

唐璞建筑论文集

4

重庆建筑工程学院

MINISTERE DE L'EQUIPEMENT, DU LOGEMENT,
DE L'AMENAGEMENT DU TERRITOIRE ET DES TRANSPORTS

ECOLE D'ARCHITECTURE PARIS-VILLEMIN

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LE PRESIDENT
DU CONSEIL D'ADMINISTRATION

Monsieur TANG PU
Prof. of Architectural
Department
C.I.A.E.

Paris, 28 July 1986

Dear Sir,

Thank you for your letter of 18 July to Mr. Nils Carson.
I wish you could have attended the October seminar in Paris.

I will read your paper with the greatest interest.

Yours sincerely,

J. Allegret

A handwritten signature in dark ink, consisting of stylized, overlapping loops and strokes, positioned below the typed name J. Allegret.

XVI Congress of UNESCO and UIA

TRINITY OF DIALECTICS SYSTEMATICS
AND NATIONAL CULTURAL CHARACTERISTICS
IN ARCHITECTURAL EDUCATION

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Chongqing Institute of Architecture
and Engineering

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TRINITY OF DIALECTICS, SYSEMATICS,
AND NATIONAL CULTURAL CHARACTERISTICS
IN ARCHITECTURAL EDUCATION

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In recent years, our Department has taken on a new aspect by paying attention to new sciences, such as Dialectics of Nature, Theory of System and Science of Thinking, and so on. Normally, these sciences are independent disciplines. For this reason, we gather them together and apply them to architectural design simultaneously; thus we call it "TRINITY OF DIALECTICS; SYSTEMATICS, AND NATIONAL CULTURAL CHARACTERISTICS".

I.

THE DIALECTICS :

In our school, the Dialectics that our students have studied is DIALECTICS OF NATURE. It consists of three parts:

1. The Outlook of Nature
2. The Scientific View of Nature
3. The Methodology of Natural Science

THE OUTLOOK OF NATURE :

The Dialectics of Nature is used as a bridge between Philosophy and Natural Science, by which we may absorb and abstract the results of research in Nat-

ural Science. It is very important for enriching and developing the theory and practice of architectural design.

We tell students that they must understand nature, first of all, if they want to make their architectural designs of the highest quality. Such knowledge is so called OUTLOOK OF NATURE. THE OUTLOOK OF NATURE is always developing from ancient time till now. In ancient time, the natural science was combined with philosophy. So, our students should not only study the new outlook of nature, but also study the old basic outlook of nature from ancient China.

Outlook of Nature in Ancient China:

The Book of Changes ICHING said the world is constructed of the following 8 things in high condensation:

1. Heaven, 2. Earth, 3. Thunder, 4. Fire, 5. Wind,
6. Swamp, 7. Mountain, 8. Water

It is certain that all things must fall into one of the eight categories. So, the architectural and environmental design will be fundamentally based on such an outlook of nature.

THE SCIENTIFIC VIEW OF NATURE :

The natural world is full of contradictions architecture is a part of the natural world and any part of architecture is also a part of the natural world, so, architecture itself is also full of contradictions. They are

. Principal and Secondary Contradictions

- . Antagonistic and Nonantagonistic Contradictions
- . Contradictions involving identity and struggle of opposite
- . Contradictions involving unity of opposites
- . Opposites transformed to unity
- . So called transformed of contradiction

Such as

From quantitative to qualitative,

From old type to new type,

From conservative to progressive.

We can see that the architectural world is always moving forth with all other aspects of human history. If there is no movement, then is no evolution in architecture. (3 laws)

THE METHODOLOGY OF NATURAL SCIENCE :

The third step in teaching students to master architectural design is Methodology.

For understanding the objective natural world, there are generally three series to be studied:

1. One is the special method for various phenomena in natural science (such as determining the speed of celestial by using of infared-ray's shift in astronomy).
2. Second is the general method (such as observation, experiment, scientific abstraction and mathematics.
3. Third is the philosophical method

Architecture is a complex of art and technology.

So, our students should not reflect it with the

only

method of logical thinking, but also by thinking in images. Besides these, there is another method —“INSPIRATION” could be used.

The logical thinking we used is: Scheme comparison, Classification, Analogy, induction, Analysis, Syntheses, identification, refutation and so on.

The creative thinking, we emphasized, comes from inspiration and belongs to the three great departments of new science, i.e. Science of Systems, Science of Thinking and Science of Human Body. Among these, the Science of thinking will be mentioned briefly in the next section.

For example: My graduate student Mr. Ou Qi Gao wrote his thesis for M.A. degree. The subject is AN INVESTIGATION OF INDUSTRIALIZED BUILDING SYSTEM OF HILL HOUSING. First of all, he understood the natural conditions with the outlook of nature, then analysed the general contradictions and special contradictions related to hill conditions with a scientific view of nature. For solving these problems, he used the principle of unity, opposites, transformation and change of contradictions with methodology of the Logical Thinking. (fig. 1)

At last he put forward a new proposed systematic method with national cultural characteristics through full investigation.

II.

THE SYSTEMATICS

In recent years, we paid much attention to the three great departments of new science in our pedagogy, that is Science of System, Science of Thinking and Science of Human Body.

Science of System

1. We foster the students' ability to utilize Systematic thought.
2. We indicate the important significance in studying architectural design and city planning with systematic thought.
3. We lead students to use the systematic methodology for solving problems in architectural design.

The key links of the process of systematic methodology are:

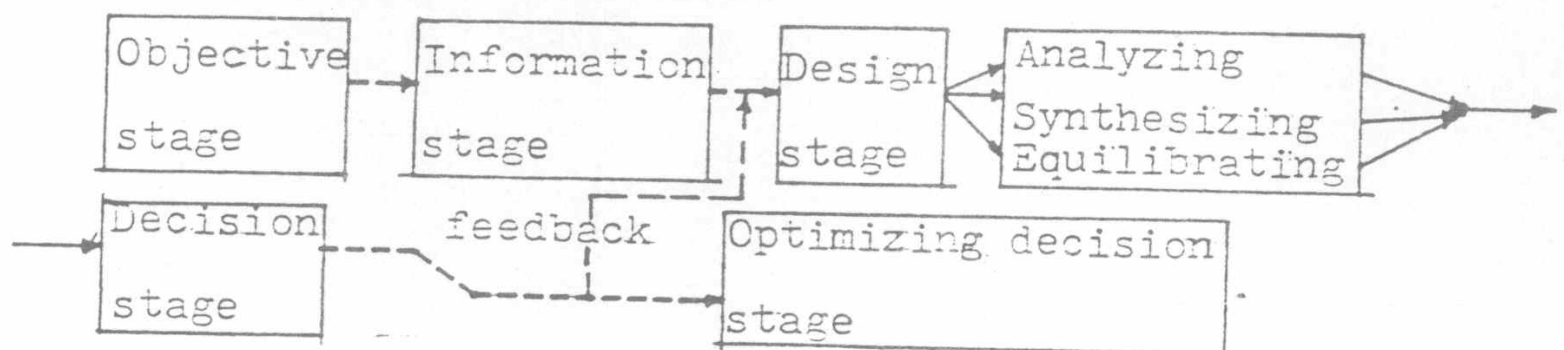
1. Analysis of contradictions
2. Synthesis of contradictions
3. Equilibrium of contradictions

Because the contradictions have their synthesicality, complexity and indistinctivity, sometimes the qualitative and quantitative analysis are both necessary in solving architectural design. For example, another graduate student Mr. Ling Mao wrote the thesis for M.A. degree---THE RATIONALITY AND FEASIBILITY OF HIGH DENSITY OF TALL BUILDINGS IN HOUSING ESTATE. (fig. 2a, b, c)

Why did we pay so much attention about the problem of density in housing? That is, because the condition of our country is different from others. Our country has a very large population, but the land

used for housing is insufficient. So, it is a very important task to find a rational and feasible high density plan for tall buildings in housing design.

In order to solve this problem, we lead students to operate the methodology in science of system. The process may be divided into five stages as the following diagram illustrates:



Objective Stage :

According to the conditions of our country, we should discuss the ways and means to attain the object, which is how to build greater number of quality houses to accomodate the numerous inhabitants.

Information Stage :

The amount of information, large or small, correct or incorrect, directly influences the quality of Decision.

A. Invetigation:

1. Natural conditions: Climate, Ecology, Topograp-
hy, Geology, Vegetation.
2. Functional Requirements: Street and road, Tra-
ffic and Transportation, Parking
3. Social influeneces: Social psychological cond-
itions, Demographic conditions, Cultural Background,
Civil Opinion.
4. Economical Influences: Location Evaluation,

Market Analysis, Technical Forces, Service Facilities, Materials Supply, Financial Feasibility,.....

5. Legal and Political Constraints:

The approved planning assignment of first party, Building Code, Fire-proof requirements, Fire Safty.

B. Finding and collecting the foreign and domestic references and materials in which the method, result, experience and reprimand are all good harvest for our students.

C. Students should learn modestly from specialists and heartily accept their suggestions.

Design Stage :

This stage consists of making systematical analysis and presenting the design scheme for decision. It's steps are:

1. In a lot of complex factors, we should analysis the principal contradictions and from them find out the very effective factors.

2. If necessary, we may establish a proper mathematical pattern.

3. Then, Synthesizing and Equilibrating may proceed, during which a number of factors must be considered. They are inner factors and outer factors.

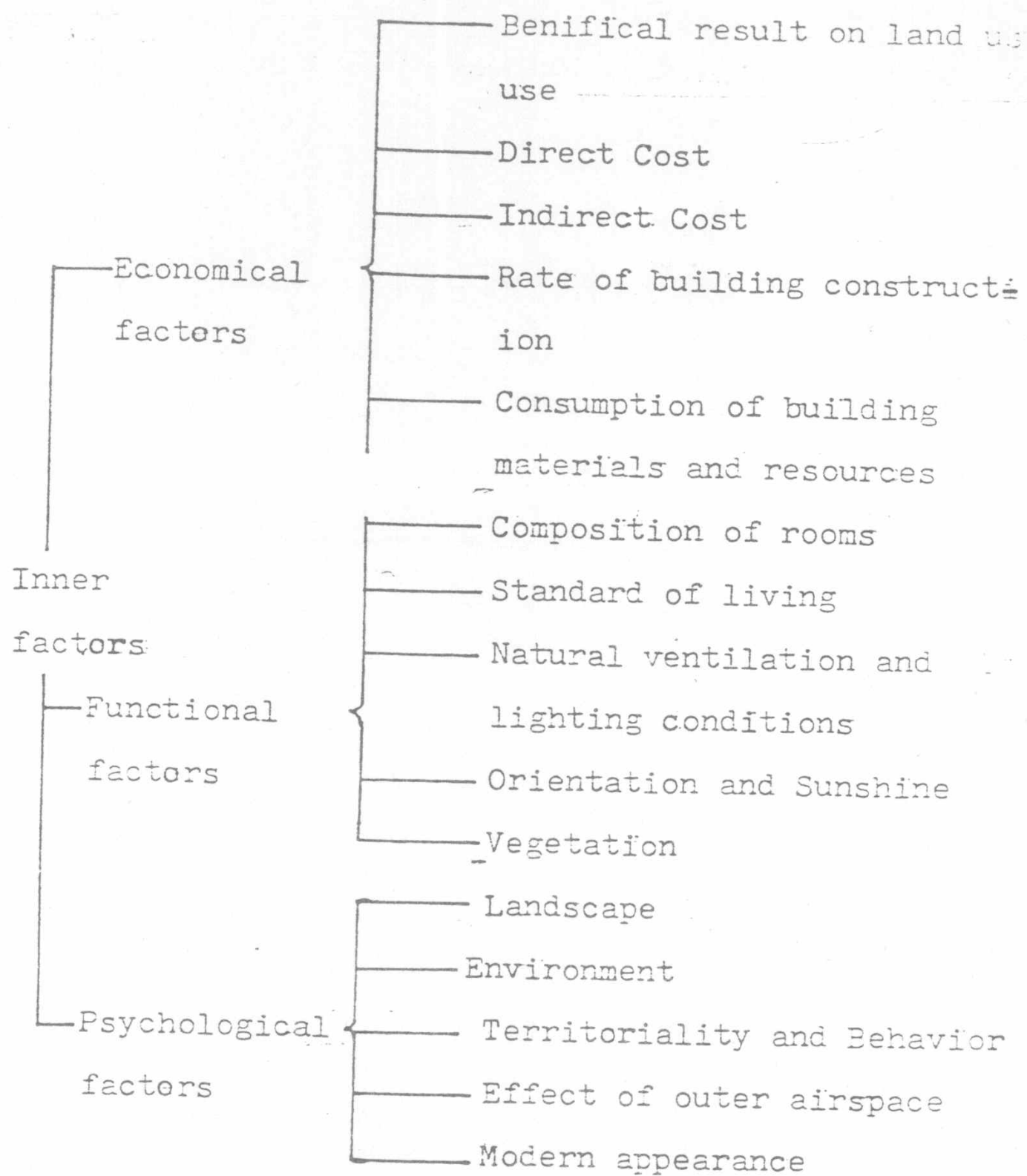


Table 1. Systematical inner factors

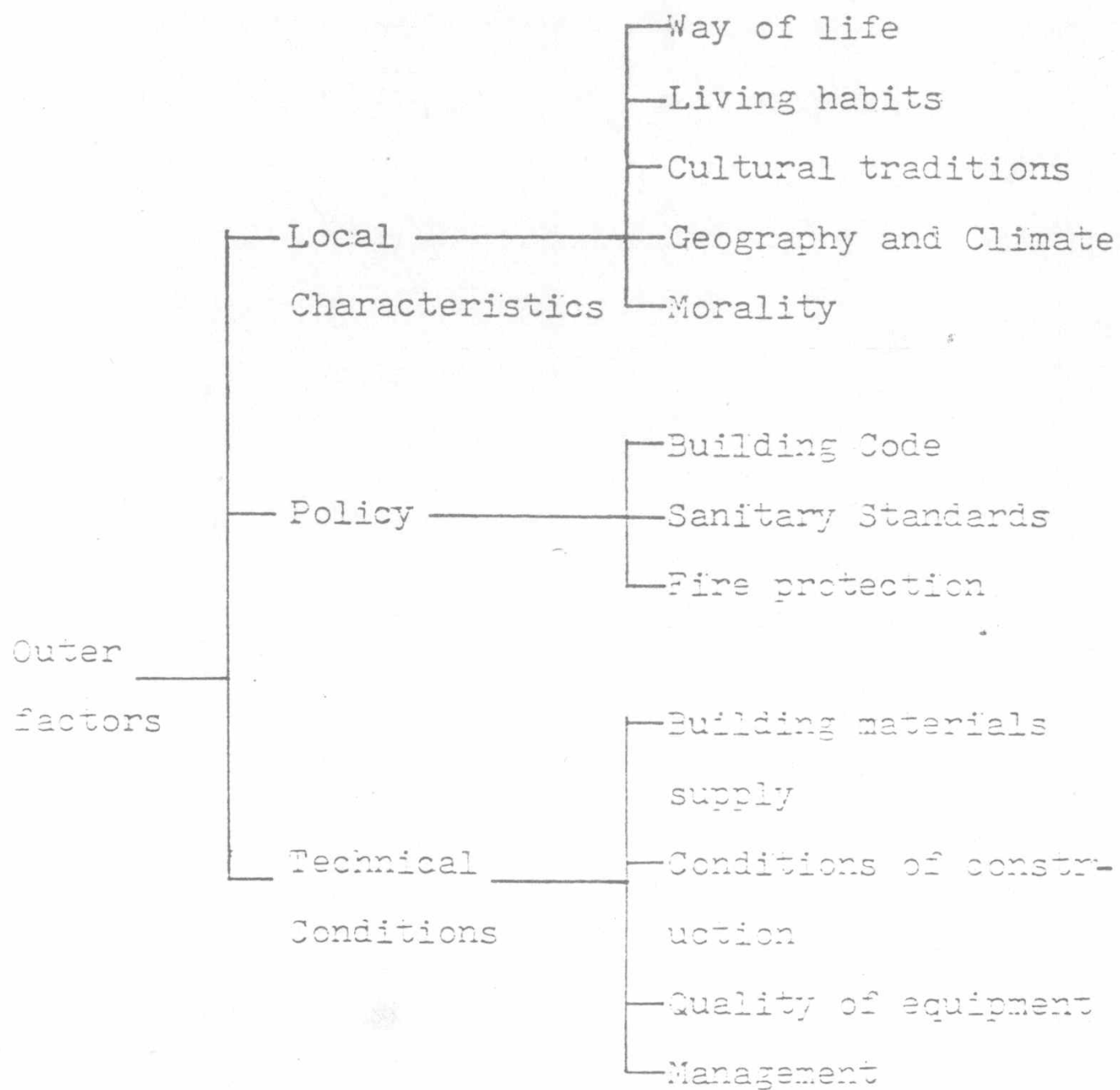


Table 2. Systematical outer factors

These outer factors influence and restrict the core of inner factors, and on the orther hand, the constitution of the core of inner factors may react up- on the outer factors. They are often in a state of fluctuation. Thus, in order to Achieve the objective of supplementing and complementing each other, there- by gaining a certain stability, The DIVISION of STRATIFICATION is needed.

Table 3

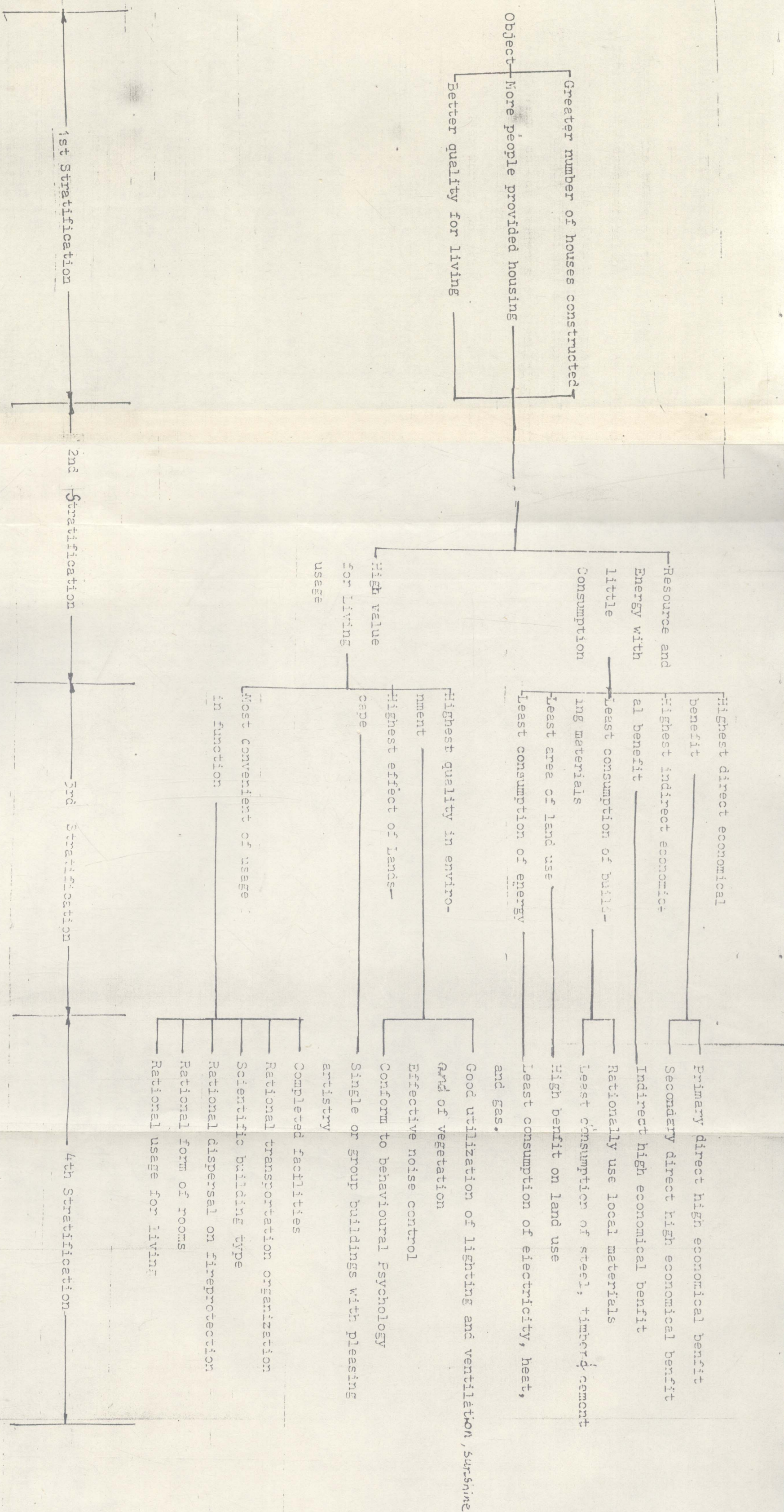


Table 3, Division of Systematical Stratification

We consider the 3rd stratification as a guiding principle to analysis each factor of the 4th stratification. On the basis of the synthesis principle, we establish the mathematical pattern which tells us any factor should not be given undue emphasis. So, we are able to obtain a rational equilibrium. It is the method we teach our students in discussing their problems of architectural design.

After these works, we make a preliminary decision and feedback to the original design, check and correct it. At last, in the optimizing decision---the most ideal design will be achieved. (Table 4)

III.

THE NATIONAL CULTURAL CHARACTERISTICS

In the world, every country has its own culture. China is a big family of many nationalities, with a culture of five thousand years. So, we emphasize that the development of our national, scientific and mass culture is the creative goal of our architecture.

Because the creative thinking and expression skills belong to the scope of the science of thinking, our students are always trained to express national characteristics in architecture through creative thinking. One must admit, however, that the students do not always succeed in this area.

Theoretically, creative thinking occurs when people bring the initiative of cognition into full play