

CONCEPTUAL DESIGN AND INSTALLATION OF LOCAL INFRASTRUCTURE

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ABSTRACT

Conceptual design is seen by some school of thoughts to be phenomenal than practical actualization. Some see it as a myth rather than science – technological development technique. The approach into the subject has been that of philosophical, classical blended with practical concepts. Rootwords like 'concept' and 'design' and installation have been diagnosed for the purpose of ensuring appropriate understanding of the engineering text. Method of sensitizing, inculcating and then further buttress the point to the concept bearer or originator and can best call him the concept author nurturing from nullity to conscious large output displaying innovative actualization achieved by introducing series of complex autonomous exercises have been outlined. Factors affecting conceptual design and subsequently installation are as well mentioned and systematically handled. It is possible to avoid merely depending on borrowed technology but at the same time minimally adopting the adaptation approach and creating new ones akin to

our own environment and culture. Suggestions have been advanced on how to achieve this maintain it and patronize our local technology base, thereby deemphasize imported technology.

Keywords: *Conceptual design, Installation, nurture, local, technology base*

1.0 INTRODUCTION

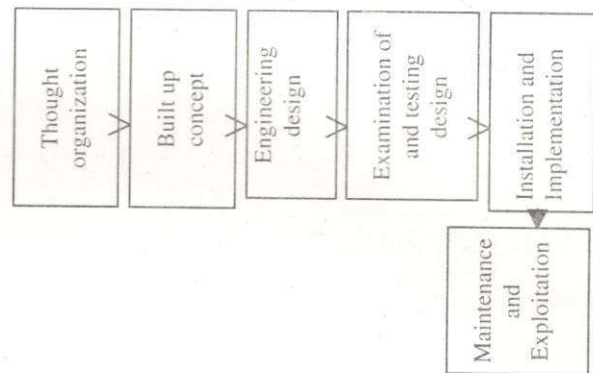
CONCEPTUAL DESIGN/ INSTALLATION

In dealing with subject matter Conceptual Design and Installation, first and foremost, it is necessary to take cursory look into the root words 'Concept', 'Design' and 'Installation' as they relate to Engineering.

The word 'concept' is estimated to mean idea underlying a class of things or something relating to general notion. Whereas 'Design' relates to drawing or outline from which something may be made. 'Installation' relates to apparatus, instruments, equipments etc being installed or put in a new position (place) or to assemble for use.

Summarily, conceptual design will then connote the relationship of general notion or idea underlying in the outlines of that idea or planning, draw-up figures, resulting in putting them in proper position or place for exploitation, uses and effective application. Underneath any scientific postulation, theories, engineering breakthrough, there must necessarily be an initial concept that will give birth to assumption and then establishment of facts implementations. In other words design is preceded by 'Concept', so for an effective design to be manifested as realism, one must bear in a perfect concept of it and go on to putting the concept down, balance it with outlets of errors and work-ability, then draw it out in terms of possible existence. It is when such has been carefully studied and accepted as fully safe that construction of the design takes place. There can be no good design without good concept. Of course, an incorrect design yields poor result and performance and low standard of project implementation. This paper shall bring to focus the elements of conceptual design, methodology in nurturing good concepts, what could be termed forecasting idea concepts for design and lastly, design concepts developments and implementation. The algorithm below

states, conceptualization – implementation process.



It is more difficult to put up just a short foot note of writing like this to contain series of things concerning coaching someone to ways of reasoning out hidden facts, realities to maintain actual idealism. For in doing this, one now tries to tamper with nature, God's natural creation and perfect intelligence quotient (P. I. Q). It is possible to improve upon one's existing power of conception and ability to bring out design concept with ease. In doing this, one's mind must be prepared or one must try to be objective, realistic and truthful to existing facts and norms. A concept is built upon an existing idea or imagination. For example, suppose I want to make a concept of a structure or building on water (river, sea or ocean), I must first of all have idea of building on ground or surface field, when the normal conditional situations might have been known. All need be done is adaptation and reconditioning to suit the present circumstance and aquatic condition. This does not call for prototype design but

building up concept based on needs, purposes, habitat, prevailing conditions, cost and many other prerequisites akin to the subject matter.

Concepts exist in different forms. There are new concepts, conventional concepts and old concepts. Each of them is explained by the root word. As the name implies, new concept has to do with novel strange, fresh, newly originated concepts. Conventional concept is built upon existing concept. Normally this type of concept is purely originated from basic fundamental information and concepts already made available to us. Whereas, old concept relates to that which had been reasoned out earlier and nothing has been added or subtracted. The way the thing was thought of a decade ago, so it remains and cannot or must not be tempered with even now.

2.0 HOW CAN GOOD CONCEPTS BE ACTUALLY NURTURED OR ESTABLISHED?

The ability to bring out good concept ideally depends on the individual. This equally depends on many factors including personal initiative, attentiveness, and the power of imagination or perception.

The power of conception then depends largely upon the ability of the mind to separate ideas, and classify them according to qualities, and then group them into a

class. To cultivate this faculty it is necessary that the mind receive clear and definite ideas of object and their properties, that they be deeply impressed so they may be permanently retained and readily recalled, and that they be associated according to their intrinsic or logical relations. In forming conceptions the mind is greatly influenced by its feelings, and the concepts formed under circumstances causing deep emotion, either of pain or pleasure, remain almost indelible.

3.0 METHODOLOGY IN CONCEPTUALIZING IN DESIGN

In handling this subject first and foremost we must be informed that the mind should be conditioned to abstract thinking. It is assumed here therefore that most/all of us have broad knowledge of the anatomy of man as most of the facts will hold bearing to the knowledge of this science. I may not go into the Biological/Anatomical inclination of the subject as most of the presentation will be based on the assumptions. This apart, the whole subject of creation of man with reference to our Almighty God and mystical point of view must equally be understood.

Furthermore, we must accept this fact that thoughts are creatively powerful. The whole super structure depends on this

foundation and it is worthwhile to examine this carefully. Now the starting point is to see that thought or purely mental action is the only possible resource from which the existing creation could ever have come into manifestation at all and it is on this account that Devine Thought has to be well understood. This is the word of Sir Thomas Troward 1847-1916.

William Penn 1644-1718 said man must not be ignorant of himself. He knows not how to estimate his creator because he knows not how to value his creation. If we consider his make, and lovely compositor, the several stories of his wonderful structure, his divers members, their order, function and dependency, the instruments of food, the vessels of digestion, the several transmutation it possesses and how nourishment is carried and diffused throughout the whole body system, by most intricate and imperceptible passages, how the animal spirit is thereby refreshed and with an unspeakable dexterity and notion sets all parts of work to feed themselves and last of all how the rational soul is seated in the animal, as its proper house as is the animal in the body. I say if this rare fabric alone were but considered by us with all the rest by which it is fed and comforted, surely man would have a more reverent sense of the power, wisdom and goodness of God, and of that duty he

owes to him for it. But if he would be acquainted with his own soul, its noble faculties, its union with the body and its nature' and the providences by which the whole frame of humanity is preserved.

The proper condition for mind to express itself is the coming together of such elements as soul, body and spirit. Since the power of perception is the subject of the mind. Mind power therefore can be exercised once the element of consciousness is brought into play.

Mind is an attribute of being. Mind power is a direction of mind through natural channels. In entering into the subject matter, methodology of conceptual design, we must briefly describe certain functioning and phenomena.

Since the power of perception has to do with the mind, then we must not omit such expression as creative concentration, coercion, focalization, visualization, mental creation, quickening the consciousness of self etc.

Conceptualization is not forceful but using will power that results from creative concentration. In order to concentrate one must be able to visualize and create a mental inner concept of what one wishes to accomplish. He must form an image within his thought forms, sense it, and feel

it with all the vitality and life vibrations that a thing could possibly have.

You must go into moments of deep thoughts such that the inner self becomes more possessed with the thought, lives it, senses it, grasp the mental picture, acutely and objectively well. The test of the validity of your impression and experiences is their ready understanding and meaning to you.

The following are keys to achieving the aforesaid.

1. Create an opportunity of quietness and passiveness for a few minutes or moments.
2. Take some thought of idea that relates to the subject-matter for example building in purely aquatic habitat (in water, river, sea or ocean). Actualize the existence as relates to a conventional building or ground or dry land. Progressively, develop the objective characteristics of the idealized perception and visualize it.
3. Dismiss this impression or idea from your objective consciousness with the thought that you will now give consideration after performing the following:-
4. Confirm very strongly in your mind and thought the built in picture to yourself.
5. Think that the message stores in or thought would go through (i.e. materialize).

With these five points, one has been able to carry out these three exercises of visualization, focalization and concentration.

The ideas and thoughts so derived in these exercises can now be filtered, analyzed and put into objective use for the purpose of achieving the desired goal by development and deductive reasoning. In actual fact the whole process cannot be complete without touching the subject of abstract thinking and reasoning. We know that the human brain is the transformer in which the impression from the five physical faculties are received and translated into our dimensional material world. Man has faculties which can be developed. They can receive impression from the universal keyboard, analyze it, sensitize and process. The ability to collect, sensitize objectively our reasoning for the purpose of building up fresh ideas, innovative facts is abstract reasoning. This is very important in the process of conceptual design. One must be able to hold brief innovative facts, fresh ideas and objective reasoning in order to bring out good concept. The quality of concept therefore depends on the quality of abstract faculties developed. Through proper exercises and other perfect systems of spiritual standing one can achieve results desired in conceptual

reasoning/design (that is the ideal concepts for design).

3.1.0 DESIGN CONCEPTS FORMULATION, DEVELOPMENTS AND INSTALLATION

The development of concepts is purely personal exercise. The dexterity and ability in which this is carried out is in relative terms an Art which may be acquired or manifest inborn? How worthwhile is this Ability will not be treated in this paper.

The formulation of concepts can be utilization of collective thinking, channeled through universal mind of God and collated by one or more individuals for the purpose of giving adequate design, the installation of our infrastructure. This is the ability to communicate the mind of God through scientific reasoning for understanding our thoughts and harnessing this knowledge in engineering design or implementation and operation. The thinker makes use of some form of reasoning that involves combinations of the deductive/inductive/analogical paradigms

3.1.1 THE HEURISTIC SEARCH

Our form of reasoning is to search through all possible alternatives for a solution to a problem. This approach is being utilized in daily life quite often.

For example, if we misplace an object and search from location to location in an attempt to find it note that we do not blindly explore everywhere, rather we only search in the most probable locations for it. In the same vane, engineering problems are often amenable to solution by search, provided that there is some organized way of reaching out alternatives that have little probability of being a successful solution. Many artificial intelligence (AI) techniques are based on heuristic search procedures, rule-of-thumb techniques that direct the search process to the more attractive candidates for solution. Procedures that search for valid proof sequences are practically controlled by heuristic rules. A formal algorithm for carrying out a reasoning procedure could be implemented in anyone of the many programming languages or systems that provide symbol storage, matching, combining of strings or lists and some type of conditional branching operation. Natural Intelligence, N. I. or Artificial Intelligence, A.I. problem-solving programs are more concerned with manipulating strings of symbols e.g. rearranging symbols or substituting one symbol for another than with numerical computation e.g. multiplying two numbers together. See the algorithm in early page presented.

4.0 FACTORS AFFECTING CONCEPTUAL DESIGN

The discussion will not be complete if some vital ingredients of the subject matter are not touched. It is obvious that there are many factors that influence pushing our concepts ahead, implementing conceived designs. Furthermore, these factors wholly or partially dictate as well the mode of installation process, the exploitation of facilities based on priority, level of utilization, future maintenance possibilities.

4.1.0 These factors are:

- a) Usability of design concepts
- b) Attractiveness (aesthetic value)
- c) Localization (venue of construction installation and exploitation).
- d) Level of technology acquisition of the installation
- e) Degree of complexity of design concept and design
- f) Maintainability of design
- g) Modern trends and government policy of the country the design is made.
- h) Culture and tradition of the people where the design is oriented (indigeniety of design).
- i) Legislation
- j) Cost
- k) Adaptability

4.1.1 USABILITY OF DESIGN CONCEPTS

It is one thing to make new concepts, and it is another that the concepts are usable. This relates to the fact that the concept being originated will be useful to the needs of the society or community. There must be a balance on existence of concepts and utilization of the concepts for infrastructural development or integrated rural/urban development in a place like Nigeria.

4.1.2 ATTRACTIVENESS (AESTHETIC VALUE)

This aspect is purely very important in assessing the equality of design concept. It is necessary to assess this value. The members of the public must get admiration of the design when finally completed and installed. There are some designs especially in big and heavily populated cities that do not bear the attractiveness it should. In such case, if the individual concept bearer (designer) does not possess the skill required he may hitherto consult someone who is good at it. For example, contracting a professional architect, an internal/external a decorator, a town planner or an estate valuer to assist in making relevant inputs where necessary is fondly cited here.

4.1.3 LOCALIZATION

This factor has to do with the influence - posed by the environment. In this case a project concept envisaged for an urban (Metropolitan) environment will not receive similar considerations for the ones conceived for rural areas. There are many other inherent prep requisites for making this assertion. However, in conceiving some design concepts account must be taken as a matter of necessity, on where the construction, facility or infrastructure is to be cited, installed or used. There are some machines built for temperate regions of the cold European and Asian countries and unless there is adaptation it cannot go well for tropical regions. Similarly too in the West African sub-region, account of our mangrove rain forest characteristics and that of sub-Saharan north should be distinctive. It is prevalent now that roofing work assumes high pitch or 30° -45° slope in the south for building structures but may be as low as 80 -150 pitch for those situated in the north for obvious reasons.

4.1.4 LEVEL OF TECHNOLOGY ACQUISITION OF THE TECHNOCRATS

Technocrats in this write up refers to those responsible for executing technical works, maintaining and originating same. Upon their shoulders rest the responsibility of defending, maintaining the profession. The

ability of the technocrats to cope with graded designs and challenges proves the level of technology acquisition. There are periods when complex and difficult designs are being executed i.e. installed and operated with ease. These vary from place to place. It is assumed that those trained and practicing in the sophisticated metropolitan areas do more often than not cope with sophisticated design concepts than those in the more rural and less sophisticated cities. However, it is common knowledge that the challenges of the day are posed more often in the big capital cities of the world or in urban environment. The assumption holds true anywhere given the amount of funds always committed to these areas annually by various authorities and policy holders and implementing bodies. In spite of the fact that these complexities exist the individual personal ability is to be served with very important consideration.

4.1.5 DEGREE OF COMPLEXITY OF DESIGN

This factor accounts very greatly for the successful implementation of design concepts. The latter sub-section treats this as complementary. The degree of complexity of design relates to the sophistication of design. So as much as possible, design concepts have to be made

averagely sophisticated. This underscores the level of acquired technology. There is no point creating such design that takes difficulty in execution and implementation. The less complex a concept is, the more such is applied and admired. This does not remove the other factor of effectiveness, usefulness and desirability/quality of such design concept. The ability of the 'engineer' to make his concept quite simple, manageable depends on how aptly, knowledgeable he is.

4.1.6 MAINTENABILITY OF DESIGN

In bringing out new concept, thought should be cast on how possible the installation can be maintained from time to time. There is very serious defect or disadvantage in conceptualizing designs, recommending materials and options which will be difficult to find in the local market. Most often than not there is this dependency on foreign goods, design inputs on attracting purchase of spare parts separately for maintenance of the infrastructure. This occurrence is a result of short sightedness. A long term combination of design for present day use and future should be built in our designs. In other words a conscious attempt to consider local materials and maintenance should be brought into focus. This will

make our designs balance. There maybe many designs but the best option will override others based on the consideration of maintainability.

4.1.7 MODERN TRENDS AND GOVERNMENT POLICY

This is another important factor for determining acceptability of our design concept. In this case consideration should be given to the new technology, break through in the world. There are absolute designs and there are modern concepts. We have to marry these together in order to achieve a balance design concepts. This apart, the influence of government policies on design concept is of paramount interest. There are times that the government given schedules of priority projects listed for execution. In this way our designs have to be fashioned to meet with the trend as enumerated.

4.1.8 CULTURE AND TRADITION OF THE PEOPLE

We cannot be oblivious of the fact that any design has to be cited somewhere in the globe. Each place has accepted culture and tradition prevalent there. It is the responsibility of the designer to incorporate cultural values into design. This allows the reflection of the culture of the people in the design concept. There is

consonance and resonance when two likes meet at certain amplitude or frequencies. This is also true for engineering designs and installation. It takes lot energy to make two opposites to rhyme and work in harmony. In order to derive harmony one has to consciously build in harmonious condition. So one's taste desires, traditional values (which are accepted in everyday eye) have to be considered while conceptualizing. These are thought provoking considerations when we try to bring out new concepts in our design.

5.0 CONCLUSION

All along I have been trying to look into the ingredients of CONCEPTUAL DESIGN/INSTALLATION initially in philosophical perspective. Thereafter, move into systems of maturing conceptual design. This apart, the factors affecting (dictating factors to preferring one design to another) had been highlighted to help us fashion out real balance designs most acceptable at a particular place and period. It is a fact that not all design concepts are desirable, acceptable or best suited for certain purposes. The technicality of design and degree of sophistication was also pointed out with much clarity and simplicity. It is my fervent belief that in treating this topic many hidden facts values and unanswered questions relating

to conceptual design have been brought to light. These should definitely influence an engineer or any other professional while trying to undertake new concepts of design and the installation of same. Nothing is difficult. There is no design concept that cannot be demonstrated practically. Conclusively technocrats can be developed and found anywhere in the world including AFRICA.

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