Singapore Trade Center in Boston:
A Design Exploration Into Architectural Identity

by

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Singapore, June 1989

Submitted to the Department of Architecture in partial fulfillment of the requirement for the degree of Master of Architecture at the Massachusetts Institute of Technology
June 1992

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MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

JUN 05 1992
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Abstract

Today, with the prevailing global culture of modern technology and mass media, it is almost impossible to deal with the issue of cultural identity. Architecture, as such, has not only become a reflection of individuals, but its meanings are often diluted by the disillusioned designers. This is particularly apparent in countries undergoing intensive economic development. Singapore is just one example of these industrializing nations.

Singapore is a relatively young independent city-state with no known natural resources but its people and strategic geographic location. Its key to survival is to plug into the global market. Thus there is no escaping from the reality of global exposure. To keep up with the pace and challenge of today's economic forces, Singapore will have to shift her traditionally intermediary trade position into a main role in the economic arena. To achieve this role, her existing port-city will have to gear-up to internationalize her economy, hence, the hypothetical proposal of a Singapore Trade Center in Boston.

The imperative question is, how are we going to present the intrinsic qualities of Singapore in Boston, and at the same time deal with the issues of architectural identity in the present situation?

This thesis will begin, firstly, with a discourse into architectural identity for Singapore, and secondly with an exploration into the critical relationship between the building and its context. The design of this trade center can be regarded as a conscious attempt to seek a physical experience pertinent to Singapore's culture in the western environment. The goal of this thesis is to raise the level of awareness in the field of architectural design, while not arriving at a conclusive solution.
獻給我可敬的父母

林財晏

二〇一九
This thesis is dedicated to my parent,
and to Sook Ching, for believing in me.
Truthful words are not beautiful.
Beautiful words are not truthful....

Lao Tsu, Tao Te Ching
Acknowledgment

Deepest thanks to:

my advisor, Bill Porter,
reader, Sibel Bozdogan,
reader, Nasir Rabbat,
reader, Akos Moravaszky and

whose wisdom and criticism have not only been very instrumental in shaping this thesis but most important of all, in my personal view towards design in the field of architecture. Similarly, my sincere gratitude to:

Renee Chow, for her guidance, and comments during the proposal stage;
Maurice Smith, for his invaluable comments and guidance, in the beginning and end of the thesis.
also to:

Lam Yen Chi, Director,
Singapore Economic Development Board, Boston office
Winnie Stopps, Project Architect for the MBTA building from Leer Weinzapfel Associate Inc.
Dave Elvin, Public Affair Department, Central Artery/Tunnel project, (Bechtel Corporation & Parsons Brinckerhoff Quade & Douglas Inc.)

for their generosity and help.

And last but not least to:

my flat-mate, Umesh
office-mate, Varisara, Radzaid,
Andrew and all others, whom I have come to know only in the past three months.

for their contributions, help, friendship, comments and in many many ways that make this thesis a fruitful and meaningful experience.
Great accomplishment seems imperfect,
Yet it does not outlive its usefulness.
Great fullness seems empty,
Yet it cannot be exhausted.

Great straightness seems twisted.
Great intelligence seems stupid.
Great eloquence seems awkward.

Movement overcomes cold.
Stillness overcomes heat.
Stillness and tranquillity set things in order in the universe.

Lao Tsu, Tao Te-Ching
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11
A journey of a thousand miles always begin with a single step.

Chinese Proverb
INTRODUCTION

The concept of identity connotes a strong philosophical overtone, especially when the question of existence is involved. It is not the intention of this thesis to deal with such notions, but to discuss the issue of architectural identity in the present situation. The ultimate aim is to raise the level of self-consciousness in design thinking. Just as important to the thought processes, it is also hoped that a design strategy can be formulated.

This thesis is divided into two parts. In the first part, there are three sections: Architecture and Identity; Singapore Context; and Boston context. At the end of each section, I will state my views and opinions. By using these views, in part two, the design approach to the Singapore Trade Center will be composed.

In section one, of Part one, the issue of Architecture and Identity will be examined at two levels - collective and individual. It is hoped that the understanding of these two extremes will allow me, as a designer, to define my position between the collective and individual realm. Subsequently, I will look at one example - Japanese architecture; mainly for their success in conglomerating western modernity with their traditional values. These are clearly demonstrated in a readable built-form which is distinctive to its culture.

In section two, the Singapore context, apart from serving the necessary background understanding to Singapore's cultural past and history, the root of foreign or Western influences can also be assessed. The built-forms will be examined according to their cultural significance.
In section three -- Boston context -- I will introduce the proposed site through the examination and description of its physical context and some historical background. In this section, it is hoped that references from Boston architectural heritage will be useful to the design of the Trade Center.

In the second part, the design will be regarded as a synthesis to all the information and understanding put forth in the above discussion and examination. The design of Singapore Trade Center will fulfill its goal if, in the first place, the product is able to convince the viewer that the design process has drawn its inspiration from that culture. Secondly, the product is not an imposition on the 'context' and yet is able to resolve all relevant issues, relating to its location and background culture.

However, it does not necessarily suggest that if all the above criteria are met the product can be prototypical to the identity of Singapore architecture. In the first place there is no such thing as an instant 'Singapore architectural identity, and secondly it is impossible to materialize identity of a culture within one design. The design, however, does represent one of the possibilities that will amalgamate all the implications into its own image -- its architectural identity.
Part One
Section One Architecture and Identity

The bodies and the minds of individuals and the expressions of social life in the various cultures are the living records of the biological influences that have been constantly at work from the most distant past until the present time. Some of these influences have left their stamp on the genetic make-up of each individual person, others on the physical and mental characteristics he acquires during life, still others on his social structures. Humanity continues to grow by incarnating the past.

Rene Dubos,
So Human an Animal

1.1. Collective Identity

Identity, by itself is an unconscious thing, but the need for it is utterly a very conscious one. The search for identity, usually emerges when the intrinsic values of a certain group or individual is being threatened by others. On the other hand, this will also occur when the basic needs of a particular society or individual are satisfied. Identity can be either collective or individual. While collective identity can be national or institutional, individual identity is closely related to personal culture.
According to Correa², identity can not be fabricated, but we all know it can be modified or to some extent - created. For example, national identity can be inculcated through political propaganda and patriotic symbolism. Institutions, such as a corporate company or military force, can express their identity through specified uniformity. In the military this is done by indoctrination and soldiers are trained to perform as one entity. Similarly, to forge a corporate or institutional identity, physical images or elements, such as logos, uniform, and architecture, can be used to strengthen a sense of belonging. Identity, at this level is about a collective image in which it will become distinguishable from another group.

Sadly enough, when indulgence into ones' identity is taken to the extreme, it can often lead to conflict between groups, or between individuals. At times, the motive for raising the issue of identity can also be abused by an individual who holds power. Territorial, racial, religious, or ethnic conflicts are just some of the possible negative effects that stem from the issue of identity.

Putting these potential negative effects aside, a healthy collective identity can be seen simply as an expression of its cultural image, in the form of architecture, language, music, and various types of art forms. Representing the nation's or group's aspiration in unison, a collective identity should reflect a common trait and behavior that is easily recognizable by a social 'code'³. Only by associating with this 'code', one will then be able to have "a sense of self-realization and a base to operate from."⁴
1.2. Individual Identity

The universality of great many physiological sensations and cultural experiences produces some agreement about the meaning of certain symbols and images; but the particular life experiences of individual human beings vary, particularly in their translation into verbal concepts.

Herb Greene, Mind and Image

Individual identity is based on a personal desire to seek a position in society, depending on the level of the person's interdependence with other individuals. People lacking modern conveniences and living in harsher environments e.g. a jungle or some remote rural areas, are found to rely heavily on kinship with their group for survival. They are also found to be "lacking in their independence of thought and action." Their behavior, often displays a "cultural one-sidedness." The identity of an individual in such a group, is therefore, bounded by his immediate reality; filled with rituals, taboos, stigmatization and tradition. His artistic output, under this condition, invariably adheres strictly to all those rules and values.

Conversely, in a more urban environment, where the social system provides basic protection for an individual's survival, it is not unreasonable to generalize that people will become more introverted and individualized. As Ayn Rand noted,

"the process of thought is an enormously complex process of identification and integration, which only an
individual mind can perform. There is no such thing as a collective mind."7

What has contributed to this mentality [individuality], Ayn Rand has attributed it to Capitalism, where "men are not trapped within the prison of their family, tribe, caste, class or neighborhood."8 Under this 'politico-economic' environment, an individual can express his identity freely and be recognizable by others within his group.

However, because man is socially oriented, he is often linked to the collective realm. His views, creativity and behavior are based on his interaction and association with others. His thoughts, actions and artistic output can also be influenced by others. Unlike builders belonging to a tribal group living in an economically underdeveloped environment, individual designers in our society can choose what they want to express and what to omit9. Considering the external factors (peers, media etc.) influencing an individual, designers are often caught in a dialectic situation between these two realms. As a result, the creation becomes diluted.

The industrialized designer's thinking, as Ricoeur pointed out, is based on “what he is going to produce has already been said in language of everyday technical and political prose.”10 Creative output, such as in art, is “really art about other art, images of other images”, said Fredric Jameson11. However, this should not be compared with those individuals living in the tribal society -- where their creativity is almost conditioned by their cultural reality.
A designer in modern society is confronted with more complexing issues. On one hand, this group of individualized designers could alienate themselves from the society, and on the other hand, still partake in the activities that will eventually contribute to the 'recognizable whole'.
This wholeness has become a containment of individual cells, where each cell is unique. From afar, this entity appears to be homogenous, but, on after closer look, it is seen as fragmented and made up of individual cells. It is very rare that one can break out of this cocoon of fragmented reality. Although, Ricoeur has said that "all great artistic creation always begins with some scandal", it is really not applicable to this case. Any attempt to create something scandalous will only further aggravate the condition of fragmentation. There is no escaping from this reality, at the very least, the designer should be awakened to this reality of 'false images' (Jameson).

Now that we have identified the spectrum in which our creativity can take place, it is important to note that I am not advocating that a real creation should be achieved in any architectural design, but rather, we must raise our awareness against 'false creation'. In order to achieve this awareness, we should also understand the reality in which we are operating. In this case, our reality exists in the interplay of the personal culture and the collective identity.
1.3. The Present Situation

An architectural vernacular develops out of a regional set of factors including living customs, available technology in a broad sense, and natural conditions. That being the case, then there ought to exist in the various regions of the world where industrialized cities thrive the beginnings of what might be called "industrial vernacular".

Fumihiko Maki, 
An aesthetic of Fragmentation

Today, the multiplication of human relationships, as pointed out by Ricoeur, "has made mankind a more and more compact network, more and more interdependent; and it makes all nations and all social groups a single humanity which develops its experience." This reality prevails through the extensive media network, advances in communication and the victorious capitalist's "consumer culture", linking us electronically toward a single global culture.

The invasion of media, however, has instilled a global consciousness, which overrides most of the national culture as well. Even the technologically advanced countries are feeling the same sentiment, where Ricouer's term "universal civilization" has taken its toll in eroding away the underlying cultural identity. As the French President, Mitterand, has warned, "all our cultures are under threat". To raise the awareness of national identity, therefore, became a point for departure to counter such imperatives. Although this may not necessarily means that all societies are feeling the same sentiment,
however, it seems more exigent in the developing countries; where everything is in transition.

In the field of architectural design, it is almost impossible to prototype or categorize the identity of any culture as a singularly based or as a collective aspiring society. Instead, design has become the reflection of the individual which is directly interlocked with this global reality. The physical form can be both, at the same time, submerged in the design brief and the prevailing complexity of contemporary issues, the resulting form subjected to the individual's taste and choice. This reality has created a period freed from any stylistic compliance or paradigm.

Designers can approach architecture with attitudes ranging from "'neo', to 'late', to 'high', to 'new' modernist". As Jencks has stated, the current era has created a style "without guilt, without a past, without connection - the contextual style of an airplane that goes everywhere."

"Postmodern man is everywhere at once and nowhere in particular."

Stephen Heath, Identity Charade

Many architectural theorists and critics have sought to create a discourse into this underlying universality. For example, Frampton has come up with a "Critical Regionalism" to mediate the impact of universal civilization. He has contended that only an 'arriere-garde' will have the capacity to cultivate the resistance required in giving the
culture an identity, "while at the same time having discreet recourse to universal technique."

So far, the discussion of identity has revealed to us that our design output can lie in the identity spectrum -- from collective to individual, from a real creation to a false one. Architectural identity, on one hand, is about raising the consciousness against these possibilities, and on the other hand, it is about the experience intrinsic to its character that makes it distinguishable. With the understanding of these "affective experiences we can then arrive at an awareness and it is also depending on the degree to which such experiences are cultivated in a given culture."18

In architecture, identity is established through its experience, which can be derived in many ways. Inside the building, its spatial arrangement, color, texture, scale and lighting quality will provide the ambiance for its activity. On the outside, its physical relationship with its surroundings, its shadow manipulation and orientation provide a distinct image to its context. Hence, all these internal and external elements, become the necessary components for generating a unique experience that will contribute to its identity.

Since there is no escape from the reality itself, architectural character, equal to its identity, will have to be manipulated to reflect the self-consciousness of the individual designer, and simultaneously awakened to the immediate reality. Hence it is important to seek out the intrinsic qualities that will raise the awareness of the viewers. From there, through the critical awareness of the physical relationships involved, a subtle reflection of the underlying identity will surface in a new dimension.
1.4. Case Study: Japanese Architecture

"Like seeing a rosebud in the early morning, a drop of dew on it, while the air is still chilly, the sun coming up, a bird singing - this is an experience which is some culture easily lends itself to awareness, for instance, in Japan. While in modern Western culture this same experience will usually not come into awareness because it is not sufficiently "important" or "eventful" to be noticed."

Erich Fromm,
Psycho-Analysis and Zen Buddhism

Although not all architects in Japan may have a clear awareness about their traditional heritage, there is always a strong indication that many aspects of Japanese values are reflected in their architecture. As Penny Sparke has pointed out "there is so much of Japan's cultural past in its cultural present" that any unaware designer in Japan would still be part of their collective outlook. This cultural continuity is mainly due to their strong aesthetic traditions, which can be attributed to their common belief -- Zen-Buddhism.

Traditionally, Zen-Buddhism has taught the Japanese that austerity and simplicity were a means to contemplation and spirituality, whereas conspicuous display was considered to be contradictory to this code of behavior. In art and design, one way of achieving an aesthetic sense based on this spiritual views, was through
the highlighting of the materials used, such as wood, bamboo, lacquer and clay, and, with the 'economy of means'\textsuperscript{21}.

One of the important features in Japanese design, Sparke also noted is the emphasis on microscopic matters, where detailing and parts have provided the basis for the entire form. "It means that the control knobs of the hi-fi, and the chrome trim on the side of the car door panel are the starting points for an aesthetic appreciation of the objects, not the metal box which houses them. Westerners, on the other hand, tend to look at the form first, rather than the detail."\textsuperscript{22}
The modern and the traditional (Modern Japanese Design)
Part One

Kyonori Kikutake, Tokoen Hotel 1965, displays the structural element that has been extracted from the traditional references. The re-interpretation of the timber constructional technique called "nuki" into reinforced concrete system can also be seen as an attempt to maximize the technological implication with cultural values.

As a matter of fact, this emphasis upon the aesthetics of simplicity and on the unit as a base for repetition, together with the sparing use of objects, was an enormous influence on the protagonists of the Modern Movement. From within these traditional Japanese values, they saw the potential for a new aesthetic that could be used to propagate mass production, and still be able to exude a fair amount of aesthetic appeal.
Section One  Architecture and Identity

Toyo Itoh, House in Nakano Honcho 1976, reflects the spirituality quality of traditional Japanese belief, in search of a 'purer' and 'minimal aesthetic' for the domestic house. The house shown here complemented the minimal aspect found in modernist architecture -- both in the lighting quality and continuity of internal space.

After the Second World War, with its dependence upon Western examples, many of the ideals of Japan's own heritage which had been admired, discussed and copied by the European and American promoters of Modernism were, in turn, re-absorbed in Japanese modernization. It is therefore not difficult for modern designers to amalgamate western design principles with traditional Japanese values.
In the past decades, with its huge economic success and land property reaching exorbitant values, architectural design has become even more interesting. Although the cost of building has become less substantial than the land values, the budget for construction is frequently raised to match land values. Thus, with the unusually high budget for building the project, designers are faced with fewer constraints and greater exploratory power. Generous budget allow for extravagance in materials and detailing.
Section One  Architecture and Identity

Fumihiko Maki, Fujisawa Gymnasium 1980-84, base
on his "unconscious memory of form" direct
transformation is carried out alongside with the
advancement of modern technology. In this case, the
artifact selected from the "Summuria" head gear is
transformed in the hope that the same warrior spirit could
be manifested in the gymnasium.

However, notwithstanding the implication that the strong
spending power might have eroded the hereditary view on the
'economy of means' and aesthetic values of simplicity, many aspects of
these practices and views still remained intact. Instead the generosity
in budget have boosted the quality and level of design.
Fumihiko Maki, (Spiral) Wacoal Media Center, responding to the fragmentation of modern Japanese architectural scene, the physical form of the Spiral aims to reflect the same urbanistic chaos and yet grounded in some sense of the past. At the same time it uses the latest material and construction to portray the contemporaneity of the physical form.

In fact, traditional values are so intrinsic to Japanese society that not raising the issue of identity is not unusual. Furthermore, one can also safely say that Japanese architecture has its identity so strongly rooted in its past that they are not only forging the identity of their future but also exerting its presence in the global architectural arena.
Tadao Ando, Rokko Housing 1983, interprets Western architecture in the form of cube, whereas the Japanese architecture is based on the system of squares. Both cube and square share a very basic commonality, except that the square is not a containment of space. Thus allowing the maximum exchange of outside and inside space similar to the spatial continuity postulated by most western modernist.
Part One

Singapore River, circa 1843-47
Section 2. Singapore Context

*Singapore must be ... defended to the death. No surrender can be contemplated.*

Winston Churchill (Word War II)

2.1 The Colonial Period

The name Singapore, derived from Sanskrit, means 'the Lion city'. Although the history of Singapore can be traced back to the 14th century, accounts of its early period are sketchy, largely because of the very small number of inhabitants at that time. The arrival of the British in 1819 marked the beginning of modern Singapore. The establishment of British-Singapore was to provide a mid-way trade center - between India and China, as well as to counter the Dutch hegemony in this region.

While the British administrators were more concerned with their imperial domination, the rest of population was more transient to this port city. The traders' and laborers' ultimate aim was to earn as much money as possible and return to their homeland as wealthy people. Because of this, their participation was often perceived as part of the trading mechanism.
for over 170 years, contracted laborers had been unloading cargo goods manually along the Singapore river.
Section Two  Singapore context

The gateway to the Sri Mariamman Temple, built in Southern Indian Hindu Temple style, re-constructed in 1923 from its original site dated from 1827.

Everything else outside this economic perimeter was perceived as less important, including, the forming of a tangible attachment to British Singapore. The only psychological satisfaction that could be arrived at, therefore, fell into the strengthening of their own cultural roots. Community clans, clubs, associations or religious centers, which had an affiliation to their hometown, were built to fulfil this need.
The Supreme Court, 1937-39, designed by Dorrington-Ward, it represents the grandeur of Classical Orders that mark the dominating presence in its location.

Built-forms, which served this cultural bridge, were literally imported, to reinforce the physical images that were much needed in this transitional place. Similarly, the design of the British administrative and some government buildings, were transplanted; except that, in this case it was based not so much on nostalgia but more on showing its dominating position. As for the rest of the building types (commercial and residential), because they were regarded less for their cultural significance than for economic functions, they were built differently.
Corner building. Built in 1929, the building is heavily decorated with eclectic objects, "ranging from classical tales to a Strait soccer match and a rickshaw ride". These colonial shop houses, along Pagoda Street, began construction from the 1860s.

The design of these buildings was open to local interpretation by builders whose views, based on this context of diversity, were to become pluralistic in nature. The architectural expression unwarily, but not entirely became an expression of cultural eclecticism. Extracting elements from various cultural backgrounds, while at the same time responding to pragmatic factors like the extreme tropical climate, the resulting buildings formed a distinctive character.
Another example of eclectic shop house built in 1908, its physical image is composed in a variety of cultural elements: the venetian windows and classical elements, Chinese tile roof, juxtapose with local signage.
One example of this built form can be seen in the colonial shop houses in Singapore. Although this type of architecture can be found in other countries, such as Malaysia, I feel that this is the only reasonable evidence that one ought to look into as far as traditional architecture in Singapore is concerned. In the following sketches, I have attempted to illustrate some parallels on which those relevant built-forms and elements that might have contributed or linked to the construction of the colonial shop houses.
Part One

Climatic response

Spatial definition

I) Kampong houses - Indigenous dwelling that are raised on stilts to counter the year round heavy rainfall that could cause heavy flooding. These built-form are also found to be extremely practical to be built near the sea, where the livelihood of the local population depended on the sea for food. When they are built on water, they can be accessible by planks and platform.

The steep pitch roof (traditionally covered with thatch) provide quick run off of rain water. The external skin of the building are usually built with huge opening and the clustering of building are just some of the main feature to facilitate cross ventilation.

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(ii) Southern Chinese Architecture - Based on the courtyard concept, the placement and many of its architectural elements are derived from the *geomantic* principle\(^2^4\). This thousands year old art of building, generally place the building and its inhabitant in harmony with the forces of nature, such as climate.

Apart from the 'geomantic' system, Confucius's principle can also be found in these architecture, where the hierarchy of spaces organizes the placement of rooms and emphasis of height, decorations, etc. Symmetry in the elevation treatment juxtaposes the asymmetry garden to provide a balance of Yin and Yang.
(iii) Western classical architecture - most of the influences these architecture had on the shop houses were the classical elements, such as the columns, capitals, and windows with arches above. And the purpose of using these architectural elements, perhaps, is to give the local built form a Western touch. Other than that, the contained spaces are really not applicable to the local climate, where everything is house under one structure where the external walls are too enclosed to encourage cross ventilation.
enclosure

Climatic response

(iv) The Anglo-Indian bungalow - although this type of built-form had more influence on the colonial residential houses and villas in Singapore, they might have an indirect impact on the shop house per se - where the huge overhang above the raised verandah surrounding the building might be inspiring to the local builders.
Singapore City Skyline.
2.2 The Post Colonial Period

Singapore must become a synonym for quality, reliability and excellence. We will become a business hub of the Asia Pacific.

The Government of Singapore (1991)

Today, Singapore is an independent city-state, having risen from the post-war slum-infested trading node to a modern city. With a population of about three million, the people are descendants of those traders and laborers who either had chosen to stay or were displaced by the Second World War. The majority are Chinese (77.7\%)\textsuperscript{25} and the rest are native Malay (14.1\%) Indians (7.1\%) and other ethnic groups (1.1\%). The disparity between the rich and the poor is negligible, and there is virtually no poverty or homelessness. Ninety percent of the population has ownership of government subsidized housing apartments and ninety-nine percent\textsuperscript{26} of Singapore's households have at least one television, telephone and refrigerator. With this uniformity in the social well-being, any external influence is seemingly felt evenly throughout the society. However, the impact of foreign influence might not be absorbed as evenly as the distribution of materialistic possessions. In this multi-racial society, each individual culture may perceive the influencing factors differently.

Singapore's only resources are its strategic location and its people. Its key to survival, therefore, is to be fully integrated into the international economic arena. Aggressively marketing itself as a
gateway, as the Switzerland of Asia, Singapore has been recognized as the new economic power of Asia - a Mini-Dragon.

Living in Singapore, as described in the 'Mini-Dragon' documentary series, "is rather like living in an upscale American suburb, close to the squeaky-clean shopping mall, where everything seems too thoroughly clean and tidy to be real..." In fact, Singapore is eagerly portraying itself to the world as a clean, hygienic and efficient city, where "there is no graffiti and little crime, no foreign debt and the air-conditioned subway runs on time."

Although Singapore takes pride in all these achievements, the reality is more complicated than the documentary has shown. The people are facing the dilemma of living within the pluralities of their cultural heritage and the prevailing global culture. This global reality, for most of them, is shaped and proliferated by Western culture; a fact which has its beginning in Singapore's colonial past, where everything western made was regarded as superior. In the form of science and technology, mass media and consumerism, these modernizing agents permeate almost every aspect of Singaporean livelihood. What Singapore has achieved is an improvement in its living standard, measured by its economic development.

Today, many people in this island state still believe that without a sound economic policy, the country will lapse into an urban decadence and there will be nothing to fall back on. Although the materialistic gain has provided a sense of security and for the physical needs of the society, developments have been carried out at the expense of its cultural heritage and values.
When Singapore was granted independence in 1959, it knew that the nationalistic search for identity lies in the attainment of economic security. The only sensible approach toward this security was development through industrialization.

This urbanization was carried out at a rapid pace. The architecture that was attractive to the designers was based on the ideology of the Modern Movement - the symbol of freedom, efficiency and advancement. In adopting this style, they submitted to the inherent rejection of tradition, readily erasing the past which was perceived as backward and as inefficient in coping with social demands.

New forms have been imported indiscriminately and local architects, usually trained in the West, have been more than willing to show what they have learned from abroad. This modernizing process, according to Robert Powell (a lecturer from the local school of architecture) "has been accompanied by a significant loss of [Singapore's] cultural heritage in a period of planned social and economic change." By the early 80's there was a serious chance of Singapore's becoming a 'faceless city', as a Australian resident architect, Peter Keys, commented.
above. Background, Central Business District, in juxtaposition with the colonial shop houses along Singapore river.

oppos. same place but different period.
Public Housing Apartment, at least 80% of the population have ownership to the subsidized flats.
Section Two Singapore context
Only in the recent times, has the government of Singapore begun to be alarmed that the erosion of its cultural values will be replaced by those that are foreign - Western. Being a Singaporean means, to be exposed to this acute dichotomy in many ways, between modernization and the loss of traditional values, co-existing within a pluralistic and diverse culture. The issue of identity is hinged on the one side to operate within the emancipation of modernity, and on the other side, to work against the eroding traditional values.
Traditional culture against the global culture of science and technology
Architecture, a useful tool to express cultural aspiration, in this case, can also be used to fine-tune this process of protecting traditional qualities while adjusting to the reality. It is only prudent that we should look into the traditional form, not so much in the tectonic quality; instead we should be looking into its climatic and cultural related qualities.

In traditional buildings, its tectonic quality has been constantly renewed and at times distorted with the latest means of execution. With the old method of construction technique being replaced by cheaper and faster systems, it would be ironic to use the latest technology to fabricate traditional elements or decorations. "Modern forms need not be accompanied by industrial methods of production and traditional" forms are achieved with the latest scientific discoveries in the construction/material sector."28 This irony, which can be found in some Post-Modernist works, often results in abuse and pastiche. Designers and clients attracted to fashionable built forms become disillusioned and end up with the notion of kitsch architecture.

Right, The Dynasty Hotel, built in the early 80s. Is this a pastiche? Or is this to be considered a disappointing attempt to define an architectural identity? Or is this a reflection on a culture that has a aesthetic taste for stage setting? From which academic views are we to judge this attempt?

It is not in the scope of this thesis to deal with all these questions. However, it is not unreasonable to briefly state that the hotel has succeeded in marketing its image [Chinese], while failing to convince the viewers that there is a conscious attempt to bridge the underlying traditional image with the possibilities that modern technology can offer. The Chinese classical cursive roof form was invented for a set of reasons that may not be applicable to our present place and time frame, hence
The question is, "are buildings to be understood as traditional or modern on the account of how they appear or on the account of how they are produced." The answer lies in the understanding that technological advances are based on accumulation of knowledge, and physical response to the context is constant. However, the fluidity of technological improvement is intertwined with cultural and climatic responses. Therefore, the resulting forms are also constantly changing.

This can be illustrated with cultures that have little progress in their building technology, where their physical form expression has remained consistent. This type of architecture, through years of refinement within its own culture, has provided an excellent response towards its intrinsic environment. Often imbued with craftsmanship and artistic quality that has a strong reflection of its cultural values, these buildings constitute an authenticity to their identities. However, because these traditional forms today, are unable to cope with the sudden influx of foreign technology, their intrinsic qualities are constantly eradicated. This is often a part of the modernization process, due to political and economic reasons.

Today, with Singapore's comfortable economic position, opening new windows to its cultural past is not untimely. Architectural design, therefore, should provide the linkages between the past and the future, while staying rooted in the present. This approach should not be too literal, or make superficial transformations. The design, as Kurokawa strongly suggested, should begin by breaking "architecture down into those that can change and those that cannot."
Critical assessment of traditional forms is also essential to provide a solid foundation to the new forms. The design of the new forms, at any time, should not neglect the responsibility to its time frame, but also should be truthful to the aspiration of its society. This is what Singaporean architecture should be.
Part One
2.3. Assessment of Traditional Form: Colonial Shop House

*Under heaven all can see beauty as beauty only because there is ugliness. All can know good as good only because there is evil.*

Lao Tsu, Tao Te Ching

Before going into analyzing the colonial shop houses, I would like to illustrate one example in which the permanence and impermanence in architecture can be recognized. The permanence can later be transformed using modern technology and still retain its generic principle.
While the entire building was composed with architectural languages from various cultures, there is one particular feature which we have often took for granted. Frequently, temporarily hung sheeting material or rolled up bamboo blinds are used on the facade of traditional buildings. They provide shade in the day and are flexible enough to impede any air movement into the building. In this case, vinyl sheeting is hung between two solid structures, on the one hand demarcating and shading the activities behind it (a fortune teller stall) and on the other hand creating a contrast of light and heavy material while breaking the symmetrical outlook of the building.
This ad hoc element may seem too insignificant to warrant it as an architectural artifact. However, the response to climate, particularly in this case, has generated a new possibility and authentic to the local culture. It is this very impermanence of things that frequently makes our living culture real and permanent.
The Colonial Shop Houses - were fundamentally created for commercial purposes. These buildings were erected to replace the earlier buildings, which were fire and health hazardous due to the lack of proper regulation. Under the more stringent requirements imposed by the colonial rulers, the physical planning of these buildings was generally laid out in a grid system.
Section Two Singapore Context
Each lot was allocated with a specific dimension approximately 20 feet wide divided by masonry party walls, and 75 feet deep. With the dimensioning intimately related to the human level sense of scale, the spaces are much more comfortable, as compared to the inhumane urban space [filled with monstrous size skyscrapers].
Among one of the pragmatic and significant regulations stipulated by the colonial administrator, was the five-foot way located on the ground floor, facing the street. This provision promotes excellent pedestrian circulation and shelter shop front from the intense sun.

Five -- Foot Way
When the ground floor of the shop-house is used for residential purposes, the finishes along the five-foot way are frequently laid with colorful tiles.
The upper floors, normally two levels, houses the private spaces (residential or storage). The top floors are provided with high ceiling and 'jack-roof' to generate air flow and 'stack effect'.

Part One
The services are located at the rear of the house, where the narrow back alley is also located. Apart from using it as a secondary access, it is used for the collection of night soil.

To ventilate the fairly deep building, air wells are incorporated in the mid-section of the building. The configuration of these open air spaces are often determine by the occupants' needs.
Sometime the air wells are covered with skylight to provide more sheltered area.
The street facing facade is infilled with timber frames, covered either with sheathing or composite materials — timber for the windows and bricks infilled for the remaining walls [finish with lime plaster].
The interior spaces are compartmentalized into cubicles according to user needs. Usually, these cubicles were rented out to generate extra incomes; in most cases, resulting in overcrowding and inhuman spaces for occupation. They posed both a health and fire hazard to the inhabitants.

Apart from the possible abuse in the used of the interior spaces, the colonial shop house has a very specific system of building, where it can be seen as a made up of different parts; timber screen (framing), walls, partitions and columns (at the front). On the contrary to the spatial organization, which are not predetermined and differently arranged, the external expression appear relatively homogeneous and fairly standardized.
Section Two  Singapore Context
Section Three
Part One
Section 3. Boston Context

The site which we choose or which is assigned to us to erect a building is perhaps already a place....this place will be destroyed, reinforced or transformed by our intervention.

Pierre Von Meiss,
Elements of Architecture

3.1. Location

The proposed Trade Center is located on the Southern edge of Boston's Financial District. The site encompasses an existing four storey hardware store and an existing car park; both add up to about 12,075 square feet. Occupying the middle portion of the city block, the site is bounded by High Street to the north, Purchase street to the south, the ongoing expansion of the MBTA building to the west and the Keystone building to the east. Further south from the one-way Purchase street, the land surface is broken by ramps descending into the Dewey square tunnel that forms part of the Central Artery expressway (I-93).
With Atlantic avenue, these three roadways create not only a physical barrier to the waterfront but also restrict further expansion of the Financial District. On Purchase street, the physical development of the Financial District comes to an abrupt end with a stream of vehicular traffic reinforcing its edge.
Looking from Dewey Square, south-west from the site, this urban edge represent a virtual *wall*. This *wall*, together with the external edge of the South Station building and the Federal Reserve building, they form the edges of the highly built up urban relief of the downtown area.
Behind this urban *wall*, layers of corporate building facades seem to be struggling for a view of the waterfront. The texture varies from brick and tile to glass and steel. It varies in height from moderate scale buildings to super-skyscraper proportioning. The buildings come in different shapes and forms; there is no sense of order or any relationship between each building. Almost every kind of architectural expression is present here.
Each individual building may seem isolated and unrelated, but yet, it appears to be part of an urban entity. As Goldberger has described, "in Boston there is a sense of wholeness. Buildings are not objects apart; they are emphatically and completely parts of larger whole." Only a person who knows about Boston's past can tell which periods and what commonalities are shared by these buildings.
Axonometric view of downtown Boston
(Boston 2000, Central Artery Project Report)
Part One
3.2. Background

In Boston, the impulse toward architectural innovation, which has always been strong, exists in a kind of balance with the moral presence of history - a balance more profound, surely, than in any other city in the United States.

Paul Goldberger³¹

Boston founded³² in 1630, is a unique city with distinctive districts and neighborhoods. Each district with its distinguishing characteristics is a living testimony to its architectural history. Collectively, it is these individual districts, with their sense of history and spirit that help shape the image, or rather, the physical identity of Boston.

The Financial district is just one of these urban divisions. In the early 1800’s, this area was a fine residential neighborhood, with a tradition of colonial architecture. Submitting to the growth and expansion of the waterfront commercial activities, it was eventually converted into commercial property. Most of these architectural and historical artifacts were destroyed by the Great Fire in 1872. But the property lines remained intact and later served as tangible evidence for redevelopment and construction.
After the Great Fire, the commercial hub saw a new phase in architectural development. Using mostly non-combustible material, such as red bricks, buildings were technically allowed to rise to four or five stories. Decorations were derived either from the material itself or carved masonry. This development ushered in a new beginning to commercial architecture, a departure from the residential style.
Towards the end of the 19th century, with the rapid innovation of construction technology, buildings were pushed even higher to eight or nine stories. The traditional stacking of floors was replaced by steel and reinforced concrete skeleton framing facilitated by elevators. The facade treatment was organized around the three part system propagated by Richardson. The ground floors were devoted to huge display windows, whereas the more decorated upper stories were used for offices; these can be identified by the honeycomb-like repetitive windows. The topmost floors, were occupied by mechanical plants, with different kinds of openings and decorations which would also contribute to the roof line.

At the turn of this century, the ever increasing demand for floor space confronted architects with new problems. The moderate-scale mixed-use buildings with combined offices, retail shops and warehouses, had to give way to more specific functions. The three part system began to look unbalanced when the middle portion became too large. Hence, the height of the building became a new theme in the design strategy. To accentuate the building height the facade was designed to lead the viewers' eyes to the top without interruption. An example from this period is the United Shoe Machinery Building (Parker, Thomas and Rice, 1928-30), across the street from the thesis site.
The Weld Building, located within the same city block as the proposed site, is just one example of the three part system.
Today, some buildings in Boston are still designed with the three part system, except that this time there have been some re-interpretation to suit the present architectural vocabulary.
Unlike the Singapore's colonial shop houses that made up of parts, the spaces of the 'three part system' are contained within a 'cube', openings are like carved-out - on the external surfaces, to let in light and provide control to the cold climate exposure. At times air wells are also included for pragmatic reasons - internal ventilations.
The United Shoe Machinery Building and the Landmark Building, across High street from the proposed site
From the Second World War onward, high-rise building has been the norm in commercial architecture. Using the latest technological innovations in the building industry, the design of these super scale blocks relies on their shape, height and facade treatment for its corporate identity. What seems to be consistent among these buildings are the mechanical systems crowning each building. Although each building may reflect its own individual image and identity, their site coverage is limited to the original footprint of the city.
In more recent time, corporate architectural design has been seeking new definitions to portray its image. As Karin Tetlow points out, "gone are the days when building height alone was enough to bestow headlines and substances to its executive occupants. Now, aware critics and environmentalists look to content and context." Amenities for its occupants, accessibility and appreciation for the architectural setting are just some of the new added characteristics that modern designers cannot avoid.
3.3. Physical Context

... the urban built order (i.e. the fixed-feature elements) is an expression of and a setting for activity systems (i.e. non fixed-feature elements); the semi fixed-feature elements (signs, billboards, neon, etc., as well as decorations, landscaping, street furniture and the like) make manifest, communicate, and reinforce the order.

Amos Rapoport,
Culture and the urban order

It is within this context of the wall - the edge of the Financial District, the urban room, the open space in front and amidst this mixed bag of architectural forms - that the Singapore Trade Center will be located. The site is actually sandwiched between the 80 foot, medium scale MBTA building and the 435 foot free-standing Keystone building. This creates a unique situation wherein, on one side, the Trade Center is juxtaposed with the overwhelming scale and its language of the independent Keystone building, and on the other side, respond to the vocabulary of the moderate scale MBTA building.

Across High Street, next to the United Shoe Machinery Building (mentioned above), is The Landmark building (The Stubbins Associate Inc., 1988). Except for the first two levels which are finished with "rose pebble aggregate with polished darker granite", the entire building is clad in reflective glass.
On the other side of the site, across Purchase Street, is a bus terminal, a fan chamber and a mini park, with Dewey Square at a diagonal to the west. According to the "Boston 2000, A Plan For The Central Artery Progress Report," this area together with the entire length of the Central Artery roadway will be converted into promenades, gardens and other recreation facilities. The purpose is to serve as an open space and direct pedestrian links, connecting the Financial District to the waterfront which had been severed by the Artery.

Parcel 22, which is the number for the lot directly fronting the proposed building, has been designated "a formal garden and linear park organized around a lawn or reflecting pool."

For the purpose of this thesis, I will assume that the Central Artery project will become a reality and the design of the Trade Center, will take the proposed garden into consideration, instead of the existing bus station and fan chamber occupying parcel 22.
Proposal for the Central Artery project
("Boston 2000, Central Artery Project Report."")
Part Two
Section 1. Design Synthesis

Look, it cannot be seen - it is beyond form.
Listen, it cannot be heard - it is beyond sound.
Grasp, it cannot be held - it is intangible.
These three are indefinable; therefore they are joined in one.

From above it is not bright;
From below it is not dark:
An unbroken thread beyond description.
It returns to nothingness.
The form of the formless,
The image of the imageless,
It is called indefinable and beyond imagination.

Stand before it and there is no beginning.
Follow it and there is no end.
Stay with the ancient Tao,
Move with the present.

Lao Tsu, Tao Te Ching

The design of the Singapore Trade Center will be approached with the wisdom of Lao Tsu in mind. In dealing with issues relating to the Singapore context, the design extracts the permanent layers of traditional architecture (stay with the ancient Tao), and provides a sense of contemporiness (move with the present). By taking the more 'concrete' traditional evidence and by using the latest technology and material, they are transformed into a modern vocabulary. On the other hand, in Boston, the design will respond to the urban context to become a piece of Boston's fragment; the juxtaposition of these
fragments will eventually create a complete 'wholeness' to the district.

It is not the intention to dissolve the polarities between the two architectural languages within this design, but to generate an intimate association that will enhance their qualities. It will express the diversity of the background culture against the pluralistic Western outlook. The resulting experience, derived from the dual facets of architectural vocabularies - modern and traditional, East and West, in a subtle way, will be the basis for the design of the Singapore Trade Center. Shifting through the layering of influences that created the physical forms, the trade Center will emerge as an identifiable building pertaining to Boston and yet exude a subtle spirit of Singapore.

Prior to the actual designing, I have attempted to formulate the program for the Singapore Trade Center by describing how the building should relate itself to the site and then mentally exploring the activities around and within the Center. It is hopeful that the followings written accounts on the Building and Site, and Preliminary Description would provide a clear picture on the activities implicated by the Trade Center. And with the right understanding on how the building will interact with the people and with its environment, a reasonable design-brief can be formulated. Similarly, the public and private realm can also be clearly defined.
1.1. Building and site

The responsibility for the relationship between industry and culture falls, in the modern world, on the shoulders of design. The product is the mediator between manufacture and the consumer, and its design is the container of the message that is mediated.

Penny Sparke, Design in Context

With respect to the building and site relationship, it must be noted that three levels of engagement between the Trade Center and the general public [the audience] will occur. At the first level, the building will be seen as unlikely to be of interest to everybody in the community and masses, unless there is a public exhibition or an equivalent. It will engage only those who have a specific motive. This category would include investors and people at a management level. The building relationship with this group will be at both external and internal of the building.

The second level of engagement will apply to everybody in the street. This engagement is often superficial. The skin and texture of the building will translate its image and form of the building into a perceptual or visual impression to the general audience. The third level of engagement deals with the staff and people that participate in daily events in the building. The exchange between the building and
people is similar to the first level encounter, except that this level of engagement is daily and integral to the physical interior.
1.2. Preliminary Description

...the progress of technology and of mass media have made architecture increasingly irrelevant.

Aaron Betsky, 
Violated perfection

The Trade Center houses a multi-purpose hall, a temporary exhibition hall for trade fairs and a permanent exhibition area for the display of Singapore-made products. The Center seen as an one stop agency for investors interested in doing business with Singapore's companies and people who want to know more about Singapore, also houses various offices -- namely the Singapore Tourist Promotion Board, the Trade and Development Board, the Economic Development Board, the Singapore Airline and the Singapore companies. On the ground floor, a tropical garden is designed to accommodate part of the temporary exhibition space, the seating area for the cafeteria and an array of tropical greenery. Car parking and most of the mechanical plants are located on the basement level.

The main entrance is located on High street. Visitors entering the Center are directed to the reception area by a short corridor. Lining both side of the corridor are images of Singapore scenery and cultural activities. Having passed these images, one is in the middle of an atrium-like courtyard where the garden is located. The sleek and polished tiles and all other finishes, in many ways, show its cleanliness and seriousness to the business audience. On this entry level, joining the garden there is a cafeteria that serves local cuisine
and a temporary exhibition space that continues through the ramp to the mezzanine level.

On this mid-floor level, the temporary exhibition space can also serve as the lobby for the multi-purpose hall. On special occasions this ballroom can also be converted into an auditorium, conference room or exhibition space. The ramp leading to this level, which is directly above the entrance corridor, is treated like 'kampong's walkway'\textsuperscript{39}. At the midway of this walkway, the turning point protrudes out of the building facade to give an outside experience. Thus it creates not only an architectural dialogue with the buildings across High street but also contributes to the facade treatment.

On the outside, the lower level of the building is set back to serve as a covered walkway. Similar to the 'five-foot way'\textsuperscript{40} in Singapore's colonial shop houses, these covered walkways can also be found in Boston. Above the covered walkway, beside the mid-air protrusion of the ramp, there will be an external wall that constitutes the middle portion of the building. Similar to Richardson's three part system, there is the base, the body and the top portion. The top two floors, in place of the supposedly mechanical area, are the offices; where the roof line will be on a level with the neighboring MBTA building.

These offices, which cover the entire site area, will be accessible by lifts from the ground level. At these two topmost levels, there will be a lift lobby which will overlook a mini-courtyard that opens to the sky. This courtyard space, with one of the walls abutting the MBTA party-wall is enclosed on all sides, reminiscent of the air-well found in colonial shop houses in Singapore. Except for the service areas, most
of the office spaces will cover the atrium below, giving the top portion a sense of heaviness supported by free standing columns.

On Purchase street, where the entrance into the car park is located, the elevation is composed of a series of prominent mullions that support the reflective glass. These mullions rise to a height of not more than 100 feet and terminate above the two office floors on top. They create a rhythmic continuity with the neighbors' facades, during the day; its reflective glass behind these mullions can be visualized as a physical plane that reinforces the virtual wall - the edge of the Financial District. From another angle, the mirror effect of the glass wall will reflect the trees in front to form a symbiotic relationship with its surroundings. This facade, also level with the MBTA building, forms a continuous city block, thus liberating the Keystone Building as an autonomous urban artifact.

During the night, with the lighting-up of the interior atrium spaces, the reflective quality of the glass becomes almost transparent. Some of the protruding parts, which are visible on the outside, can then be viewed completely. The free standing columns supporting the office floors visually replace the mullions along the facade. The interior reveals itself and takes on a different character. This nightly character through its internal forms and treatment, transmits a different set of architectural language, revealing, on the one side, the tropical greenery that seems to find its connection with the outside environment, and on the other side, it expresses some illusive characters that connect the visual image to the Singaporean culture; this includes cultural artifact that are both hanging in mid air in the atrium and some free standing displays on the ground floor.
Part Two
1.3. Design Program

*The transformation of human society by science is probably only at the beginning, and nobody can guess at how it will turn out.*

Horace Freeland Judson, 
The Search for Solution

The center will have the following activities and amenities:

- Exhibition halls (temporary and permanent)
- Offices (with executives suite)
- Convention Hall
- Auditorium
- Commercial (retail) areas
- Restaurants and cafeteria
- Basement car parks (for staff)
- Services and storage Room (includes kitchens and staff changing areas)
Section Two
Part Two
Section Two  Design Process

Discussions of the design process often seem fatuous or superficial, because many of the most important determinants for design remain hidden in the designer's unspoken and often unconscious presupposition.

Herb Greene, Mind and Image

The design process is divided into three stages, at the end of each stage, a 'pin up' was arranged. In the following, I have documented these stages categorically.

Stage One

At the end of this stage, it is determined that the Singapore Trade Center, at the level of urban gesture, will serve as a link between the financial district and the boulevard fronting it. This connection will provide an alternative route from the Post-Office Square to the South Station. Metaphorically, the Trade Center, will also be seen as a transitional juncture for the public; liken to Singapore's strategic location, between the East and the West. Physical plugged into the neighboring tall buildings; the Landmark, United Shoe Machinery and Keystone building, the Trade Center become a manifestation of the Economic Growth Triangle (Malaysia, Indonesia and Singapore).
In relation to the urban scale, the trade center will provide the link from Post Office Square to the garden in front (as an alternative route). This pedestrian route can be projected (in a straight line) from the Congress Street (behind the Government Center).

Functionally, the Trade Center serves to promote an excellent transitory during rush hour. To cater for the lunch time crowd, more spaces [on the lower levels] will be provided for restaurant and retail purposes. It is hoped that by capitalizing these linkages they will maximize the public's engagement with the building and to encourage further exploration into the background cultural.
lines are projected onto the site -- from the edges of the surrounding buildings.
the dotted lines, spaced at 25 feet -- derived from the average dimension of the colonial shophouses, are overlaid with the projected lines.
View along Purchase street

night texture of the site and its neighboring building
the physical scale of the trade center in relation to its adjacent buildings
exploring with clay
Plan transformation
Plan transformation
Plan transformation

study model -based on the regularity of Singapore's colonial shop houses and five foot way
Transformation from the study model
(view from above South Station)
schematic circulation
(First Iteration) Conceptual model
Scale 1/40
Stage Two □ □ □
elevation collage -- from Singapore's architectural elements
Bridge Level Plan
Scale 1/50
(Second Iteration) Further transformation from the 1/40 Scale model (view from High Street)
High Street Elevation
Scale 1/40
Section
Scale 1/40
Stage Three
Basement Plan: 1. mechanical plant room; 2. car parking
Site model with final model
Scale 1/40
STAGE THREE

(Second Iteration) Further transformation from the 1/40 Scale 1/16
Ground Floor Plan (Purchase Street Level): 1. permanent exhibition area; 2. convention hall; 3. store room
First Floor Plan (High Street Level): 1. fast food/restaurant (two floors -- with internal staircase); 2. retail/cafeteria; 3. temporary exhibition area; 4. kitchen; 5. entrance's reception lobby area
Second Floor Plan (Bridge Level): 1. fast food (second level); 2. retail shops; 3. temporary display area
Third Floor Plan: 1. auditorium's lobby; 2. stage; 3. backstage; 4. kitchen; 5. restaurant; 6. lounge; 7. projector room; 8. coat room
Fourth Floor Plan: 1. auditorium's lobby; 2. restaurant; 3. void above stage; 4. store room; 5. kitchen
Final model
Scale 1/40
Fifth Floor Plan: 1. restaurant; 2. conference room; 3. store room; 4. kitchen; 5. store room
View from above South Station
Sixth – Tenth Floor Plan: Offices
Eleventh Floor Plan: 1. Office; 2. conference room.
Third Iteration
Scale 1/16
Twelveth and Thirteenth Floor Plan:
Executive Offices
Atlantic Ave. - between South Station & First Financial Center
Better stop short that fill to the brim.
Over sharpen the blade, and the edge will soon blunt.
Amass a store of gold and jade, and no one can protect it.
Claim wealth and titles, and disaster will follow.
Retire when the work is done.
This is the way of heaven.

Lao Tsu, Tao Te Ching
In conclusion, this thesis has revealed to us that to seek some sort of definition in architectural identity can be very complexed. Architects are often found between the polarity of collective and individual. On the one side, collectivity [in design] may lead to homogeneity and universality, while on the other side, individuality may create anarchy, fragmentation and chaos. Correspondingly, while the collective environment may be nourished by false images, individuality may serve as a counter-acting force.

Although individuality [in design] would also lead to the obsession of one's own expression, the awareness and investigation into individual's strength would be authentic. At the very least, the design would be conscience.

Often it is this lack of insight between the dialectics of collective and individual, between and real and false, that produces disappointing results. Architectural design in Singapore is no exception.

In Singapore, architecture is seen as nothing more than a tool to achieve an economic goal, with the main agenda hinged on a stable economy. Buildings, as such, are commodified to lubricate this forwarding process [the future]. Today, equally important to Singapore's economic agenda, the architectural environment should also be scrutinized.

Architecture should mediate the past and the future, the symbiotic relationship of the individual and the collective. Only then will Singapore architecture be viewed in a more positive light.
In the design of the Singapore Trade Center, it would be defeating to conclude that the exploration into the issue of architectural identity has reached its terminal level. As far as the design [the trade center] is concerned, it has its strengths and weaknesses.

The external shell of the trade center is meant to be seen as a physical response to its immediate physical environment. The system that generated this critical responses is derived from my personal understanding on the issues discussed and my interpretation of how the trade center should be perceived.

While the physical expression of the trade center will exude a fair degree of coherence with its urban context, it is hoped that the inner experience can be attributed to Singapore's contextual references. This can be seen as the hidden framework that generated its form [the trade center] and the intangible qualities that will eventually be inhabited within this physical construct.

Throughout the process, the design of the trade center has been oscillating between its immediacy and its referent. Many times, new discoveries were made along this process. For example, the concept of connecting the trade center with the surrounding buildings, an important reference that kicked off and dominated throughout the process, was in the end crystallized with the design language of the trade center itself. Another example, was that the discussion surrounding Singapore' and Boston's contexts, and the macroscopic views on architecture and identity, has been very significant in formulating the thought processes. However, whenever the design became microscopic, and more detailed, it became more intuitive. Hence, I believe, if we continue exploring within this design mode, between the individual and collective, more possibilities will emerge.
As far as design is concerned, there is really no end. What has been represented in this thesis is only an academic exploration, and the beginning. The next step, I believe, will be much more intense and challenging -- the real world. As long as the world is constantly changing, architectural design will always be in the state of flux and its identity will remain unresolved.
Notes

1. from Herb Greene's *Mind and image*, Pg 37

2. Correa, Charles, "Quest for Identity" in *Architecture and Identity*

3. Rapoport, Amos, "Culture and the Urban Order" in *The City in Cultural Context*, the word 'code' was used in his essay to represent the ordering system in which the landscape and cities can be recognised as a whole by understand the intrinsic code. Pg. 51


5. Kaj, Birket-Smith "Savages And Civilized People" in *The Path of Culture*, Trans. Fennow, Karin, Pg. 29

6. Ibid. Pg. 29

7. Rand, Ayn, *Capitalism : The Unknown Ideal*, Pg. 16

8. Ibid. Pg. 16


10. Ricoeur, Paul "Universal civilization and national cultures", *History and Truth*, Pg. 271


14. Jenck, Charles, "The Resurrection And Death Of The New Moderns" Jencks has used these terms: neo, late, high, post, new modern, deconstructivism and neo-constructivism, to categorically designate each architect with a more specific approach towards architectural principle. For example, Late modernism - Roger, Foster, Meier. Neo Constructivism - Hadid, Gehry, Coop Himmeblau
15 Op. cit. 4, Heath, Pg. 10


17 Ibid. Pg. 20, by 'ariere-garde, he means "one which distances itself equally from the Enlightenment myth of progress and from a reactionary, unrealistic impulse to return to the architecture forms of the pre-industrial past."

18 Fromm, Erich Psycho-Analysis And Zen Buddhism

19 Ibid., Pg. 48

20 Sparke, Penny Modern Japanese Design.

21 Ibid., Pg. 11

22 Ibid. Pg 12

23 Ibid. Pg. 12

24 the geomantic principle - is derived from the thousands year old Chinese art of placement. This priciple is based on the balancing of Yin and Yang between the building's relationship with it site, between the site and its cosmological relationship. Very often, most of the rules are purely based on common sense and are scientifically logical. However, some of them appear mystical and superstitious.

25 Singapore, Ministry of Information and Arts, Singapore Facts and Pictures 1991, Pg. 3

26 The Straits Times Weekly Oversea Edition, Jan. 18, 1992, Pg. 2

27 Powell, Robert, Innovative Architecture of Singapore

28 Khan, Hasan-Uddin "Meaning In Tradition: Today An Approach To Architecture Criticism" in Powell, Robert (Ed) Criticism In Architecture

29 Ibid. Pg. 53

30 Goldberger, Paul "Foreword" in Miller, Naomi & Morgan, Keith, Boston Architecture 1975-1990, pg. 7-8

31 Ibid. Pg. 8
32. Miller, Naomi & Morgan, Keith  
   Boston Architecture 1975-1990  
   "Looking Backward", Pg. 19-47

33. Ibid. Pg. 20

34. Tadao Ando has made an analogy that the spaces of western architecture are basically based on the concept of cube. And on the contrary, traditional Japanese architecture are based on planes, on which the planes allow the continuity of inside and outside spaces.

35. Tetlow, Karin "Expressing an Image" Interiors, June 1986, Pg. 133

36. Op. cit. 6, Pg. 67

37. "150 Federal Street", Pg. 35, in  
   Boston Architecture 1975-1990


39. In Malay, Kampong means village. Due to heavy flooding and sometime houses are built next to the sea, timber planks are used to connect between houses. Or if houses are built too far out from the land, platforms are erected to provide accessibility to the building.

40. Corridors along the colonial shop houses, the width of these covered walkway is approximately five feet wide. Introduced by the British administrator, they provide excellent shelter for the shop owners and pedestrians.

41. Op. cit. 11 Jameson. For more information on the real and unreal creation, also refer to the discussion on Individual identity.
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