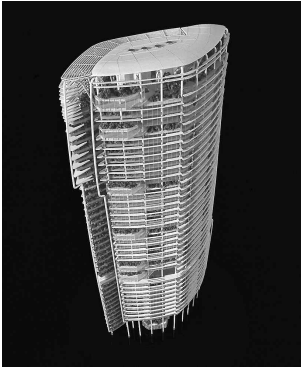## LESSON FIVE: Designing for the Future

IMAGE NINETEEN: Ken Yeang. Elephant and Castle Eco Towers, London. Project: 2000. Section plan, preliminary scheme. 2000. Computer-generated model, dimensions variable. T. R. Hamzah & Yeang

IMAGE TWENTY: Ken Yeang. Elephant and Castle Eco Towers, London. Project: 2000. Model, from above. 2000. Computer-generated model, dimensions variable. T. R. Hamzah & Yeang
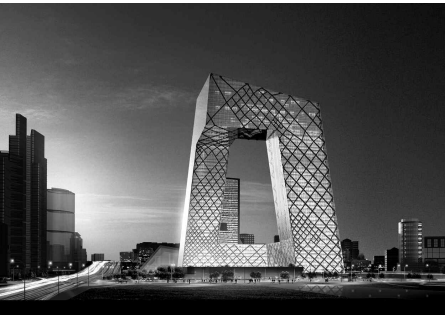

IMAGE TWENTY-ONE: Rem Koohlaas and Ole Scheeren. Central Chinese Television (CCTV) Tower Beijing. Design: 2002–4. Projected completion: 2008. View of building's facade. 2002–4. Computer-generated model, dimensions variable. Office for Metropolitan Architecture

IMAGE TWENTY-TWO: Rem Koohlaas and Ole Scheeren. Central Chinese Television (CCTV) Tower Beijing. Design: 2002–4. Projected completion: 2008.View within Beijing. 2002–4. Computer-generated model, dimensions variable. Office for Metropolitan Architecture

IMAGE TWENTY-THREE: United Architects (Ben van Berkel, Caroline Bos, Peter Frankfurt, Mikon van Gastel, Kevin Kennon, Greg Lyn, Farshid Moussavi, Alejandro Zaero-Polo, Jesse Reiser, and Nanako Umemto). World Trade Center, New York. Project: 2002. Views from Dey, Cortland, Fulton, and Liberty streets. 2002. Computer-generated model, dimensions variable. United Architects
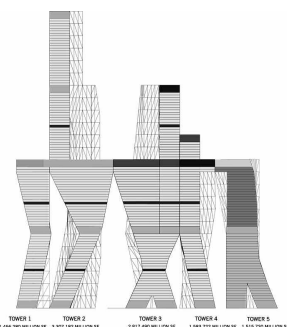
IMAGE TWENTY-FOUR: United Architects
(Ben van Berkel, Caroline Bos, Peter Frankfurt,
Mikon van Gastel, Kevin Kennon, Greg Lyn,
Farshid Moussavi, Alejandro Zaero-Polo, Jesse
Reiser, and Nanako Umemto). World Trade
Center, New York. Project: 2002. Section. 2002.
Computer-generated model, dimensions
variable. United Architects

IMAGE TWENTY-FIVE: United Architects
(Ben van Berkel, Caroline Bos, Peter Frankfurt,
Mikon van Gastel, Kevin Kennon, Greg Lyn,
Farshid Moussavi, Alejandro Zaero-Polo, Jesse
Reiser, and Nanako Umemto). World Trade
Center, New York. Project: 2002. Detail of
sky lobby. 2002. Computer-generated model,
dimensions variable. United Architects

INTRODUCTION

In the second half of the twentieth century and the beginning of the twenty-first, there was
a shift in thinking about architecture. Some people believed that as structures grew taller
and taller, they got more out of touch with the life of the city below. The terrorist attacks of
September 11 had a tremendous impact on our relationship to tall buildings, and the con-
troversy about what would replace the towers on the World Trade Center site has revealed
the complexities of the design process. The focus on form, function, and beauty has been
tempered by the need for safety.

Visit the Web site for The Museum of Modern Art's 2004 exhibition *Tall Buildings*
(www.moma.org/exhibitions/2004/tallbuildings) or consult the exhibition's accompany-
ing publication to support and provide content for this lesson. In addition, the site
and publication for the Museum's exhibition *Safe: Design Takes On Risk* (www.moma.org/
exhibitions/2005/safe) explores issues of safety in the design of products and environ-
ments. The buildings presented in this lesson suggest that architecture has moved away
from simplicity and toward elaborate sculptural forms that are programmatically complex,
environmentally friendly, and safe. Images 19 and 20 profile a development project that has
not yet been constructed. Images 21 and 22 are currently under construction; images 23
and 24 are one of several conceptual plans submitted for the World Trade Center site.

LESSON OBJECTIVES

• Students will learn about design issues including **sustainability**, safety, and use.

• Students will explore how architects are using green technologies in today's buildings.

• Students will investigate how the built environment affects the natural environment.

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INTRODUCTORY DISCUSSION

Advances in science and technology have increased exponentially in the twenty-first century. With the development of aerospace engineering, computer-aided manufacturing, and advance prototyping, architectural practices have changed, allowing for more complex design. According to Maslow's Hierarchy of Needs, a psychological study, shelter is the most urgent human need, followed by safety.

- **Ask students to consider the importance of shelter in their lives.**

- **Ask students if they feel comfortable and safe in the buildings they interact with over the course of the day.**

IMAGE-BASED DISCUSSION

- **Show your students the computer-generated images of Elephant and Eco Towers.**

The **models** for the Elephant and Castle Eco Towers are **conceptual**, meaning that they represent an idea for a structure that has not yet been built. Many architect's models never lead to actual buildings. This plan comprises two towers, one 459 feet (140 meters) high, and the other 240 feet (73 meters) high.

The towers were designed by Ken Yeang, a Malaysian architect. He calls his design a "city in the sky," a structure in which he attempts to offer all the conveniences of a typical city block.

- **Have students describe what they see.**

- **Ask students to come up with a list of amenities that might be found in one city block. Write them on the board.**

Yeang's conceptual plan includes housing, restaurants, parks, playgrounds, shops, and sports facilities. In the center, between the towers, there is a landscaped and weather-protected space. The architect intended this to be a place where people of all ages and backgrounds could live, shop, and relax.

- **Ask students if they can locate where these conveniences and features might be.**

- **Ask students what activities they imagine taking place on the lower, middle, and upper floors.**

- **Discuss as a group how the concept of sustainability can be applied to the environment of this building.**

With the intention of creating a "greener" (more earth-friendly) structure, this project was designed to power its own systems (heating, cooling, etc.) with passive, low-energy systems such as solar energy, supplemented when necessary with traditional mechanical systems for heating and cooling. In addition, the building faces south to maximize its exposure to sun and wind throughout the year.

- **The architect wanted to design buildings that are environmentally and socially sustainable. Break your class into two groups, assigning to each group one of the two ideas, social or environmental sustainability. Ask one student in each group to moderate a discussion about whether Yeang's design meets the criteria for sustainability.**

- **Have students draw a shape or form that is visually pleasing or exciting to them. Ask them to describe the shape. Have them imagine that this shape will be turned into a new 768-foot (235-meter) building in their town.**

- **Show your students the computer-generated images of the Central Chinese Television (CCTV) Tower.**

- **Have students discuss with a partner the possible uses for a building like this.**

- **Ask students if the building's use explains its shape. Discuss why or why not.**

This building will be the headquarters for Central Chinese Television, and will house administration, news, broadcasting, and production facilities.

Rem Koolhaas and Ole Scheeren, the architects, designed the building in the shape of a continuous loop in order to counteract the traditional corporate model of top-down hierarchy. The loop also integrates the heating and cooling systems into the building in a way similar to how blood flows through arteries in the human body. The elevators are designed to move people vertically and laterally through the building.

- **Have students imagine what it would be like to live in Beijing and witness the construction of this building.**

- **Have students imagine how this building will influence the surrounding neighborhood. Ask them if they think it will it have a positive or negative effect.**

- **Show your students the computer-generated images of the World Trade Center project.**

- **Lead a brief discussion about the juried competition to determine a design for the World Trade Center site. Consult the Web site of the Lower Manhattan Development Corporation (www.wtcsitememorial.org), which oversaw the competition. Have the students look at these images and then describe what they see. Write their answers on chart paper and post the list around the room.**

This concept for the World Trade Center site was submitted by United Architects, a team of architects who have offices in the United States and abroad. The architects worked together on the design, which is based on series of five linked towers containing over ten million square feet of interior space and standing 1,620 feet (494 meters) high at its tallest point. The towers would be built above a memorial space, a transportation hub, and a retail complex. The design also includes a public space or "sky park" (not seen in these images) at the top of the towers. The architects designed this space with the intention of giving building occupants and visitors a restored feeling of safety in tall buildings, as well as a sense of wonder.

- **Ask students about their experiences working in teams. Have them consider what was positive about the experience, what was challenging, and what the benefits are of working in groups.**

- **Ask students to imagine what it would be like to play or relax in a space 1,620 feet above the ground. Ask them whether they would feel safe and comfortable. Discuss why or why not.**

- **Ask them if they think that this design will have a positive or negative effect on the surrounding environment. Discuss why or why not and have them support their assertions with visual evidence.**

ACTIVITIES

Ask your students to become critics and write an article about one of the buildings in this lesson, taking into consideration their own opinions about the building they have selected. They can find examples of reviews in *The New York Times* and other publications.

Ask your students what they like best about the building they have chosen to write about. As part of their responses, they should comment on the building's design, style, materials, and features, as well as its relationship with its environment.

Have your students compare the design they have chosen to another design by the same architect, and consider the following:

• **What kinds of similarities and differences do they find?**

• **How did the clients and the public respond to each design, and why?**

• **If a design was eventually built, what impact did the completed project have on the surrounding community? What were the other effects (environmental, political, etc.)?**