39 9 × 9 Vastu Purusha Mandala (Volwahsen, 1994)

generally indicate vitality in a human body . Further, Aries represents energy in the form of mental and bodily activity as restlessness or changeability. Leo signifies vital and generative power. Sagittarius represents generosity, and locomotion. Aries rules the head, Leo rules the heart and back, and Sagittarius rules the hips and thighs. The *Nakshatra* or stars residing here are *Krittika, Purva Phalguni, Anuradha, Vishakha, Punarvasu, Pusya, Hasta,* and *Ardra.*

The guardian of the north-eastern direction, the first corner or *Isana Kona* of the *Vastu Purusha Mandala*, is *Shiva* as purity, and, is ruled by the planet Jupiter. This corner also represents the head of the *Purusha*, and a house bereft of the head results in a 'fall from all virtues'.[7] Jupiter signifies virtues, nobility, longevity, control over the senses, faith, devotion, and the teaching profession. *Hemanta* or the dewy season is also related to this planet. Male in gender, with yellow as the associated colour, Jupiter indicates knowledge, health, spirituality and male progeny. It promotes conservation, elaboration and preservation of life. Its negative position may bring about blood disorder and a plethoric state of the body or its part.

7 *Brihat Samhita* LIII.68.

Guarded by *Indra* representing power, mid-east is ruled by the Sun. This planet is male in gender, its associated colour is red, and it indicates wealth, fame, servitude, health, enthusiasm, popularity, soul, and paternity. Along with Mars, it is related to the *Grishma* or summer season. The vital energy of the Sun motivates life in the body through its association with the heart and blood circulation. The related diseases are fevers due to its heat, eye disorders associated with its light, and, heart, spinal and dorsal troubles or augmented vitality related to its vital force. In the mundane world, the circulation of money and commerce are also guided by the Sun.

Southern Direction

Earth, the primary element of the south, is represented by a square shape and yellow colour, and associated with the sense of smell. Predominant in the part of the body between the feet and knees, presided over by *Brahma*, the physical manifestation of Earth is skin, vessels, bones, hair and flesh. Smell, sound, tangibility, visibility, taste, the formation of the body, solidity and weight are its attributes.

Taurus, Virgo and Capricorn, the earthy zodiac signs, of female gender and the *Vaishya Varna*, rule this direction. These signs in general are associated with bones and flesh. The attributes of Taurus are endurance, expertise in worldly matters, and caution. Virgo typifies a progressive attitude, nervous and barren characters, and single mindedness. The qualities of Capricorn are limitation, servitude and high ambition. Individually, Taurus rules over the face, neck and throat, Virgo over the abdomen and umbilical region, and Capricorn, the knees.

The stars here are *Anuradha, Vishakha, Revati, Bharani, Uttarashada, Asvini,* and *Chitra*.

The guardian of south-east and the *Agneya Kona* is *Agni* or the ritual fire, who hands over the woman to her human husband instructing her to 'be vigilant over the domestic fire, the life, and the human productive cycles.'[8] A southern declivity of the land results in a fear of fire.[9] The ruler is Venus. A feminine planet with grey as its associated colour, the domain of Venus is women, business, vehicles, and jewellery, indicating the well-being of women, enjoyment and worldly pleasures. This planet is related to the *Vasanta* or spring season, and also signifies conjugal felicity, the wife, passion, festivity, and marriage. Venus has a soothing, fertile, nutritive and a nurturing quality.

8 Vannucci, M., *Ecological Readings in the Veda*, pp128–129.
9 *Samarangana Sutradhara* XXXVIII.1–5; *Rajavallabha* I.17.

Negatively, it imparts general relaxation and loss of stimulus. In the body frame, it rules over the kidneys, throat, and ovaries in women. In a malefic state it leads to an escape of vital fluids and renal disorders.

Yama, the executioner of Justice, guards the southern direction. Mars, the masculine planet, with red as its associated colour, indicates brothers, disease, land, and enemies. Also indicative of patience, valour and strength, Mars is the centre of activity and energy. Together with the Sun, it is related to *Grishma* or the summer season, and also signifies cruelty, battle, daring deeds, and courage. Resulting in eruptions, tension and focused heat, unlike the Sun's diffused heat, in a human body, the specific rulership of Mars is over the generative organs, bile, nose and blood fibrin. In a state of affliction, Mars brings about inflammation, nasal, muscular and genital disorders, and other infectious and contagious diseases.

Western Direction

The presiding element of the west is air. Represented by a crescent shape, grey in colour, Air is associated with the sense of touch. Governing the part of the body between the heart and the head, presided over by *Ishvara*, air denotes movement, conscience, completion of work, and happiness. Possessing moving power, its other qualities are sound, tangibility, lightness, and excessive action.

The zodiac signs ruling this direction are the air signs – Gemini, Libra, and Aquarius. Female in gender, the *Varna* is *Shudra*. Air signs control the breath in a human body, and individually, Gemini represents flexibility, dispersal, and communication, ruling the arms, shoulders and lungs. Libra is associated with filtration, distillation and sublimation, all representative functions of the lumbar region. Aquarius facilitates elimination of gaseous products, and influences the blood circulation by controlling blood poisoning and its oxygenation. It rules the knees and the calves.

The stars governing the western direction are *Magha, Praushthapada, Aryama, Mula, Saptabhisaj, Asvini* and *Hasta.*

Nirritti, indicative of misery, controls the south-west direction, formalised as *Pitr Kona*[10] or the corner of the ancestors in the *Vastu Purusha Mandala*. The feet of the *Vastu Purusha* lie in this corner,[11] and a

10 *Manasara* (VII.60) and *Mayamata* (VII.24) place *Gagana*, translated as Ether, in this corner of the *Pitha Mandala*.The central square of the *Mandala* is occupied by *Prithvi* or Earth. Ether bears no direct relation with any of the cardinal directions or zodiac signs, and rules the part between the head and the crown of a human body. It influences the feelings of desire, revenge, stupidity, shame and fear, fills porosity, and denotes goodness. The rest of the texts name this corner as *Nairritya*.

11 *Rajavallabha* II.2.

house bereft of the feet causes trouble from women, sons, and servitude.[12] *Rahu* or Uranus, the governing planet, does not in itself possess specific qualities but inhibits progress in conjunction with other planets. It is a *Tamograha* or a planet of darkness. Land sloping towards this direction results in poverty,[13] and a fear of theft.[14] It does, however, indicate paternal lineage, as also suggested by *'Pitri Kona'*. *Rahu* is associated with black colour, age of 100 years which is the maximum age assigned to any planet, and is male in gender.

Varuna, associated with the water element, guards the western direction. President Saturn, indicative of age and life span, is neuter in gender, and is associated with black colour. Saturn influences longevity, strength, generosity, fame, constancy, poverty, debt, grief, and salvation. Opposite to the eruptive tendency of Mars, Saturn portrays deposition, crystallisation and retention. A house without the western wing is unable to retain wealth.[15] It rules the skin and the frame of the human body, emerging in a state of affliction as chronic diseases, depression, reduced vitality and sensibility. Therefore, a western declivity of land causes mournfulness. Saturn is also related to *Sisira* or the winter season, and an age of 80 or 100 years.

Northern Direction

The water element presides over the north. Water is symbolically represented as a circle, blue in colour, and guides the sense of taste. Predominant in the part of the body between the knees and the navel, and presided over by *Narayana*, the qualities of water are sound, tangibility, visibility, and taste. Bestowing coolness, fluidity, weight, smoothness, happiness, and inertness, water manifests in urine, semen, blood, and phlegm.

The other set of rulers are the water zodiac signs – Cancer, Scorpio, and Pisces. Female in gender, these signs belong to the *Brahmin Varna* and influence the blood. The attributes of Cancer are nurturing and fructifying, ruling the chest cavity and breasts. Scorpio represents procreation and life processes, and controls the genitals. Pisces has a relaxing and softening effect on the tissues, producing phlegm and mucus. Pisces rules over the feet and toes.

The lunar mansions or stars that rule North are *Svati, Aslesa, Abhijit, Mrigashira, Shravana, Dhanishtha, Bharani,* and *Rohini.*

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12 *Brihat Samhita* LIII.68.
13 *Samarangana Sutradhara* XXXVIII.5.
14 *Rajavallabha* I.17.
15 *Samarangana Sutradhara* XXV.24- 26.

Vayu, representing wind, guards the north-west direction, and the *Vayu Kona* of the *Vastu Purusha Mandala*. The planetary ruler is the feminine Moon, with white as the associated colour. Restlessness, mobility, distribution, reception and preparation are its attributes. It may cause futile wandering, and represents wealth, mental peace, corn, agriculture, cows, and mind. It is related to *Varsha* or the rainy season. The Moon influences the stomach, uterus and breasts, and so symbolizes femininity. It also rules over the body fluids. The related diseases are gynaecological disorders, lunacy and fluidic derangements.

Kubera, the God of wealth is the guardian of the northern direction. A body of water here would increase wealth.[16] Mercury, the planetary ruler, is neuter in gender and black is its colour. This planet represents an accountant's office, recreation, an assembly of scholars, eloquence, and truthfulness, and *Sarada* or the autumn season. Distribution, communication, and mediation are its attributes. Indicative of knowledge and friends, Mercury controls the nervous system, mental faculties, breath, hands and tongue.

A brief tabulation of the direction associations is given in Tables VI and VII.

Orientation of Activities

Further, a broad categorization of the layout of the functions (Figure 40) reflects the percolation of the character of each direction to the nature of activity conducted inside the house. To examine the pattern, the 24 hours that constitute a day are divided into 8 cardinal directions, which are classified into various categories[17] depending on the time period of the day

TABLE VI

Directions	NE	E	SE	S	SW	W	NW	N
Planets	Jupiter	Sun	Venus	Mars	Uranus	Saturn	Moon	Mercury
	Wisdom	Soul	Sexual	Courage	Inhibitor	Grief	Mind	Communication
	happiness	vitality	passion	patience	ancestors			
	spiritual	generative	nutritive	eruptive		retentive	mobility	connective
Season	Dewy	Summer	Spring	Summer	— —	Winter	Rainy	Autumn
Regents	Ishanna	Indra	Agni	Yama	Nirritti	Varuna	Vayu	Kubera
	Purity	Power	Fire	Justice	Misery	Water	Wind	Wealth

16 *Brihat Samhita* LIII.119.
17 *Brihat Samhita* LIII. p489; Also in *Rajavallabha* XIV.2.

TABLE VII

	East	South	West	North	
Elements	Fire	Earth	Air	Water	Ether, the 5th element has no directional relationship
Shape	Triangle	Square	Crescent	Circle	Bindu
Colour	Red	Yellow	Grey	Blue	Colourless
Senses	Sight	Odour	Touch	Taste	Hearing
Body division	Navel to heart	Feet to knees	Heart to head	Knees to navel	Head to crown
Attributes	Passion	Solidity	Mobility	Fluidity	Desire
	Valour	Weight	Conscience	Coolness	Shame
	Strength	Form	Completion	Inertness	Goodness
Body associations	Thirst	Skin	Movement	Blood	Fills porosity
	Hunger	Bones	Activity	Semen	
	Flesh	Phlegm			
	Hair	Urine			
Zodiac signs	Aries	Taurus	Gemini	Cancer	Not directly
	Leo	Virgo	Libra	Scorpio	related
	Sagittarius	Capricorn	Aquarius	Pisces	
Varna	Kshatriya	Vaisya	Shudra	Brahmin	
Gender	Male	Female	Female	Male	
Body associations	Vitality	Bones	Breath	Blood	
	Hunger	Flesh	Movement		

and night. Between 6 and 9 a. m., the north-eastern direction is termed *Angarini* or having embers, the east is *Dipta* or lit and heated, the south-east is *Dhumita* or smoky, and the remaining five (south, south-west, west, north-west and north) are *Santa* or tranquil. The classification of directions at various times of the day is as in Table VIII.

If the broad functions of each of the 'lit' cardinals are assigned on the basis of the prescriptions of *Vastu Vidya* (as in the Table), with the cycle of the day beginning before sunrise, the derived pattern will be as in Table IX.

The above traces the field of activity closely following the movement of the Sun. As the Sun rises in the east, moves to the south and sets in the west, the activity pattern too commences in the east tracing a similar clockwise pattern. The nature of the activity, as discussed earlier, reflects the character of the 'directional associates'. The above functions are arranged around a central free space lending a definitive character and association to each wing of the house.

The above discussion establishes, firstly, a format of orientation reflecting its concept of directions and, secondly, the basis of various

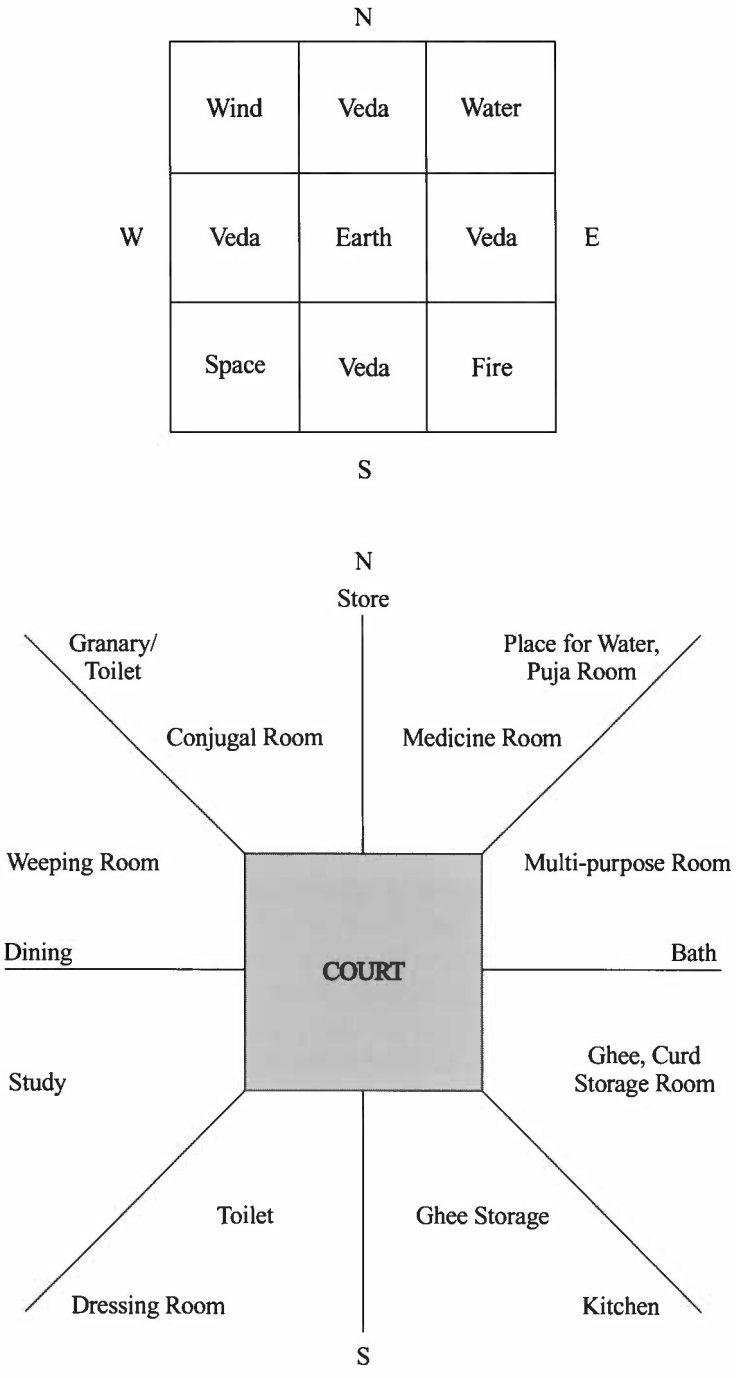

FIGURE 40 Orientation and Mandala (after *Mayamata* and *Vasturatnakara*)

TABLE VIII

	NE	E	SE	S	SW	W	NW	N
Time Period								
3–6 a. m.	Lit	Smoky	Tranquil	Tranquil	Tranquil	Tranquil	Tranquil	Embers
6–9 a. m.	Embers	Lit	Smoky	Tranquil	Tranquil	Tranquil	Tranquil	Tranquil
9–12 noon	Tranquil	Embers	Lit	Smoky	Tranquil	Tranquil	Tranquil	Tranquil
12–3 p. m.	Tranquil	Tranquil	Embers	Lit	Smoky	Tranquil	Tranquil	Tranquil
3–6 p. m.	Tranquil	Tranquil	Tranquil	Embers	Lit	Smoky	Tranquil	Tranquil
6–9 p. m.	Tranquil	Tranquil	Tranquil	Tranquil	Embers	Lit	Smoky	Tranquil
9–12 midnight	Tranquil	Tranquil	Tranquil	Tranquil	Tranquil	Embers	Lit	Smoky
12–3 a. m.	Smoky	Tranquil	Tranquil	Tranquil	Tranquil	Tranquil	Embers	Lit

TABLE IX

Direction	**Approximate Time**	**Representative functions**[18]	**Sun Position**
North-east	3–6 a.m.	Room for meditation	
Between NE and E		Multipurpose room	
East	6–9 a.m.	Bathroom	Sunrise
Between E and SE		Room for churning curds	
South-east	9–12 a.m.	Kitchen	
Between SE and S		Storage of clarified butter	
South	12–3 p.m.	Bedroom	Noon
Between S and SW		Toilet	
South-west	3–6 p.m.	Armoury	
Between SW and W		Study	
West	6–9 p.m.	Dining hall	Sunset
Between W and NW		Room for mourning	
North-west	9–12 p.m.	Granary	
Between NW and N		Conjugal room	
North	12–3 a.m.	Treasury	
Between N and NE		Medicine room	

calamities resulting from the violation of the principles bearing a relationship with the attribute of each direction. Viewing the importance given to perfecting the alignment of the house to the cardinals, the principles are indirectly regulating the built form right from its planning level. Interestingly, a house in which the sense of orientation is lost, augurs misfortune, disease, death, poverty, theft, and restlessness. Further, doubt about the eastern direction generates a fear of theft,

18 *Muhurtachintamani* XII.20 in *Vasturatnakara* VI.23.

western direction causes poverty, southern direction results in death, and so on.[19] Such a degree of clarity in terms of directions is perhaps possible only if all the walls of the house are built in keeping with the co-ordinates set by the cardinals.

In a house with three wings, the southern and the western sides are prescribed to be built upon, leaving the eastern or the northern sides vacant. Similarly, a *Dvisala* or a house with two wings built on the southern or the western sides augurs well, with the rest of the combinations being inauspicious.[20] This also implies that the wings would face the northern or the eastern direction, with the southern and the western part of the plot built upon. 'Facing' a particular direction would also entail the main openings being towards the same direction. This consideration becomes even more crucial for a two wing or a three wing house that would not have most of its doors and windows open into a protected internal courtyard. Architecturally, the structure would block off the southern and the western sunlight high in its ultraviolet content, allow the diffused northern light and the beneficial rays of the morning sun to filter inside, along with receiving the generative, spiritual and vital effect of the planets ruling these directions. The planets Sun, Jupiter, and Moon are of a *Satvika* or pure and good quality; Mercury and Venus of *Rajasa* or active and passionate quality; Mars, Saturn, *Rahu* and *Ketu* are *Tamasa* or dark and ignorant.[21] This could also account for the preference for an eastern and northern declivity of land.[22] In India, a southern declivity of land would not only make the buildings hot and dry, but also dangerously expose the site to the south-westerly prevailing winds that bring rain.[23] Amongst the various functions of the house, the kitchen and toilet or the 'wet' areas are placed in the directions receiving a strong sunlight that would keep them dry and hygienic. Recent experiments show that "if the house functions are laid out with respect to the elements (the *Pancamahabhutas*), then too the energy circuits in the human body are brought and kept to normal intensity, which is effective in maintaining good health too, as they directly effect the *Chakras* of the human body".[24]

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19 *Vishvakarma Prakasha* VII.105.

20 *Samarangana Sutradhara* XXV.24 26, 29 -30.

21 Bhat, M. Ramakrishna, *Fundamentals of Astrology*, p13.

22 *Rajavallabha* I.XVII.

23 Dutt, B. B., *Town Planning in Ancient India*, Calcutta, 1925 pp53 57.

24 Experiments conducted by Prabhat Poddar at the Sri Aurobindo Institute of Applied Scientific Research, Pondicherry, in collaboration with Pierre Deoux and Gerard Signor, in France. For details see the report of the Institute 1993 94.

Orientation and Vastu Purusha Mandala

The strict adherence[25] to the directional alignment of the buildings and its enclosed functions is one of the consequential derivatives of the site envisaged as a cosmological grid of *Vastu Purusha Mandala* (Figure 41). The *Mandala* is a grid in the ideal form of a square, symbolizing *Purusha* or the cosmic man pressed down on each of its subdivisions by the ruling divinities. Apart from the ritualistic and philosophic import, the textual description of the *Vastu Purusha Mandala*[26] helps the architect to visualise the design solution, leading it towards a controlled and regulated solution. A mental record thus established of the relative positions of the deities also identifies the location of the functions. Further fortifying this mental imagery is the relationship of the deities to the corresponding parts of the body of the *Vastu Purusha*. The body of the *Purusha* or the Cosmic Man superimposed over the grid, lies upside down with his head towards the

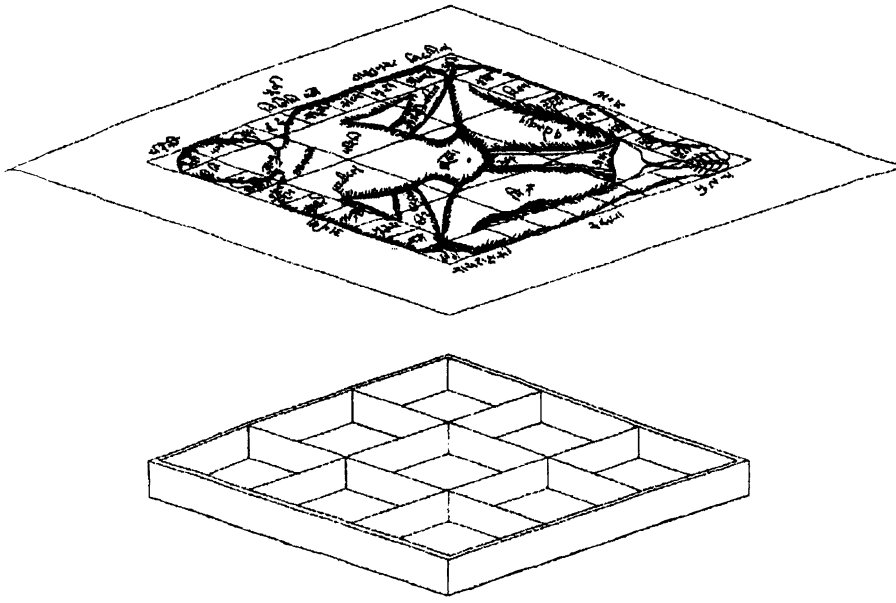

FIGURE 41 Superimposing the Mandala (Author)

25 While it is true the resultant built form may not adhere totally to all the ideals laid down in the texts, just as, say, all 'Hindus' do not pursue all the codes of conduct laid down by the *Shastras*, they do however provide a path to follow and aspire towards, and a parameter of self judgement and analysis. The resultant built form would be a balance achieved between the dictates of the *Shastra* and the social, political, economic constraints that may exist, while projecting a certain consistency that sets it apart as a 'traditional' building.

26 See Chapter III. *Vastu Purusha Mandala*.

north-eastern direction, his feet meeting in the south-western direction, and the junction of his arms and legs in the north-western and the south-eastern direction.[27]

Physically, the position of the *Purusha* also seeks to establish an anthropomorphic correspondence with the body of the practitioner, who looks down at the site envisaged as a *Vastu Purusha Mandala*. The head being the centre of the thought process is the place for a temple. The southern and the western wings of the house, where most of the weight of the built structure is positioned, are on his legs. The dining hall is located on his stomach, the toilet on his genitals, the courtyard on the plot of *Brahma*, his navel, and so on. This in isolation, however, provides only a rough mapping on the plot, and it is in conjunction with the grid lines that the desired accuracy of co-ordinates is achieved.

The eighty-one square *Mandala* used for building design holds within itself the keywords in the form of notations that dictate the orientation and proportioning system by providing a format allowing the land to blossom into a building. The suitable location of the door is dictated on the peripheral part of the grid of the *Mandala* occupied by thirty-two deities. In a 9×9 *Paramashayika Mandala*, the deities presiding over the cardinal directions would be centralized,[28] whereas in an 8×8 grid with an even number of plots on each of its sides, none of the plots that represent the cardinal deities would be centralised. For example, *Indra* presiding over the eastern direction would have the central fifth plot from the north-east corner and from the south-eastern corner in a 9×9 grid, whereas in an 8x8 grid *Indra* occupies the fourth plot from the north-east corner and the fifth plot from the south-east corner. Also, the deities presiding over the corners get a full plot each in a 9×9 grid, and half a plot in an 8×8 grid. The thirty-two outer deities correspond to the *Nakshatras* or lunar asterism and are also instrumental in deciding the favourable door positions.[29]

Ascertaining the position of the door has a special import as it contributes significantly towards deciding the frontage of the house. Even if the site does not facilitate a favourable orientation of the house, the door location chosen to be the main entrance to the house could, as it were, re-orient the house.[30] If on the other hand an auspiciously oriented house needs access to the allied functions located on the site, like 'a shed for the elephants' located in the southern section of the site, then one could

27 *Rajavallabha* II.2.

28 *Rajavallabha* V. 25.

29 Kramrisch, Stella, *Hindu Temple*, Vol. I, Pt. I, pp34. Some of the *Nakshatras* out of the 27 are repeated to arrive at the number 32. The basis of the repitition of *Vishakha, Bharani, Revati* and *Aslesha* is not mentioned. Apart form the numerous discrepancies in various texts mentioned by Stella Kramrisch, the derivation of the door locations by allocation of the deities presiding over various *Nakshatras* is also not clear.

choose from the various favourable locations marked on all the four sides of the *Mandala*. All the suitable locations however, are in and near the middle one third portion of the outer nine divisions on each side. The four corners are retained intact, which could be explained as a structural requirement, as well as in order to achieve the strict symmetry employed on either side of the door. At a more subtle level, though, a door in the corner one third portion would mean facing an intermediate cardinal direction, and not a pure cardinal direction of east, west, north or south, as all the eight cardinals correspond to two dimensional plots on the *Mandala*. On the eastern and southern side, the favourable positions are to the left of the middle plot, and in the western and northern side, they are the middle plot and to the left of the middle plot.[31] Architecturally, if the entrance is towards the left side, then obviously the deeper end of the wing would fall on its right. This results in an effective shift of the weight of the structure towards the right side, giving it a slight clockwise turn. Further, the placement of the second door that follows the main door on entering 'should'[32] be on the first door's right. This generates a clockwise circulation pattern.

Orientation and the Aya Formula

Another determinant that imparts a predominant quality of a cardinal direction to the site is the *Aya* calculation. *Aya* or income is calculated by dividing the area of the plot in *Hasta* units by eight and focusing on the remainder the division yields. There are eight types of *Aya* deduced from the eight remainders, for in the remainder lies the germ and the nature of subsistence. As in a perfect or absolute state, there is no existence, and the remainder is the 'concrete reality'.[33] Physically, the division of the area by eight is, as it were, equally distributing it to the eight cardinal quarters, the remnant then deciding the propensity the land or house possesses, making it a land with east-facing quality or a west-facing quality, and so on. The eight *Aya* (Figure 42), with the number assigned to each beginning with east as one, and their usage are given in Table X.[34]

30 Observing this in practice, J. E. Padfield says, "According to 'Vastu Shastra', it is good to build towards north or east, but bad towards south or west. If, therefore, the house-builder should have a site large enough to enable him to comply with the Shastra he will not build his house right up to the road, if by so doing it would face towards the south or west. He will in that case build some distance back from the road or street and have only a blank wall with a door in it opening on to the road." J. E. Padfield, *The Hindu at Home*, B. R. Publishing Corporation, Delhi, 1908 (II edn.), p9. 1875 (I edn.).

31 In all the referred texts.

32 The word 'should' in this work denotes the prescriptions of *Vastu Vidya*.

33 Kramrisch, Stella, *Hindu Temple*, Vol. I, Pt. II, p45.

34 *Rajavallabha* III.4.

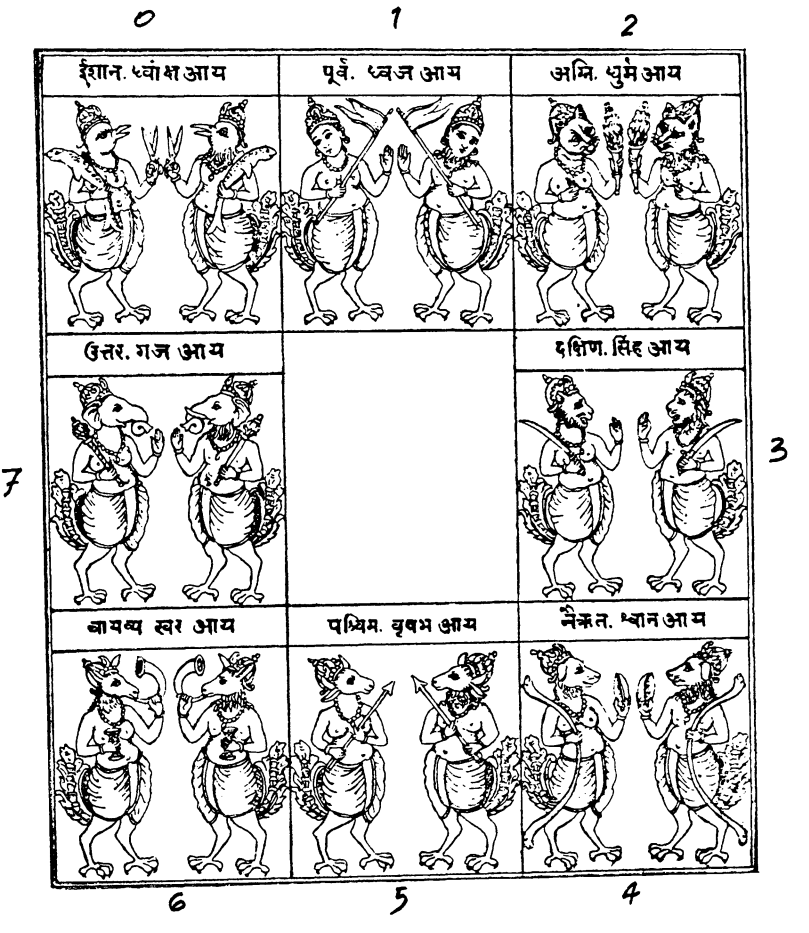

FIGURE 42 Eight types of Aya (*Rajavallabha*, 1911)

TABLE X

Remainder	Aya	Direction	Application
1	Dhwaja	East	House for Brahmins, width of house, height, bathroom
2	Dhumaya	South-east	For those who live by fire, kitchen
3	Singhaya	South	Weapons, main hall, kings
4	Shwanaya	South-west	House for the menial worker, weapons
5	Vrishabhaya	West	Vaisya, horses, dining, business
6	Kharaya	North-west	Washerman, music room, cowshed
7	Gajaya	North	Shudra, sleeping room, elephants, women, treasury
8 or 0	Dhwankshaya	North-east	Sculptor, ascetic, prayer room

For the construction of houses, the odd-numbered *Aya* is to be applied. After choosing the suitable *Aya* dimension for the house, each function within it too, is associated with a specific *Aya* dimension. For example, the *Aya* of the kitchen ideally located in the south-east corner is *Dhumaya*. Here is a translation of the quality of direction in terms of area. Conversely, the area obtaining a remainder 2 on its division by eight, is suitable for 'fire related' functions and possesses the south-eastern 'quality', and does not mean that the kitchen 'faces' south-east. The *Dhwaja Aya* dimension can be used in any *Aya*, while *Vrishabha* cannot be applied in any other *Aya*. However, all the types of *Aya* are appropriate for their own specific quadrant. This implies that in the western quadrant, the area of the rooms located here could yield a remainder 1, 3, 7 or 5 (being its own) whereas the area of the rooms in other remaining quadrants 'should' not yield 5 as its remainder. This is also, by some texts including *Rajavallabha*, interpreted as positioning the main door. A house in *Dhwaja Aya* could have the door on all or any of the four sides, *Vrishabha Aya* should have a west facing door, *Gaja Aya* should have a *Dhwajaya* or a *Singhaya* door which means an east or a south facing door.[35]

The choice of the suitable *Aya* could be made on the basis of one's aspirations. For instance, according to *Vishvakarmaprakasha*, a *'Brahmin'* in pursuit of religion is advised not to construct his house in *Singhaya* as it would cause fierceness, and children would be few.[36] *Vrishabhaya* increases the wealth of cattle, *Dhwajaya* brings fame and wealth, *Singhaya* enables victory and consumption, and *Gajaya* results in prosperity,[37] reflecting the quality of the direction it is associated with. The *Aya* situated in the corner quadrants project the negative qualities of the associated directions, and though each is suitable for the function located within its specific quadrant, they are not be applied to the whole house or site. This is because the *Dhumaya, Shwanaya, Kharaya* and *Dhwankshaya* would lend a particular quality to the space as in a building oriented along an intermediary direction of south-east, south-west, north-west and north-east. Respectively they cause melancholy, enmity, gynaecological disorders and poverty, death and disease.[38]

One of the most prominent features of the design solution based on the above codification is the central courtyard. In fact, it is this central courtyard, presided over by *Brahma*, the creator of the universe, that brings clarity in the definition of the eight quarters. If there is no central open space, the domain of east would merge into west, north with south, and all the eight quarters could not be identified with their corresponding plots,

35 *Rajavallabha* III. 7, *Vasturatnavali* pp93, *Brihadvastumala* pp53–55.
36 *Vishvakarmaprakasa* II. 64.
37 *Samarangana Sutradhara* XII, *Vasturatnakara* V.23.
38 *Ibid.*

while following all the rules of the concept. So, it is the *Brahmasthana* or the plot of *Brahma*, the creator of this micro-universe. Its vacancy as an open space reflects the all-pervasive ether or *Akasha*. This plot is represented by a lotus,[39] any kind of affliction of which causes destruction. The lotus also represents the inner space or the inner consciousness, and this space is "as the vast space outside extends the space within the heart. Within it, indeed, are contained both heaven and earth, fire and wind, sun and moon, lightning and the stars, both what one possesses here and what one does not possess – all is contained within it".[40]

While the design solution based on the above concept of orientation would obviously satisfy the system of codes, it would also have to cater to a primary requirement of basic shelter. The terms primary and secondary functions of the resultant architectural design are not used here in a discriminatory sense, but rather to imply a dependence of the connotation of the secondary function on what the primary function denotes architecturally. For example, a kitchen, apart from its relation to the *Agni Kona*, requires adequate sunlight also to keep it dry and clean, and this is provided by the south-eastern corner. Again, though an eastern or southern direction, or even artificial lighting, could satisfy this primary requirement, the secondary would not be complied with, if the kitchen was to be placed in any other direction. The *Vastu Vidya* design system suggests solutions that cater to both the primary and the secondary requirements.

The functioning of *Brahmasthana*, for instance, could be analyzed in terms of its primary and secondary functions. *Brahma*, the creator, occupies the central focal plots on the *Vastu Purusha Mandala*. This sacred space must not be covered or damaged by any structure, not polluted and kept clean. This space is primarily a central open courtyard with its proportions regulated by the *Mandala*, facilitating air circulation and ventilation to the entire house. The courtyard is also a semi-private open space into which some of the outdoor household activities spill out. The inherent sanctity of this space is also marked by planting a 'holy' *tulasi* shrub. *Tulasi*, a delicate plant, grows well in shade, purifies the air circulating through the courtyard, and has an established medicinal value. *Tulasi* worship is performed as a daily ritual by the women at dawn, when the air is least polluted. Therefore, it is evident that a courtyard apart from fulfilling a set of primary and secondary functions, supports various other functions which become a part of the design system.

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39 *Rajavallabha* II.19.

40 *Mandukya Upanishad* 2; 7 as *in Mantramanjari* pp718–719.

Contemporary Application

In the contemporary context,[41] technology could replace the primary needs of a courtyard as a semi-private open space that also provides air circulation, light and ventilation, by gadgets serving the same purpose. It could then be covered and reduced to a mere symbolic dot representing the *Brahmasthana*. Though the central courtyard would yield best results only if its proportions are regulated by the *Mandala* grid, this is not to suggest its consistency in practice as an open space measuring $\frac{1}{3} \times \frac{1}{3}$ of the design grid. Describing the basic construction principles followed by a *Hindu*,[42] Padfield observes "The chief feature in the building is that it must be in the form of a square, with an opening to the sky in the centre. The roof slopes outward and inward, and the inner sides all converge around a rectangular open space, larger or smaller as the case may be. In large well built houses this central open space will form a regular courtyard, whilst in smaller buildings it will be so small that the vacant space where the roof converges, is only a few inches square . . ." Although 'flouting' of rules is definitely not only a contemporary phenomenon, the reinvention of the *Brahmasthana* as a sacred 'few square inches' covered and used as a part of a 'lobby' in a 'modern' home is today's solution to the inconvenience caused by a central open space. This brings about an alternation of the secondary and primary intent of the design principle, as now the dependency on *Brahmasthana* to provide ventilation etc. is defunct, whereas its symbolic representation on the plan becomes its primary function with no other architectural role to play. This also shows the invalidity of the principle once assumed to impart an active influence on architectural typology, if the chosen application is not the entire design system. It then has a ritualistic, rather than an architectural import.

While the broad functional layout[43] of the house remains much the same, the functions of an industrial set up or an office are rationalized in terms of significance of the directions. The magnetic compass has replaced the longer process of establishing the cardinal directions on the site using a

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41 The generalisation about the application of *Vastu Vidya* principles is made on the basis of contemporary works presenting 'modern' universally applicable rules, interaction with its practitioners, and personal experience as an architect and a student of *Vastu Vidya*.

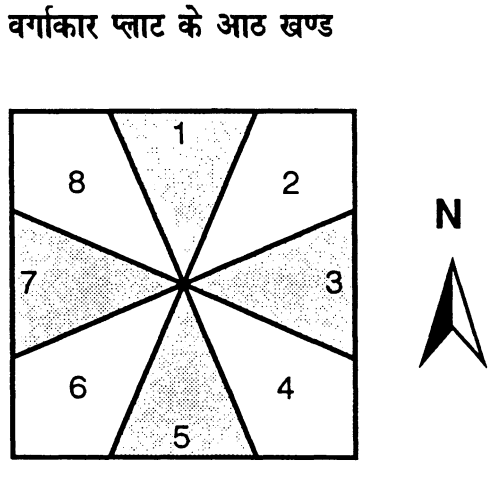
42 A typical courtyard house or a *Haveli* was as much an abode of the Muslims as it was of the Hindus. Even today, many Muslims in India follow the traditional Indian building principles. Also endorsing this is Sarfaraz Mian, a builder from a family who for generations have been in this profession, who rediscovered *Vastu Vidya* from his father's old and brittle copy of *Rajavallabha*. As a young apprentice he remembers his father Babu Mian, a builder of great repute, as an expert of traditional building skills and principles, so much so that he was often consulted by Hindu priests on temple architecture.

43 The list does not lay out all the functions, only enough to present a general idea of the type of functions permitted in a particular direction.

Gnomon. Unlike the representation of cardinals as quadrilateral sub divisions of the site enforced by the *Vastu Purusha Mandala*, its division in the form of a grid radiating from the centre that divides the site into eight triangular portions, is what is in practice today.

This triangular division (Figure 43) however, is architecturally as inadequate as it is to build triangular spaces in the eight quarters. The triangular grid is then superimposed on the architectural plan to judge the location of the various functions with respect to the directions. And for the location of the doors, the outer boundary in the four directions is divided into nine sub-divisions each, on which the favourable entry points are decided.

Vastu Vidya principles emphatically stress the correct alignment of the site and the house, which undoubtedly is one of the important aspects of the design scheme. However, if the site is defective in that respect, then co-ordinates established by the site are followed, thereby implying that the house is constructed along the length and width of the site, and not at an



१. उत्तर खंड
२. उत्तर-पूर्व खंड
३. पूर्व खंड
४. दक्षिण-पूर्व खंड
५. दक्षिण खंड
६. दक्षिण-पश्चिम खंड
७. पश्चिम खंड
८. उत्तर-पश्चिम खंड

FIGURE 43 Division of site into eight quarters (Jhajharia, 1994)

angle to its side which could perfect the alignment – as the *Vastu Purusha Mandala*[44] personifies the site in its entirety. Further, if the 9 × 9 Mandala is examined and a relationship of each of its peripheral subdivisions to the number of degrees it would represent geometrically is calculated, then out of a total of 360 degrees, each side of the *Mandala* represents 90 degrees and the nine subdivisions on each side represent 10 degrees each. This implies that a tilt of the cardinals under 10 degrees would not be noticeable on the *Mandala*. So, for an 8 × 8 *Mandala*, the tolerance is even greater. This could explain why many *Havelis* in Rajasthan[45] are not perfectly aligned to the cardinal directions. As a result, this difference between say the virtual east and true east is ignored, and the virtual east becomes the true east. So much so, that the front of the house is often referred to as its east, and the rear as the south of the house.[46] Interestingly, the experiments by Prabhat Poddar reveal that the right hand controls the back of the body,[47] and then moving to the right side of the door of an east facing house takes the circulation to the south or the back of the house. Even the word *Pradakshina*, the circumambulatory path in a clockwise movement, seems to be associated with the southern direction. According to the general norm of a temple facing east, the *Pradakshina* would be carried out by first moving to the south and then continuing the rest of the clockwise path. Now, regardless of the direction the temple faces, this ritual is carried out in only one way, i.e. clockwise movement. This is to suggest – while not in the least undermining the accuracy professed and strived towards in creating a microcosm in alignment with the macrocosm – that rather than worry about the accuracy not achieved, one may mentally realign the building, as it were, by treating it as an aligned unit. In contemporary practice, the scientific accuracy and more importantly the accessibility of the compass demanding perfect alignment, overrules the suitability of numerous sites in cities, which anyway are not based on a master plan that incorporates cardinal directions as one of its main considerations of the layout.

The north-eastern direction, the prayer room in a house, creates a place for the workers or a canteen in a factory, and a reception or visitors' area in an office. This being a sacred area, it 'should' be able to bring light in by ample provision of windows, and not be 'polluted' by placing a toilet. This 'should' also be the lightest and lowest part of the building and site in terms of the structure and hierarchy of position. An underground borewell is most desirable here. Extension of this corner brings prosperity, as it increases the surface area of the northern and eastern side, thereby making

44 See chapter on *Vastu Purusha Mandala*, the design grid.
45 Based on primary survey and study on site.
46 *Rajavallabha* V.40, 44.
47 Also used in accupuncture.

room for more windows. An adverse effect would follow if this corner is not included or is 'cut' due to the shape of the site. Both the height and weight of the structure 'should' gradually increase from here towards the south-western corner. While spirituality could also cause indifference in the north-east direction, the south-western direction gives control. The householder 'should' occupy this area, at the highest level. Though an overhead tank could be placed here, as it would lend to the height of the building and flow the water towards the north or east, an underground water well here is prohibited. The south-eastern direction related to the fire element, is also the zone for electrical gadgets, boilers, computers etc. The north-west corner related to the wind element and mobility, justifiably accommodates a guest room and a zone for finished goods. The centre of the house 'should not be damaged or loaded' by any structural member.

The contemporary adaptation of the orientation of the basic 'modern' functions is shown in Table XI.

Though the orientation of the functions of a house remain predominantly similar, it generates conflict not only from the individualistic design statement of a 'modern' architect, but also the building bye-laws of the municipal authority may not agree with the *Vastu Vidya* design principles. For instance, on a building site, the open area on the east and north 'should' be more than on the west and south respectively. According to the building bye-laws, generally, the minimum requirement for the front set back area is more than the rear set back area, regardless of the orientation of the site, say, 15′ – 0″ in the front, and 10′ – 0″ at the back. This may work out well for a north or an east facing plot, but for a west or a south facing plot it results in wastage of area if the *Vastu* principles are incorporated. In a factory, for instance, the gradation of weight of the machinery and the location of the heat-generating equipment

TABLE XI

Directions	House	Industry	Office
North-east	Puja room	Labour change room Canteen or any 'light' function	Reception,visitors area
East	Bathroom	Light machinery	General staff
South-east	Kitchen	Boilers, generators etc.	Pantry, computers
South	Toilet, room	Heavy machinery	Senior official
South-west	Master bedroom	Heaviest machinery, main plant	Head of the office
West	Study, dining	Heavy machinery	Senior official
North-west	Guest room	Finished goods	Marketing department
North	Room, treasure	Light machinery	Accounts department

prescribed by *Vastu Vidya*, may not agree with the functional efficiency of the layout, thereby rendering the internal circulation of the goods chaotic. Similarly, the layout of an office suggested by the '*Vastu pundit*', may not be the most efficient design scheme in terms of its functional efficacy.

Orientation, perhaps the most sought-after input of *Vastu Vidya*, is not assimilated in the design methodology, rather it appears as an impingement over the design freedom of the architect. An architect's role is then to arrive at a balance between his own concept of design and the suggestions of the '*Vastu* consultant'. The position of the latter is similar to that of a structural consultant, who advises the architect of the structural feasibility of his design concept by providing the specifications for the beams and columns, or more appropriately as a parallel municipal authority dictating bye-laws. Therefore, quite obviously, it is regarded as an unnecessary limitation on the design prerogative the architect wishes to exercise.

Revealing a similar conflict between the architect and the '*Vastu* consultant' is a project[48] involving the expansion of a factory (Figure 44) initially set up a decade ago, near Jaipur. After the architect conceptualized a design scheme, a *Vastu Pundit* was asked to study the auspiciousness of the functions. The architect, though with an open mind and respect for the traditional sciences, is no expert on *Vastu Vidya*. His 'modern' system of education has taught him to analyse scientifically. He has a logic and reason associated with each of his decisions, and is able to explain the basis of his design decisions to his clients. The *Vastu Pundit* on the other hand, belongs to a family of priests, and possesses no formal training in architecture. He does not feel it at all necessary to explain the basis of his judgement on the design, but does enumerate the severe implications that could follow if his advice were not to be taken seriously. This contemporary practitioner of *Vastu Vidya* or the '*Vastu* consultant' as he is often referred to, follows a seemingly mystic approach while illuminating the norms. In general, they lay more stress on the orientation principles and the defects in the building that may have serious implications, where the main aim is to achieve maximum growth and prosperity by application of the auspicious elements and the removal of the inauspicious components of the building. Both being true to their knowledge and professional expertise, they use different vocabulary and parameters of judgement. Therefore, the '*pundit*' baffles the architect. Consequently, the site that was an irregular pentagon is modified to a quadrilateral. The new shed had to be built on the southern side, whereas an extension of the northern shed would have been more functionally conducive. All the services like the generator and the water

48 The architect of the factory could not be persuaded to part with the drawings of the project. However, it is a representative case of an imposition of the dictates of *Vastu Vidya* in the contemporary situation.

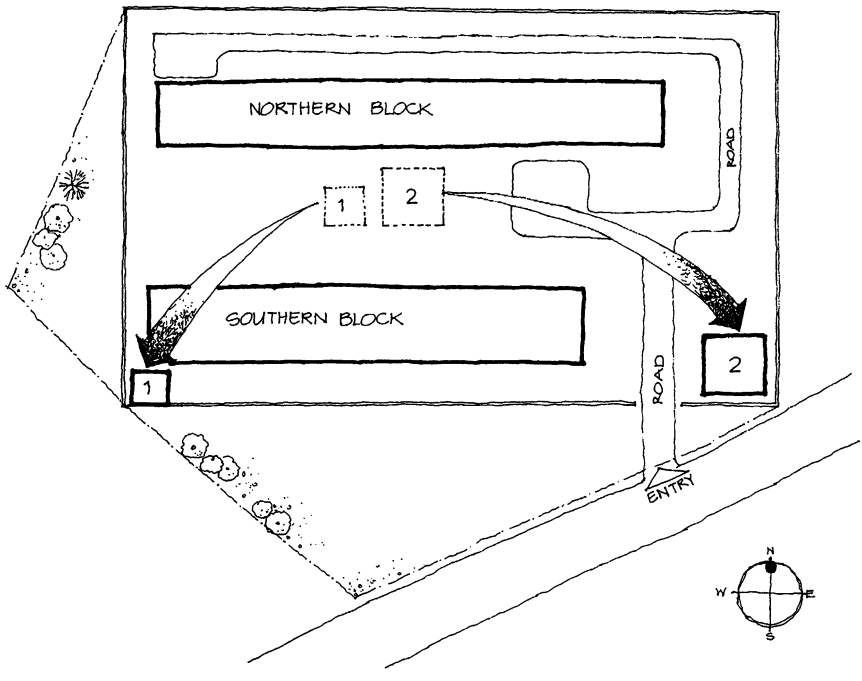


FIGURE 44 Changes suggested for a factory (Author)

tank etc. that were centrally located for an efficient supply to all parts of the factory was damaging the *Brahmasthana,* and hence needed to be relocated. The overhead tank was shifted to the south-western corner and the generator to the *Agni Kona* of the south-east. Again, the raw material is to be fed to the furnace in the south-east from south-west, which according to the architect was an impossibility. A 'compromise' was achieved by conducting a prayer ritual as a corrective measure for the improper feeding of the material. The entry points and the position of the canteen were also relocated, though this was relatively easier to execute, as the initial design framework conceptualised by the architect had already been disturbed. As a result of the changes, the cost of the production increased many fold, but so did its output and income! So the clients have no regrets and the architect is already working on another of their factories, and is this time well prepared with the basic orientation principles already incorporated at the conceptual stage of the design.

Contrary to the above, is a case of the design of some contemporary dwellings (Figure 45) in Amber based on the principles of *Vastu Vidya*, that presents no conflict at all. Premji Mistri, the architect of these houses is a traditional craftsman from Rajasthan. The houses built by him do not

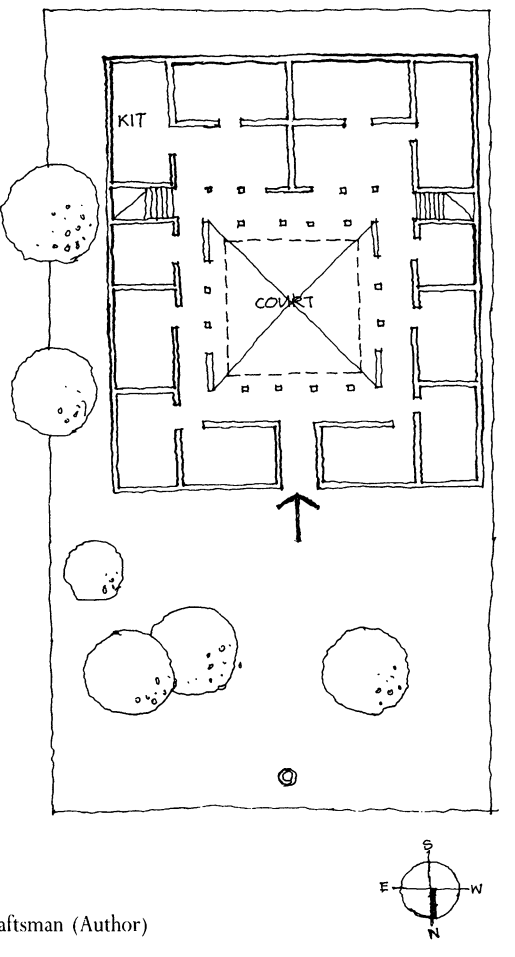


FIGURE 45 House designed by a master craftsman (Author)

compare with the urban houses of Jaipur in terms of their spatial quality, and are of a semi-urban character. It is interesting to observe that Premji Mistri uses the *Mandala* to design, and is quite particular about the size of the rooms, as he is about the basic orientation principles, also ensuring internal alignment of the doors and windows by following symmetry around the courtyard. One of the reasons for the absence of any conflict is his training as a traditional craftsman: he is educated in building skills using indigenous building materials such as stone and lime. Secondly, his educational background sufficiently relates to his 'field' of practice, and he does not need to 'contemporize' the building principles.

But Premji Mistri did face a conflict when he was involved in the restoration of an old *haveli* under the supervision of a 'city' architect. Here, he was unable to understand why the architect insisted on a toilet in

the north-east corner of the *haveli* and explained it in terms of circulation, when it was common knowledge that it would be disastrous.[49] The conservation architect however, could not appreciate the reasoning of the craftsman.

The *Vastu* consultants apply the orientation principles, striving towards perfecting one thread from the entire corpus of knowledge represented by *Vastu Vidya,* by imposing it on the prevalent ideology of the architect. Another kind of practitioner is the 'Indian' architect in search of his identity drawing upon his reinvention of the principles. The reinvention is primarily based upon his own perception, engaged in the visual and aesthetic appeal it lends to the concept of his design. As opposed to the *Vastu* consultant who may not delve into the parameters of judgement explaining the basis of the suggestions, the 'Indian architect' chooses to express rather emphatically the reinvented principles architecturally reflected in the design of spaces, colours, symbols etc. Here, the translation of the reinvented orientation principles is architectural rather than metaphysical.

One of the examples of this reinvented literal translation is the Jawahar Kala Kendra in Jaipur,[50] designed by Charles Correa (from 1986). It is based on a grid of nine squares, with each of the squares associated with functions derived from the given planetary associations. The *Navagraha Mandala* used for performing rituals, here adopts the role of a *Vastu Purusha Mandala.*[51] The 'Indian' architect today enjoys the freedom to borrow the symbols or the philosophy, and 'process' them as it were to present narratives of individualistic design statements (Figure 46). It not only lends intricacy, richness, and an exotic appeal to the design, but also satisfies the urge to 'root' the work contextually. Correa believes in 'reinvention of myth' explaining transformation as ". . . producing something that is contemporary but with roots going back. We must use past traditions as directly, unselfconsciously, as the French make wine or the Indians wear saris – they do not feel compelled to reinvent each time."[52] In the *Mangal Mahal* or the palace of Mars in the northern square of the building, power is functionally expressed as administration; the central square is occupied by the Sun as creative energy, expressed as an open air theatre, and so on. The north-eastern square housing the auditorium shifts out diagonally, reflecting

49 As told by the craftsperson.

50 Discussion of Jawahar Kala Kendra is based on articles by Satish Grover in *Architecture + Design*, Sept – Oct 1991 pp17–29, and Dan Cruikshank in *The Architectural Review*, Aug. 1987 p57.

51 A distinction between a purely ritualistic *Mandala* and a *Vastu Purusha Mandala* as a design grid also used in rituals performed during and after construction is necessary. The nine square *Vastu Purusha Mandala* is the *Pitha Mandala*. None of the *Vastu Purusha Mandalas* directly represent planets on its subdivisions; however, as explained earlier the planets do possess directional associations.

52 Quoted in Cruikshank, Dan, Variations and Traditions, *The Architectural Review* 1086, Aug. 1987 p57.

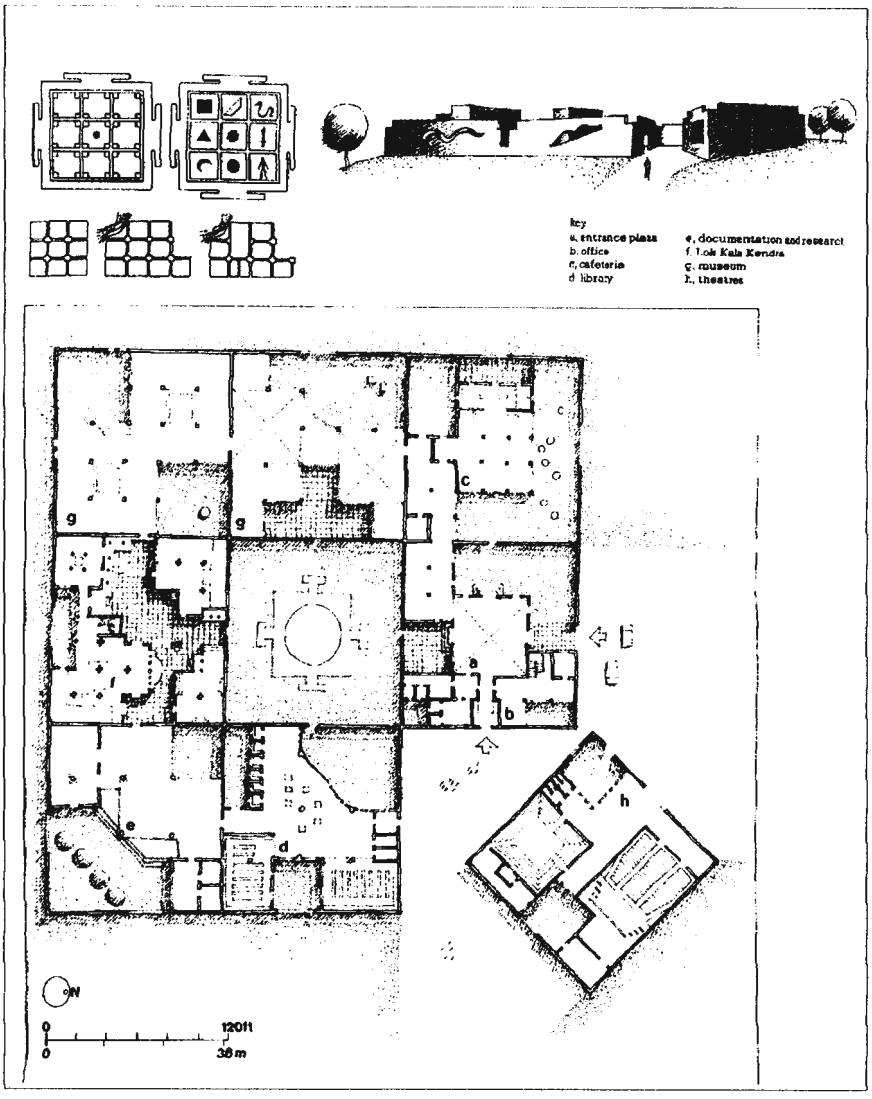


FIGURE 46 Charles Correa's plan for the Jawahar Kala Kendra, Jaipur (1986)

the layout of Jaipur city (though in Jaipur the shift is in the south-eastern square). It would be futile to judge the symbolism employed by comparing it with its 'traditional' meaning and usage, since its relevance here is in its application as a part of the concept, as an architectural translation of the 'story' of the symbols to impart 'Indian-ness' to the design. Also, here the purpose served by the imagery is chosen, rather than implied. The evident

incorrectness of the orientation of the planets, and the usage of the *Navagraha Mandala* for building, are perhaps irrelevant as their 'correctness' is not the purpose of their usage. The imagery of the nine planets here coexists with the 'western' influences of the architecture of Alvar Aalto and Le Corbusier, while also reflecting the built representations of Indian architecture of step wells and Vidyadhar's plan of Jaipur city.[53] The various associations employed by Correa in the design are as shown in Table XII.

The architect was suitably "surprised" at the controversy raised by his usage of the symbolism, as the Government set up an "expert committee to ascertain the extent to which the architecture of Jawahar Kala Kendra is relatable to India's traditional architecture and its plan, as well as that of Jaipur city, and is based on what is described as the '*Vedic*' *Navagraha Vastupurushamandala*." The committee obviously ruled out any relation of the *Navagraha* to the *Vastu Purusha Mandala* as well as to the layout of Jaipur, whereas the architect thought "any analogues or metaphors involved in the architectural imagery will presumably be apparent to observers of perception and sensibility."[54] This is another example of conflict as a result of the intermingling of ideologies, standing out in contrast with the unified concept of the traditional architecture of Jaipur, with both the architect and the assessment committee being 'true' to their own perception and expertise.

TABLE XII

Planet	Colour	Quality	Function
Venus	White	Art	Drama
Jupiter	Lemon yellow	Knowledge	Library (meditation)
Ascending node (Rahu)	Iridescent	Devourer/Restorer	Documentation
Saturn	Earth red	Knowledge	Museum II
Descending node (Ketu)	Brown, Black	Anger	Museum I
Mercury	Golden Yellow	Education	Lok Kala Kendra
Moon	Milky White	Heart	Cafeteria
Mars	Red	Power	Administration

53 Grover, Satish, Charles Correa: A view from Delhi, *Architecture + Design*, Sept – Oct, 1991 p17
54 Letter by Charles Correa, dt.13 January, 1992. Jawahar Kala Kendra, Jaipur.

CHAPTER FIVE

Site Considerations

In traditional Indian thought, of which *Vastu Vidya* is a subset, the relationship between Man and Earth is a collaborative one. A primary example of this is the *Bhumi Sukta* or the hymn to the Earth, of *Atharvaveda* (XII.1). Here, the Earth is invoked as the nourishing mother, whose blessings Man seeks for prosperity. The Earth, sustained by heavenly law, incessantly offers all her bounties to Man, who in turn must appease her by maintaining her resplendence. The Earth is adorned with plants and herbs of various healing power, and her gentle slopes and plains nourish the human race that dwells on her limitless domain.[1]

The best places on Earth are the "holy grounds, river banks, caves, sites of pilgrimage, the summits of mountains, confluences of rivers, sacred forests, solitary groves, the shade of the Bel tree, valleys, places overgrown with Tulasi plant, pasture lands, temples of Shiva without a bull, the foot of a sacred fig tree or of an Amalaki tree, cowsheds, islands, sanctuaries, the shore of the sea, one's own house, the abode of one's teacher, places which tend to inspire single pointedness, lonely places free from animals."[2]

Parameters of Choice

All places where immortals and mortals dwell are called dwelling sites or *Vastu*.[3] A dwelling site is that which is "chosen after a thorough examination of colour, odour, flavour, form, orientation, sound and tactility, . . ."[4] These parameters of choice delimit the conceptually limitless space. A

1 Cf. Bhumi Sukta of *Atharva Veda* (XI.1) translated by Raimundo Pannikar, *Mantramanjari*, Motilal Banarsidass, New Delhi, 1989 pp123 129.
2 From *Gandharva Tantra*, in Renou Louis, *Hinduism*, p173.
3 *Mayamata* II.1.
4 *Ibid.* II.4.

gentle and even land, sweet in smell and taste, abounding in excellent herbs, trees and creepers, solid and compact, confers prosperity even on those who may take rest on it in order to relieve themselves of the fatigue of their journey, not to speak of those who choose to construct and live on it permanently.[5] A fertile, clayey, fragrant and even land with medicinal plants, trees and climbers is the harbinger of wealth, happiness and peace.[6] The site is examined by the five sensory perceptions of touch, sight, smell, sound and taste, and above all it must be pleasing to the mind, and if the heart is overjoyed at its sight, it is considered auspicious.[7] It is believed that the soul combines with the mind, the mind with the senses, and the senses with their respective objectives. This connection for the ordinary human being is inseparable, but can be differentiated by *Yogins* or seers. There is nothing that is unattainable for the mind, and the mind is able to foresee future events, successes and failure.[8]

A suitable dwelling site is fertile and alive, as land where nothing grows is a dead land. It possesses one of the six flavours which are bitter, pungent, astringent, salty, sour and sweet. Its ground is even, coloured white, red, yellow or has the shimmer of a pigeon's sheen. It is bordered by a water course flowing to the right. In summer the ground feels cool, and in the rainy season it is warm. It is smooth and pleasant to touch. It emanates the sounds of musical instruments like the *Mridanga*, *Veena*, and *Sitar* and those of horses and elephants.[9] It is free from worms, white ants, rats, skulls, bones, shells, sand, holes, ashes, husk and gravel.[10]

An unsuitable land is that which is cracked, dry, full of termites, and undulating.[11] It has big boulders, ditches and holes, is irregular, dry and rough, is located on an intersection of four roads, and is far away from the city.[12] Land that is clouded with smoke from the dye-factories and surrounded by workshops of blacksmiths, and possesses a fowl smell of burnt things and dead bodies is not a suitable dwelling site.[13] If the site is of a smoky, mixed and dry hue; its taste salty and of sweat; is dry, rough to touch, and consistently warm or cool irrespective of the season; and emanates a broken, shrill sound, of a broken vessel, of a dog or a donkey, it must be rejected as an unsuitable site.[14] If the shape of the site is round,

5 *Brihat Samhita* LIII.88.
6 *Brihadvastumala* I.77–78.
7 *Brihat Samhita* LIII.95. Also in *Manasara* IV.13–14; *Mayamata* III.4–7; *Vasturatnavali* I. p21(verses are not numbered); *Brihadvastumala* I.93; *Vishvakarma Prakasha* I.31.
8 *Brihat Samhita* LXXV.3, LIII.95.
9 Collated from *Samarangana Sutradhara* X.48–51; *Mayamata* III.2–7; *Brihadvastumala* I.101.
10 *Manasara* IV.15–16, 19, also in *Mayamata* III.7–10.
11 *Brihadvastumala* I.79; *Vasturatnavali* I. pp17.
12 *Vishvakarmaprakasha* I.34.
13 *Manasara* IV.26, 21–22.
14 *Samarangana Sutradhara* X.59–62.

triangular, resembles a tortoise, a fish, a drum, a bird, or is depressed in the middle, it is an inferior one.[15]

Milky (secreting a milky sap), thorny and fruit-bearing trees should not be planted in the vicinity of the house. The shadow cast by these trees after the first quarter of the day should not fall on the house.[16] This is also because such trees usually have deep and spread-out roots, which may harm the foundation of the house. Thorny trees like *Khadira* (Acacia catechu) in the vicinity of the house brings danger from enemies; milky trees like *Arka* (Calotropis gigantae) destroys wealth; thorny trees that bear fruit harm the children.[17] If such trees cannot be cut down, the defect could be rectified by planting an auspicious tree like the *Ashoka* (Sarasa indica), *Nimba* (Azadirachta indica), *Bakula* (Mimusops elengi), *Punnaga* (Calophyllum inophyllum), *Shami* (Prosopis spicigera), and *Shala* (Shorea robusta), between the house and the forbidden tree.[18] A site with large trees on its corners, or with sacred trees, should be avoided.[19] Some trees are auspicious only if planted in their specific direction – *Plaksha* (Ficus arnottiana) in the north; *Vata* or *Nyagrodha* (Ficus bengalensis) in the east; *Udumbra* (Ficus racemosa) in the south; *Peepal* or *Ashvattha* (Ficus religiosa) in the west.[20] Each tree has an associated mythological significance; they are the focus of numerous festivals and ritual worship.[21]

Various plants and trees are associated with the nine planets, and their growth on the land indicates the influence of their associated planet. Tall and strong trees indicate the influence of the Sun; creepers and milky trees indicate the influence of Venus and the Moon; thorny trees grow under the influence of Mars and Saturn; fruit-bearing trees indicate the influence of planet Jupiter; fruitless trees indicate the influence of the planet Mercury; bushes indicate the influence of *Rahu* and *Ketu*; sapless and weak trees indicate the influence of Saturn.[22]

In general, a square and a rectangular site elevated towards the south and west is suitable.[23] Triangular and irregular shaped sites are inferior.[24] A downward slope towards the south-east, south, south-west, west and north-west is unsuitable.[25] A downward slope towards the north, northeast

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15 *Mayamata* III.10–15. Also *Manasara* IV.25,28,29.
16 *Rajavallabha* I.28.
17 *Brihat Samhita* LIII.86–87, also in *Rajavallabha* I.28.
18 *Brihat Samhita* LIII.86–87.
19 *Mayamata* III.15.
20 *Brihat Samhita* LIII.85. The botanical names are taken from Appendix (Ia) of M.Ramakrishna Bhatt, *Varahamihira's Brihat Samhita*, Motilal Banarsidass, New Delhi, 1993.
21 For details see for instance, Shakti Gupta, *Plant Myths and Traditions in India*, E.J. Brill, Leiden, 1971.
22 Bhatt, *Fundamentals of Astrology*, p17.
23 *Manasara* IV.2 3, also in *Samarangana Sutradhara* XXXVIII.66.
24 *Mayamata* III.10-12; *Manasara* IV.25; *Vishvakarma Prakasha* I.41–49.
25 *Samarangana Sutradhara* LXXXVIII.2–4

and east of the site is favourable.[26] The implication of the slopes is relatable to the malefic and the benefic attributes of the planets that rule these directions.[27] A downward slope towards the *Agnikona* or south-east, results in a fear of fire; towards south, results in death; towards *Nairittya Kona* or south-west, results in a fear of theft; towards *Vayya Kona* or north-west destroys the harvest; towards west results in mournfulness.[28] A downward slope in the centre of the site brings all kinds of destruction.[29] A *Gajaprishtha* site or a site like the back of an elephant – elevated in the south, west, south-west, and north-west directions – is the harbinger of prosperity and long life; a *Kurmaprishtha* site, or a site like the back of a tortoise – elevated in the centre – brings material benefits; a *Daityaprishtha* site, or a site like the back of a demon – elevated in the north-east, east, and south-east – brings destruction; a *Nagaprishtha* site, or a site like the back of a snake – elevated in the north and south, and long along its east-west axis – results in death and destruction of peace.[30]

The chosen site should not be near a sacred place, a royal palace, a public meeting place, a tomb, a minister's house, a gamblers house, or a junction of four, three, or two roads and a highway. The site should not be intercepted by roads perpendicular to its boundary.[31]

Categories of Site

Following the above general survey of the land, the site is then judged against the categories of its attributes as a *Brahmin* site, a *Kshatriya* site, a *Vaishya* site and a *Shudra* site.[32] A *Brahmin* site brings happiness, a *Kshatriya* site gives power, a *Vaishya* site generates wealth, and a *Shudra* site is associated with toil and is an inferior site.[33] A *Brahmin* site is square in shape, whitish in hue, and without defects. It gently slopes down towards north. The taste of its soil is sweet, and the land fragrant. The sweet taste is associated with the planet Jupiter that signifies wisdom, happiness and

26 *Vishvakarmaprakasha* I.15–16; *Narada Samhita* XXXI.3; *Rajavallabha* I.17; *Samarangana Sutradhara* XXXVIII.66; *Manasara* IV.2–3.

27 As explained in the previous chapter on Orientation.

28 *Rajavallabha* I.17. Similarly in *Samarangana Sutradhara* XXXVIII.2–4; *Vishvakarma Prakasha* I.15–16.

29 *Samarangana Sutradhara* XXXVIII.2–4; *Vasturatnavali* p15(verses are not numbered).

30 *Brihadvastumala* I.82–89; *Vastumanikya* I.15–18.

31 Collated from *Brihat Samhita* LIII.89–90; *Mayamata* III.10–18; *Manasara* IV.23, 27, 37; *Rajavallabha* I.28; *Samarangana Sutradhara* XXXVIII.20–22,24.

32 The discussion here, is not of the four caste groups, but of the associated attributes, as explained in the previous chapter on Orientation. The discussion on the four types of sites is based on the following sources: *Mayamata* II.10–15; *Rajavallabha* I.13; *Manasara* III.18–30; *Narada Samhita* XXXI.1; *Brihat Samhita* LIII.96–97, LXXXVI.77; Bhatt, R., *Fundamentals of Astrology*, pp13–14. Also see Chapter IV.Orientation.

33 *Vasturatnavali* I. p16.

spirituality, which are the associated attributes of the *Brahmin Varna*. Jupiter and Venus are the ruling planets of *Brahmin Varna*. The colour white is associated with the northern direction. Such a site brings good fortune.

A *Kshatriya* site is a rectangle, where the length exceeds the breadth by its eighth part (L=B+B/8, where L is length and B is breadth). It is of a blood red hue, and slopes down towards the east. Its soil is bitter and has an astringent taste. The bitter taste is associated with the planet Mars, which is associated with the colour red. The Sun and Mars are the ruling planets of the *Kshatriya Varna*, signifying valour, courage and strength. Red is also associated with the eastern direction. Such a site brings success.

A *Vaishya* site is a rectangle, where the length exceeds the breadth by its sixth part (L=B+B/6). It is of a yellowish hue, and its soil tastes sour. Yellow is associated with the southern direction ruled by the *Vaishya Varna*. Although *Mayamata* (II.10–15) and *Manasara* (III.18–30) recommend an eastern slope for the *Vaishya* and *Shudra* sites too, *Rajavallabha* (I.17) and *Brihat Samhita* (LIII.91) recommend a southern slope for the *Vaishya Varna*. Sour taste is associated with the planet Venus. Such a site has a beneficial quality.

A *Shudra* site is a rectangle where the length exceeds the breadth by its fourth part (L=B+B/4). Its soil is black and pungent in taste, associated with the planet Saturn. Saturn rules the western direction, and a *Shudra* site slopes down towards the west. Such a soil produces riches and grains.

The features of the four types of sites as described by various texts are shown in Table XIII.

Soil Tests

Having examined the contour, colour, odour, sound, and taste, the site is then ascertained for measurement, and its boundary is marked.[34] A series of soil tests[35] are conducted on the site to further judge its quality. A pit of one *Hasta* in width, length and depth is dug in the centre of the site. The soil thus excavated is replaced back into the pit, and inferences are drawn from the level of the replaced soil in the pit. The soil is considered inferior, if the level of the soil is below the rim of the pit; of an average quality if the soil fills the pit to its rim; and superior if the replaced soil overflows the pit. This test examines the compactness of the soil.

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34 *Manasara* III.15 16.

35 The soil tests described below are collated from the following sources: *Rajavallabha* I.16; *Samarangana Sutradhara* X.66 74; *Manasara* V.20–35; *Mayamata* IV.10–18; *Narada Samhita* XXXI.4–5; *Vishvakarma Prakasha* I.61 67; *Brihat Samhita* LIII.92–95; *Brihadvastumala* I.108 110. The tests and the inferences drawn from them prescribed in the texts are similar, varying only in the number of experiments prescribed.

TABLE XIII

	Brahmin	Kshatriya	Vaishya	Shudra
Brihat Samhita (LIII.91,96–97)				
Hue	White	Red	Yellow	Black
Smell	Ghee	Blood	Food	Liquor
Grass	Darba (Pao cynasuroides)[36]	Shara (Imperata cylindrica)	Durva	Kasha (Eragrostis cynasuroides)
Taste	Sweet	Astringent	Sour	Pungent
Declivity	North	East	South	West
Mayamata (II.10–15a) and *Manasara* (III.18–30)				
Hue	White	Red	Yellow	Black
Taste	Sweet	Bitter	Sour	Pungent
Trees	Udumbara (Ficus glomerata)	Ashvattha (Ficus religiosa)	Plaksha (Ficus lacor)	Nyagrodha (Ficus bengalensis)
Declivity	North	East	East	East
Effect	Good fortune	Success	Beneficent	Abundant riches and grains
Shape	Square	Rectangle (L=B+B/8)	Rectangle (L=B+B/6)	Rectangle (L=B+B/4)
Samarangana Sutradhara (X.48–49)				
Hue	White	Red	Yellow	Black
Taste	Sweet	Bitter	Sour	Pungent
Rajavallabha (I.13,17)				
Hue	White	Red	Yellow	Black
Smell	Ghee	Blood	Sesame	Fish
Taste	Sweet	Bitter	Sour	Pungent
Declivity	North	East	South	West

The same pit is then filled with water. The architect walks a hundred steps away from the pit, and returns to examine the level of water. *Mayamata* and *Manasara* suggest that the pit should be filled with water at nightfall, and its level must be examined the following morning. The soil is considered of an inferior quality if the water has been completely absorbed; of an average quality, if some of the water remains in the pit; of a superior quality, if the level of water remains unchanged. This test is designed to examine the porosity of the soil. *Brihadvastumala* suggests that the movement of water in the pit should be examined. Still water indicates stability; its clockwise movement indicates bliss; its anticlockwise movement brings death.

36 The botanical names of the plants here are primarily from *Plant Myths and Traditions in India* by Dr. Shakti M. Gupta (1971), who is a botanist by profession.

In the same pit is placed an unbaked earthen lamp with four wicks in *Ghee* or clarified butter. The wicks are oriented in the four directions of east, south, west and north, representing the four *Varnas* of *Brahmin, Kshatriya, Vaishya* and *Shudra* respectively. The flame of the wick that outlasts the rest indicates the suitability of the land for the corresponding *Varna*. The soil is unsuitable if the wicks in the lamp do not light up. Besides indicating the suitability of the soil to the specific *Varna*, the test examines the oxygen content of the soil.

Brihat Samhita and *Samarangana Sutradhara* suggest another method which examines the suitability of the soil to the specific *Varna*. In the pit are placed four flowers or four garlands of flowers that are white, red, yellow and dark or black in colour, representing the four *Varnas – Brahmin, Kshatriya, Vaishya*, and *Shudra* – respectively. These are placed in the pit at nightfall, and examined the following morning. The *Varna* which would flourish on the site is indicated by the flowers that have not wilted and faded in colour.

Finally, the fertility of the soil is examined by sowing an assortment of seeds like mustard, sesame, barley, and wheat. The site should be abandoned if the seeds do not sprout. *Vishvakarma Prakasha* suggests that the soil is of a superior quality if the seeds sprout up in three days; of an average quality, if the seeds grow after five days; of an inferior quality, if the seeds take seven days to grow.

Preparation of Site

The site is then levelled and all the impurities are removed. The materials excavated at the time of digging, foretell the associated implications. Wood indicates a fear of fire, bricks are a harbinger of wealth, bones may bring destruction, and snakes indicate a fear of theft.[37] Various methods of locating the *Shalya* or bones and other impurities, hidden beneath the earth, are described in the texts. According to one method, nine groups of Sanskrit alphabets are ascribed to the eight cardinal directions and the centre. The householder is asked to name a divinity, a tree and a flower. The direction of the *Shalya*, its type, and the depth at which it is present is derived from this 'query'.[38] Another method for *Shalya Shodhana* or the removal of impurities is by observing the *Shakuna* or portents. For example, the architect observes the part of the body of the *Vastupurusha* the householder touches at the time of divination. By correlating the omen to the limb of the *Vastupurusha,* the type and the depth of the *Shalya* is predicted.[39]

37 *Samarangana Sutradhara* X.63–66; *Brihadvastumala* I.74–76.
38 *Rajavallabha* I.19–20; *Brihadvastumala* I.166.
39 *Brihatsamhita* LIII.105.

After the impurities beneath the soil are removed, the site is levelled and irrigated, and coated with cow dung and urine.[40] The high content of ammonia in the fermented cow urine and dung, is an efficient disinfectant.[41] After ploughing the site, the architect sows various seeds mixed with cow dung, and sees them germinate.[42] This is followed by a ritual consecration of the site, conducted to take possession of the land.

Contemporary Considerations

In the Indian urban context, where a dwelling site is determined by the Master Plan of the city, in which design and planning considerations have little to do with the prescriptions of *Vastu Vidya*, the search for a 'suitable' site can be quite frustrating. Generally, the most coveted places are those which exude commercial affluence. More so because commercially successful cities that generate business have modern infrastructural facilities and services to support its residents. The choice of a suitable plot often translates itself into a choice between living in or out of the city environment. This is reflected for example in the growth of Delhi, where the "problem of land and housing" is primarily the inadequate accommodation for the large influx of the population that migrates to the city, for a 'better' life style.[43] Any resolution of the conflict between the economic suitability of the land and its suitability according to the parameters of *Vastu Vidya*, is difficult.

Usually, the economic suitability is the overriding criterion in the choice of the land. After a piece of land is chosen, hopefully with a north or an east face (for those who consult a *Vastu Pundit*), it is trimmed to rectify its shape. This is another difficult decision owing to the high cost of the land: it results in an 'unnecessary' wastage of land, defeating the very economic criterion which guides the choice. Nevertheless, this wastefulness is acceded to, with the *Vastu Pundit*'s promise that possibly larger monetary gains would soon follow. The *Vastu Pundit* gradually learns that his suggestions will be implemented seriously if he lures his client with promised economic benefits of the application.

The criteria considered by the *Vastu* consultant are the shape of the site, its orientation, declivity, and the adjacent roads.[44] The soil tests prescribed in *Vastu Vidya* texts seem to have become redundant, due to technological

40 Vishvakarma Prakasha I.73.
41 Vanucci, *Ecological Readings in the Veda*, p78.
42 Mayamata IV.4; Manasara V.2 16.
43 *Delhi Master Plan, August, 1990*, Akalank Publications, 1992 p2.
44 Dammani, *Bharatiya Vastukala*, 1994 pp15 25; Jhajaria, *Bhavana Nirmana Yojana*, 1994 pp30–35; Reddy, *A Glimpse of Practical Vaastu*, 1993 pp19 40; Sharma, *Dharnidhar's Vastu Guide*, 1994 pp12 30.

advances, which make it possible to overcome the limitations of a poor soil condition. The soil can now be tested in the more scientific setting of a laboratory. The removal of impurities in the soil, and the rejuvenation of its fertility, are not included in the modern *Vastu Pundit*'s list of 'do's and don'ts'. This once again[45] shows that the *Vastu Pundits* do not follow the entire architectural programme of *Vastu Vidya*, but bits and pieces of it, incorporated within the framework of the modern architectural programme. *Vastu* consultants focus primarily on the implementation of orientation principles, and are quite indifferent towards the architectural system followed. This is necessary to maintain a healthy working relationship between the modern architect and the *Vastu* consultant, both of whom are equally indispensable for a client in an urban context.

Some of the *Vastu Pundits* suggest a list of auspicious and inauspicious trees,[46] which does not coincide with the list of trees recommended for plantation in the *Delhi Master Plan* (1990). The latter recommends particular species for 'group plantation', 'colour and aesthetics', and 'roadside plantation'. *Ficus religiosa* or *Peepal*, the sacred fig tree, for instance, is recommended for roadside plantation in the east zone.[47] Therefore, at times, it is difficult to control the type of vegetation that may surround the plot.

Outside the domain of urban planning, a large section of the rural and semi-urban population is learning 'better' and more scientific ways of building, and aspires to the refined life style that the media and architects promote. The stronghold of the traditional method of consecration of the site, still followed in the non-urban context, arouses curiosity amongst the city dwellers, who regard it as superstition and illiteracy. Far from its acceptance as an alternative method of responding to the site, there is a strong sense of awkwardness attached to the traditional methods.[48]

The 'Indian' architect's response to the site is not different from any other modern architect. Whatever the site conditions may be, the architect, generally, is not in a position to ask his client to choose another site, and usually the architect is not consulted for the choice of a site. The site constraints are a design challenge for the architect. The architect seeks inspiration from the site to formulate the design solution. In this respect, he is not very different from a traditional architect, who while performing the soil tests and preparing the site, learns to relate to its potentials. As Sen Kapadia explains about the survey of the site of one of his projects

45 The fragmentary usage of *Vastu Vidya* by its various practitioners has been discussed throughout this study.

46 Sharma, *Dharnidhar's Vastu Guide*, 1994 pp53–54; Shastri,Umesha, *Vastuvigyanam*, 1985 pp13–17.

47 *Delhi Master Plan, August, 1990*. Annexure II, p176.

48 Based on the field study in Rajasthan.

(Department of Computer Science and Engineering, Bombay, 1994), "If you go to the site and sit there silently, it tells you a few things . . . So, we went to the site and studied it to find out the various possibilities . . . . There was a contour on the site, there were trees, the light came from a certain direction, the people would enter it from another direction. All this site information is an initial visual survey, it is a very essential key to basic planning and generates the form of the building."[49] However, there are no standard messages that the site communicates to the architect. An important feature like a mound on the site, for one, could be a limiting constraint for another architect, who may choose to get rid of it.

For entirely different reasons, the *Vastu Pundit* may recommend reshaping the site, as is illustrated in the following letter of a satisfied client to his *Vastu* consultant. It reads as follows:

> "Dear Sir,
> We have made the following changes in our factory as per Vaastu Shastra, since we were having serious financial problems.
> 1. On correcting North-east angle to 90°, our pending bills are getting paid fast and our financial flow improved very much.
> 2. On correcting the South-west corner of the factory site to 90°, and after making a high and heavy mound abutting the South-west compound, we are getting plenty of orders, and we are manufacturing to full capacity. We are very happy that this science has turned our sick industry into a healthy one."[50]

While the *Vastu* consultant may even reject a particular site using the precepts of *Vastu Vidya*, the expertise of a modern architect lies in the acceptance of any site as a challenge, and as long as it is economically feasible, he has the prerogative of playing around with the site and its natural features. The 'Indian' architect may choose one or more design elements indigenous to the location of the site. For instance, a modern house in Kerala may be topped by a tiled pitched roof, albeit of concrete; in Rajasthan, the use of red sandstone cladding is hoped to integrate the design with its surrounding; and the planning grid for old Jaipur was reflected in the design of the Jawahar Kala Kendra situated in new Jaipur.[51] Regardless of the scheme of the design, it can somehow be connected to the location of its site to highlight the concern for tradition (also in the

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49 Sen Kapadia in Keswani, Focussing on Philosophy, *Indian Architect and Builder*, November, 1994 p18.

50 Published in Annexure-5: Letters to the Author, in B.N.Reddy, A Glimpse of Practical Vaastu (Ancient House-Building Science), Hyderabad, 1993 (IV edn.) p97.

51 See Chapter III. Vastu Purusha Mandala.

same way 'disconnected' to reveal modernity). For the modern architect, the site is basically a three dimensional canvas, on which the architect paints his design, and it is at his individual discretion whether or not to respect the neighbouring canvases, as the architect is trained to defend the concept of his own design, whatever that may be.

CHAPTER SIX

Building Materials

The main materials used for construction described in the texts are timber, stone and bricks, while they accept the importance of knowledge of other popular materials that may be in use.[1] Although it is obvious that the representative texts on *Vastu Vidya* were written at a time when modern building materials like reinforced concrete and cement were not in use, the usage of the materials mentioned in the texts like stone, bricks and timber continues. Today these materials are also used to project Indian-ness in the designs, on the same principle that their rejection is used to project 'modernity'. Outside this dynamics of preferences and prejudices lies a vast resource of traditional knowledge on these materials that finds little use in the contemporary scenario. Some of this is described below.

Timber

The process of procurement of suitable wood from the trees is influenced by the physical association of man with tree. "As is a mighty tree so, indeed is a man; . . ." his hair is the leaves; his skin is its outer bark; out of his skin flows the blood, like the sap of the tree – it flows out from the wounded man, like the sap of the tree, when it is cut; the flesh is the inner bark; the nerves are the inner fibres of the tree; the bones are the inner core of the wood; the marrow is the marrow or the pith of the tree.[2] As old age in human beings causes a loss of strength and hair, trees too grow weak when they are old, and holes in their leaves indicates the same.[3] Very young or very old trees should not be used for construction. For example, the

1 *Rajavallabha* IX.17.

2 *Brihad Aranyaka Upanishad* III.9.28, in Radhakrishnan, *The Principal Upanishad* pp243–244, and also quoted in Dwivedi and Tiwari, *Environmental Crisis and Hindu Religon*, New Delhi, 1987 pp61.

3 *Samarangana Sutradhara* XXXI.7–9.

Shisham tree lives for three hundred years, so the ones between the ages of sixteen and a hundred and fifty should be selected.[4] The shadow of the tree is examined as that of human beings.[5]

The trees are further classified as male, female and neuter trees. Trees with a straight, cylindrical trunk from base to top are male; with a broad base and a thinner top are female; with a thinner base and a broad top are neuter. All of these are suitable for use in dwellings,[6] but wood joined together during construction should be of the same gender – male wood must be joined with male, female with female, and neuter with neuter.[7] Old wood should not be joined with new wood, and new wood should not be joined with old.[8] The usage of wood is in the same orientation as of the tree it originated from. The vertical pieces are placed in accordance with the disposition of the tree it originated from, and for the lateral pieces the inside of the tree must face downwards, and the face that constituted the outer surface of the tree must face upwards.[9] The lower part of the tree is strong and the upper part is weaker. All timber should be selected from the lower part.[10] The lower part is used for the base of the pillars, the upper for its capital, and the middle part for the shaft of the pillar.[11]

Trees that must be avoided[12] are those that are near a graveyard; inside the boundary of a farm or a garden; on uneven land; cracked, damaged, and uprooted by lightning, storm, rivers or fire; leaning or resting on other trees; covered with ants, the abode of birds, or frequented by animals; covered with cobwebs; and landmark, sacred and roadside trees. Trees that bear flowers and fruits out of season, are thorny, milky, fragrant, and are planted by elders, half broken, half dry, half burnt, weak, not straight, with three and more heads, and are broken by other trees must not be used for dwellings. Some of the unsuitable trees are *Ashvattha, Bargad, Mango, Plaksha, Aksha, Dhava (Lythrum fructicosum).* Some of the suitable trees are *Khadira, Shala, Shishama, Arjuna* and *Mahua* or *Madhuka.*[13] The chosen trees should be hard and vigorous, neither too young nor old, not crooked and damaged, and pleasing to the eye and the mind.[14] Trees that seem to be able to bear weight and water are good for use in

4 *Ibid.*
5 *Samarangana Sutradhara* XXXI.22.
6 *Mayamata* XV.84–86. Also in *Manasara* XV314–321.
7 *Mayamata* XVII.60. Also in *Manasara* XVII.24–26.
8 *Mayamata* XVII.55–56; *Manasara* XVII.192–195.
9 *Mayamata* XVII.37,43.
10 *Manasara* XVII.3–4.
11 *Manasara* XV.360–361. For various type of wood joinery, see *Manasara* XVII and *Mayamata* XVII.
12 Collated from *Samarangana Sutradhara* XXXI.5–21; *Rajavallabha* V.16; *Mayamata* XV.71–76; *Manasara* XV.323–334; *Brihat Samhita* LIII.120; *Vishvakarma Prakasha* IX.10–20.
13 For the entire list of unsuitable and suitable trees, see *Mayamata* XV.109–114, 64–67a; *Brihat Samhita* LIII.120; *Samarangana Sutradhara* XXXI.19–20; *Manasara* XV.348–359; *Rajavallabha* V.17.
14 *Mayamata* XV.62–63; *Manasara* XV.348–359.

dwellings.[15] The use of one species is recommended,[16] and *Vishvakarma Prakasha* (IX.8–9a) suggests that the use of one type of wood brings happiness, the use of wood from two different trees is of an average quality, and the use of three types is inferior. More than three types must not be used.

Setting out into the forest for the procurement of wood is done at an auspicious time. The tree is invoked and the spirits that dwell on the tree are asked to depart, following a ritual ceremony. During the ritual, if the tree starts speaking in a human voice, shivering, or its flowers and leaves begin to wilt, it should be abandoned.[17] The tree should be cut facing north or east, with a sharp instrument. If the tree falls towards the north, or east, it is considered auspicious, but if it falls towards the south, or west, then it should be abandoned. When being cut, if blood oozes out of its sap, it should be abandoned. It is auspicious if the cut makes a clean break and the tree falls with a jump. While cutting the tree, the good and the bad omens are also observed and considered.[18]

Samarangana Sutradhara (XXXI.42–49) and *Brihat Samhita* (LII.122–123) recommend an examination of the lines that occur in the cross section of the trunk of the tree, the annular rings, called the tree *Mandala*. These lines are examined at around half the height of the tree. The colour of these circles is associated with animals; for example, a yellowish circle is associated with an alligator, a red with a chameleon, a brown or tawny colour with a rat, and a madder red colour with a frog. It is considered unnatural for trees to possess the coloured circles.

Stone

The selected stone should be dense, smooth, deeply embedded in earth in an eastward or northward orientation, of appropriate length, of a pleasant appearance, and mature – neither young, nor old or aged. A young stone produces a sound of a partially baked brick and is soft when struck by a hatchet. A mature stone produces a deep sound, is smooth, feels cool when touched, is not fragmented, and glows. Mature stone is suitable for every use. An aged stone is rough like the skin of a toad or a fish; has streaks, flaws and spots, and is not suitable for use. A stone in which circumvolutions are observed when cut is a pregnant stone, and should be cast aside. Stone is also distinguished by its gender. A male stone is uniform in colour, dense, smooth

15 *Samarangana Sutradhara* XXXI.16–18.
16 *Manasara* XV.359.
17 *Samarangana Sutradhara* XXXI.29–30.
18 For the description of the entire ritual and process of procurement of wood see *Samarangana Sutradhara* XXXI.27–40; *Brihat Samhita* LIII.121; *Mayamata* XV.81–114; *Manasara* XV.252–313, LII.184–187.

and cylindrical. It produces the sound of an elephant bell, when struck. A female stone has a wide bottom and narrow head, and produces the sound of a cymbal. A neuter stone is wide around the middle, and produces no sound. The gender of the stone is especially relevant in the construction of temples and idols, and their restoration.[19]

Stone should be rejected if it is damaged by wind, sun and fire; too soft; in alkaline water; shaky and has been displaced; rough, with cracks, fissures, streaks, spots and flaws, and is aged; of an undefined colour and contains grit; or has already been used. The 'face' of the stone is its underside as quarried out; its upper surface is its head. The orientation of the face is diametrically opposite to its head, for example, if the face is in the south, the head is in the north; if the face lies towards the ground, the head faces upwards.[20]

Similar to the search for wood, the architect (or whoever goes for the search) sets out at an auspicious time to look for the material in the northern, north-eastern or eastern direction. Facing east, the ritual ceremony invoking the stone is performed, and the spirits residing in the stone are asked to depart. The stone is split by striking it with a sharp chisel. It is then trimmed to a regular shape and its 'face' is carefully marked. The chosen stone must be greater in length than in depth.[21]

Bricks

The soil for making bricks and tiles must be red and swollen; mixed with white sand; without pebbles, gravel, roots and bones; of a homogeneous colour, pleasant to touch. Clods of earth are put into a knee deep hole and filled with water. It is then kneaded by foot, by stamping on it forty consecutive times. To this, the sap of *Kshira, Kadamba, Amra, Abhaya, Aksha* and the three myrobolans is added, and the mixture is kneaded three more times. This mixture is used to mould the bricks of the prescribed dimensions, and after they are completely dry, they are baked. After a period of one, two, three or four months, they are immersed in water, and those which are not damp when taken out are used for construction.[22]

The chosen bricks should be of an even blood-red colour, well-baked, and well-proportioned. Bricks that are black, weak and old, powdery, broken, uneven, and with pieces of stones are not preferred.[23] They should

19 *Mayamata* XV.67b-68a, XXXIII.4–19a.
20 *Mayamata* XXXIII.5b-7.
21 *Mayamata* XXXIII.19b-31a. Also see *Manasara* LII.181–213.
22 *Mayamata* XV.115–120.
23 *Vishvakarma Prakasha* VI.26–29.

be free from cracks and fissures, without flaw, and give off an harmonious sound.[24] Bricks are distinguished as of a male, female and a neuter gender. A male brick has rectilinear sides and length of an odd numbered *Angula*; a female brick has an even numbered length; a neuter brick has curved sides.[25] The bricks made of stone are 'stony' bricks, and those made of soil are pure bricks. The chief architect must distinguish the stony and pure bricks, and their three genders, and fix male bricks in male temples.[26] The gender of the bricks, as of stone, is of special significance in the construction of temples and their restoration.[27]

The dimensions prescribed in the texts are various,[28] but follow more or less similar proportions. According to *Mayamata* (XV.116b–119), the width of the bricks may be four, five, six, or eight *Angula* or digits; the length, twice the width; the height, a quarter or a third of the width. According to *Manasara* (XII.189–193), the width may range from a minimum of seven *Angula* to a maximum of a twenty-nine to thirty *Angula*, with the precise dimension derived by adding an increment of two *Angula* each time; for example the width may be seven, nine, eleven, fifteen *Angula*, and so on. The length is greater than the width by its quarter, half, three-quarters, or twice the width; the height is half, or equal to the width. According to *Vishvakarma Prakasha* (VI.26–29), the width of bricks for Brahmins is twenty-one *Angula*; for Kshatriyas, seventeen *Angula*; for Vaishyas, thirteen *Angula*; for Shudras, nine *Angula*. The length is double the width, and the height is half the width. According to *Rajavallabha* (V.12), a superior brick measures sixteen *Angula* in length and ten *Angula* in width; an average brick measures fifteen *Angula* in length and nine *Angula* in width; an inferior brick measures fourteen *Angula* in length and seven *Angula* in width. The height of all these types is one-third of the width.[29]

Samarangana Sutradhara (XXXIII.2–4) lists the twenty features of well-laid stone or brick masonry, for example, the masonry should be *Suvibhakta* or well-divided or well-marked; *Sama* or levelled; *Charu* or pleasant or beautiful; *Caturashra* or 'squarish'; *Asandighda* or doubtless; *Asambhranta* or not illusive; *Avinashi* or indestructable; *Supratishtha* or well-laid; *Suparshava* or with a good back; *Susandhi* or well-joined, and so on. While constructing the wall, the string tied to guide the course should be taut; uneven bricks should be trimmed; the mortar should not be used in excess;

24 *Mayamata* XV.68b-70.
25 *Mayamata* XII.104b-108a.
26 *Manasara* XII.212–213.
27 See *Mayamata* XII.104b-108a.
28 Also see the discussion of the 'Bricks in Vastushastra' in T. Bhattacharya, *The Canons of Indian Art*, Calcutta, 1986(III edn) pp255–269.
29 Op cit., pp255–264.

the wall must be raised in equal stages in all directions; an eye should be kept on the beginning, centre and on the end of the wall.[30] Bricks are also prescribed for the construction of a 'proper' roof.[31] A bed of bricks is laid over the rafters and covered completely with a layer of lime mortar.[32]

Various mortars are described in *Mayamata* (XVIII.92b-93a). *Gulmasha* is a mixture of one part sand (the sand particles are one and a half, one and three quarters, or twice the thickness of lotus fibre), and one part each of lime, gravel and shells. *Karala* is made of the same ingredients, but the gravel stones are the size of *Abhaya*, or *Aksha* fruit. For *Mudgi*, the size of the gravel is that of beans. For *Kalka*, lime of the size of chickpeas is taken. *Chikkana* is made into a homogeneous and viscous liquid. First, the materials are crushed with pure water from the well, then ground with the sap from *Kshiradruma, Kadamba*, mango, *Abhaya* and *Aksha*, and the juice of the three myrobolans and broad beans. After the ingredients are mixed well, and pounded by horses' hooves, the mixture is filtered through fine linen to impart the required viscosity. These five mortars are used separately, as per the requirement, to join bricks without gaps. The prescribed thickness for the layers of *Gulmasha*, *Karala* and *Mudgi* is one *Angula*; *Kalka* is a half *Angula*; *Chikkana* is half of *Kalka* or a quarter *Angula*. It takes six months to obtain a perfect result, four for an average one, and two for a mediocre result. Another mixture named is *Bandhodaka*, prepared using curds, milk, beans, molasses, clarified butter, bananas, coconut milk and mango juice, and is used as a coating over the prepared and washed wall as a base for placing images.

Contemporary Use

Apart from the materials described in the *Vastu Vidya* texts, a wealth of oral tradition of *Vastu Vidya* survives today in some parts of India, in as diverse forms as the communities themselves. This reveals itself, for example, in the usage of various herbs and plants to fight termites and to give that extra shine to the flooring. The extraordinary knowledge of the indigenous materials and the use of plant and fruit extracts in construction remains, not because it is cherished, but largely because its users have yet to graduate to the 'comfort' and the 'status' of modern building methods.

In the coastal state of Kerala, where the climate is warm and humid, traditional houses with light wooden construction, and sloping roofs of wooden rafters, covered with clay tiles are still a common sight. These

30 *Samarangana Sutradhara* XXXIII.21–33.
31 *Mayamata* XVIII.65–66a.
32 *Mayamata* XVIII.108.

materials are however not preferred by the economically prosperous section of the society, for whom the picture of a bungalow in concrete clad in expensive granite, painted in flashy colours, with every window 'enhanced' with an air conditioner (which also counters the discomfort of warmth and humidity), a sloping concrete roof with its outer surface shaped to imitate tiles, and the longest car affordable of a foreign make parked beside it, represents all that is alluring and desirable.[33]

In the warm and arid climate of Rajasthan, in the older towns like Jaipur, the *Haveli* with thick walls made of brick and lime masonry, clad in stone, is a common sight. The thick walls keep the interior cool during the day-time and warm during the cold nights. The small openings in the walls with *Jali* work diffuse the harsh rays of the sun. The thermal comfort of the *Haveli* appeals to the 'rationalist', and the skilled craftsmanship of the intricate detailing of the construction to the 'romantic'. But since much of the architecture in the post-independence period was influenced by the 'modern' ideas of political leaders like Jawaharlal Nehru and the architects who returned to India after 'higher' education in America and Europe, a certain kind of stigma was attached to the traditionally used materials. Jawaharlal Nehru commented, "It surprises me, for instance, why some people go on putting up enormously thick walls when all over the world partitions are much thinner and stronger. In the old days of course – I have lived in houses in Uttar Pradesh built about 100 years ago – walls were 13ft. thick, *kacha* walls."[34] While most traditional architecture in India invented ways to minimise the direct exposure to the scorching sun, and in southern India also to the excessive humid air, it had little appeal, as he explained: "Some of the temples of the South, however, repel me inspite of their beauty. I just can't stand them. Why? I do not know. I cannot explain that, but they are oppressive, they suppress my spirit. They do not allow me to rise, they keep me down. The dark corridors – I like sun and air and not dark corridors."[35]

For the traditional model, it could be justifiably stated that materials, construction and technology (even climate), "are modifying factors, rather than form determinants, because they decide neither what is to be built nor its form. They make possible the enclosure of a space organisation decided upon for other reasons and possibly modify that organisation."[36] The

33 These features are especially visible in Calicut, where many skilled workers who return from Dubai with economic prosperity, wish to adopt modern ways and shun most of the tradition of their home land. It could be said that through these symbols they cling on to the prosperous phase of their life in Dubai, rather than to their relatively poorer past. This is based on primary field study. The account is not a criticism of popular 'taste', but is intended to understand the notions that may influence the use of materials, regardless of their functional utility, and economic feasibility.

34 Jawaharlal Nehru in the inaugural address to the *Seminar on Architecture*, on March 17, 1959, published by Lalit Kala Akademi, Delhi, 1959 p8.

35 *Ibid.* p5.

36 Rapoport, *House, Form and Culture*, 1969 p25.

response of the traditional model to materials, construction and technology, is also well within the reasons of its architectural programme. The input of technology from within the programme, is one of the sustaining factors of the continuity of a traditional model. In post-independent India, the architectural technology stood outside, and separate from the traditional model. Preferences and prejudices against certain materials and construction methods gradually worked their way towards the eradication of traditional methods from the mainstream of architectural practice. Thus in 1975 J.S.Gupta observed that "Traditional construction techniques are being forgotten under the mistaken notion that the use of reinforced cement concrete signifies progress and modernity, even though the users' understanding of their technology is, in the main, superficial and perfunctory."[37] The modern architects in India, who anyway knew little about the traditional building methods, celebrated the advent of steel and reinforced cement concrete, as the freedom from the "restrictions prevalent in the old times".[38] They willingly severed their relationship with traditional knowledge: "Only recently we have started to grow out of the rut of ancient forms and are trying to give rise to a new architecture."[39] The new technology and materials were not modifying factors, but a prime qualification of the 'modern' for the architect. A specimen of the marvels of modern methods was constructed in the form of the city of Chandigarh, to teach Indian architects the lessons of modern architecture – winning the personal favour of Jawaharlal Nehru, who said:

> "Now I have welcomed very greatly one great experiment in India, which you know very well, Chandigarh. Many people argue about it, some like it, some dislike it. It is totally immaterial, whether you like it or not; it is the biggest job of its kind in India. That is why I welcome it. It is the biggest because it hits you on the head, because it makes you think. You may squirm at the impact but it makes you think and imbibe new ideas, and the one thing India requires in so many fields is to be hit on the head so that you may think. I do not like every building in Chandigarh. I like a few very much, I like the general conception of the township very much, but what I like above all is this creative approach, not being tied down to what has been done by our forefathers and the like, but thinking out in new terms, trying to think in terms of light and air and ground and water and human beings, not in terms of rules and regulations laid down by our

37 Gupta, J.S., Bring Back Bricks and Lime, *Times of India*, Sunday March 9, 1975.
38 S.H. Parlekar, Architectural Education in India, in *Seminar on Architecture*, Lalit Kala Akademi, Delhi, 1959 p110.
39 Aditya Prakash on Effect of Technology in Architecture, in *Seminar on Architecture*, 1959 p145.

> ancestors. Therefore, Chandigarh is of enormous importance regardless of whether something in it succeeds or something in it does not succeed. As a matter of fact, even now many things in Chandigarh have spread, many ideas, in small ways and big ways. Chandigarh, as you well know, is more famous in the world than most Indian towns and cities excepting the well known three or four, simply because it is a thing coming out, it is a thing of power coming out of a powerful mind and if you want anything of power, it must come out of a powerful mind, not a flat mind which is a mirror, and that too not a very clear mirror, reflecting somebody else's mind. There is no doubt that Le Corbusier is a man with a powerful creative type of mind. Because he has that, he may become extravagant occasionally. He can produce extravaganza occasionally, but it is better to have that than to have a swelled head with no mind at all."[40]

What the Chandigarh-experience did not teach the architects was how to use stone, bricks and lime, and yet be modern at the same time. To those who supported a synthesis of the traditional and modern building methods, such enthusiastic promotion of Chandigarh, posed a clear threat to the home-grown building techniques:

> "Modern architecture of which Chandigarh is an outstanding expression, is essentially the product of an industrial as well as an affluent society. It is neither necessary nor feasible to foist modern architecture of so-called modern construction media on the country. The advent of reinforced cement concrete has had an unfortunate effect on building techniques both in the rural areas and in small towns . . . . For over 25 years now we have been pursuing the chimera of modern technology in all walks of life and the present climate of scarcity could perhaps be attributed partly to this indefatigable pursuit . . . . There is no virtue *per se* in modern technology. There are areas of the Indian economy where traditional techniques can not only fill the bill eminently (and thus release industrial capacity for more important use) but are also likely to prove superior and more beneficial to society in many respects. The field of civil engineering construction is one such sector of the Indian economy which offers immense possibilities if we revert to traditional technology."[41]

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40 Jawaharlal Nehru on the inaugural address to the *Seminar On Architecture*, March, 1959, Lalit Kala Akademi, Delhi, 1959 pp8-9.

41 J.S. Gupta, Bring Back Bricks and Lime, *Times of India*, Sunday, March 9, 1975.

The promotion of modern technology was essential to the modern architect, who had no lessons in traditional architecture, and his status depended upon the total freedom from the clutches of traditional knowledge. These new materials were expensive, and were promoted both by politicians and the profession as an economically 'dear' way to build, as B.L.Dhama observed in 1962: "There is a Rajasthani proverb, *Songa roe bar bar Mahnga roe ek bar* (The cheap cries again and again, the dear only once). On this score of cheapness, therefore, the local building materials, namely: lime, brick, stone, wood, etc., make artistic, durable, cheap, suitable and handsome looking buildings instead of costlier reinforced cement concrete structures which consume a mass of cement and iron but are useless when damaged . . . . Now fully knowing the advantage of the indigenous materials the people have a craze for cement and iron. Like some medicine taken as a panacea for all diseases, cement and iron are wrongly considered to be a necessity for everything in the building trade."[42]

Meanwhile, Kahn's architectural experiments in India "helped promote brick to an almost exalted status in the vocabulary of the Indian architect".[43] Many architects echoed the legacy of Kahn and Le Corbusier in their characteristic usage of concrete and brick facades.[44] The use of brick occupies that special place in the architect's palette as it could be conceptually linked to both the 'ancient Indian tradition', and to the modern work of Kahn as well. While it enjoys the benefits of both conceptual worlds of the modern and traditional, its usage on the facade is characteristic of the modern.

The building materials are not 'traditional' per se, but it is their characteristic use that makes them 'traditional'.[45] While the use of materials like stone, bricks and wood, transcends the boundaries of time and region, their differentiated use can be identified as being specific to a particular architectural programme and tradition. For example, the significance of the concept of the male, female and neuter bricks may be of vital importance for a traditional builder in India, but for a modern builder the concept may be an irrelevant superstitious belief. Even though both may use the same material, their perception of the material itself, its use and method of building with it may be entirely different. Whether the modern use of a material that happens to be in use traditionally, can help 'root' the building conceptually in tradition, is debatable.

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42 B.L.Dhama, *Domestic Architecture*, Ajanta Printers, Jaipur, 1962. Preface and p25.

43 Bhatt and Scriver, *After the Masters- Contemporary Indian Architecture*, 1990 p18.

44 For various architectural projects see Bhatt and Scriver, Section 4, pp15–19; 36–39.

45 It seems more appropiate to refer to the 'use of traditional materials' as 'use of traditionally used materials' to highlight the particular aspect of 'use' that makes the material modern or tradtional. This is especially valid for materials like stone and brick that have diverse uses within a modern and traditional architectural programme.

With the need for expressing their identity growing stronger in the shrinking world of the media, where a design of an architect from India rubs shoulders with others from the West, the 'Indian' architects spell out the distinctions that make them different. The 'Indian' architects emphasise the symbolic link to tradition through the usage of materials like stone and brick: "The brick Jalis at the terrace add a touch of tradition".[46] Other 'Indian' architects consciously avoid the usage of traditionally used materials from the fear of engaging in pastische: "To put red stones and arches from Jaipur here, would be too literal a translation and also no transition to modernity."[47] Still others work out the link of each 'traditional' material employed, and understate the use of modern materials: "The building is concrete frame structure with brick and stone as the infill material. The external walls (including those around the central *kund*) are clad in sandstone (from Rajasthan) with a coping of beige Dholpur stone – the same materials used for the Jantar Mantar observatory, Fatehpur Sikri and the Red Fort at Agra . . . . On the external facades, the presence of each of the planets is expressed by its symbol inlaid in white marble (embellished where necessary with black granite and mica slate) again recalling the calibrated surfaces of the instruments at Jantar Mantar."[48] The same red sandstone is also used, among other materials, on the exterior facade of the LIC Centre (1986) at Delhi, designed by the same architect, where by contrast "Clearly Correa felt that it was more appropriate to refer to Western prototypes when designing a building of a type for which there is no relevant precedent in Indian traditional architecture."[49] To highlight the usage of red sandstone here as an echo of its usage in Fatehpur Sikri, would indeed be a bit far-fetched. Here the design, including a modern glass curtain wall, albeit not the most appropriate solution for the climate of Delhi, topped with a special steel frame, with the remaining walls clad in red sandstone, situated on the challenging site in Connaught Place, is explained as a "real bang on the head of Delhi – a bang as resounding and as necessary as Corbusier had delivered on the head of the Indian architectural scene some three decades earlier."[50]

Simultaneously, many Indian architects who are not in the privileged position of either delivering 'bangs on the head', or consciously expressing 'Indian-ness', find themselves using 'Indian' knick-knacks in their designs in response to the demand made by their clients. The use of carved

46 Suneet Paul on Hudco Place- a Constructive Image, *Architecture+Design*, March-April, 1995 p37.
47 Sen Kapadia on his project Computer Science and Engineering Department, IIT, Bombay (1994), in 'Focussing on Philosophy' by Kiran Keswani, *Indian Architect and Builder*, November 1994 p20.
48 Satish Grover on the Jawahar Kala Kendra in Jaipur, designed by Charles Correa, *Architecture+Design*, Sept. – Oct. 1991 pp18–19.
49 Cruickshank, Variations and Traditions, *The Architectural Review*, August 1987 p51.
50 Grover, 'Charles Correa: A View from Delhi', *Architecture+Design*, Sept. – Oct. 1991 p16.

screens, marble and, more recently, polished granite flooring; profusely carved traditional furniture, custom-made to look old; and parts of building elements, such as brackets, given a new lease of life as pedestals for tables, are but a few illustrations of the popular 'Indian' decor sought after by the businessman who travels to the West frequently. The decor, as well as the set up of his home, have an uncanny similarity with that of a 'five-star' hotel in the cities. In the hotels, it is for obvious reasons that a 'little India' has to be squeezed into the cool comfort for the foreign tourist, and it is where the businessman probably spends more time entertaining his business clients, than at home. The 'five-star culture' seems to have an influence over the kind of hospitality extended to his guests, as well his own life style at home. For instance, the home too replicates a polished granite lobby strewn with expensive curios from Indian boutiques that normally cater to the foreign tourist, rubbing shoulders with those from *Selfridges* and *Harrods* in London. Granite is also used as an expensive flooring material apart from the rooms and toilets in houses, in offices and restaurants, to name a few.

Recently, the sacrifice of granite comes with the assertion of the *Vastu Pundits*, that "There are things in nature that have very high positive energies by themselves, such as sandstone, marble, etc. There are others that have very high negative energies; diamonds and some other gems, granite and quartz, the latter having the terrible effect of *vasco constrictus* or constricting the flow of blood in the vessels."[51] According to Prabhat Poddar, reinforced cement concrete buildings and structures, and synthetic materials, are included in the list of things that cause negative energy, exposure to which results in disease over a period of time. He proposes that, while the rectification in buildings already built is much more complex and difficult, for new structures, the following could be implemented:

> "In a new structure a lot of things can be easily taken care of in establishing the right energy levels by the use of materials such as lime, sandstone, limestone, marble. But to be effective, these need to be fixed in lime mortar instead of cement. Ideally, at the foundation level, if we can spread a 2 inch or 5cm layer of pure lime before laying the brick jelly or lean concrete, it helps further harmonize the radiations coming through the ground. In concrete too, if we can replace granite by sandstone/limestone chips it is a big help. In Europe today, the effort is to develop a new range of

51 Prabhat Poddar, The Mysterious Energies Within and Around us, *Architecture+Design*, July – Aug, 1991 p27.

products – paints, varnishes, preservatives for wood, etc., which have only positive radiations. To a large extent using the right natural materials helps.

Steel reinforcements in columns, beams, slabs and walls, create a sort of cage of Faraday. We could say that we are living in a highly charged environment between two plates of a condenser. To neutralise this it is necessary to establish good earthing for the steel reinforcements so that the ionization factor is neutralized, and the body therefore, not stressed."[52]

It was in the name of scientific and technological advancement that the traditionally used materials were dismissed as being obsolete, and it is today again through scientific validation that the reversion to 'old' materials conceives itself – (and if it catches on in Europe, it may be accepted by the mainstream architects in India). And, like bricks, the use of lime, sandstone, and marble, would be 'modern' as well as 'traditional' – used within the programme of architecture that the architects are educated in – as and when it is convenient.

In a bid to preserve and continue the learning and use of the traditional building skills, the Institute for Revival of Traditional Building Arts was established in Amber, Rajasthan, in 1993. The traditional architecture and crafts of Rajasthan attract tourists from all over the world, who obviously do not travel all the way to see bad copies of Western architecture. It is realised that the building skills received a rude blow in the mid-twentieth century, where "Pressures due to growth of population, industrialisation and commercialisation have all contributed to restrict and nearly eliminate any new work to be taken up on these lines in the present times. The people and architects of the present day are neither interested nor have the taste for such work since on the one hand it is quite time consuming and costly and secondly there are no patrons for such work. Present building art forms are formless buildings in concrete, steel and glass but have the advantage of quick construction. The visual form of the present architecture however does not satisfy the connoisseur nor has the tradition of the past and does not leave any visual impact on the viewer."[53]

One of the main objectives of the institute is to identify the master craftsmen, train new people under their supervision, and find employment for them by undertaking conservation projects.[54] Speaking to one such master craftsman at the institute, it was evident that while they were quite confident about repairing dilapidated structures, the difficulty lay in

52 *Ibid.* p30.
53 The pamphlet on the *Institute for Revival of Traditional Building Arts*, Jaipur, 1993.
54 *Ibid.* p4.

designing new buildings due to the absence of a designer who would conceive a design in their architectural vocabulary. This is primarily due to the fragmentation of the traditional architectural team. Today, the *Sthapati* is not only rare to find but also not given the status of an architect. The master craftsmen do not have complete knowledge of the corpus of *Vastu Vidya*, but only the part that is related to the building craft. This is also evident from the resource of the training imparted to the students. The photographs of the documentation of "old traditional buildings" would be "handed over to the master craftsman and artisans for reproduction during their training programme".[55] Although, the institute may be successful in producing skilled craftsmen vital for the conservation of old buildings, whether the building skill removed from its architectural programme of *Vastu Vidya* can be interpreted as a "Revival of Traditional Building Arts" as the very name of the Institute suggests, is doubtful. The Institute also hopes to generate "customer consumption"[56] of their product, and it would be interesting to observe whether its future in new buildings would be able to overcome the distinction, identified by Correa, between *transfer* and *transformation*. This distinction which lies wholly outside the realm of old traditional architecture is "of fundamental importance. For instance, all of Le Corbusier's buildings clearly are the work of a Mediterranean man, yet in none of them did the architect ever use a sloping roof of tiles. Instead, Le Corbusier seems to have taken the age-old images and values of the Mediterranean and (perhaps unconsciously) reinvented them in the twentieth-century technology of concrete and glass. This is true transformation. It places architecture where it rightfully belongs: at the intersection of culture, technology, and human aspiration."[57] If the use of twentieth-century technology of concrete and glass is intrinsic to the justification of the 'transformation', then there is little room for the carved *jalis*, columns, brackets, and balconies, on the 'Indian' architect's palette, and the production of the same in concrete and steel make the skill of the master craftsman redundant. The basic difficulty lies in the prevalence of the 'modern' programme with a total extinction of the 'traditional' programme of *Vastu Vidya* from the mainstream of architectural design in India. Any use of a fragment of *Vastu Vidya*, whether at the conceptual level of a 'reinvented old myth', or at the level of traditionally used materials and skills, could be interpreted as a 'transfer' of a bit of *Vastu Vidya* into the overriding modernist paradigm of architecture.

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55 *Ibid.* p6.
56 *Ibid.* p8.
57 Charles Correa, The Public, the Private, and the Sacred, *Architecture+Design*, Sept - Oct, 1991 p96.

CHAPTER SEVEN

Defining the Built Form

Each of the representative texts on *Vastu Vidya* in its own way builds a grammar which encompasses a typology, as well as aiding the new design formulations. Each presents a comprehensive codification of the prescribed variations in the constituent parts of the building.

Grammar and Classification

Samarangana Sutradhara (XXVIII. 2–11) and *Aparajita Prccha* (LXX.1) classify the houses as *Ekashala, Dvishala, Trishala, Chatushala, Panchashala, Shatashala, Saptashala, Ashtashala, Navashala* and *Dashashala*. Considering an ideal square space, *Ekashala, Dvishala, Trishala* and *Chatushala* are derived by arranging one, two, three and four ranges respectively, around a concentric open space called the *Angana*. *Chatushala* is defined as a house that encloses four sides of the *Angana*; *Trishala* encloses three sides of the *Angana*; *Dvishala* encloses two sides; *Ekashala* one side of the *Angana*.[1] *Manasara* (XXXV) names six types of houses – *Dandaka, Svastika, Maulika, Chaturmukha, Sarvatobhadra* and *Vardhamana*, which are typological synonyms for the *Ekashala, Dvishala, Trishala, Chatushala, Saptashala* and *Dashashala* respectively.[2] *Mayamata* (XXVI) classifies the types as the houses with one, two, three, four, seven and ten main buildings or *Shala*, built around the square of *Brahma*.[3] *Shalas* could be placed either around the central open space or grouped together to form a block.[4] This is also evident in *Rajavallabha* (VI–VII) where the *Shala* in the *Ekashala, Dvishala, Trishala* and *Chatushala* type of houses represents

1 *Samarangana Sutradhara* XXII.18–21.
2 *Manasara* XXXV.66–71.
3 *Mayamata* XXVI.26.1–2a. See Ch.III. Vastu Purusha Mandala.
4 *Ibid.*

the main built space or a main hall, which is not necessarily arranged around a central open space.

Further classification of the above main types is derived by a systematic addition of variables like orientation and the *Alinda* or a verandah, which may be enclosed within the plan to form a gallery. The width of the *Alinda* is half the width of the *Shala*.[5] The *Nagara* texts like the *Samarangana Sutradhara* (XXV), *Rajavallabha* (VI), *Aparajita Prccha* (LXX), and *Vishvakarma Prakasha* (II), present the *Prastara* method of deriving the further types of houses. *Prastara* is a series of combinations of *Guru*, a long syllable denoted by 'S', and *Laghu*, a short syllable denoted by 'I'. These syllabic instants are used in composing *Chhanda* or metre, just as the gems of ancient wisdom when strung in a metre take the form of *Shastra*.[6] Architecturally, a *Guru* denotes an enclosure and definition of space by a solid wall; a *Laghu* denotes an *Alinda* or a verandah, and a gallery. *Laghu* may also be interpreted as a reduction of exposure of a side of the main space by the introduction of an *Alinda*, and visually reducing the weight.

A four-sided space enclosed by four walls is denoted by four *Guru* (SSSS), allocated in the four cardinal directions proceeding clockwise from the *Mukha* or the face of the space that has the entrance. This type of *Ekashala* is called *Dhruvam*. From the *Prastara* of four *Guru* is derived the series of sixteen types of *Ekashala* (Figure 47). Below the first *Guru* from the left is written a *Laghu*. To the right of the *Laghu*, the combination of the previous line is duplicated, and *Guru* are written to its left. Therefore the next combination is 'ISSS', which means that at the entrance of this second type of *Ekashala* is an *Alinda* or a verandah with a sloping roof. This type is called *Dhanyam*. Similarly, the third type of *Ekashala* called *Jayam* (SISS) is derived from the second type by writing *Laghu* below the first *Guru* that occurs from the left; to the right of the *Laghu*, duplicating the spaces of the previous line; and writing *Guru* to the left of *Laghu*. As is indicated by the combination of *Guru* and *Laghu*, *Jayam* has an *Alinda* to the left of the entrance. This process is continued till a group consisting of all *Laghu* is derived. Thus, the *Prastara* of four *Guru* is – SSSS; ISSS; SISS; IISS; SSIS; ISIS; SIIS; IIIS; SSSI; ISSI; SISI; IISI; SSII; ISII; SIII; IIII – representing the *Dhruvam, Dhanyam, Jayam, Nanadam, Khara, Kantam, Manoramam, Samukham, Durumukham, Ugram* or *Krura, Ripudam* or *Paksha, Vittadam* or *Dhanada, Nasha* or *Kshaya, Aakranda, Vipulam* and *Vijaya* type of *Ekashala* respectively.[7]

5 *Samarangana Sutradhara* XXIV. 21–25.

6 *Brihat Samhita* CIV.1.

7 *Rajavallabha* VI.2–5; *Samarangana Sutradhara* XXVIII.6–8. The variation occurring in the names given to the *Ekashala* in these two texts is given above, for example the tenth type of *Ekashala* (ISSI) is *Ugram* according to *Rajavallabha*, and *Krura* according to *Samrangana Sutradhara*. *Ugra* means fierce, and *Krura* means cruel, so both these names indicate a similar quality.

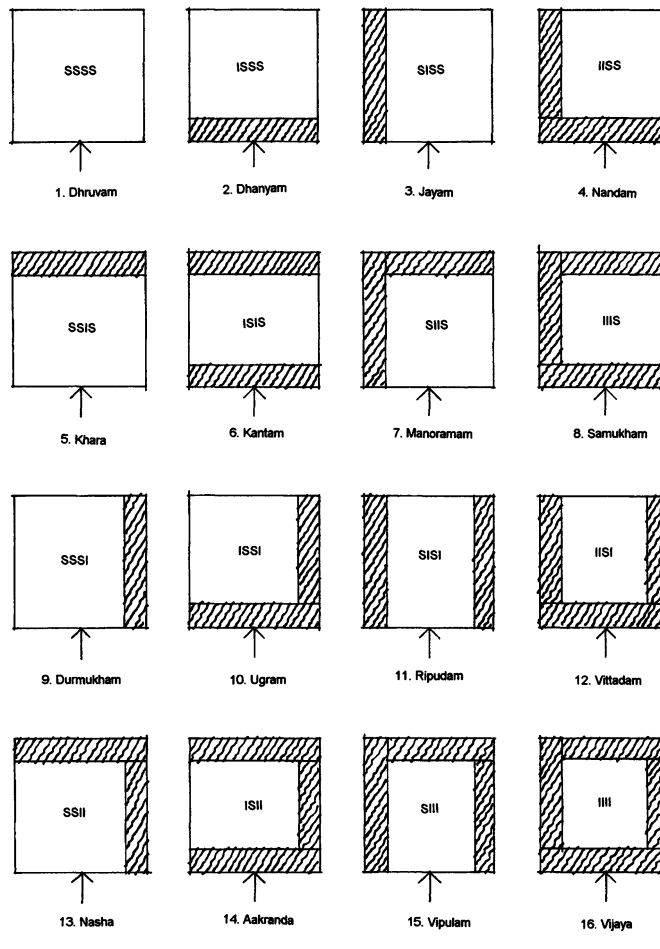

FIGURE 47 First set of sixteen Ekashala houses (Author)

From the above types is derived another set of eight types of *Ekashala*, by adding a gallery (an *Alinda* enclosed within the main space with a flat roof – called *Shatdaru*) on the face of the even numbered in the first set, that have a verandah at the *Mukha*. The second set of *Ekashala* (Figure 48) consists of *Ramya* derived from *Dhanyam*, *Shridhara* from *Nandam*; *Modita* from *Kantam*; *Vardhamana* from *Sumukham*; *Karala* from *Ugram*; *Sunabha* from *Vittadam*; *Dhwanksha* from *Aakranda*; and *Samriddha* from *Vijaya*.[8]

If the first set (*Dhruvam* etc.) types of *Ekashala* houses have a gallery instead of a verandah (Figure 49), then they are respectively named as *Sundara, Varada, Bhadra, Pramuda, Vaimukha, Shiva, Sarvalabha, Vishala,*

8 *Rajavallabha* VI.6–7; *Samarangana Sutradhara* XXVIII.11–21.

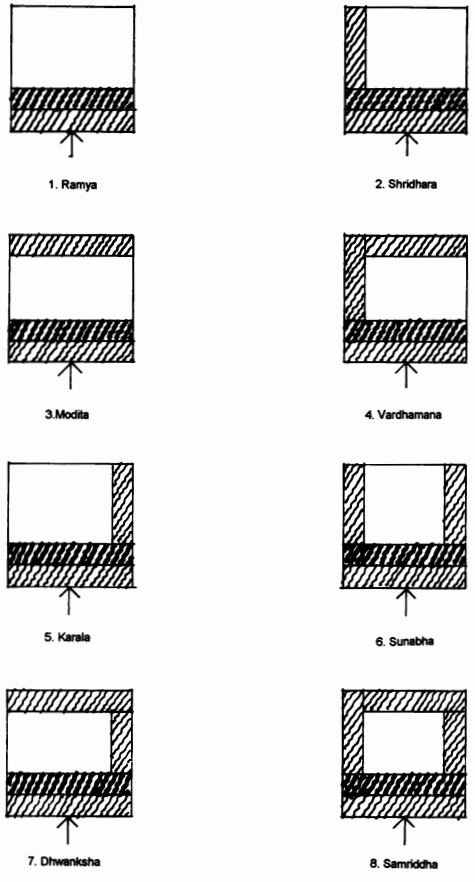

FIGURE 48 Second set of Ekashala houses (Author)

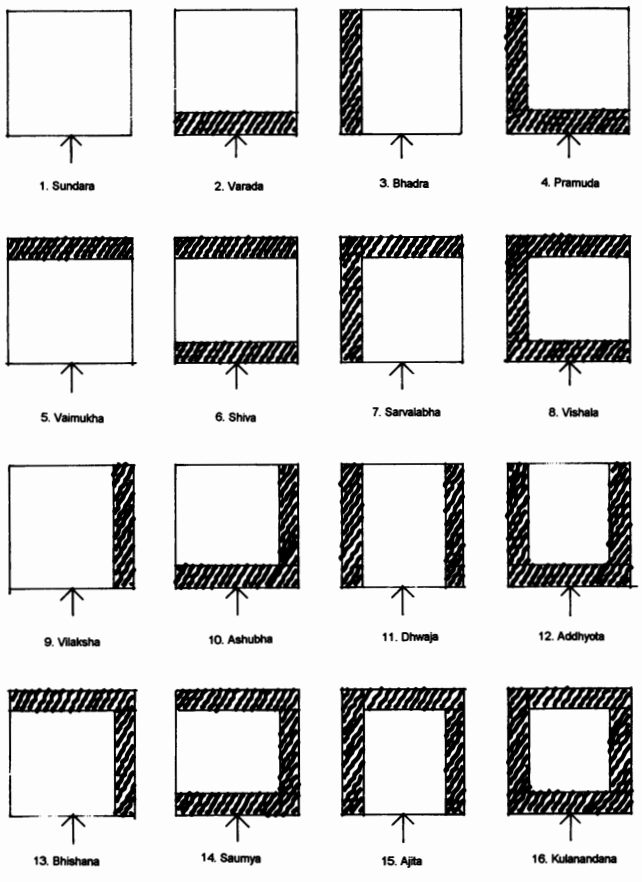

FIGURE 49 Third set of Ekashala houses (Author)

Vilaksha, Ashubha, Dhwaja, Addhyota, Bhishana, Saumya, Ajita and *Kulanandana*.[9]

If the *Laghu* in the first set represents two galleries, then the additional one, when placed at the *Mukha* in the east, becomes a verandah. Thus a further sixteen types are *Hansa, Sulakshana, Saumya, Haya, Shravak, Uttama, Ruchira, Santata, Kshema, Kshapaka, Uddvatta, Vrisha, Uchhrita, Vyaya, Ananda* and *Sunanda,* respectively.[10] (Figure 50)

If the first set have an enclosed space within the *Shala* called *Aparvaka* (Figure 51), then the sixteen types of *Ekashala* houses are called *Alankrita, Alankara, Ramana, Purna, Ishvara, Punya, Sugarbha, Kalasha, Durgata, Rikta, Ipsita, Bhadraka, Vanchita, Dina, Vibhava* and *Kamada* respectively.[11]

If the first set have an *Aparvaka* and a gallery instead of a verandah, (Figure 52) they are called *Prabhava, Bhavita, Rukma, Tilaka, Kridana, Saukhya, Yashoda, Kumuda, Kala, Bhasura, Bhushana, Vasudhara, Dhanyanasha, Kupita, Vittavriddha,* and *Kulasamriddha* respectively.[12] If this set also has a verandah placed on its *Mukha*, (Figure 53) the sixteen types are *Chudamani, Prabhada, Kshema, Shekhara, Uchhita, Vishala, Bhutida, Hrishta, Virodha, Kalapasha, Niramaya, Sushila, Raudra, Megha, Manobhava,* and *Subhadra* respectively.[13]

A simpler method for deriving any particular *Prastara*, without writing the entire series, is explained in *Rajavallabha* (VI.2). According to this method, an odd number represents a *Guru*, and an even number represents a *Laghu*. For example, the eleventh *Prastara* of four instants (tabulated above) can be obtained by following these steps. Eleven being an odd number, the first instant of the *Prastara* would be a *Guru*. One is added to the odd number eleven, and the result, twelve, is divided by two. The next instant is a *Laghu*, as the answer is an even number, six. This six is divided by two, and, since the result is an odd number, three, the third instant is a *Guru*. One is then added to three, and the result is divided by two. The answer being an even number, two, the fourth instant is a *Laghu*. Therefore, the eleventh *Prastara* of four instants is 'SISI'.

Dvishala, Trishala and *Chatushala*, are classified in a similar way by systematically incorporating the variables like the change in orientation of the *Shala*, and allocation of building features like the *Alinda* or verandah and gallery, *Mandapa* or pavilion, and the *Bhadra* or portico.[14]

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9 *Rajavallabha* VI.6–7; *Samarangana Sutradhara* XXVIII.20–23.

10 *Rajavallabha* VI.8; *Samarangana Sutradhara* XXVIII.24–28.

11 *Rajavallabha* VI.10; *Samarangana Sutradhara* XXVIII.27–30.

12 *Rajavallabha* VI.11–12; *Samarangana Sutradhara* XXVIII.31–33.

13 *Rajavallabha* VI.16; *Samarangana Sutradhara* XXVIII.34–39.

14 *Rajavallabha* VI, VII; *Samarangana Sutradhara* XXIV- XXVII. The English translation of the building features like the *Bhadra* as a portico is a rough indication, not intended to conjure images of western prototypes. It is beyond the scope of the present study to collate all the types of houses enumerated in the texts, and the focus here is to understand only the fundamental method of classification of the house types.

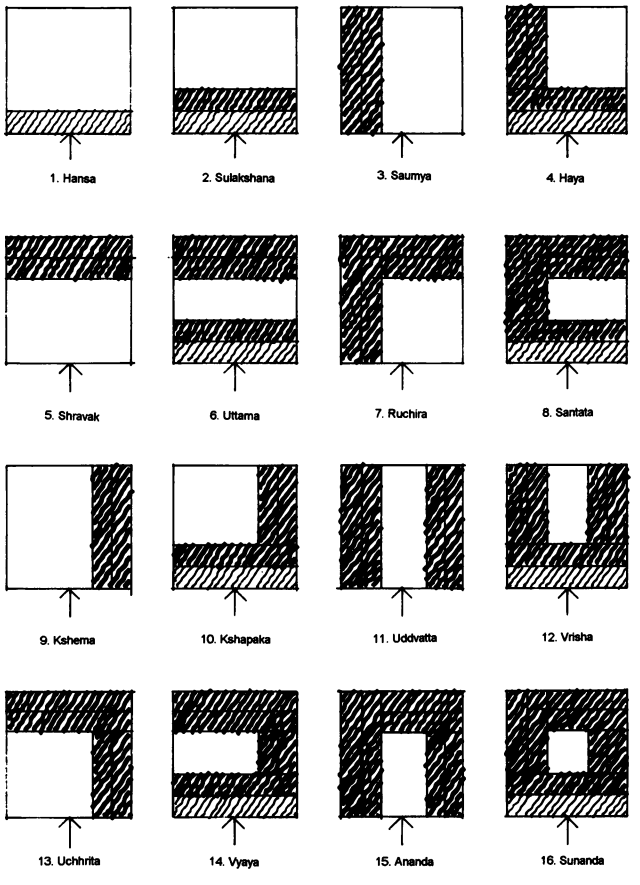

FIGURE 50 Fourth set of Ekashala houses (Author)

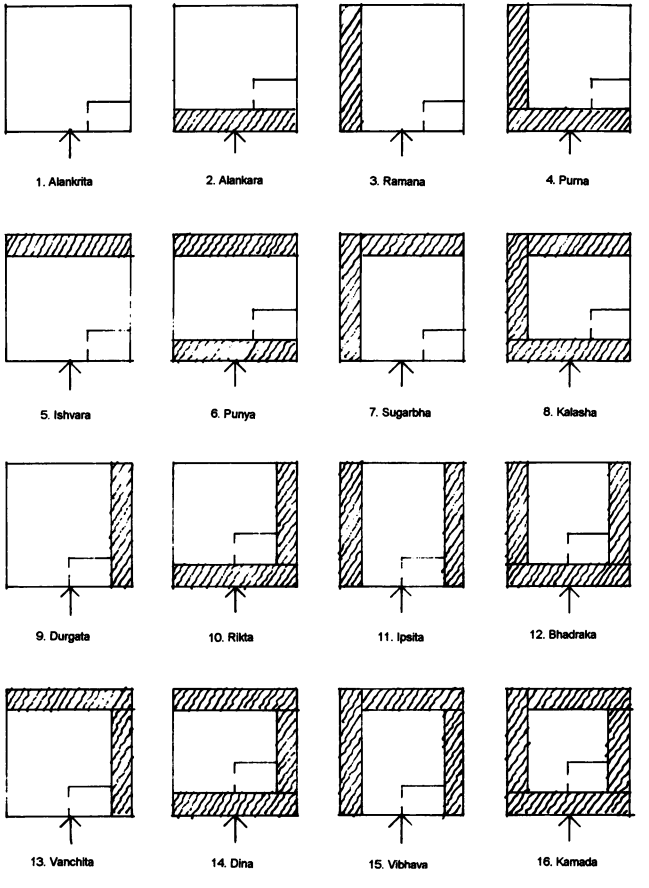

FIGURE 51 Fifth set of Ekashala houses (Author)

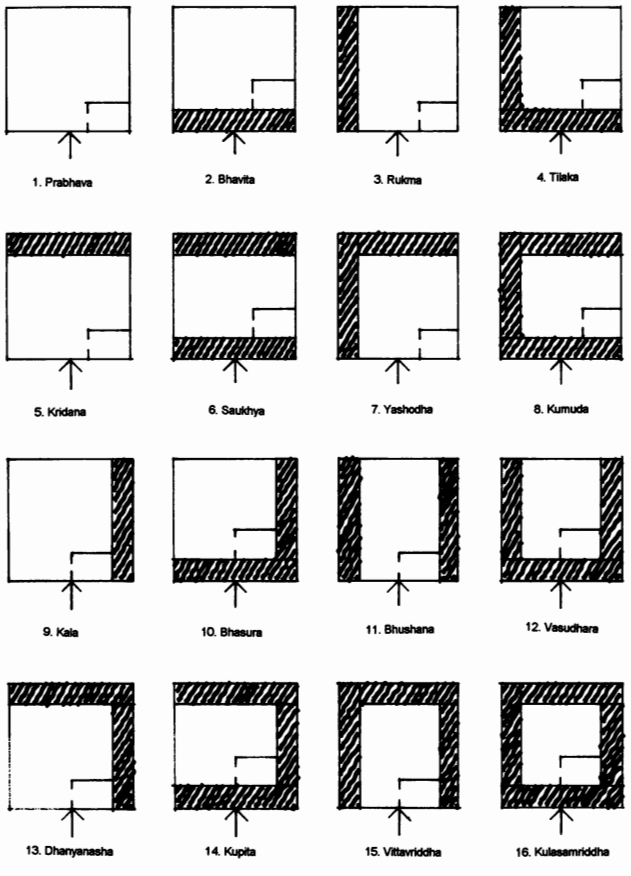

FIGURE 52 Sixth set of Ekashala houses (Author)

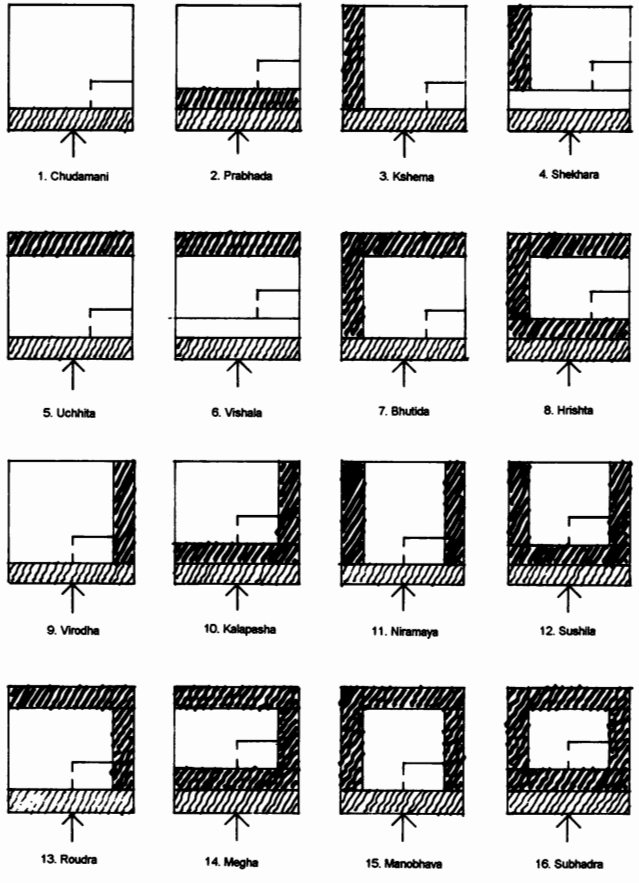

FIGURE 53 Seventh set of Ekashala houses (Author)

TABLE XIV Ekashala House Types

Type 1- with verandah; **Type 2**- with an additional gallery in the even-numbered of type 1; **Type 3**- with gallery; **Type 4**- with two galleries; **Type 5**- type 1 with Aparvaka; **Type 6**- type 3 with Aparvaka; **Type 7**- with verandah at the Mukha of type 6.

No.	Prastara	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
1	S S S S	Dhruvam		Sundara	Hansa	Alankrita	Prabhava	Chudamani
2	I S S S	Dhanyam	Ramya	Varada	Sulakshana	Alankara	Bhavita	Prabhada
3	S I S S	Jayam		Bhadara	Saumya	Ramana	Rukma	Kshema
4	I I S S	Nandam	Shridhara	Pramuda	Haya	Purna	Tilaka	Shekhara
5	S S I S	Khara		Vaimukha	Shravak	Ishvara	Kridana	Uchhita
6	I S I S	Kantam	Modita	Shiva	Uttama	Punya	Saukhya	Vishala
7	S I I S	Manoramam		Sarvalabha	Ruchira	Sugarbha	Yashoda	Bhutida
8	I I I S	Samukham	Vardhamana	Vishala	Santata	Kalasha	Kumuda	Hrishta
9	S S S I	Durmukham		Vilaksha	Kshema	Durgata	Kala	Virodha
10	I S S I	Ugram	Karala	Ashubha	Kshapaka	Rikta	Bhasura	Kalapasha
11	S I S I	Ripudam		Dhwaja	Uddvatta	Ipsita	Bhushana	Niramaya
12	I I S I	Vittadam	Sunabha	Addhyota	Vrisha	Bhadraka	Vasudhara	Sushila
13	S S I I	Nasha		Bhishana	Uchhrita	Vanchita	Dhanyanasha	Raudra
14	I S I I	Aakranda	Dhwanksha	Saumya	Vyaya	Dina	Kupita	Megha
15	S I I I	Vipulam		Ajita	Ananda	Vibhava	Vittavriddhida	Manobhava
16	I I I I	Vijaya	Samriddha	Kulanandana	Sunanda	Kamada	Kulasamriddhi	Subhadra

Although, *Manasara* and *Mayamata* do not employ the *Prastara* method for the classification of house types, they too follow a systematic method, in the proportion and inclusion of special features. According to *Manasara* (XXXV), synonymous with the *Ekashala* is the *Dandaka* type which could be placed along the east with the entrance in the west; along the south with the entrance in the north; along the west with the entrance in the east; or along the north with the entrance in the south.[15] In the first type of *Dandaka* house, the length and breadth are equal.[16] In the second type, the breadth is of one part and the length of two. If a verandah is constructed in the front of this type, it is called a *Bhinda Shala*, and otherwise, it is called a *Pandi Shala*. In the third type, the breadth is of two parts and the length of three parts. The fourth type has the breadth of two parts, and the length of four parts . . . and so on (see Table XV). Each of these has special features described in the text, like *Ranga* or a theatre-like courtyard, *Bhadra* or portico, *Karna Harmya* or corner towers, *Mandapa* or pavilion, and so on. Also described are the relative proportions of the special features.[17] (Figure 54)

The primary consideration in the above classification of houses with numbered *Shala*, is the organisation of features in plan. *Manasara* (XI) classifies houses with one to twelve storeys. Here each type of storeyed building is divided into a small, intermediate and large type, of a specified length and breadth. The height from its plinth to the apex is derived from the breadth and is of five types – *Sarvakamika*, equal to breadth; *Adbhuta*, twice the breadth; *Jayada*, one and three quarters times the breadth; *Shantika*, one and a half times the breadth; and *Paushtika*, one and a quarter

TABLE XV Proportions of Dandaka type of houses according to *Manasara* and *Mayamata*

Dandaka	Breadth : Length (*Manasara* XXV)	Breadth : Length (*Mayamata* XXVI)
Type 1	1:1	3:4
Type 2	1:2	4:6
Type 3	2:3	3:6
Type 4	2:4	3:6
Type 5	3:4	6:12
Type 6	4:6	
Type 7	5:7	
Type 8	6:8	

15 *Manasara* XXXV.85–88.

16 Though the translator, P.K.Acharya, suggests that "length as many parts" means that the length is "as one likes". See Acharya P.K., Architecture of *Manasara*, *Manasara* series IV, pp378.

17 See *Manasara* XXXV.89–173.

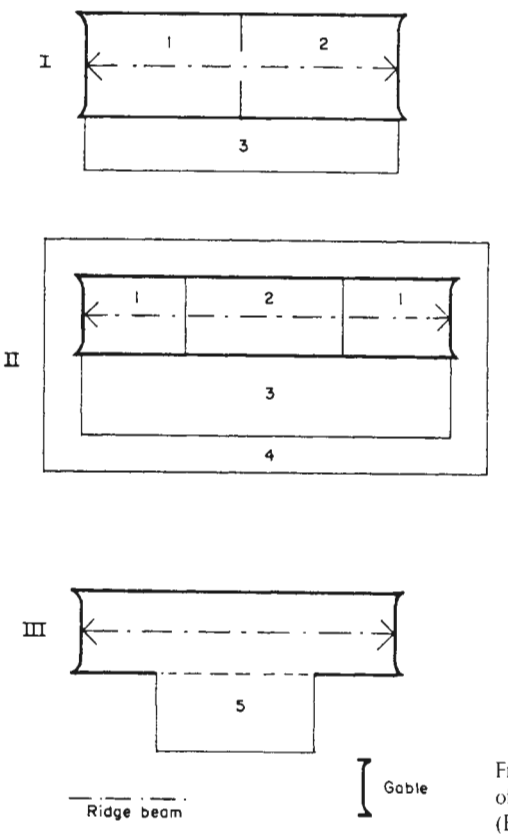

FIGURE 54 Some Ekashala houses of Mayamata
(Bruno Dagens, 1985)

times the breadth.[18] Tabulated below (Table XVI) are the dimensions of the types of one-storeyed building according to *Manasara* (XI.6–23).

For the elevation of one-storeyed buildings, the breadth of the small type is subdivided from its central axis to the corner into one, two, three, four, five, or six parts; the intermediate type into five, six, or seven subdivisions; the large type into six, seven, or eight subdivisions.[19] Similarly, either the height or the length is subdivided into several parts, to design the various features of the elevation. For example, the first type of subdivision of height for a one-storeyed building is into eight parts. Of these eight parts, the plinth is one part; the height of the pillars is two parts; the entablature is one part; the neck is one part; the *Shikhara* or pinnacle is two parts; the height of the *Stupika* or small dome is one part.[20]

18 *Manasara* XI.107–113, XXXV.21–25.
19 *Manasara* XVIII.10–14.
20 *Manasara* XIX.21–24.

TABLE XVI Five types of one storeyed buildings. All dimensions are in Hasta. 'B' stands for Breadth.

	Small Type			Intermediate Type			Large Type		
No.	Breadth	Length	Height	Breadth	Length	Height	Breadth	Length	Height
I	2	3	2B or 1B	4	5	1 3/4B	6	7	1 1/2B
II	4	5		6	7		8	9	or
III	6	7		8	9		10	11	1 1/4B
IV	8	9		10	11		12	13	
V	10	11		12	13		14	15	

The pillar or the column includes the *Upapitha* or the pedestal, the *Adisthana* or the base, the *Stambha* or the shaft, and the *Bodhika* or the crown. The pedestal may be included in the base. For example, for the small type of buildings, the height of the base inclusive of the pedestal height is divided into four parts, of which the pedestal may be one, two, three, or all the four parts; and all the four parts may form the base.[21] Of the entire height of the column, in general, the pedestal is one part; the base is one part; the shaft is two parts; the crown is one part.[22] The basic units of base, pedestal, shaft and crown, are further subdivided to carve out the various mouldings and ornamental features described in detail in the text.[23]

The variety of these features is so immense that the possibility of a combination of these elements to arrive at one particular design solution would depend on the individual discretion of the designer working within the parameters of *Vastu Vidya* and its text. Therefore, any graphic translation of a *Vastu Vidya* text, like the *Manasara*, would need to exercise that discretion.[24] Figures 55 and 56 show two graphically different representations of the *Manasara*'s description of the smallest type of a single storey building.

Each text presents its own variety of building features strung in a pattern of numbers that could be memorised. All texts, however, do not elaborate on the same variety of building elements. Each text makes its own special contribution, and may make only a passing reference to an aspect of *Vastu Vidya*, which forms the main subject of yet another text. For example, *Rajavallabha*, unlike *Manasara*, presents a simple rule for the division of height. The height of the house is divided into nine parts, of

21 *Manasara* XIII.8- 10.

22 *Manasara* XV.11ff.

23 *Manasara* XIII - XVI.

24 See Acharya, *Architecture of Manasara: Illustrations of Architectural and Sculptural Objects*, Manasara Series V, Oriental Books Reprint Corporation, Delhi, 1980 (II edn.). For example compare the description of the smallest type of one-storeyed building (Manasara XIX.20–47) to its corresponding illustration in the *Manasara* Series V (Sheet No.LII).

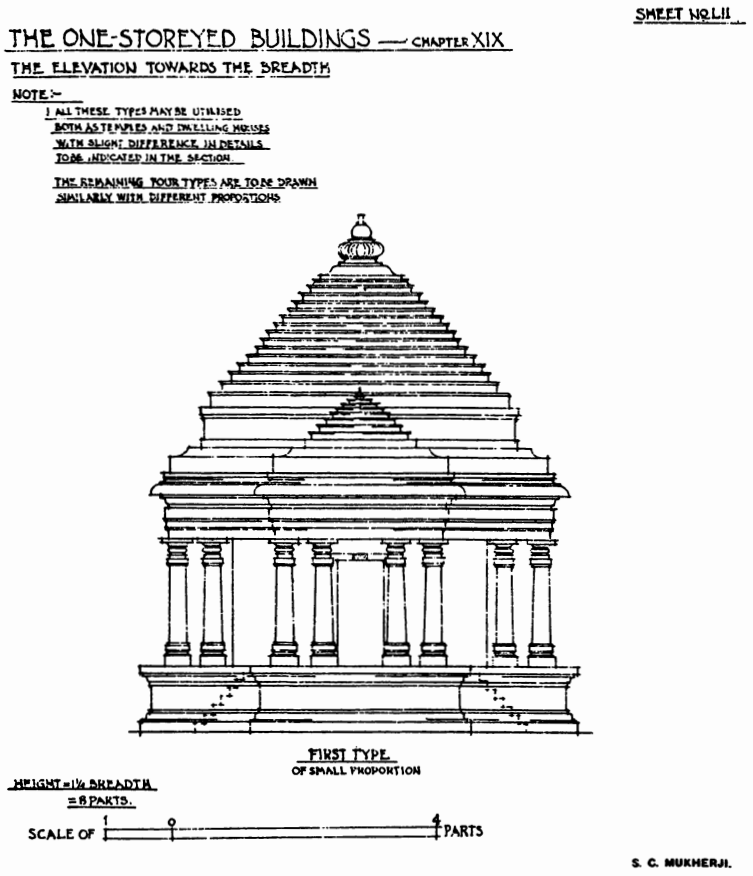

FIGURE 55 Smallest type of one-storeyed building by P.K. Acharya (r. 1980)

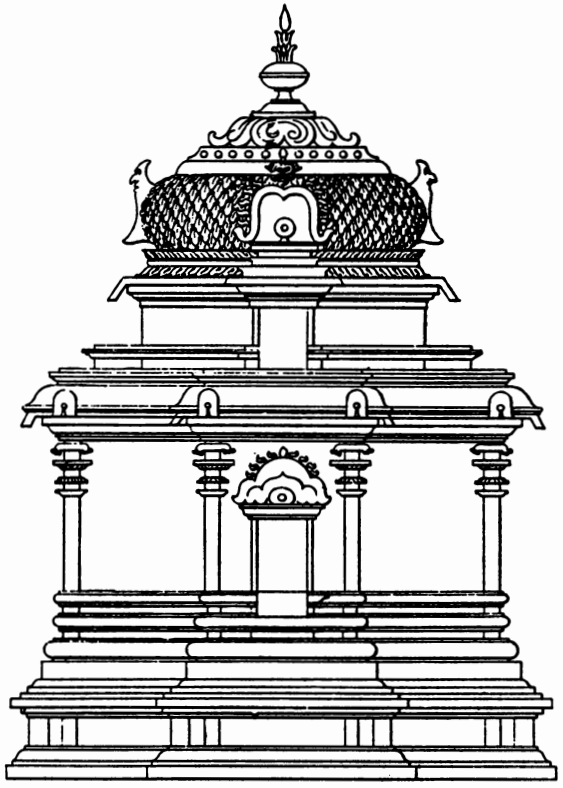

FIGURE 56 Smallest type of one-storeyed building by Ram Raz (r. 1972)

which the *Kumbhi* or the base is one part; the *Stambha* or the column is five and a quarter parts; *Bharana*, the fillet neck is three-quarters of a part; *Shira* or the crown is three-quarters of a part; *Patta* or the entablature is one and a quarter part; and *Jayantika* or the cornice is half a part.[25] *Rajavallabha* (X) especially describes the method of geometric construction of various shapes such as pentagon and hexagon, and the construction of hexagon and heptagon within a circle, used in carving motifs. This could be attributed to the special expertise of its author, who was a *Sutradhara*.

Rasa and Decoration

The decoration of the interior of the house is designed to evoke the suitable *Rasa* or emotion. The nine *Rasa* are the *Shringara* or erotic and decorative, *Hasya* or comic, *Karuna* or pathetic, *Vira* or heroic, *Roudra* or fierce, *Bhayanaka* or scary, *Bibhatsa* or loathsome, *Adbhuta* or strange, and *Shanta* or tranquil. The decorative elements utilised in the house must depict the *Shringara, Hasya* and the *Shanta Rasa* (Table XVII).[26]

TABLE XVII Rasa

Rasa	Type of Emotion	Key description	Associated Colour
Shringara	Seductive, decorative	Beauty, nicety of form, dress, ornament	Shyama or blue-black
Hasya	Comic, laugh-exciting	dwarf-like, deformed, hunch-backed	White
Karuna	Pathetic	Pity in sale, separation, abandonment, sorrow	Grey
Roudra	Furious	Harshness, anger, slaughter	Red
Vira	Heroic	Prowess, firm determination, nobility	Yellowish-White
Bhayanaka	Fearful	Wicked, mad vindictiveness, bent on killing	Black
Adbhuta	Amazing	slight horripilation, awe inspiring	Yellow
Bibhatsa	Repulsive, Loathsome	scene of execution, cremation ground	Blue
Sahnta	Peaceful	Benign, meditative ascetic people	not mentioned

25 *Rajavallabha* IX.11. Also see the illustration by the commentator on page 15.

26 *Vishnudharmottaram* XLIII.1–39; *Samarangana Sutradhara* XXXIV.11–12; *Natya Shastra* VI.42–43 as in Kramrisch, *The Vishnudharmottaram (Part III): A Treatise on Indian Painting*, Calcutta University Press, 1924 p17.

Samarangana Sutradhara (XXXIV) lists the suitable and the unsuitable objects for the decoration of houses. For example, the unsuitable objects are those which depict battle scenes, destruction of houses and forests by fire, starvation, disease, pain, broken and burnt trees, trees where spirits reside, thorny and bitter trees, carnivorous animals, animals which reside on mountains and in forests, and nocturnal birds. Some of the suitable objects are those which depict playful young men and women; large and tall trees laden with fruits and flowers in gardens; leaves and creepers laden and bent with the weight of fruits and flowers; treasure, gems, heaps of jewels, and *Lakshmi*, the goddess of abundance.

Concept of Alignment

The mutual alignment of the building elements like windows, doors and columns is conditioned by the concept of *Vedha* or obstruction. A craftsman from Rajasthan explains the concept as a theme of question and answer, where openings of doors and windows pose a question, answered by the element placed directly opposite. Therefore, a door, for example, would be 'answered' by another axially aligned door, window, or a niche. *Vedha* occurs if the alignment is disturbed, and it must be avoided.[27] It is inauspicious according to *Rajavallabha* (V.28), if a door is obstructed by a tree, water sluice, corner, column, well, road, temple, or a nail.[28] The obstructions do not apply if the distance between the door and the obstruction is twice the height of the house.[29]

Concept of 'Defects'

The canons of the *Shastra* or the text form the foundation of knowledge, and the basis of *Manana* or the reflection on their meaning. The reflected meaning is then put into practice.[30] The practitioner is a medium through whom the perceived conceptual construct of the canons assume a corresponding form, which is unique as well as in continuity with its tradition.[31] Accounting for the possibility of deviation from the strict prescriptions during the creative process, the texts warn of the "evil consequences to the king, the kingdom, and the master, if there happen to

27 Based on field study in Rajasthan.
28 Also in *Brihat Samhita* LIII.76; *Samarangana Sutradhara* XVI.11–23.
29 *Rajavallabha* V.28; *Brihat Samhita* LIII.76.
30 Radhakrishnan, *The Principal Upanishads*, p197.
31 Baumer ed., *Rupa Pratirupa*, Delhi, 1982 p28.

be anything larger or smaller with regard to any part of the buildings".[32] The defects collated by the texts under a separate topic, apart from those mentioned within each of their chapters, also indicate the special emphasis their authors wish to present. For example, one of the distinctive features of *Manasara* is the elaborate discussion of the dimensions of buildings and its component parts. The chapter entitled 'Defective Construction' lists the building parts discussed in its previous chapters and warns of various calamities if the parts are made greater or lesser than the prescribed size.[33] Highlighting defects in general also indicates that the prescriptions laid out are not always consistently followed and are subject to the discretion the designer may exercise. *Manasara* advises the exercise of discretion to be within the parameters of the *Shastra*, and not arbitrary.[34]

The chapter on 'Rectification of Defects in Houses' in *Samarangana Sutradhara* (XXXVIII) is a collation of the 'unsuitable' aspects discussed in its preceding chapters. The author of the text feels it is more appropriate to present all the defects related to houses, collectively. For example, the unsuitable declivity of land, *Marma Dosha*, and Doors, are some of the topics discussed here.[35] *Samarangana Sutradhara* (XXXVI) especially discusses the implications of breakage of various building parts. The occurrence of cracks and damage is to be observed over a period of one year in a newly built house, after which it may be overlooked.[36] For example, in a newly built house, dilapidation of the building causes destruction of the house-holder through the trust bestowed by him on the subordinates and servants; dilapidation of the centre of the *Vastu* or built area, harms the elderly of the family; of stairs causes destruction of servants, cows and gold; of the gateway heralds destruction of the house-holder in thirteen days; of the pillar of the *Shala* causes destruction of the house-holder's wife; of the crown of the pillar causes assassination of the house-holder.[37]

The entry of a pigeon in an old or a new house, or a house under construction, is considered highly inauspicious. Pigeons are classified as four types – white pigeons; pigeons with variegated neck; variegated; and black or dark coloured. Entry of a white pigeon in a building destroys fame, knowledge, wealth and good deeds, and increases disease, and suffering of children; of a pigeon with a variegated neck heralds destruction of women; of a variegated pigeon heralds destruction of sons; of a black pigeon is most

32 *Manasara* LXIX.1–2.
33 *Manasara* LXIX.
34 *Manasara* LXIX.66–68.
35 *Samarangana Sutradhara* XXXVIII. These topics have already been discussed in the previous chapters in the present study. See Chapter V. Site Considerations for Declivity of Land; Chapter III. *Vastu Purusha Mandala* and Chapter IV. Orientation for *Marma Dosha* and Doors.
36 *Samarangana Sutradhara* XXXVI.25–26.
37 For the entire list see *Samarangana Sutradhara* XXXVI.26–50

inauspicious and heralds destruction, disease and adversity.[38] The ritual to avert the calamities that follow the entry of a pigeon entails a sacrificial ceremony of the pigeon cut in eight hundred pieces.[39] Entry of a vulture, owl, donkey, eagle, deer, pig, lion, monkey and so on is also inauspicious.[40]

A new construction is beneficial to human beings if it is pleasant, fragrant, a visual delight, and full of life even when vacant. A new construction is calamitous if it seems rough or lifeless despite being inhabited.[41] The house that vibrates or makes a clattering sound indicates destruction of wealth.[42] At an auspicious moment, a ceremony for entering into the house is performed. During the ceremony, which includes the ritual worship of the *Vastu Purusha Mandala*, portents are observed and prescriptions are followed to increase auspiciousness and avert calamity.[43]

Contemporary Definitions

Traditional Indian architecture has disturbed the conscience of the modern architect in India, ever since the birth of his profession in the early twentieth century.[44] Here is an architect educated in Western design principles, far removed from the traditional model, yet expected to be 'Indian' – in continuity of the tradition of his country. He is not the modern Indian architect, but the modern architect in India. The independence of India saw a clear division of the group of influential modern architects into two factions. This observation was voiced in the first seminar on architecture in Independent India in 1959, where the participants represented "the best talent amongst the professionals of the nation".[45] While one group "advocated the use of traditional form, shape, in fact everything traditional with total disregard to its suitability . . . . The second group, extremely revolutionary in spirit, probably because of the intense revolutionary atmosphere of the pre-independence era, wants to break away from all traditions."[46] What united both groups was their

38 *Samarangana Sutradhara* XXXVII.19–24.

39 *Ibid.* XXXVII.25–35. Pigeons are considered a menace even today in Rajasthan. It was observed during the field study that they are often found trapped in buildings without sun-shades which they normally use as a resting place. This is observed to be more frequent in modern buildings, than in the traditional types which normally have a sun shade above openings.

40 *Rajavallabha* X.19; *Samarangana Sutradhara* XXXIX.8–24.

41 *Samarangana Sutradhara* XXXVI.5–8.

42 *Rajavallabha* X.19.

43 For details see *Samarangana Sutradhara* XXXIX; *Rajavallabha* X, XI.27–32; *Manasara* XXXVII; *Vishvakarma Prakasha* X, XI, XII.

44 See Chapter I. Architectural Team.

45 Kanvinde, Opening Remarks by the Convenor, *Seminar on Architecture, March 1959*, Delhi, 1959 p12.

46 Pradhan, Architectural Education, *Seminar on Architecture, March 1959*, Lalit Kala Akademi, Delhi, 1959 p133.

education, which was fundamentally non-Indian. Therefore, though the choice was to either embrace, or disregard tradition, their appreciation of tradition itself was to be through the Western filters they were educated in.[47]

Trained in the construction and appreciation of architecture that was Modern, the architects with an empathy for tradition, experimented with Indian-ness by including bits and pieces of traditional buildings they saw around them. For example, on the surface of Ashoka Hotel (1956, Figure 57) designed by B.E.Doctor, sit curiously traditional features like lattice work (*jaalis*), rooftop kiosks (*chhatris*) and ornamental brackets, with a view to producing "Indian traditional design harmoniously blended with the present-day comforts and amenities of the West".[48] Such use of traditional features in modern buildings was unanimously criticised by the cream of the profession in 1959. The disturbing presence of traditional architecture in the background gave such attempts an inferiority complex, and as if caught in the act of stealing, and the criticism was unsparing:

> "The world-wide recognition we got for our buildings made us feel proud. In the field of contemporary architecture we are far behind in finding a solution suitable for our needs of today. This tends to give us

FIGURE 57 Ashoka Hotel, New Delhi (photo, Author)

47 See Chapter I. Architectural Team.

48 View of the architect quoted in Bahga, *Modern Architecture in India: Post-Independence Perspective*, Delhi, 1993 p9.

> an inferiority complex and we again try to recreate those glorious structures which had made India renowned . . . . These imitations of the expression, or the ornaments and motifs of the old buildings, when they are tagged on to modern buildings which are made of modern materials and construction techniques, and for an entirely different purpose, result in a heterogeneous composition and in sheer mockery. Little do people realise, who through misguided sense of patriotism strive to create traditional buildings, the dangers of such a step."[49]

> "An architect who has a conscience of his own will not do a wrong thing even if it is likely to be praised by lay-public. As a creative worker he has to satisfy himself as to what he is doing is right, and discard what is wrong. When he asks his own conscience such questions as to whether he should make indiscriminate use of domes, chatries, minarets, brackets, etc., the answer is no."[50]

The vehement criticism against the use of visual imagery that recalls traditional forms was backed by an euphoric sanction for the unrestrained use of modern technology and building methods. The architects now looked up to the new masters of architecture, Le Corbusier and later Louis Kahn, the benchmarks in the history of this fairly new profession. The architect was at last free from the burden of Indian tradition, and was now borrowing from the West. The indiscriminate use of *Chhatris*, *Jaalis* and domes was replaced by the indiscriminate use of the louver, the brise-soleil, patios, pools, and convective cooling,[51] new technology and materials.

> "The louver which is an effective method of sun protection is being so indiscriminately used by some, that it is not only inefficient but has ceased to be a sun protection device and has become the fashion of the day. The use of louvers is considered a style and is considered by some as the means of expression of the modern building. This is as bad, if not worse, as copying some of the old ornaments on our buildings."[52]

> "Technical education in India is still not advanced enough to dispense with further training abroad, so that many of us come back from our

49 Bharadwaj, Architectural Expression, *Seminar on Architecture*, March 1959, Delhi pp53–54.
50 Pradhan, Formulation of National Policy (with special reference to Architectural Expression), *Seminar on Architecture, March 1959*, Delhi p69.
51 Ghadiali, Effect of Climate on Architectural Expression, *Seminar on Architecture*, March 1959 p153.
52 Bharadwaj, Architectural Expression, *Seminar on Architecture, March 1959* p60.

> foreign studies with our heads filled and our imaginations fired by all the architectural innovations that we have seen and studied, and which, naturally enough, we are eager to introduce here. Moreover, we are constantly seeing foreign technical journals, which further influence us to adopt foreign architectural forms. But these forms have been evolved under conditions radically different from those under which we have to work. If you cannot get pre-fabricated or a certain type of fittings, it is no use copying building forms based on the use of these prefabricated parts or fittings. That is as false and artificial as sticking on domes and arches."[53]

There was another problem with the buildings that did not look Indian or were in a so called 'International Style' – they had little international appeal. The architect's excitement about new technology and materials was not shared with the same enthusiasm by his Western counterparts, who searched for the Indian-ness in his designs, as an architect described:

> "I had occasion to meet some foreign architects and to show them round some of the works being done over here. And I was particularly curious to find out as to what was their reaction about it. At that time I came to realise one thing, that foreign architects coming to India would not want to come to India (and) find there pallid copies of the most advanced or individualistic contemporary work in their own countries. What they look forward to seeing is how an Indian architect is interpreting similar requirements in terms of his own national and even local conditions. Leaving aside any arguments over the pros and cons of national expression in the broad field of human relationships, it is an undeniable truth that part of the interest of life lies in the retention of the national characteristics; and it is an asset to any country to develop an architecture based on the richness of its life as conditioned by geography, climate, history and ideals."[54]

> "Sometimes I think it is very lucky for us that we are living in India. It permits us to feel very virtuous, defending our work in the name of Gropius, Corbusier, etc. If we were to build these same buildings in the middle of – say – New York or Milan or Tokyo, I wonder who would defend them."[55]

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53 Jhabvala, A Plea for Freedom, *Seminar on Architecture*, March 1959 p46.
54 Pradhan, Formulation of National Policy (with special reference to Architectural Expression), *Seminar on Architecture*, March, 1959 p66.
55 Correa, Architectural Expression, *Seminar on Architecture*, March 1959 p48.

The architect felt frustrated as the appeal in the Indian architectural scenario was either due to the wealth of traditional buildings, or due to the projects designed in India by foreign architects like Le Corbusier. His work would be labelled as pastiche if he were to incorporate either traditional Indian elements into the building to project Indian-ness, or the modern solutions like those incorporated by Le Corbusier to project modernity. A pat on his back by the West was important to him as after all it was the programme of architecture of the Modern movement formulated by the West he was trained in, and was implementing. Since the Modern programme was as foreign to him as the traditional Indian programme of architecture or *Vastu Vidya*, the built representations of these two programmes were taken as fixed expressions of modernity and tradition. The difficulty was and still is, to a large extent, with defending the design:

> "The architect in India is very fortunate in having a treasure of some of the most refined examples of architecture through the ages to inspire him. These beautiful buildings even today continue to attract thousands of visitors and tourists from abroad. It is a matter of great disappointment and some embarrassment that we have produced few buildings in more recent years to compare with proud record of our ancestors, while we have the added advantage of new materials and techniques at hand today.
>
> It is a matter of further embarrassment that a few recent contributions of international bracket buildings are the works of overseas architects, who have been able to appreciate our climate and tradition and be inspired by some of our best show pieces of architecture of bygone days without stealing and sticking their facades and other features to their buildings of today."[56]

Clearly, the fierce criticism against borrowing building features meant that a new way had to be devised to project Indian-ness. One of the ways involves studying the traditional built forms using the Modern tools of architectural appreciation, and application of the outcome of the study to a new design. The traditional built form is studied by architects in India in terms of space, distribution of building mass, colour, rhythm and so on, and then translated in modern structures – or so their concepts explain. This design methodology was initiated in 1959, as expressed in the following:

> "The creative research will also reveal that the architecture of the past had a very interesting and romantic skyline due to the presence of

56 Chhibber, Architect and Society, *Seminar on Architecture*, March 1959 pp83–84.

shikhara, domes, chatries, etc. Even if we may not desire to make indiscriminate use of these elements, we can always try to make interesting skyline without rigidly arriving at straight skyline commonly seen in most of the contemporary work. Such a thing is possible due to the advent of shell concrete and folded slab. It is a fact that early modern work was stark and severe. But with the progress of technology and acquaintance with new materials of construction, it is also possible to achieve that warmth of feeling and richness by means of textures and elements of casting interesting shadows."[57]

"Visual grammar is a very important root of architecture and it cannot have its existence without it. It is this consideration which makes modern art universal in character as it is based on human values. This grammar of art is accepted and understood by all countries of the world and has found a basis on which the expression of architecture of the world countries are shaping through a common language of vision. Our country cannot, therefore, be indifferent to this science.

Study of visual grammar is an integral part of present-day architectural study in the world today. It is with this study that we can master art of our times. It is with this knowledge we can create liveable environment fulfilling the physical as well as psychological demands of community."[58]

Nearly thirty years later, the architects monotonously reiterate that "It is time for us to realise that we are in a profession which has a wealth of rich tradition in the country. The buildings created by professionals of gone by eras have stood the test of time and are acclaimed the world over."[59] However, the 'Indian' amongst them continued to experiment on the guidelines expressed in 1959. Raj Rewal studied the traditional architecture of Rajasthan to understand the 'texture' of the city created by the 'solids and voids' – the clusters of houses in *Mohallas* of north India; movement pattern in narrow shaded streets in Jaisalmer; closely knit courtyards and terraces on several levels in the palaces at Datia and Orchha; gateways as punctuation marks in the urban form, and as bridges across pathways linking houses.[60] This 'kit of parts', cleansed, as it were,

57 Pradhan, Formulation of National Policy (with special reference to Architectural Expression), *Seminar on Architecture*, March 1959 p70.

58 Kanvinde, Effect of Visual Art on Architecture, *Seminar on Architecture*, March 1959 p172.

59 Mahendra Raj, Professional Goals, *Reflections: The Indian Institute of Architects*, National Convention, 1987, Ahmedabad p49.

60 Raj Rewal on Evolution & Metamorphosis, in the monograph on *Raj Rewal* by Taylor, London, 1992 pp26–33.

with rationality, reverberates in his designs (Figure 58), making it very clear that in none of the works described by him "has there been any effort to embellish the designs with false 'oriental' arches, domes or carvings. The inspiration from the past is reinterpreted in terms of rational structures, modern techniques and new building materials, to meet

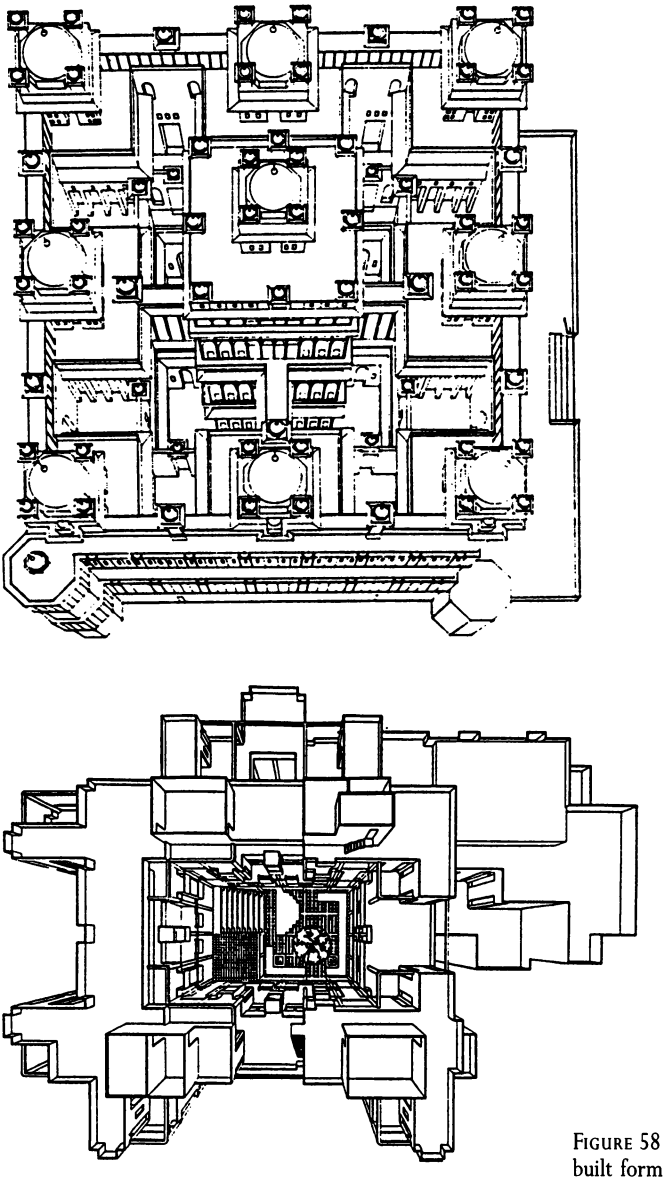

FIGURE 58 Comparing the built form of old and new (Taylor/Rewal, 1991)

practical needs."[61] The argument of the redundancy of traditional architecture in the contemporary context is one of the favourite of the modern architect in India. His judgement is based on strict functional parameters that render traditional embellishment obsolete. But at the same time his use of traditional spaces like courtyards, the concept of the *Mohalla*, traditional treatments of facades, and indeed his assertion of Indian-ness, are all based on reasons that go beyond just practicality.

However, Indian-ness today is tucked away in the concept of the design that explains the use of a 'superior' methodology of transformation of traditional features, as opposed to the much maligned transfer of traditional features. The expression of Indian-ness has shifted from the visual to the conceptual arena[62] following the concern with pastiche.[63] Indian-ness can be read into the designs with the help of its written concept where the architect duly narrates the ingredients that make his design Indian and yet Modern.

In the process of Indianisation, the modern architects are able to completely by-pass familiarisation with the corpus of *Vastu Vidya* and its traditional practitioners. They draw upon the built representations of an architectural programme that is different from the Modern building programme, often overlooking that the Modern interpretation of the traditional built form as a composition of solids and voids, movement patterns, and the play of light and shade were not the primary concerns of its designers, but their own perception. The overwhelming response that the traditional built form evokes is partly due to the craftsmanship and the skill it employs. The difference in the fundamental training that creates a communication gap between the modern architect and the traditional craftsman, and dictates the difference in the perception of built form, keeps them apart. A traditional craftsman and architect uses his skill in the ambience of a set of completely different building principles, of *Vastu Vidya*, which the Modern architect is not familiar with.

Raj Rewal hopes that the traditional Indian aesthetic theory of "*Rasa* and rationalism fused together within a holistic order have great promise for solving the problem of building for a pluralistic society which remains linked to its heritage",[64] but whether the subjectivity in Modern aesthetics can find a common ground with the theory of *Rasa* is debatable. For instance, the use of a red colour on the interior decoration of walls of a house may be fashionable for the modern designer, but for a traditional

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61 *Ibid.* p33.

62 Also see Chapter III. Vastu Purusha Mandala.

63 See in particular the discussion on Architecture and Anxiety: the Problem of Pastiche in Recent Indian Design by G.H.R. Tillotson, *South Asia Research*, Vol.15, No.1, Spring 1995.

64 Raj Rewal in Taylor, *Raj Rewal*, London, 1992 p34.

craftsman it is the colour of the malefic planet Mars and evokes the emotion of *Roudra* or fury; a toilet clad with expensive black granite may be desirable for some, while traditionally it is the colour of the malefic planet Saturn and evokes the emotion of *Bibhatsa* or repulsion; a piece of Modern art by a famous artist, albeit depicting aggression, may be a proud possession of a householder today, but inauspicious to the traditional practitioner. The fusion of *Rasa* with rationalism is an almost impossible task of imposing a Modern rationale on a traditional principle that is evolved with a different rationale of its own. For example, the emotions evoked such as the "serenity of the Padmanabhapuram temple complex, the lyrical romanticism of the Taj Mahal and the vigour of the Jantar Mantar observatory"[65] are those of the Modern observer with an empathy towards Indian monuments, and may not have been consciously sought by the designers of these buildings.

The use of colour for the 'Indian' architect is today one of the means to link his design to tradition, not in the way the tradition prescribes, but how he perceives the use. Explaining the use of colour in the design for the department of Computer Science and Engineering (Bombay, 1994), the architect Sen Kapadia suggests, that a building

> "must have a sense of colour, a sense of joy and such other sentiments, which cannot be quantified in architecture. We have our own notions of colour, with a belief that a sudden splash somewhere, enlivens the place. You can't gauge this in rational terms . . . . So then, how does one go about being rational on one side and irrational (or creative) on the other? The building must attempt to be functional as well as colourful. Lessons from the colours of Rajasthani miniature paintings and the architecture of antiquity are to be deployed here. The sunbathed central core is to be accentuated here with Jaisalmer yellow, Srinathji black, Krishna blue, Udaipur white and Earth red."[66]

The 'Indian' architects have been trying to identify an unidentifiable element in traditional designs that the contemporary designs lack, even though they may be functionally efficient. It is unidentifiable because of their assumption of a duality of architectural form that constitutes the realms of the material and spiritual; visibilia and invisibilia.[67] Doshi notices that rituals play a vital role in the generation of supreme architectural experiences that activate the human psyche:

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65 *Ibid.*

66 Sen Kapadia in Kiran Keswani, Focusing on Philosophy, *Indian Architect & Builder*, November, 1994 p18.

67 Discussed in detail in Chapter I. Architectural team.

> "At the domestic level, porches and balconies *became* the outward physical expression of the family and its contact with the community. The open court within the dwelling acted as the communication centre for the family. The court in a house and the central open space in an urban structure are, according to ancient Indian tenets of planning, presided over by Lord *Brahman*, the supreme creator of the *Brahmand*, the Universe. Being open to sky, these spaces infuse in the individuals and the community the consciousness of the universe and nature. They also bring the occupants into daily contact with the supernatural i.e., the mythical as well as natural-climatic elements and a sense of humility.
>
> The belief that the psychic experience in architecture is central and that physical and intellectual experiences are to be developed around them is what fascinates me, and my recent work is based on this important realisation."[68]

He follows this with a description of his recent projects and of his design of the Gandhi Labour Institute at Ahmedabad (1979) and explains that "In order to generate a design comprehending the functional, symbolic, and notional levels, I have referred to and adopted the models of a temple at Vatdal, an inner court from of a large Haveli from Jaisalmer and a typical village square. To accentuate the meaning of these images, I employed a series of thresholds and linkages of varied scales."[69] Surely, an essential part of the role of rituals in the 'psychic experiences' lies in the participation and enactment of the rituals. A central courtyard does not become the *Brahmasthana* simply by calling it that, and neither do its users come in contact with the 'supernatural' simply because the "small pool located in the central court captures for the observer the sun, moon, and sky reflected in it."[70] 'Indian' architects are not the only architects in the world who use architectural elements like a central courtyard and small pools. These elements owe their Indian-ness in contemporary design to their description in the 'concept' or design statement, which reflects the mind of the designer.

This process of adopting a traditional concept minus its traditional use and meaning, is articulated by Charles Correa as a 'reinvention of myth'.[71] True, it is a 'reinvention' because the imagery that surrounds a traditional concept is used without following the restriction of the prescriptions that

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68 Doshi, Between Notion and Reality, *The Indian Institute of Architects National Convention*, Ahmedabad, 1987 p34.

69 *Ibid.* p40.

70 *Ibid.*

71 Cruikshank, Variations and Traditions, *The Architectural Review*, August 1987 p57. Also see Chapter.III Vastu Purusha Mandala.

dictate where and how it must be used; and also true is that a traditional concept is a 'myth' for the 'Indian' architect due to his remoteness as a participant and a practitioner of traditional building principles. The traditional concepts of architecture to the 'Indian' architect read as a "reservoir of mythic images" from which he may pick and mix whatever images he likes, and use them in whatever way he likes. To forestall any criticism that may highlight this as use of symbols without an understanding of their inherent architectural meaning, the architect would explain that "architecture must be generated from the *transformation* of those images, that is by expressing anew the mythic beliefs that underlie the images."[72] If the significance and function of a traditional concept and what they architecturally stand for is completely transformed, whether they can still be referred to by the same name in the description of his concept is debatable.[73] Maybe the debate is not even necessary, as frankly the choice of epithets makes little difference to the users of a central open space – whether it is called *Shunya*, *Bindu*, or the seat of *Brahma*. It is doubtful if the Indian user, unlike the 'Indian' architect, would feel a sudden gush of Indian-ness even when he is told that the courtyard he is standing in is *Shunya*, the absolute void and *Bindu*, or the source of all energy.

The tradition that the 'Indian' architects are pursuing is a follow-up of the tradition of the Modern movement introduced into India by Le Corbusier and Louis Kahn – where the design is almost entirely subjective, and so are their references to the Indian built form. What the architect designs, how (if at all) he Indianises his design, and how he interprets the tradition of Indian architecture, rest entirely on him. These are some of the perks of the Modern movement which obviously any architect in India who knows little about the traditional building methods would like to safegaurd. Indian-ness is added to the Modern movement by Post-Modern architects in India, a trend separate from that of architects waking up to the indigenous architectural knowledge:

> "Architects of the International style, at the culmination of modern architecture, felt that it was enough to make a generalised box: even Mies at times, worked that way. You go inside the Seagram building and nothing happens visually. It is a glass block, in which they chop off certain areas to make rooms. Nothing happening, no event whatsoever. This is what the Post-Modern architects, the reasonable good Neo-Modern architects resolved. One cannot make a building

72 Charles Correa, The Public, the Private and the Sacred, *Architecture + Design*, Sept – Oct 1991 p95.
73 See for example, the reference of Vastu Purusha Mandala made by some 'Indian' architects in Chapter III.

> which has all functional requirements put into a box – it must be flexible, with generous space to accommodate variable events."[74]

The modern architect for the first time in the history of his profession, feels the absolute control over the design process slipping from his grip. To his astonishment, the clients assert the advice of a *Vastu* consultant who following a different set of parameters, tells the architect what a 'good' and 'bad' architectural planning is. The *Vastu* consultants are not particular about design ideologies, but when a fragment of *Vastu Vidya* is injected into the overall modern methodology of design, it not only disturbs the architectural design process, it undermines the application of the principles of *Vastu Vidya*. Clearly, the element of architectural design is not separate from the corpus of *Vastu Vidya*. However, the *Vastu* consultants have been able to disengage the issue of architectural design from the application of *Vastu Vidya* – as one leading consultant explains:

> "Whereas architecture deals with the internal comfort and external beauty, civil engineering deals with the structural stability but Vaastu provides with the knowledge of the principles to be adopted in building a house so as to make the native happy, healthy and prosperous."[75]

If the prescriptions of the modern *Vastu* consultants are taken as imperative, it is possible today to build a house that is functionally inefficient, aesthetically displeasing, structurally impaired, economically demanding, and yet possess all the ingredients necessary for happiness, health and prosperity. The prescriptions of the *Vastu* consultants are incomplete as an architectural programme, and lean on popular images of another programme to derive the overall built form (Figure 59). And because their concern with architectural design is minimal, they are able to profess and apply a small part of *Vastu Vidya* to an 'auspicious maximum', leaving the rest unaddressed.

The projection of *Vastu Vidya* as a religious tradition rather than an architectural methodology, makes the task of contemporary application difficult. Communities of different religious beliefs like the Buddhists, Jains, Hindus and Muslims[76] have adapted the prescriptions of *Vastu Vidya* according to their needs, revealing its strength in being continuous to the present. Its projection as a 'Hindu' tradition today, gives it an orthodox ring that

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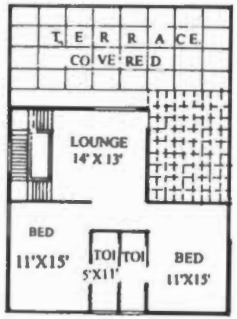
74 Sen Kapadia in Keswani, Focusing on Philosophy, *Indian Architect & Builder*, November 1994 pp21,23.

75 B.N.Reddy, *A Glimpse of Practical Vaastu*, Virgo Publications, Hyderabad, 1995 (VI edn.) p93.

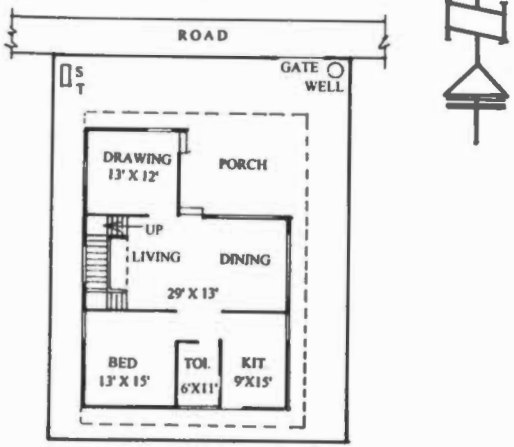
76 For example, *Manasara* (LV, LVI) describes the method of construction of Jain and Buddhist images, and Muslims even today in Benares use the dictates of *Vastu Vidya*.

RESIDENTIAL BUILDING

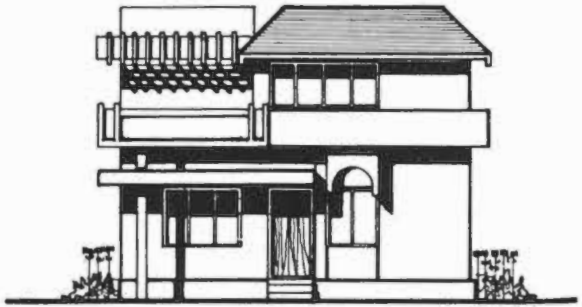
(Ground and First Floor)



North-east porch is good in ground floor.



North-east terrace is good in first floor.



NORTH SIDE ELEVATION

- North-east pergola is lower than the rest of the roof level.
- South-west roof level and parapet wall should be a bit higher than the other sides.
- Staircase in North-west should not be taken above the 1st floor, because the headroom will be higher than the roof level of South-west bed room, which is not correct.

FIGURE 59 The modern 'auspicious' house (B.N. Reddy, 1995)

resounds in the claustrophobic environment of research and practice. Incorporating the principles of *Vastu Vidya* as advocated by its popular consultants is likened to being on a moral high ground, religious and righteous. Some *Vastu* consultants project themselves as the 'do-gooders' of society, upholders of tradition, taking upon themselves the onus of uplifting humanity. They hold responsible 'Western materialism', the invasion of science and technology, economic opportunity, 'mass media', and Western life-styles and values, for the erosion of belief in traditional systems, yet their own life-style and way of working is not outside the influence of so called materialistic approaches and opportunism. They often lean on modern scientific proofs to reveal the scientific validity of the prescriptions; quote appreciation by 'Western' authors to elevate its status; while maintaining that the principles of 'Vastu' are known only to a blessed few, charge exorbitant fees that makes their advice revered as almost the words of God; and yet, interestingly enough, do not promote traditional architecture and building methods – as when it comes to architectural design their schemes seem to be the result of ill-digested modern architecture. Given below are quotes from some of the popular *Vastu* consultants, not with a view to criticise these practitioners, but to understand the contemporary practice.

> "The principles of Vaastu are known to the blessed few only and an endeavour is made here to help the common man glimpse into the ancient Shastra . . . . Few Sanskrit slokas from ancient texts are given in coming pages with its meaning in English which reveal the secrets of Vaastu for the benefit of mankind."[77]

> "Just as man had migrated from a mysterious world to a mechanical world, Vaasthu had also diverted its attention from artistic architecture and gorgeous construction, to all comfortable abode of the common man. Modern Vaasthu is the synthesis of oriental values and modern concepts with the ultimate aim of promoting human welfare and universal peace. As an author of this book, it is earnest desire and ardent longing that the science of Vaasthu should gain international recognition as a means to achieve world peace."[78]

> "Most of the present day buildings including some of the temples built with scant regards to Vaastu Shilpa Shaastra, as a result of which its inmates and users suffer adverse effects like loss of health, wealth, spouses, progeny, happiness and peace of mind, and it may not be too

77 Reddy, B.N., *A Glimpse of Practical Vaastu*, Hyderabad, 1995 (VI edn.) p12.
78 Reddy, G.T., *The Secret World of Vaasthu*, Andhra Pradesh, 1994 p24.

> much of an exaggeration to say that the building built as per ancient Indian Texts bestowed happiness and all round prosperity to all those concerned. Vaastu Shilpa Shastra is an admixture of science, art, astronomy, astrology, and that mystic doctrine, and one should be very cautious in arriving at any hasty conclusions about its merits and demerits."[79]

> "I always believe that the science of Vaasthu is the only panacea for all the problems faced by the industries. The problem of sickness in industries, in my view can be attributed, in a greater measure to the non-adherence to the principles of Vaasthu in the basic design. I earnestly appeal to the builders, industrialists, economists, public servants, politicians and businessmen to follow the principles of Vaasthu in the larger interests of the public and for National good."[80]

While some do appreciate the architectural significance of *Vastu Vidya* but can do little due to the all-pervasive demand for the application of the modern architectural programme and lack of research, others apply this neatly trimmed version of *Vastu Vidya* unscrupulously:

> "Then there are the quacks, mainly priests or astrologers, displaying how little knowledge, fuelled by greed, can be a lethal thing. Men who are so ignorant about architecture they would not recognise a *jharokha* if it fell on their heads, go to people's homes, shake their head mournfully and drop a casual remark about how dreadfully inauspicious the house is, so that the owner solicits their advice on a remedy, for a hefty fee. A person can pay a *Vastu Shastri* to give a business rival the wrong advice. The potential for abuse is so great that in ancient times, it is said, any man considered to have an avaricious nature was not taught *Vastu Shastra*."[81]

Professionals of varying competence are present in every field, but to practice as a *Vastu* consultant no standard minimum qualification or knowledge of *Vastu Vidya* is necessary. The force of tradition that ensures that a practitioner of *Vastu Vidya* undergoes the rigours of learning,[82] is not strong anymore. Some practising consultants are not even familiar with the names of well known textual sources, let alone any familiarity with

79 Rao, D. Murlidhara, *Hidden Treasures of Vastu Shilpa Shastra and Indian Traditions*, Bangalore, January 1996 (VI Rept.), January 1995 (I edn) pXII.
80 Reddy, G. T., *Industries and Vaasthu*, Andhra Pradesh, 1994 Preface.
81 Dhillon, *Vastu Shastra: Plotting the Future*, India Today, UK edn. July 31, 1995 p83.
82 See Chapter I. Architectural Team.

architecture. Attributing the basis of their practice and knowledge to some kind of divine intervention, cosmic energy, spiritual enlightenment and special blessing from heaven, they do not like to discuss the subject further. Any further probe would result in unpleasantness, when they would be shocked at what they would see as the sheer audacity of the student of *Vastu Vidya* daring to question their knowledge of the subject.

The secrecy that surrounds the subject rendering research and exploration difficult, was also encountered by Ram Raz in 1827: "It is a melancholy truth, that those venerable sages to whom our works on arts and sciences are attributed, in endeavouring to communicate instruction to the world have been guided rather by a mistaken ambition of rendering themselves reputable by the difficulty and abstruseness of their style, than by an anxiety to make themselves intelligible."[83] The traditional practitioners and craftsmen also see new research outside their community as a danger that the purity and sanctity of knowledge would be lost in the hands of 'foreign' intrusion. They would rather that the knowledge dies with them in a 'pure' form than continue in an 'impure' form. Contributing to this attitude is also the bitterness they feel towards the system pursued after Independence, which excludes them from the main stream development in architecture: "Unfortunately in the last few decades, the Vishvakarma communities, who are the holders of traditional wisdom, have been slowly marginalised. They were the original metallurgists, architects, builders, alchemists, sculptors and artists of the land. Today they are increasingly giving up their hereditary vocations and being drawn into alternate jobs."[84]

The craftsman too has been struggling to survive and adapt to the change during which he has been completely excluded from the mainstream. Though some skilled craftsmen still survive in India, occupied mainly in the renovation of old buildings, they are the loose remnants of an architectural team which worked with the direction of a designer who would conceptualise the scheme. A master-craftsman in Rajasthan confessed that expecting them to design traditional buildings is too much to ask, as although they can work on the components like carving the *Jalis*, columns, and arches, to envisage their assembly was never their strong point.[85]

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83 Ram Raz from an extract of his letter to Richard Clarke, dt.13 Oct., 1827, published in *Essay on the Architecture of the Hindus*, by Ram Raz, Indological Book House, Delhi, 1972 ppx-xi.

84 Ranvir Shah, Reinterpreting the Old, *Inside Outside*, Delhi, April 1993 p17.

85 A master-craftsman at Jaipur, interviewed during the field study was not familiar with, for example, the concept of *Vastu Purusha Mandala*, orientation, *Ayadi* formulae, and astrological considerations. At first it seemed he did not want to part with the knowledge, but after showing him enough familiarity with these concepts and his architectural vocabulary, he pointed out that he is neither a *Sutradhara*, nor an architect, and there is no real 'need' for the craftsmen to be conversant with the concepts today. The craftsman is highly skilled at carving and painting traditional motifs. Research with two master-craftsmen at Amer revealed the same.

An example of a publication written in the present century by a craftsman in promotion of the skill reveals the attempt to adapt to the influences of sudden change after Independence, and their inability to fit into the mould of modern architectural practice which does not offer them a niche. Published in 1969, *Vishvakarma Darpan*[86] ('mirror or reflection of Vishvakarma') is a multi-lingual work in Gurumukhi, Hindi, and Urdu, by Gyana Singh Mistri. On its cover page the author highlights that this edition includes many American building designs. The textual part of the book is in the form of *Doha* or couplets, *Chaupai* or verses of four lines, and prose, without any use of Sanskrit. The book begins with a concise version of *Vastu Shastra*, opening with the propitiation of Vishvakarma, his attributes and tools; and then giving brief accounts of examination of soil; declivity of site; classification of land according to the *Varna*; calculation of *Aya*; astrological considerations for commencement of work, laying the foundation, and first entry in the house; weight of materials in the unit of pounds per square foot; compressive and tensile strength of materials; brick and stone masonry; plastering; flooring of brick, Agra stone and timber; roofing; and calculation of rates for volume of mud and concrete. The text is followed by thirteen plates of illustrations of tools, their use and maintenance (Figure 60); sixty-six plates of geometric construction of motifs (Figure 61), and five plates of motifs of intertwined serpents (Figure 62); twelve plates of wooden joinery (Figure 63); ten plates of geometric construction of borders (Figure 64); twenty-five plates of plaques of various flowers (Figure 65) and a lion's head; six plates illustrating decoration around the door frame (Figure 66); ten plates on beds, their head-boards, chairs and their backs (Figure 67); twenty-seven plates of various *Jaalis* and their assembly (Figures 68, 69); twenty-four plates on chairs, cupboards (Figure 70), tables, bureaux and 'fancy' furniture (Figure 71); one plate on tools for laying the floor, and seven plates on flooring patterns (Figure 72); seven plates on tools for masonry and on brick masonry; sixteen plates on geometric construction of arches in brick (Figure 73); thirty-two plates on various building features (Figures 74, 75); two plates on fire places (Figure 76); six plates on staircases and railings; text in three languages and illustrations on lathe work and the preparation of colour (Figure 77); ten plates on the art of drawing (Figure 78); eight plates on more building features like doors, brackets, and bay-windows (Figure 79); and forty-four plates on 'designs' of buildings and plans (Figure 80).

Books like the above are in circulation amongst some carpenters, masons, contractors and *Mistris*. Apparent in the designs is a percolation of

86 Mistri, Gyan Singh, *Vishvakarma Darpan*, Bhai Buta Singh Pratap Singh Pustakon Wale, Amritsar, 1969.

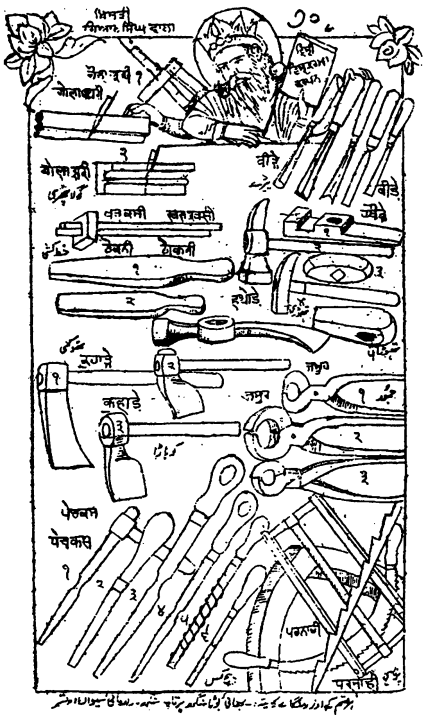


FIGURE 60 Tools

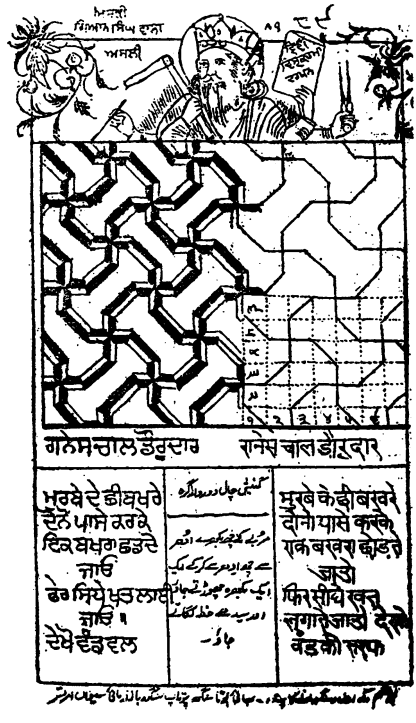


FIGURE 61 Geometric construction of a pattern

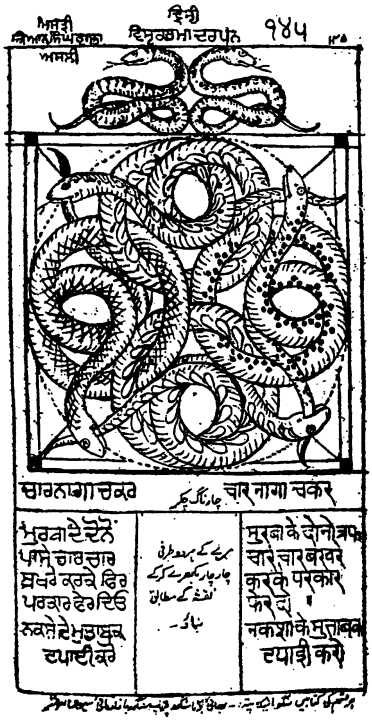


FIGURE 62 Circle of four serpents

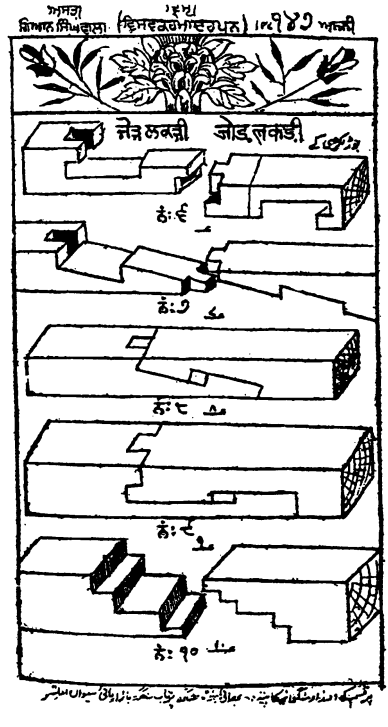


FIGURE 63 Wooden joinery

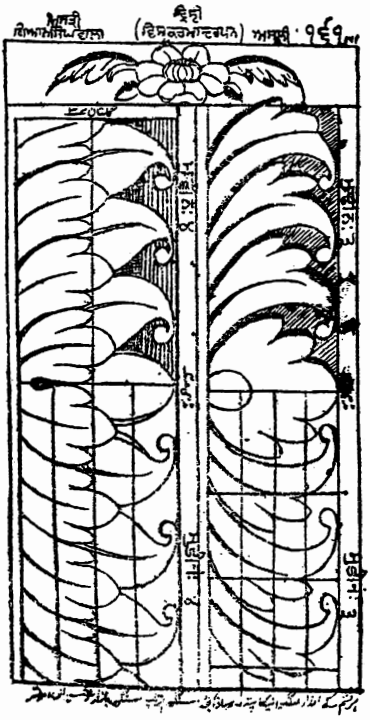


FIGURE 64 Design of a border

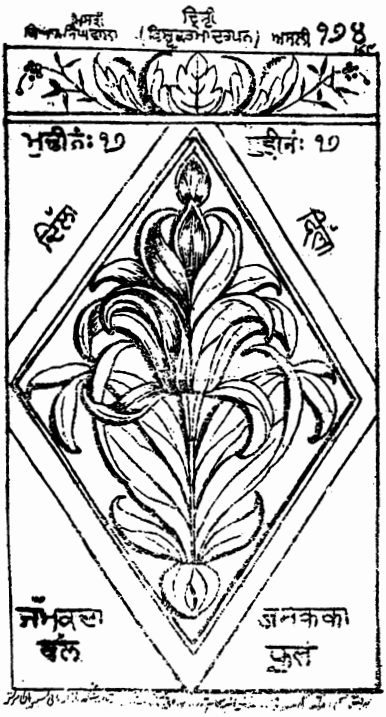


FIGURE 65 Motif of a flower

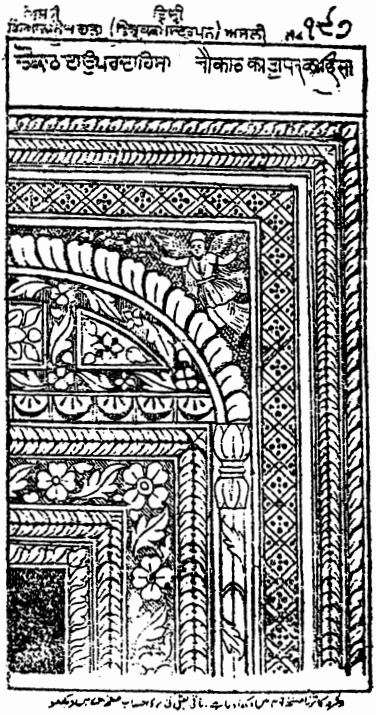


FIGURE 66 Decorated door surround

FIGURE 67 Designs of low chairs

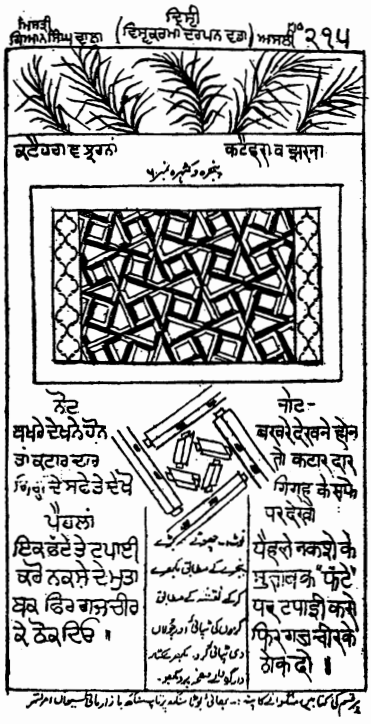


FIGURE 68 Construction of a trellis

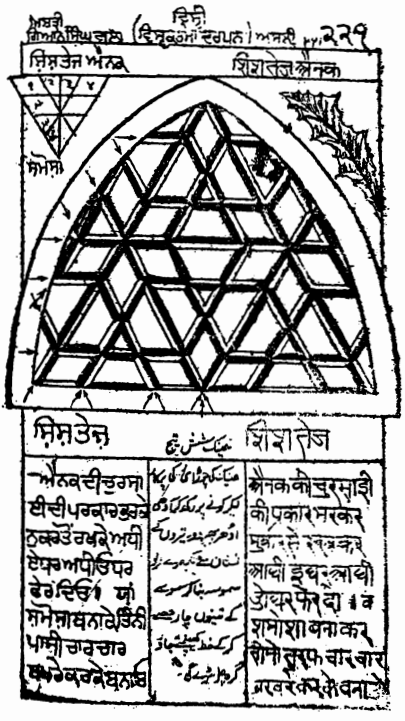


FIGURE 69 Trellis for light

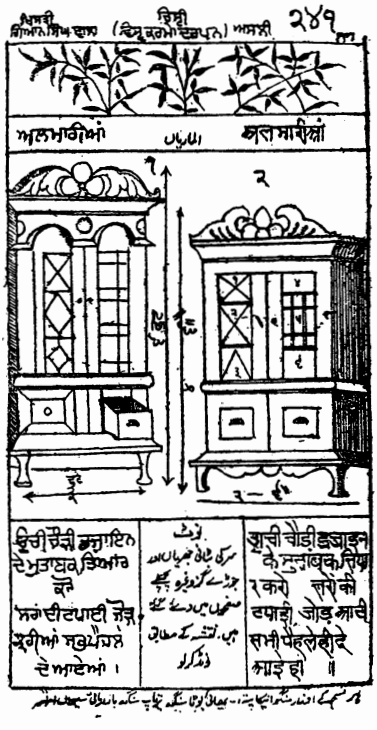


FIGURE 70 Cupboards

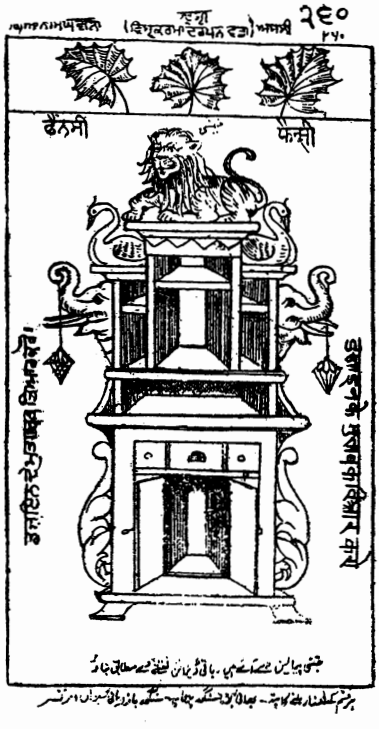


FIGURE 71 "Fancy" piece of furniture

FIGURE 72 Stone flooring

FIGURE 73 Geometric construction of an arch

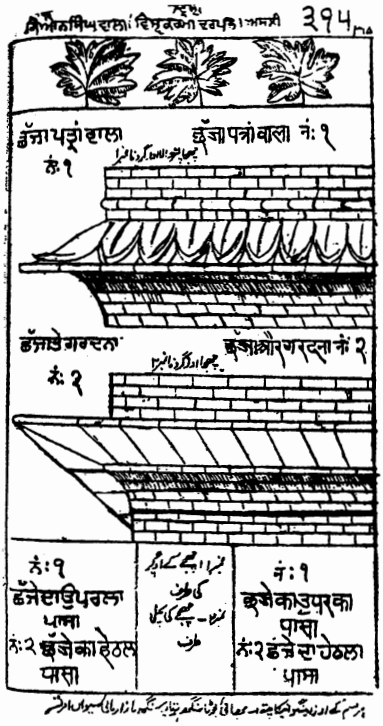


FIGURE 74 Chhajja with foliage design

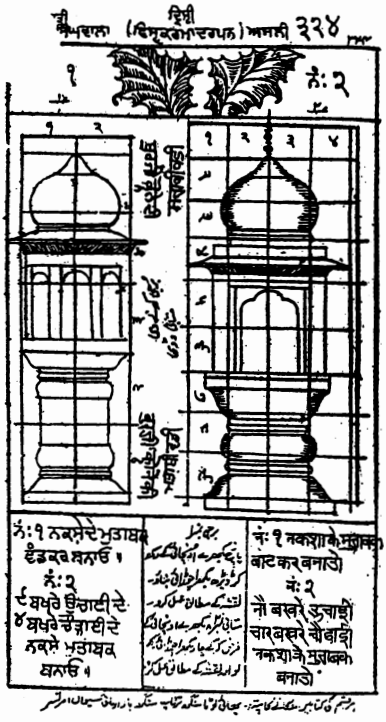


FIGURE 75 Geometric construction of a minaret

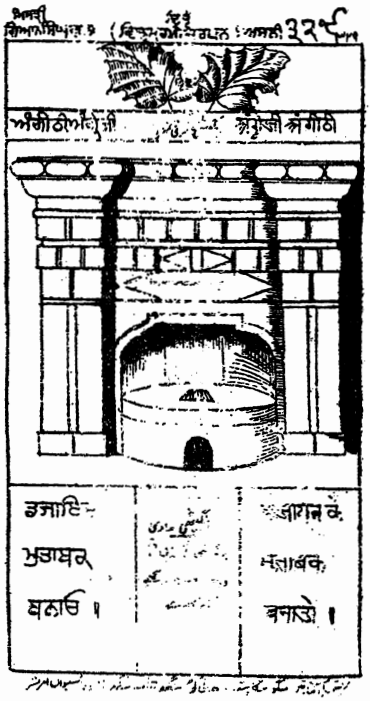


FIGURE 76 Angrezi Angithi or English Hearth

FIGURE 77 Instructions for lathe work, polishing and colouring

FIGURE 78 Instructions for holding and drawing with a quill

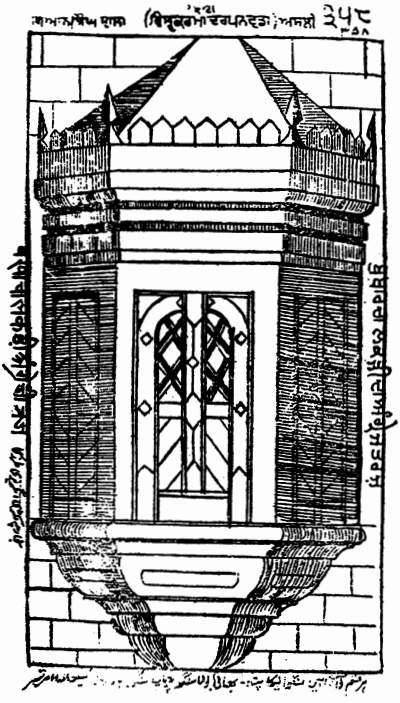


FIGURE 79 'English' wooden three sided window

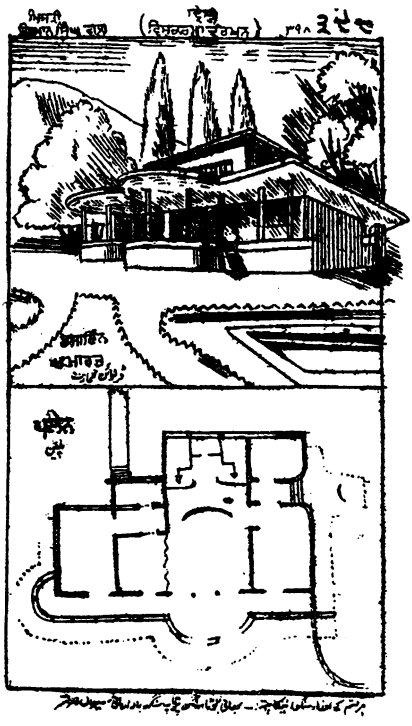


FIGURE 80 "American" design

varied influences of *Vastu Vidya*, with Mughal, Colonial, and Western images, without a conscious assertion of any. Not everyone in India can afford the services of an architect, or feels the necessity to employ one. Often in the urban fringes, the mason in consultation with the owner of the house, are the designers, which is where such reference manuals are used. K.T.Ravindran describes such architecture by non-architects:

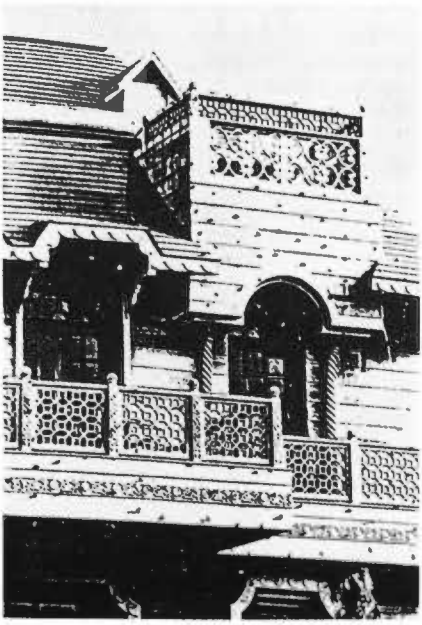
> "The urban villages, the middle and lower middle class city extensions, colonised peripheries, small towns and villages – these are the domain of the engineer turned architect, the self-appointed professional of locally accepted 'good taste' and those versatile, skilled *mistris* (masons) who offer a package deal to the not-so-rich. The resulting architecture is a monster baby of the popular paradigms of the main city and a fractured version of the traditional sensibilities with its own characteristic vocabulary drawn from the immediate historic and cultural contexts. It ranges from the most boring, drab nondescript box to a celebration of kitsch and the bizarre . . . . Contrary to the repulsion or the condescending amusement of the trained architect, they may be hailed by the local people as important design achievements. Nowhere is the schism between the cultivated

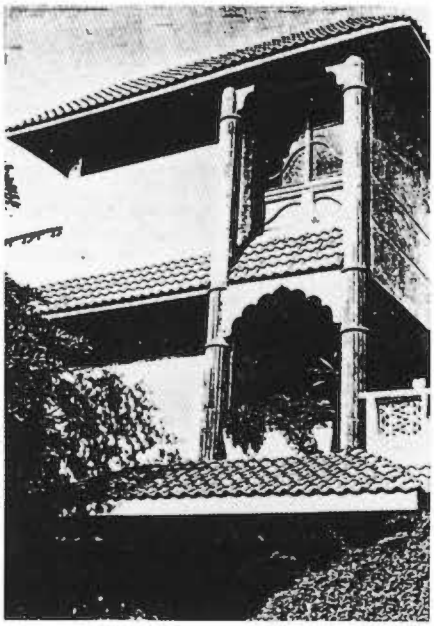
> taste of the trained architect and spontaneous affectations of the man on the street more visible than in this aspect of contemporary architecture."[87]

Through the crude images of 'American' buildings, the *Mistri* applies a stamp of 'modernity' in the hope of keeping himself in 'business', and seeks a common ground with the more modern 'city' architects. But the city architects have more in common with architects in London and America than with the traditional builders and craftsmen in their immediate surroundings.

The various uses of the fragmented corpus of *Vastu Vidya* is a reality in India due to the co-existence of the levels of application, which only hypothetically connects them together through the subject of architecture. The general countenance of architectural built form, excluding the cultivated designs of architects like Charles Correa, B.V. Doshi, and Raj Rewal, is as varied as the individuals themselves. In the affluent parts of cities like Delhi, the built form is a parade of personal fantasies of grandeur (Figure 81), where even the flouting of bye-laws and exceeding the stipulated limits on the built area is a projection of affluence. What may seem an echo of Indian-ness in the form of elaborately carved *Jaalis* and columns of stone, is more a projection of the 'expensive'. It is the architecture of freedom . . . freedom from the bounds of tradition, rules and rulers, from 'poor' India – assisted by being on the right side of the Gods, and the men, that control power and wealth.

87 K.T. Ravindran, Indigenous India, *The Architectural Review*, August 1987 pp63–64.





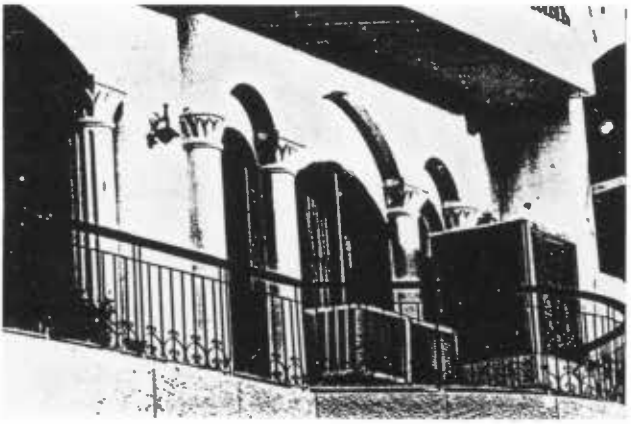


FIGURE 81 Some images of the affluent part of New Delhi (Author)

Epilogue

I

Today, the use of *Vastu Vidya* is in a crucial stage of transition: due to the recent imposition of some of its aspects on the recognised profession of mainstream architecture, and its use as a 'curry powder' to Indianise a foreign recipe for architecture, it is adopting uses and meanings unprecedented in its long history (Figure 82). Ways are being constantly invented to look at tradition in a new manner, which in turn influences the way tradition is carried out. For example, the identification of the 'spiritual' and the 'material' aspects of traditional design, which in practice are inseparable, has facilitated ways in which one aspect can be studied and applied in isolation from the other. The spiritual aspect of the traditional programme can then be injected into the material aspect of another architectural programme; and the material aspect of the traditional programme can be studied without its spiritual aspect by using modern tools of architectural appreciation. This invention of two strands of traditional design methodology induces fixed expressions for their uses so that they can be incorporated within the modern design methodology.

Recognised architects restudy traditional architecture in terms of solids and voids, and play of light and shade, which are not the apparent design intentions of *Vastu Vidya*,[1] while *Vastu* consultants restudy modern examples of architecture using a limited knowledge mainly of the basic orientation principles to substantiate its success and failure. For example, the *Vastu* specialist Harish Saini comments:

> "Yes, Chandigarh is bound to flourish. An analysis as per the Vaastu Shastra (manasara shilpa shastra), reveals that in planning Chandigarh,

1 See Chapter VII. Defining the Built Form.

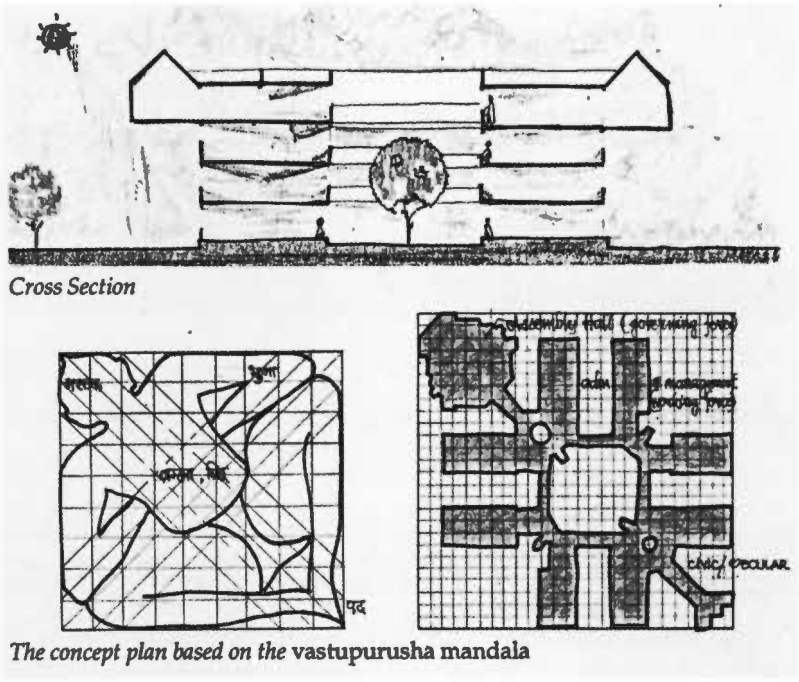


FIGURE 82 The theme of Vastu Purusha Mandala (*A+D*, 1991)

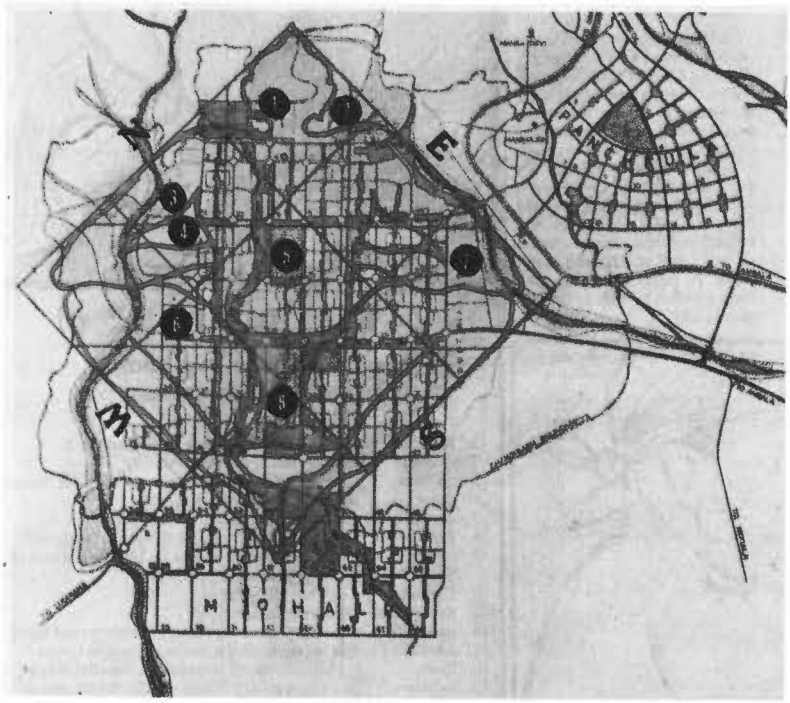
due consideration seems to have been given to the various factors elucidated in the shastras in accordance with which Hindu architectural development has taken place.

The philosophy of Vaastu Shastra – an ancient science based on time-tested scriptures and guidelines, works on the principle that correct placement of various activities in the right direction and in the suitable zones/padas under the influence of respective planets, is bound to bring happiness, prosperity and peace of mind.

The philosophy applies to any kind of architectural development viz city planning, individual house, factory or business premises etc. Mind you, 'vaastu responsive' architecture may earn you fortune and ignorance may even cost your life."[2]

Saini (Figure 83) then relates the orientation of various parts of the city such as the Capital Complex, the Sukhna Lake, the University area, the

2 Saini, Harish, Vaastu Ordains a Full Flowering for Chandigarh, *The Tribune: Saturday Plus*, Chandigarh, February 24, 1996.



The Chandigarh Master Plan overlaid by *Vaastu Purusha Mandala* — the most potent architectural mechanism providing a blue-print for building in *Vaastu Shastra* Legend: (1) Capital Complex symbolises head — coincides with the head of the macrocosmic *Purusha*. (2) Sukhna Lake occupies E/NE corner, a sacred place for water and meditation. (3 & 4) The PGI and Panjab University — located in the North where the causative planet is Mercury *(Budha)* attributed health (treasure of health and knowledge). (5) The City Centre, Sector 17 — occupies the heart of the city. A recognised place for administration/assembly and temple of Lord Brahma in an ancient city. (6) Cremation ground — placed in N-W direction which was marked for the same purpose and *Chandalikas* in an ancient city. (7) Industrial Area — suitably located in South-East belt governed by *Agni*. (8) South-west, South and West zones favourably placed for living purposes (sleeping, eating etc).

FIGURE 83 Invention of a Vastu rationale behind Chandigarh (*Tribune*, 1996)

cremation ground and the industrial area to the prescribed placement of the text, and declares:

> "The city beautiful stands in contrast to the other cities in terms of its 'orderliness' and 'disciplined development'. Further to it, its positive response to the Vaastu Shastra i.e. proper archaeo-astronomical placement, makes it free from all misfortunes and as such the city is bound to flourish"[3]

3 *Ibid.*

From the above rationalisation and those of other modern buildings which the *Vastu* pundits analyse, it seems *Vastu Vidya* has little to do with architectural design. The *Vastu Pundits* do not extend their analysis of modern structures to the aspect of design, which forms a large part of the subject, prescribing much more than spatial organisation.

The initial difficulty with implementation of the rest of the principles (apart from the fact that the modern architects owing to their training have little access to the subject of *Vastu Vidya*) is that the entire building industry is geared towards a different programme of architectural methodology. For instance, if the architect follows the measurement system as prescribed by *Vastu Vidya*, the *Hasta* and *Angula* units would be in direct conflict with the metric system of measurement in use to standardise the materials and construction. Today, in order to implement the stipulated alignment of timber according to the orientation of the tree it is cut from, the architect or the builder would have to go to the forest in search of the 'auspicious' tree and cut it in 'auspicious' circumstances. And, really, there is no limit to the extent to which the 'auspiciousness' can be accrued if "One major reason for the growing popularity of the concept is its tempting promise of a convivial lifetime."[4]

Evidently, the purpose of *Vastu Vidya* as applied by the *Vastu* consultants is about solving the miseries of present day urban life style, without disturbing and sacrificing the images that represent modernity:

> "No doubt, people are, nowadays, well aware of the modern planning concepts, the dramatic architectural configurations, the revolutionary range of building materials available in the market etc., but one important aspect found missing in their house design is adherence to the *Vastu* Silpa Shastra. If understood and followed scrupulously, in the design, you might be able to earn a fortune from your own house . . . . You need not worry if you already own a house. In case you have been experiencing certain ill-effects viz. bad health, unpleasantness, mental turbulence etc. from your house you must consult a vaastu expert who might be able to suggest certain remedial corrections."[5]

Maybe at this point in time some rudimentary issues about the way architecture is practiced in India need to be addressed. Instead of applying the balm of a bit of a traditional belief system to relieve the pain from Modern architecture (enthusiastically adopted after Independence), the ill-

4 Chopra, Praveen, The South is Yama's Direction, *The Times of India*, October 22, 1995.
5 Saini, Harish, A Ready Reckoner for Shops, *The Tribune: Saturday Plus*, Chandigarh, February 24, 1996.

digested modernity responsible at large for producing crass versions of Western architecture needs to be re-assessed.

For the tradition to continue as a whole system of architecture, its application would have to rise above the fixed expressions created by modern practitioners outside the tradition. For it to have the confidence of rising above limited expressions, an attempt at applying its architectural methodology needs to be made without treating it as a mere 'quick fix' to life's difficulties, and some kind of 'cosmic' mumbo-jumbo.

It matters little to the user how the principles are theoretically justified, (for example the north-eastern direction to an astrologer is auspicious because it is ruled by the beneficent planet Jupiter, to a *Vastu* consultant it is the head of the *Purusha* which makes it sacred, to a 'scientific' mind it is the diffused light, low in ultraviolet rays that makes it beneficial) but their significance does rest on the architectural treatment they receive.

II

This study of *Vastu Vidya* has been concerned to reveal it not as an assembly of fragmentary pieces of knowledge, but as a coherent and complete programme for architectural design. A comparative study of its main texts reveals an organised system, dealing with every aspect of building design. In looking at its contemporary applications, however, we have seen how this coherence has broken down against the onslaught of modern influences. Whether undertaken by *pundits*, architects, astrologers, priests or craftsmen, the use of *Vastu Vidya* today is therefore invariably fragmentary – in violation of its proper character and originating purpose. The chapters of this study have imitated the course of a *Vastu Vidya* text, and under each heading we have encountered fragmentation and re-invention as the price of continued use.

Chapter one discussed the role of the team of experts, and the skills and qualifications prescribed for each expert in the team, by *Vastu Vidya* texts. While the necessary skills are broadly consistent within the continuity of the textual tradition, the texts reflect a change in the responsibilities and hierarchical roles adopted by the experts of the team. The chapter then identified the various users who, from the vantage of their different training, use fragments of *Vastu Vidya* today (and discussion of them continues also in the chapters that follow). In particular, it discussed the birth of the architectural profession in India in the early part of the present century, that stands apart from the tradition of *Vastu Vidya*; and the general attitude of the architects, and political leaders of this time, which saw a systematic negation of *Vastu Vidya* as a design methodology in its own right.

The ramifications of the hasty adoption of the 'International style', are now apparent in the quest for Indian-ness, which the architects attempt to resolve through symbolic use of *Shastric* terminology and built representations of traditional architecture. The main purpose of this use seems to be to add an Indian appeal to a modern design, by architects whose training provides little opportunity for understanding the concept of *Vastu Vidya*. A parallel phenomenon is the recent birth of the new *Vastu Pundit*, conceived to fit within the mainstream architectural practice, and aided by his indifference towards matters of design.

Chapter two opened with a discussion of the traditional concept of measurement and the significance of numbers and some of their traditional associations, followed by the study of measurement of space and time, and their inter-relationship, the *Ayadi* formulae, and the system of relative proportion. The *Vastu Vidya* system of measurement generates a network of lines that contain space and time within which the design unfolds. Today, this traditional system of measurement has limited use because the standardisation caters to modern architecture, and the technological advancement has passed the traditional concepts by. As a result, the prescriptions of *Vastu Vidya*, which are complemented by traditional building methods, when applied to modern construction processes become invalid. The *Vastu Vidya* system of measurement that embraces traditional philosophy, astrology and architectural application, is in direct conflict with modern design methodology, and its use today is curtailed. The fragmentary nature of the application of *Vastu Vidya* today is self-evident in the general disuse of this aspect.

Chapter three explained the concept of the *Vastu Purusha Mandala*, its various subdivisions and their notations, the imagery of its body, and the significance of the lines and their points of intersection on the *Mandala*. It proceeded with an examination of contemporary understanding, and the use of the concept as a theme in modern design, and the iconisation of the image of the *Vastu Purusha Mandala*; and how the theoretical interpretations of the concept have influenced its primary use and architectural significance. This traditional design tool is being put to various unprecedented uses in various new versions, remote from its purpose of architecture. The *Vastu Pundits* enshroud the subject of the *Vastu Purusha Mandala* in deep mystery, highlighting their general indifference towards its architectural role. For the craftsmen and astrologers, the concept of the *Vastu Purusha Mandala* is simply an inherited prescription to conform to, rather than one of the means to emphasise their Indian-ness.

Chapter four on orientation discussed the significance of the eight cardinal directions according to traditional Indian thought. It studied the various associations between the cardinal directions and planets, guardians,

elements, time periods, the concept of *Aya*, the location of household activities, and the embodiment of the *Vastu Purusha Mandala*. Proceeding to analyse the contemporary uses of the principles of orientation, the chapter showed how the *Vastu Pundits* apply these principles to modern industries, offices and houses; and explored the conflicts between the *Vastu Pundit*, the architect, and the craftsman, which such applications induce. 'Indian' architects are not particularly concerned about the correctness of orientation, but with the interest it might generate in the design statement.

Chapter five on site considerations studied the concept of suitable and unsuitable land for construction, based on its topography, soil, shape, location and vegetation; the classification of land based on contour, hue, smell, odour, declivity, shape, the sound it emanates and the taste of the soil; the various tests prescribed in the texts and the consecration of the site. The *Vastu Pundits* today rectify the land by improving its shape, but the rest of the considerations, such as the rejuvenation of the fertility of land and the removal of impurities, are not followed. Land in urban areas is allocated according to planning principles that have no connection with the traditional considerations, and is at a premium; the chapter discusses the consequent difficulty of following the prescriptions of *Vastu Vidya*. For the architect however, a piece of land holds the possibilities of a design challenge, whatever its disposition.

Chapter six discussed the building materials prescribed in the texts, the methods of procurement, and the parameters of examination for timber, stone, bricks and mortar. In the discussion of contemporary uses, a distinction is made between use of traditional materials and the use of traditionally used materials, to highlight the aspect of usage that renders a material traditional: a material per se may be neither traditional nor modern. It showed how preferences and prejudices against certain materials dictate their uses; and how in anticipation of echoing tradition, certain materials may be preferred, or for the same reason, rejected.

Chapter seven discussed the various parameters that define the built form, and the architectural grammar of the texts that encases the design formulation of dwellings by combining its constituent elements. It discusses the concept of *Prastara* planning, the derivation of the various combinations of constituent elements, and building proportions; the concept of *Rasa* or emotive response, suitable and unsuitable objects for decoration, building alignment, and rectification of defects. It showed how the built representations of *Vastu Vidya* have become fixed expressions of traditional architecture for the modern architect in India; how the 'Indian' architect interprets traditional architecture in terms of modern vocabulary, and employs 'Indian' vocabulary in his design statements; and how the invented architectural translation of the vocabulary, is dissociated from its

traditional architectural significance, and is made to evoke Indian-ness in modern design; how *Vastu Pundits*, through sheer indifference towards design and a textbook application of a fragment of *Vastu Vidya*, project the subject; and how at one level, bits of traditional knowledge combine with ill-seasoned modernity in a bid for survival.

Broadly speaking, the emergent breed of *Vastu Pundits* pursue partial application on Modern designs with religious overtones, with a disregard towards architectural considerations. The 'Indian' architect once in a while chooses the theme of traditional images and myths, sprinkled over the functional requirements, to spice up the design statement. The astrologers and priests continue performing the rituals of *Vastu Shastras* in complete oblivion of the architectural envelope. Skilled craftsmen and traditional builders are gasping for opportunities to apply their knowledge that is near extinction. Works on the interpretation and translation of the *Vastu Vidya* texts also seem distant from the technicalities of architectural design. Looking at its contemporary uses, one might imagine that *Vastu Vidya* had little to do with architectural design methodology, whereas this is precisely what it for so long and so successfully provided.

Bibliography

Abbot, J., *Indian Ritual and Belief: The Keys of Power*, Usha Publications, New Delhi, 1979.

Acharya, P.K., *Architecture of Manasara*, Manasara series IV, V, Oriental Books Reprint Corporation, New Delhi, 1980, II edn.

Agni Purana, (ed.) J.L. Shastri, Motilal Banarsidass, Delhi, 1985.

Agrawal, Vasudevasaran, *Bhartiya Kala*, Prithvi Prakashana, Varanasi, 1966.

Agrawala, V.S., *Ancient Indian Palace Architecture*, Rept. from Golden Jubilee Volume, Pt.1, Shri Mahavira Jaina Vidyalaya, Bombay, Paper, not dated.

Allsopp, Bruce, *A Modern Theory of Architecture*, Routledge and Kegan Paul, London, 1977.

Amaral, Odelle, Oh! Sacrosanct Space, *Indian Express*, Bombay, May 31, 1994.

Ananthalwar, M.A., *Indian Architecture*, Comp. A.V. Thiagaraja Iyer Vol.I, II, III, Indian Book Gallery, 1980.

Aparajitapriccha of Bhuvanadeva, ed. Popatbhai Ambashankar Mankad, Oriental Institute Baroda, 1950.

Aryan, K.C., *Basis of Decorative Element in Indian Art*, Rekha Prakashan, New Delhi, 1981.

Bahga, Sarbjit, Surinder, Yashinder, *Modern Architecture in India: Post-Independence Perspective*, Galgotia Publishing Company, 1993.

Bajpai, Krishnadutta, *Bhartiya Vastukala Ka Itihas*, Hindi Samiti, Lucknow, 1972.

Barnett, L.D., *Brahma Knowledge*, John Murray, London, 1920.

Basham, A.L., *The Wonder that was India*, Sidgwick and Jackson, London, 1971.

Batley, Claude, *The Design Development of Indian Architecture*, Academy Editions, London, 1973, III edn.

Baumer, Bettina, *The Relevance of Silpa/Vastu Sastra*, Gandhian Perspectives Vol.VII, No.1, spring 1994.

Begde, P.V., *Ancient and Medieval Town Planning in India*, Sagar Publications, New Delhi, 1978.

Bhat, M. Ramakrishna, *Fundamentals of Astrology*, Motilal Banarsidass, Delhi, 1967.

Bhatia, Gautam, *Silent Spaces and Other Stories of Architecture*, Penguin Books, Delhi, 1994.

Bhattacharya, Sukumari, *The Indian Theogony*, Motilal Banarsidass, Delhi, 1988.

Bhattacharya, Tarapada, *The Canons of Indian Art*, Firma KLM Private Ltd., Calcutta, 1986 III edn.

Bonta, J.P., *Architecture and its Interpretation*, Lund Humphries, London, 1979.

Bose, P.N., *Principles of Indian Silpasastra*, Punjab Oriental (Sanskrit) Series No.12, Motilal Banarsidas, Lahore, 1926.

Brihadvastumala, Comp. & ed. Ramanihora Dvivedi, Chowkhamba Surbharati Series No.12, Chowkhamba Surabharati publication, 1992, IV edn.

Brihat Samhita of Varahamihira, Comm.&Tr. Ramakrishna Bhat Pt.I & II, Motilal Banarsidass, Delhi, 1987 II edn.

Broadbent and Jencks (eds), *Signs, Symbols and Architecture*, John Wiley and Sons, New York, 1980.

Brolin, Brent C., *The Failure of Modern Architecture*, Studio Vista, USA, 1976.

Chopra, Praveen, The South is Yama's Direction, The Sunday Review, *The Times of India*, Delhi, October 22, 1995.

Commemorative Issue, *Indian Institute of Architects National Convention*, Gujarat Chapter, Ahmedabad, 1987.

Cruikshank, Dan, Variations and Traditions, *The Architectural Review*, Vol.CLXXXII, No.1086, London, Aug. 1987.

Curtis, William J.R., (ed.) Carmen Kagal, *Balakrishna Doshi – An Architecture for India*, Electra Moniteur, Paris, 1985.

Daath, Heinrich, *Medical Astrology*, Taraporevala Sons.&Co.Pvt.Ltd., Bombay, 1985.

Dagens, Bruno, *Architecture in the Ajitagama and the Rauravagama*, Sitaram Bhartiya, Institute of Scientific Research, New Delhi, 1984.

Dallapiccola, Anna Libera (ed.), *Shastric Traditions in Indian Art*, Vol.I, II Texts Steiner Verlag Wiesbaden Gmbh, Stuttgart, 1989.

Dammani, Brijmohan, *Bharatiya Vastukala*, Kameshvara Prakashana, Bikaner, 1994.

Das, Potluru Krishna, *The Secrets of Vastu*, Udayalakshmi Publications, Secunderabad, 1989.

Datta, Mahesh Ramchandani and Ella, A Popular Mantra for Builder, *Business Standard*, Vol.XX No.19, New Delhi, 1995.

Dowson, John, *A Classical Dictionary of Hindu Mythology and Religion*, Rupa & Co. Delhi, 1991.

Dhama, B.L., *Domestic Architecture*, Ajanta Printers, Jaipur, 1962.

Dhavamony, Mariasusai, *Classical Hinduism*, Documenta Missionalia-15, Universita Gregoriana Editrice, Roma, 1982.

Dhillon, A., Vastu Shastra: Plotting the Future, *India Today*, U.K. edn., July 31, 1995.

Dube, Lakshmi Kanta, *Griha Bhushana or Brihat Pinda Darpana*, Lucknow, 1918, II edn.

Dubey, Lal Mani, *Aparajita Prccha: A Critical Study*, Lakshmi Publications, Allahabad, 1987.

Dubois, Abbe J.A., *Hindu Manners, Customs and Ceremonies*, Asian Educational Services, New Delhi, 1985, II edn.

Dutt, B.B., *Town Planning in Ancient India*, Thacker, Spink and Co., Calcutta and Simla, 1925.

Dwivedi, O.P. and B.N. Tiwari, *Environmental Crisis and Hindu Religion*, Gitanjali Publishing House, New Delhi, 1987.

Eliade, Mircea, *The Sacred and the Profane*, Princeton University Press, Princeton, 1959.

Gardiner, Stephen, *Evolution of the House*, Constable and Company Ltd., U.K., 1975.

Garuda Purana, ed. J.L. Shastri, Motilal Banarsidass, Delhi, 1978.

Grharatnabhusana, Sanskrit-Hindi Tr. Sriramesvara Sharma, M.K.S. Prasad, Varanasi, 1991, X edn.

Grihabhushana by Lakshmikanta Dubey – Son of Phala, Lucknow, 1981, II edn.

Grover, Razia (ed.), *Architecture+Design*, Vol.VIII No.5, Media Transasia Pvt. Ltd., New Delhi, Sept.–Oct. 1991.

Guenon, Rene, Tr. Richard C. Nicholson, *Man and his Becoming According to the Vedanta*, Luzal and Co., 1945.

Gune, Ramesh, Applying Vedic Doctrine to Build Houses, *Statesman*, Calcutta, Dec.28, 1994.

Gupta, J.S., Bring Back Bricks and Lime, *Times of India*, Delhi, Mar.9, 1975.

Gupta, Shakti M., *Plant Myths and Traditions in India*, E.J. Brill, Leiden, 1971.

Havell, E.B., *Essays on Indian Art, Industry and Education*, G.A. Natesan and Co., Madras, 1912.

Havell, E.B., *The Ancient and Medieval Architecture of India*, S. Chand and CO. Pvt. Ltd., New Delhi, 1972 (rept.), 1915 I edn.

Havell, E.B., *The Basis for Artistic and Industrial Revival in India*, The Theosophist Office, Adyar, Madras, 1912.

Herdeg, Klaus, *Formal Structure in Indian Architecture*, Rizzoli International Publications, New York, 1990.

Hobsbawm, Eric and Terence Ranger (eds), *The Invention of Tradition*, Cambridge University Press, Gr. Britain, 1996 rept.

Institute of Revival of Traditional Building Arts' Reports on Building Skills, Jaipur, 1994–95.

Ions, Veronica, *Indian Mythology*, The Hamlyn Publishing Grp. Ltd., London, 1967.

Jain, Kailash Chand, *Ancient Cities and Towns of Rajasthan*, Motilal Banarsidass, New Delhi, 1972.

Jhajharia, Nand Kishore, *Bhartiya Bhavana Nirmana Yojana*, Mithuna Prakashana, Kanpur, 1994.

Kalatattvakosa: A Lexicon of Fundamental Concepts of the Indian Arts, Kapila Vatsyayan (ed.), IGNCA & Motilal Banarsidass Publishers Pvt. Ltd., Delhi, 1992.

Kale, Pramod, *The Theatric Universe: A Study of the Natyasastra*, Popular Prakashan, Bombay, 1974.

Kane, P.V., *History of Dharmasastra*, Bhandarkar Oriental Research Institute, 1977.

Keith, A.B., *The Religion and Philosophy of the Veda and Upanishads*, Havard University Press, Oxford, 1925.

Khan, Hasan-Uddin, *Charles Correa: Architect in India*, Mimar-Butterworth, London, 1987, II edn.

Kramrisch, Stella, *The Hindu Temple*, Vol.I & II, Motilal Banarsidass, Delhi, 1991.

Kramrisch, Stella, *The Vishnudharmottaram: A Treatise on Indian Painting*, Calcutta University Press, 1924.

Kuiper, F.B.J., *Ancient Indian Cosmogony*, Munshiram Manoharlal, New Delhi, 1983.

Kukreja, C.P., *Tropical Architecture*, TATA Mcgraw Hill, New Delhi, 1978.

Kurup, J.S., The House that Stars Build, *Saturday Times*, New Delhi, Dec.10, 1994.

Lahiri, M.K., *Lahiri's Indian Ephemeris for 1995*, Astro Research Bureau, Calcutta, 1994 (57th Issue).

Lawlor, Robert, *Sacred Geometry*, Thames and Hudson, London, 1982.

Leibing, Ralph W., *Architectural Working Drawings*, John Wiley and Sons., USA, 1983.

Lethaby, W.R., *Architecture, Mysticism and Myth*, George Braziller, New York, 1975.

Lip, Evelyn, *Chinese Geomancy*, Times Books International, Singapore, 1979.

Logan, William, *Malabar*, Trivandrum Publications, Trivandrum, 1981.

Macdonell, A.A., *A Sanskrit Grammar for Students*, Oxford, 1927 III edn.

Macdonell, A.A., *Hymns from the Rig Veda*, Oxford University Press, London, 1923.

Madhava's Pramanacandrika, Tr. Susil Kumar Maitra, Nag Publishers, Delhi, 1980.

Mandal, Kumar Kishore, *A Comparative Study of the Concepts of Space and Time in Indian Thought*, Ambika Mandal, Patna, 1981.

Mann, A.T., *Sacred Architecture*, Element Books Ltd., Australia, 1993.

Mantramanjari: The Vedic Experience, ed. & tr. Raimundo Panikkar, Motilal Banarsidass, Delhi, 1989 II edn.

Marc, Olivier, *Psychology of the House*, Thames and Hudson, London, 1977.

Mathews, Neelam, Living with the Elements, *Saturday-The Hindustan Times Magazine*, New Delhi, Jan.21, 1995.

Matsya Purana, Tr. T.V. Shastri, Motilal Banarsidass, New Delhi 1972.

Mayamata, Tr. Bruno Dagen, Sitaram Bhartiya Institute of Scientific Research, New Delhi, 1985.

Meister, Michael W. (ed.), *Ananda K. Coomaraswamy: Essays in Early Indian Architecture*, Oxford University Press, Delhi, 1992.

Mendes, Ivan, India is All Wrong According to Vastu, The Sunday Review, *The Times of India*, Delhi, August 27, 1995.

Middleton, John (ed.), *Myth and Cosmos*, University of Texas Press, USA, 1989.

Mishra, Umesha, *Conception of Matter According to Nyayavaisesika*, Gian Publishing House, Delhi, 1987 (rept.).

Misra, R.N., *Ancient Artists and Art Activity*, Indian Institute of Advanced Study, Simla, 1975.

Mitra, Haridas, *Contribution to a Bibliography of Indian Art and Aesthetics*, Visvabharti Research Publications, Santiniketan, 1980 II edn.

Mukherjee, Dipankar, *Landform Influencing the Morphology of a Settlement: Amber*, Diploma Thesis, School of Architecture (CEPT), Ahmedabad, 1994.

Nagar, S.L., *Protection Conservation and Preservation of Indian Monuments*, Aryan Books International, New Delhi, 1993.

Nair, Maya, *A Study of the Traditional Nayar Homes of Kerala*, Thesis Diploma, The D.C. Patel School of Architecture, Gujrat, 1989.

Naradamahamunipranita Naradasamhita, comm. Acarya Ramajanma Misra, Kasi Sanskrit Series 40, Chowkhamba Sanskrit Sansthana, Varanasi, 1995 III edn.

Narapatijayacharya, ed. Pt.Ganeshadutta Pathak, Sanskrit Sansthan, Varanasi, 1992 III edn.

Nath, R., *Meaning and Purpose of the Vastu Purusa Mandala of Indian Architecture*, Indica Vol. 30, No.1 and 2, Heras Institute of Indian History and Culture, Bombay, 1993.

Nutan Laghu Silpa Sangraha, Ishvaralal Bookseller, Jaipur, not dated.

O'Flaherty, Wendy Doniger, *The Rig Veda – an Anthology*, Penguin Books, London, 1981.

Oakley, David, *The Phenomenon of Architecture in Cultures in Change*, Pergamon Press, Oxford, 1970.

Oliver, Paul (ed.), *Shelter, Sign and Symbol*, Barrie and Jenkins, London, 1975.

Padfield, J.E., *The Hindu at Home*, B.R. Publishing Corporation, Delhi, 1908 II edn., 1875 (I edn).

Pancadasi of Swami Swahananda, T.M.P. Mahadevan (ed.), Sri Ramakrishna Math, Madras, 1967.

Pancikaran, Rajendrakumar Diksit (ed.), Deepchand Bookseller, Hathras, 1990.

Parmar, V.S., *Haveli-Wooden Houses and Mansions of Gujarat*, Mapin Publishing Pvt. Ltd., Ahemdabad, 1989.

Pereira, Jose, *Elements of Indian Architecture*, Motilal Banarsidass, Delhi, 1971.

Pillai, G.K., *Origin and Development of Caste*, Kitab Mahal, Allahbad, 1958.

Pillai, Govinda Krishna, *The Ways of the Silpis*, The Indian Press Ltd., Allahbad, 1948.

Poddar, Prabhat, *Studies in Geobiology*, Annual Research Reports, Sri Aurobindo Institute of Applied Scientific Research, Pondicherry, 1989 94.

Poddar, Prabhat, The Mysterious Energies Within and Around Us, *Architecture+Design*, Vol.VIII No.4, Media Transasia Pvt. Ltd., New Delhi, July–August, 1991.

Prakriti – Man in Harmony with the Elements, Indira Gandhi National Centre for the Arts, New Delhi, Feb.-Mar. 1993.

Radhakrishnan S., *Indian Philosophy*, Vol. I, II, Oxford University Press, Delhi, 1940.

Radhakrishnan, S., and Charles A. Moore (eds.), *A Source Book in Indian Philosophy*, Princeton University Press, USA, 1957.

Radhakrishnan, S. (ed.), *The Principal Upanishads*, Humanities Press, 1978.

Radhakrishnan, S., *The Principal Upanishads*, Allen and Unwin Ltd., London, 1953.

Rajavallabha of Mandana Sutradhara, Ramachandra Bhagushte Mahadeva (ed.), Shri Satya Vinaya Printing Press, Ahmedabad, 1911.

Rao, C.H. Gopinatha, *Astrology in House Building*, Indira Gopinath, Madras, 1992, II edn.

Rao, D. Murlidhara, *Vaastu Shilpa Shatra: The Hidden Treasures of Vastu Shilpa Shastra and Indian Traditions*, S.B.S. Publishers and Distributors, Bangalore, 1996 V rept., Jan. 1995 I edn.

Rao, Reena Patnaik, Vastu Sastra – Our Very Own Success Formula, *Business India*, May 27–Jun. 9, 1991.

Rapoport, Amos, *House, Form and Culture*, Foundation of Cultural Geography Series, N.J., 1969.

Raz, Ram, *Essay on the Architecture of the Hindus*, Indological Book House, Delhi, 1972.

Reddy, B.N., *A Glimpse of Practical Vastu*, Virgo Publications, Hyderabad, 1995, VI edn.

Reddy, Gouru Tirupati, *The Secret World of Vaasthu*, Eng. Tr. Padullaparti Chandra Sekhar, Prajahita Publishers, Andhra Pradesh, 1994.

Renou, Louis (ed.), *Hinduism*, Prentice-Hall International, London, 1961.

Rig Veda Sanhita, H.H. Wilson (ed.), Bangalore Printing and Publishing Co. Ltd., Bangalore, 1946.

Rossbach, Sarah, *Interior Design with Feng Shui*, Century Hutchinson Ltd., London, 1987.
Sachdev, Vibhuti, *Griham: The Structural and Ritualistic Aspects of an Ancient Indian Dwelling*, Dissertation, School of Planning and Architecture, New Delhi, 1989.
Saha, Biswarup, *Studies in the Pramana-Ratna*, Shyamapada Bhattacharya, Calcutta, 1991.
Saini, Harish, Vaastu Ordains a Full Flowering for Chandigarh, Saturday Plus, *The Tribune*, Chandigarh, February 24, 1996.
Samarangana Sutradhara Vastu Sastra, Pt.I, Sanskrit-Hindi Tr. Dvijendranath Shukla, Meharchand Lakshmandas Publications, Delhi, rept. 1994, 1965 I edn.
Samaranganasutradhara of King Bhojadeva, T. Ganpati Sastri (ed.), Gaekwad's Oriental Series No.XXV, Central Library, Baroda, 1924.
Sarasvati, Swami Satya Prakash, *Patanjali Raja Yoga*, S.Chand & Co.Pvt.Ltd., New Delhi, 1975.
Sastri, Nemichand, *Bharatiya Jyotish*, Bharatiya Jnanpith, New Delhi, 1994, IXX edn.
Scriver, Peter and Vikram Bhatt, *After the Masters:Contemporary Indian Architecture*, Mapin, Ahmedabad, 1990.
Seminar on Architecture, Lalit Kala Academy, Jaipur House, New Delhi, 1959
Shah, Ranvir, Reinterpreting the Old, *Inside Outside*, New Delhi, Apr. 1993.
Shastri, Umesha, *Nakshatra Jatakam*, Vyasa Balabaksha Shodha Sansthana, Jaipur, 1990.
Shastri, Umesha, *Vanijyavastusastram*, Vyasa Balabaksa Sodha Sansthana, Jaipur, 1990.
Shastri, Umesha, *Vastuvigyanam*, Vyasa Balabaksa Sodha Sansthana, Jaipur, 1989.
Shukla, D.N., *Vastu Sastra – Hindu Science of Architecture*, Vol.I and II, Munshiram Manoharlal, New Delhi, 1993.
Shukla, L.K., *A Study of Hindu Art and Architecture*, Chowkhamba Sanskrit Studies Vol. LXXXII, Varanasi, 1972.
Silpa Sastram, P.N. Bose (ed.), Punjab Oriental Series No.17, Lahore, 1928.
Singh, Rana P.B. (ed.), *The Spirit and Power of Place*, National Geographical Society of India, Varanasi, 1994.
Sivapriyananda, Swami, *Astrology and Religion in Indian Art*, Abhinav Publications, New Delhi, 1990.
Snodgrass, Adrian, *Architecture, Time and Eternity*, Vol.I and II, Aditya Prakashana, New Delhi, 1990.
Snodgrass, Adrian, *The Symbolism of the Stupa*, Motilal Banarsidass, Delhi, 1992.
Solomon, W.E., *The Bombay Revival of Indian Art*, Government of Bombay, 1924.
Soundararajan, K.V., *Invitation to Indian Architecture*, Arnold Heinemann, New Delhi, 1984.
Spandana Reports, Pt.I–IV, Housing and Urban Development Corporation, New Delhi, 1991.
Sri Pancikarana of Sri Ramababa, Gujarat Pustak, Ahmedabad, 1971.
Srikantaya, S., *Heavenly Mansions of the Hindus*, Mythic Society, Bangalore, 1971.
Srivathsan, A., Interpreting Texts and Traditional Architecture – The South Indian Case, *Architecture + Design*, Vol.XII No.2, Media Transasia Pvt. Ltd., New Delhi, Mar.–Apr. 1995.
Stutely, M., *Ancient Indian Magic and Folklore-an Introduction*, Routledge and Kegan Paul, London, 1980.
Summerson, John, *The Classical Language of Architecture*, Thames and Hudson, London, 1980 II edn.
Tadgell, Christopher, *The History of Architecture in India*, Architecture Design and Technology Press, London, 1990.
Taylor, Brian Brace, *Raj Rewal*, Concept Media Ltd., London, 1991.
Tillotson, G.H.R., Architecture and Anxiety: The Problem of Pastiche in Recent Indian Design, *South Asia Research*, Vol.15, No.1, Spring 1995.
Tillotson, G.H.R., Farangi and Babu: Two Early Theories of Indian Architecture, *India International Centre Quarterly*, Geeti Sen (ed.), Vol. XX, No. 1–2, Spring–Summer, 1993.
Tillotson, G.H.R., *The Tradition of Indian Architecture: Continuity, Controversy and Change Since 1850*, Yale University Press, London, 1989.

Tripathi, Sribadrinarayan Prasad, *Grha Nirman Vyavastha*, M.K.S.Prasada, Varanasi, 1983.
Trivedi, Kirti, Hindu Temples: Models of a Fractal Universe, *The Visual Computer*, Industrial Design Centre, I.I.T. Bombay, 1989.
Tucci, Guiseppe, *The Theory and Practice of the Mandala*, Rider, London, 1971.
Vannucci, M, *Ecological Readings in the Veda*, Reconstructing Indian History and Culture Series No. 5, D.K. Printword (P) Ltd., New Delhi, 1994.
Varahamihira Virachita Brihatsamhita, Achyutananda Jha (ed.), Chowkhamba, Vidyabhavan Benares, 1993.
Vastu Prabandha, Comp. Rajakishore Varman Lala, Lucknow Press, Bombay, 1904.
Vastu Vidya, K.R. Pisaroti (ed.), rept. from Calcutta Oriental Journal, vol.I (incomplete), Calcutta, 1934.
Vastumanikya Ratnakara, Matriprasad Pandeya, Shankarapathashala, Mirzapur, 1936.
Vastuprakasa ya Visvakarmaprakasa, Ganesa Prabhakara Press, Benares, 1888.
Vasturajavallabha Mandana Sutradhara, Ramayatana Ojha (ed. and Tr.), Bhargava Bhushan Press, Benares, 1934 II edn.
Vasturatnakara, Vindyesvariprasada Dvivedi (ed.), Haridas Sanskrit Series 46, Chowkhamba Sanskrit Series Office, Varanasi, 1988 V edn.
Vasturatnavali, Jivanath Jha (Comp.), Srimadacyutananda Jha (ed.), Haridas Sanskrit Series No.152, Chowkhamba Amarabharati Prakasana, Varanasi, 1971 III edn.
Vastusarani, Matriprasada Pandeya, Nagesvara Press, Benares, 1909.
Vatsyayan, Kapila (ed.), *Concepts of Space-Ancient and Modern*, IGNCA and Abhinav Publications, 1991.
Vatsyayan, Kapila, *The Square and the Circle of the Indian Arts*, Roli Books International, New Delhi, 1987.
Vishvakarma Darpan: Karigari Ka Shisha No.1, Bhai Buta Singh Pratap Singh Pustakon Wale, Amritsar, 1969.
Visvakarmaprakasa, Saktidhara Shukla and Munshi Palarama (Comp. and ed.), Palarama Vilasa, Lucknow, 1896.
Visvakarmaprakasa, Khemraja Sri Krishnadas, Bombay, 1988.
Volwahsen, Andreas, *Living Architecture:Indian*, Architecture of the World Series 7, Henri Stierlin (ed.), Germany, 1994.
Wade, John W., *Architecture, Problems and Purposes*, John Wiley & Sons., Canada, 1977.
Wise, T.A., *Hindu System of Medicine*, Bengal Medical Service, Trubner & Co., London, 1860.
Wu, Nelson I., *Chinese and Indian Architecture*, Studio Vista, London, 1968.
Yoga Sutra of Patanjali, Manilal Nabhubhai Dvivedi (Tr.), Bombay Theosophical Publication Fund, London, 1911.
Zimmer, Heinrich, *Myths and Symbols in Indian art and civilization*, Joseph Campbell (ed.), Motilal Banarsidass, Delhi, 1990.
Zimmer, Heinrich, *Philosophies of India*, Joseph Campbell (ed.), Motilal Banarsidass, 1990.

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