SAUDER School of Business
Real Estate Division

UBC Real Estate Division
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BUSI 401 Commercial Property Analysis

PURPOSE AND SCOPE

The Commercial Property Analysis course BUSI 401 is intended to give the real estate practitioner student a working knowledge of the design, construction, and inspection of commercial properties. The course will provide you with detailed information on building design, construction, materials, components, and systems for office, apartment, retail, industrial, and agricultural properties. The material is intended to be introductory in nature; it is important to keep in mind that study of this course by itself does not certify the reader as a qualified building inspector or developer of commercial properties. The purpose of this course is not to make you an expert in the design, construction, and post construction evaluation of commercial properties – experts and specialists offer each of these services and can provide much more in depth knowledge of this area than would ever be required of a real estate professional. This course will instead offer a practical overview of what architects, engineers, and other specialists must consider when they are designing and constructing commercial properties, and offer insight into how these factors affect the value of the real estate asset.

After reading the text and proceeding through the Course Workbook, the student should have a basic understanding of the components and techniques involved in the design, construction, and inspection of commercial properties. Listed below are general objectives for what a student should learn from this course:

1. Understand the importance of a building's substructure and be familiar with various types of foundations and their installation.
2. Understand how the superstructure of a commercial building is constructed, including predominant materials and design.
3. Understand the function of a building's envelope system and be able to identify the components of the building envelope.
4. Understand the different types of interiors that are used in commercial buildings and the advantages and disadvantages of each in various situations.
5. Understand the basics of mechanical (HVAC) and electrical systems for commercial buildings.
6. Understand how various "intelligence" systems can be used to control building functions and communications.
7. Understand how specific design and construction considerations are applied for office, apartment, retail, industrial, and agricultural properties.
8. Understand how commercial space is measured according to the BOMA Standard.
9. Understand how energy efficiency and sustainability considerations are reflected in commercial real estate.
10. Understand the various environmental problems that may be present on a site and how environmental considerations may impact the duties required of real estate practitioners.
11. Understand how to carry out an inspection of a commercial property, knowing the important factors to look for and in particular understanding when additional professional assistance is required.

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LESSON 1: Introduction and Substructure

1. Understand the building construction process in general, knowing the participants and the steps involved.
2. Understand all of the components that encompass total building cost.
3. Explain how the National Building Code governs commercial building design and construction.
4. Explain why building foundations are necessary and how they fulfil their function in commercial buildings.
5. Describe the various types of building foundations, noting their intended functions, similarities, differences, advantages, and disadvantages.
6. Understand how soil mechanics affect the choice of building foundation.
7. Explain why retaining structures are necessary and be able to identify the various types.
8. Describe the construction process for the various types of foundations.
9. Carry out a simple calculation of footing size given the building loads and the allowable bearing pressure of the underlying site materials.
10. Explain various problems that can occur in the design and construction of foundations, as well as in their on-going application in existing buildings.

LESSON 2: Superstructure

1. Explain the advantages and disadvantages of various systems used for superstructure construction.
2. Describe how concrete, steel, masonry, and wood are used in constructing superstructures and identify potential defects that result from the use of each.
3. Understand why the forces of compression and tension are important factors to consider in designing effective superstructures.
4. Understand how superstructures are designed in order to support both live and dead loads.
5. Explain how serviceability, economy, and durability are all key considerations and competing factors in determining optimal superstructure design.
6. Understand the advantages and disadvantages of using various types of concrete floor systems.

LESSON 3: Envelope and Interiors

1. Understand the importance of the envelope system in a building's design and construction.
2. Explain the environmental factors that a building envelope system needs to resist and describe how the components of the envelope system carry out this function.
3. Describe the various exterior systems used for building openings, walls, and roofs.
4. Understand various problems that can occur with envelope systems and explain how to alleviate them.
5. Describe the different options available for interior finish for ceilings, walls, and floors.
6. Explain the difference between load-bearing and non-load-bearing walls and when each is necessary.
7. Explain various options for interiors to meet the design principles of sound control, aesthetics, durability, and fire resistance.
8. Understand requirements for stair design and the various configurations available.
9. Understand various problems that can occur with the design and construction of building interiors and explain how to alleviate them.

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LESSON 4: Building Systems and Green Buildings

1. Understand the importance of mechanical and electrical systems in buildings.
2. Describe the components of the various mechanical and electrical systems available.
3. Explain the advantages and disadvantages of the various systems used for plumbing, HVAC, electrical, and fire safety.
4. Understand the design principles that underlie the selection and installation of mechanical and electrical systems.
5. Understand the need for building control systems and describe the various types of systems available.
6. Describe how Building Intelligence Systems (BIS) are able to operate the many functions required in a building, including telephones, computers, lighting, fire detection, and security.
7. Understand and explain the concepts and principles related to “green building” and “green value”.
8. Explain the various green building rating systems such as BOMA and LEED®.
9. Identify the costs and benefits of green buildings compared to traditional buildings.
10. Explain lifecycle costing and investment horizon, and how these relate to sustainable buildings.

LESSON 5: Area Measurement

1. Understand and apply the BOMA Standard Method of Measurement.
2. Understand the difference between the BOMA 1996 and the BOMA 2010 Standards.
3. Apply and understand the terms used in the measurement of office, retail, industrial, and multi-family buildings.
4. Calculate building areas for various types of buildings, specifically the various areas to be measured in an office building.
5. Understand the relevance to real estate practice of measuring buildings correctly and identify which measurements are used for various purposes.

LESSON 6: Environmental Contamination

1. Understand how and why a property might become contaminated.
2. Recognize who may be liable for environmental contamination under current federal and provincial legislation and how liability of the contamination is assessed.
3. Understand the role and responsibility of various real estate professionals in the site analysis of contaminated property.
4. Understand the various levels of environmental audits.
5. Explain the financial damages that can arise due to environmental contamination.

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LESSON 7: Multi-Family and Office Properties

1. Understand the considerations involved in the design and construction of apartment and office buildings.
2. Describe the different superstructure systems and materials used for apartment and office buildings, both historically and present day.
3. Understand how building codes and land use regulations have affected the design and construction of apartment and office buildings.
4. Describe the different mechanical and electrical systems used for apartment and office buildings, outlining their advantages and disadvantages.
5. Describe the various finishes used for apartment and office buildings, both internal and external.
6. Understand the market factors that must be considered in designing, constructing, and inspecting apartment and office buildings.
7. Describe common defects in apartment and office buildings, and understand how these come about, how they can be remedied, and how they may affect property value.

LESSON 8: Retail Properties

1. Understand the considerations involved in the design and construction of retail buildings.
2. Describe the different superstructure systems and materials used for retail buildings, both historically and present day.
3. Understand how building codes and land use regulations have affected the design and construction of retail buildings.
4. Describe the different mechanical and electrical systems used for retail and buildings, outlining their advantages and disadvantages.
5. Describe the different finishes used for retail and buildings, both internal and external.
6. Understand the market factors that must be considered in designing, constructing, and inspecting retail and buildings.
7. Describe common defects in retail buildings, and understand how these come about, are remedied, and how they may affect property value.

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LESSON 9: Industrial and Agricultural Properties

1. Understand the considerations involved in the design and construction of industrial buildings.
2. Describe the different superstructure systems and materials used for industrial buildings, both historically and present day.
3. Understand how building codes and land use regulations have affected the design and construction of industrial buildings.
4. Describe the different mechanical and electrical systems used for industrial buildings, outlining their advantages and disadvantages.
5. Describe the different finishes used for industrial buildings, both internal and external.
6. Understand the market factors that must be considered in designing, constructing, and inspecting industrial buildings.
7. Describe common defects in industrial buildings, and understand how these come about, are remedied, and how they may affect property value.
8. Outline a systematic procedure that can be used to identify and examine the pertinent aspects of any agricultural property.
9. Describe the factors to consider in carrying out a regional and neighbourhood analysis for an agricultural site.
10. Explain how rural land is described and what important factors must be considered in analyzing a property's legal description.
11. Describe the factors to consider in carrying out an agricultural land description and analysis.
12. Describe the factors to consider in carrying out an agricultural site improvement description and analysis.

13 Describe the factors to consider in carrying out building description and analysis on an agricultural property.

Project 1: Measurement and Research Exercises

1. Apply the BOMA 1996 Standard of Measurement to calculate rentable areas from a building floor plan.
2. Discuss and analyze a variety of topics related to the design and construction of commercial buildings.

Project 2: Commercial Property Inspection

1. See the "big picture" for how all of the different aspects of commercial construction covered so far in this course fit together, synthesizing their understanding of the component parts into an integrated whole.
2. Evaluate a commercial property, understanding the reasoning behind various design attributes.
3. Analyze the design and construction of a commercial building and discuss any apparent defects or flaws in design.