

# The Study on Design and Research Complex of Buildings in the City

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**ABSTRACT** In this paper, domestic new commercial complex in the city as the object, focus on city complex building design, as well as to commercial buildings city complex carrier for various uses functions. Structure professional needs in considering structural safety and reasonable at the same time, through structural transformation, increased column and beam combining section steel structure design, to meet the security under the premise of realization of these functions and the need for mutual transformation. Because commercial buildings there is a change in nature, often in the sales process after the completion of the main construction be modified according to the requirements of owners of commercial use, operation of the process and there will be some variability, which adds to the difficulty of the professional work structure.

## KEYWORDS

City complex  
Building design  
Function

## 1. Introduction

Generally located supporting mature, convenient transportation of land, with a large shopping center as the main body, set catering, entertainment as one of the city's commercial center, the size of such commercial centers are generally larger, generally 100,000 square meters as a starting point, some also incorporates a hotel, office and apartment, forming a huge volume, function diverse complex construction, which we call urban commercial complex.

Urban complex by including hotels, apartments, office buildings, large shopping complex, independent shops and neighbors, public squares and residential communities, etc., urban complex is a city of information, finance, insurance, technology, business, commercial, residential, a guest, carriers exhibition, sightseeing, entertainment and other urban functions, and the establishment of a mutual interdependence between the various parts, the dynamic mutually beneficial relationship, so as to form a multi-purpose, high-efficiency complex. In countries have al-

ready developed a sophisticated "urban complex", in recent years a number of major cities are in a new commercial real estate model gradually developed. And recently in the national policy are limited residential houses in the background, as an urban complex of commercial real estate has become a mainstream future trend.

## 2. Commercial building is the main carrier of urban complexes

Commercial building is the main carrier of urban complexes and shopping centers are the most important part of urban complex. Current Comprehensive, it is commercial complex hotels, office buildings, apartments and other composed. Department stores are different from the past hall-style shopping space, closed dull, single function, the customer only shop from. Modern urban complex commercial building design fully study the behavior of customer psychology and visual psychology, create convenient shopping environment, comfortable seating environment, rich entertainment environment, to extend their stay in the mall customers, build new shopping space order.

## 3. Urban complex use of various functions

Urban complex mixed-use development features typically include retail, hotel, office, entertainment, culture and living section. Specific proportion of each part of the development project should follow the comprehensive market research. Supply and demand function for each section should use detailed assessment. In addition to the use of each of these separate functional portions assess-

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ment, evaluation using different portions of the mixing efficiency it is also important. Such as hotels, office buildings and high-quality high-end retail utility can reinforce each other. First, when the use of these features combine unified construction, will provide high-quality lifestyle; secondly, the use of these features to meet the specific needs of the urban middle class income. Rental income and the sale of these use functional parts brought varied development projects in it to achieve the right balance is important. Hotel and office are usually long-term investment, require long-term capital investment; residential and SOHO section available sales revenue in the short term [1]. Compatibility of various usage functions is equally important. For example, to the young, single person or couple's residence may be placed on the interesting characteristics of cafes and restaurants, so that the young residents can enjoy a vibrant nightlife fun; but the parents and children together "two generations of family" placed on top of the same cafes and restaurants are a great problem.

#### **4. Urban complex architectural design**

Architectural design and development projects should be based on the location and use of the above functional analysis, so as to formulate appropriate strategies and methods and Follow them. Architectural design project should be considered in terms of financial, social, political, environmental and other technical requirements-for the urban complex, these aspects are crucial.

Because each use of functional parts of the city complex in nature very different, complex development of architectural design must be just right to show these types of functions [2]. Complex development projects, high-rise, with a relatively tight portion of the hotel and office center core, extending the lower, horizontal and arranged according to the flow of retail and entertainment part of the space together, this is one of its inherent internal contradiction, which is designed to make a special request, namely how to resolve this contradiction. Both the main part requires its own space, designed to achieve optimal balance is very important. Architectural design retail entertainment and cultural features section to give the customer a sense of style, fashion; and shall be reflected in the office and hotel part of the business in an orderly and efficient, and lasting stability. How to make these different needs convergence will be a complex test designer.

##### **4.1. City complex design features**

The city's comprehensive body brought to the city's urban development is versatile. General real estate developer focused on certain. The development of a single function and the other only as ancillary such as pure residential development, commercial development, or pure hotel or development office and the like. The urban complex is concentrated include hotels, office buildings, large commercial and commercial street, apartments, high-end residential

and public square in one. The different functions, the functional organization of urban time together, the various functions complement each other, a large commercial center and the city commercial street entertainment venues, full of passion and business atmosphere, the office is the people's daily office workplace, Hotel Feature enhance the level of consumption, apartments and residential space for people to live, from day to night are full of vigor and vitality, and the public square and a great gathering of the city's power and popularity. Various functions of the question mutually complementary coordination, meet people from work to life, leisure, entertainment and so on, all aspects of the requirements. So that the urban complex with its versatile features and large volume. The social status of high popularity is unique in the city. It has become an important business district in the city.

##### **4.2. Difficulties of city complex design**

Urban complex precisely because of its rich features determine the complexity of its design elements. First, the developments of the traditional urban complex residential development are different levels of the two systems. If the design of residential belongs to elementary, junior high level, then the city complex is the PhD. level.

###### **4.2.1. Functional architecture planning**

Urban complex including residential contents buildings, public office buildings, recreational buildings and other areas are to be in one piece. On base through the traffic organization, division plane functions to combine the requirements of the planned construction aspects of the overall arrangement are very high. First of all to determine the relationship between commercial, residential and office between functions, to determine its location at the base of each other; the same time to consider the impact of base location in the city, and the crowds, traffic and other factors, that the maximum ensure that all aspects of the use of functions, in particular, the commercial value of the commercial part of, and also to meet the reasonableness of each other on the use of functional space. In the design, commercial areas and residential areas should be provided separately, the street part of the business district, close to the residential portion of its setting, and consider convenient transport links. Office and hotel reservations and other functions using the form provided in the upper tower commercial buildings, the tall tower section that is shaping the overall image of the city complex, making it the city stands the landmark, increased land utilization. In the commercial space business hall inside the business part is the commercial street, the main shops and department stores located in the bottom part of the section, studios and video games, KTV and other entertainment facilities set up in the top, guide the flow of people at the same time also increase the commercial portion of the underlying human traffic.

#### **4.2.2. Structure**

In an urban complex functional complexity, each function space from the span, clear height vary, and in the same foundation, bound to the structural design challenges. Usually there is a problem of converting small bay structure underlying business regular column grid and the upper apartments and studios some large space, high clear height requirements. Structure professional needs in considering structural safety and reasonable at the same time, through structural transformation, increased column and beam combining section steel structure design, to meet the security under the premise of realization of these functions and the need for mutual transformation. Because commercial buildings there is a change in nature, often in the sales process after the completion of the main construction be modified according to the requirements of owners of commercial use, operation of the process and there will be some variability, which adds to the difficulty of the work structure of professional, sometimes we need some structural reinforcement project to meet the needs of the commercial part of the transformation.

#### **5. Conclusion**

Commercial building its urban complex function of

complex, diverse space, excellent environment, supporting the complete design of , in a new, comfortable shopping environment and commercial consumption patterns to improve the enthusiasm of consumers, increase stay of consumers, in order to achieve greater economic efficiency. Faced with a comprehensive and highly specialized urban complex design work needs architects, planners and professional designers to work together to complete, but I have summarized above in the actual design work a little experience and understanding, hope for the majority of peers have some reference value and help.

#### **Conflicts of interest**

These authors have no conflicts of interest to declare.

#### **Authors' contributions**

These authors contributed equally to this work.

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