CAREER PATHS

Architecture

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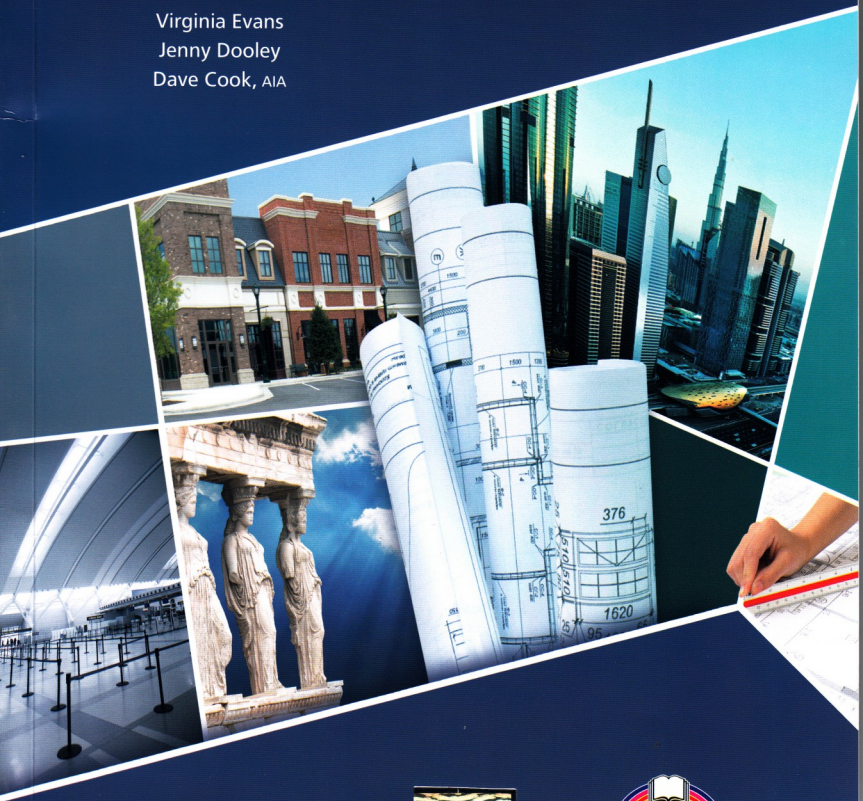

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CAREER PATHS

Architecture

Book 1

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Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Types of Structures	Advertisement	airport, building, high-rise, hospital, office building, parking structure, residence, school, skyscraper, structure, warehouse	Accepting a compliment
2	Parts of a Building 1	Flyer	attic, basement, bathroom, bedroom, closet, door, garage, kitchen, laundry room, living room	Describing a change
3	Parts of a Building 2	Memo	conference room, elevator, entrance, fire escape, floor, hallway, lobby, office, stairwell, vestibule, window	Confirming information
4	Shapes 1	Webpage	arch, circle, corner, diamond, oval, polygon, rectangle, side, square, triangle	Asking for an opinion
5	Shapes 2	Textbook chapter	3D, cone, cube, cuboid, cylinder, dome, face, pyramid, sphere, surface	Giving an example
6	Describing Shapes and Structures	Journal article	angular, asymmetrical, bend, climb, curvy, flat, round, sharp, straight, symmetrical	Asking for more information
7	Describing Landscapes	Email	grade, hilly, landscape, level, open, rise, slope, steep, terrain, topography, vegetation	Describing degree
8	Basic Math	Letter	average, come to, divide by, equal, hundred, less, minus, multiply by, plus, times	Expressing confusion
9	Measurements 1	Textbook chapter	acre, cubic foot, cubic inch, foot, imperial, inch, ounce, pound, ton, yard	Asking about intention
10	Measurements 2	Textbook chapter	centimeter, cubic centimeter, cubic meter, gram, hectare, kilogram, liter, meter, metric, tonne	Asking for help
11	Materials 1	Online product catalogue	aggregate, brick, cement, concrete, I-beam, iron, metal, mortar, rebar, sand, steel, stone	Answering the phone at work
12	Materials 2	Email	drywall, fiberglass, glass, marble, plaster, plastic, porcelain, rubber, tile, timber	Making a selection
13	Describing Materials	Journal article	brittle, durable, elastic, flexible, hardness, heavy, lightweight, opaque, rigid, transparent	Asking for an opinion
14	Education 1	Webpage	angle, calculus, geometry, heat flow, line, physics, point, prerequisite, segment, trigonometry	Asking about purpose
15	Education 2	Webpage	accredited, bachelor's degree, continuing education, emphasis, examination, internship, licensed, maintain, major in, master's degree	Talking about opportunities

Table of Contents

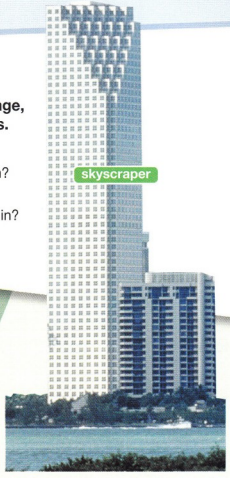
1 Types of Structures

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different buildings that people live in?

2 What are some different buildings that people work in?



Reading

2 Read the advertisement. Then, mark the following statements as true (T) or false (F).

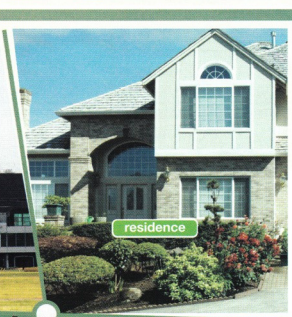
1 ___ The advertisement offers teaching positions to experienced architects.

2 ___ Darren Fischer has experience designing large buildings.

3 ___ Andrea Palomino primarily works on residences.

BELLAVALLEY
SCHOOL OF ARCHITECTURE

BVSA



Start your career with a degree from BVSA! Learn how to design a variety of **structures**. Do you want to design family **residences**? How about sleek, professional **office buildings**? Then BVSA is for you.

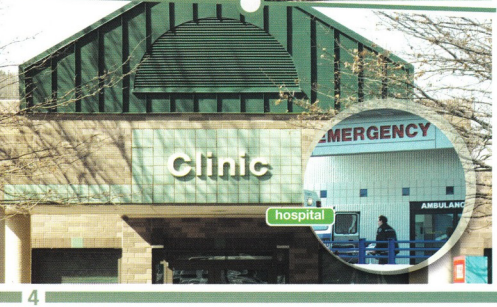
Many local **buildings** are works of BVSA graduates:

Darren Fischer

Darren designed several **high-rises** and **skyscrapers** downtown. His current project is a **warehouse** for Samson Furniture Dealers.

Andrea Palomino

Andrea mostly works on projects for the city. She is responsible for the new **school** and **hospital** in town. She also designed a **parking structure** for city vehicles. Now, the city wants her to design the new **airport**.



Vocabulary

3 **Match the words (1-5) with the definitions (A-E).**

1 __ school 3 __ high-rise 5 __ office building
2 __ building 4 __ warehouse

A any structure with walls and a roof
B a structure with a large, open space inside
C a structure with many stories
D a structure where people work
E a structure where people go to learn

4 **Fill in the blanks with the correct words:** *parking structure*, *airport*, *structure*, *residence*, *hospital*, *skyscraper*.

1 The tallest building in a big city is usually a(n) _____.
2 The workers keep their cars in a(n) _____ during the day.
3 When people are sick, they go to a(n) _____.
4 A single-family house is an example of a(n) _____.
5 The city put up a small _____ at the bus stop to protect people from the rain.
6 People travel in and out of the _____ on planes.

5 **Listen and read the advertisement again. What is the man working on now?**

Listening

6 **Listen to a conversation between a student and an instructor. Check (✓) the projects that the woman has worked on.**

1 ❑ hospital 3 ❑ skyscraper 5 ❑ office building
2 ❑ warehouse 4 ❑ airport

7 **Listen again and complete the conversation.**

Student: Ms. Palomino, you work as an **1** _____, right?
Instructor: I used to. Before I started teaching.
Student: Did you design any **2** _____ _____?
Instructor: Yes, I did. I designed the Saint William **3** _____.
Student: Really? That's one of the most **4** _____ _____ in town!
Instructor: Well, thank you. You're **5** _____ _____.
Student: Do you still design buildings?
Instructor: The city consulted me **6** _____ _____ _____ last year, but now, I mostly teach.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

You work as ... right?
I designed the ...
That's one of the most ...

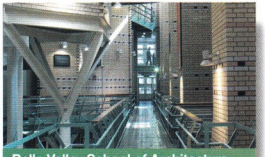
Student A: You are a student. Talk to Student B about:

- his or her experience as an architect
- a project he or she worked on
- what he or she is doing now

Student B: You are an instructor. Talk to Student A about your experience as an architect.

Writing

9 **Use the conversation from Task 8 to complete the faculty profile page.**



Bella Valley School of Architecture

About the Faculty

Instructor: _____

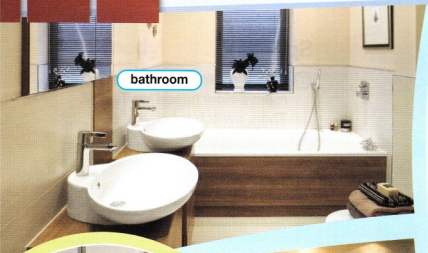
Local Designs: _____

_____

Current Projects: _____

_____

2 Parts of a Building 1



Your family will love the new homes at **Wildflower Estates!**

The Comfort Model

This model is great for couples and small families. It features two **bedrooms**, and each one has its own **bathroom**. Enjoy a large, open space between the **kitchen** and **living room**. Check out the convenient **laundry room** in the **basement**.

The Deluxe Model

Do you have a big family? Then this model is for you! It has an elegant front **door** and bright entry hall. There are four large bedrooms and each one has a spacious **closet**. Do you need extra storage space? Use the **attic**! There is also a roomy **garage** big enough for two vehicles.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are the typical rooms in a house?
2 What are some rooms in a house that are used for storage?

Reading

2 Read the flyer. Then, choose the correct answers.

1 What is the flyer mainly about?
- **A** improvements on a home design
- **B** the costs of building a home
- **C** an architect's previous home building projects
- **D** features of homes in a housing division

2 Which of the following is NOT advertised in the Comfort Model?
- **A** a good choice for small families
- **B** two bathrooms
- **C** a door between the kitchen and the living room
- **D** a basement with a laundry room

3 What is true about the Deluxe Model?
- **A** It is not recommended for large families.
- **B** It has fewer bedrooms than the Comfort Model.
- **C** It features a closet in each bedroom.
- **D** It has two garages.

Vocabulary

3 **Match the words (1-6) with the definitions (A-F).**

1 __ door **3** __ bedroom **5** __ bathroom
2 __ attic **4** __ basement **6** __ laundry room

A a room where people wash clothes
B a movable divider between rooms
C a room where people sleep
D a room below the main part of a house
E a room with a sink and a toilet
F a room at the top of a house

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 garage / closet
A The family parks their car in the _____.
B Clothes are stored in the _____.

2 kitchen / living room
A Couches and chairs are in the _____.
B The _____ has several large appliances.

5 **Listen and read the flyer again. What is the attic used for?**

Listening

6 **Listen to a conversation between an architect and a contractor. Mark the following statements as true (T) or false (F).**

1 __ The new design calls for smaller closets.
2 __ The man wants to change the size of the basements.
3 __ The woman does not have the materials for the closet doors.

7 **Listen again and complete the conversation.**

Architect: We need to talk about the **1** _____ _____ on the Comfort Model.
Contractor: Yeah, I saw the memo about the closets in the **2** _____.
Architect: They **3** _____ _____ _____ three feet by four feet. Now, they need to be five feet by five feet.
Contractor: How are we going to make the **4** _____ _____?
Architect: We'll just make the bedrooms a little **5** _____.
Contractor: What about the closet in the **6** _____?
Architect: That stays the same size, but I think it needs a larger door.
Contractor: That's not a problem. We didn't order the materials yet.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I saw the memo about ...
They used to be ...
What about the ...

Student A: You are an architect. Talk to Student B about:

- changes to a room design
- how the change affects other areas
- features that will not be affected

Student B: You are a contractor. Talk to Student A about changes to a room design.

Writing

9 **Use the conversation from Task 8 to complete the design change proposal.**

Wildflower Builders

Design Change Proposal

Home model: _____

Room: _____

Proposed change: _____
_____
_____

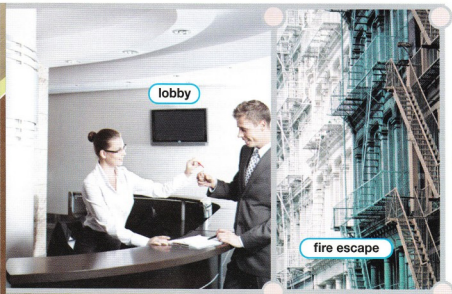
Other areas affected: _____
_____
_____

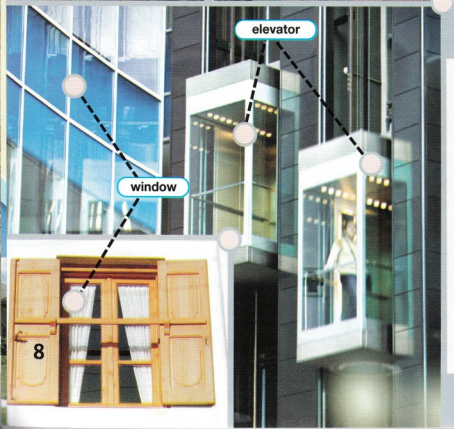
3 Parts of a Building 2

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some areas of an office building?
2 What are the safest ways to exit a building during an emergency?





Reading

2 Read the memo. Then, complete the table.

Problem	Solution
The lobby is too small.	1 _____
2 _____	Switch the conference room with the restrooms.
3 _____	Make the windows larger.

Vocabulary

3 Write a word or phrase that is similar in meaning to the underlined part.

1 The CEO's office is on the seventh <u>level in the building</u>.
f _ _ o _
2 In emergencies, exit the building through the <u>stairs on the outside of the building</u>.
_ i r _ _ s c _ _ _
3 The receptionist greeted clients in the <u>open area just inside the building's entrance</u>.
l _ _ _ y
4 The <u>openings in the wall</u> let a lot of sunlight into the office.
_ _ n d _ _ s
5 The break room is down the <u>narrow passage</u> on the left.
_ a l _ _ a y

memo

Hi Paul,
I received your proposal for the Smith-Rogers design. The **office** needs a few changes.
The client wants a larger **lobby** at the **entrance**. Right now, the design only has a small **vestibule**. Expand the area into the **hallway** behind it.
Also, the **conference room** is too far from the **elevator**. It must be easily accessible from every **floor**. Maybe switch it with the restrooms.
People need easy access to emergency **fire escapes**. In the current design, people will not fit through the **windows**. Make these larger. People may also need to find the **stairwells** quickly. Make sure these are easy to access.
Thanks,
Shirley

4 **Place the words and phrases from the word bank under the correct headings.**

WORD BANK

conference room stairwell vestibule
elevator office entrance

Moving between levels	Entering a building	Working in a building
_____	_____	_____
_____	_____	_____
_____	_____	_____

5 **Listen and read the memo again. What is the problem with the conference room?**

Listening

6 **Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).**

1 __ The woman wants to move the assistant's office closer to the elevators.

2 __ The conference room needs more space than the restrooms.

3 __ The architects agree to leave the conference room where it is.

7 **Listen again and complete the conversation.**

Architect 1: Hey, Shirley. I have a question about the Smith-Rogers project.

Architect 2: Sure. **1** _____ _____?

Architect 1: Let me **2** _____ _____ _____. You want to switch the conference room with the restrooms, right?

Architect 2: That's right. The **3** _____ _____ should be next to the elevator.

Architect 1: But the restroom area is **4** _____ _____. There's not enough space there for the conference room.

Architect 2: Oh, I see. Let's move the **5** _____ _____ to the end of the hallway. Does that help?

Architect 1: That should make **6** _____ _____. I'll see what I can do.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I have a question about ...
You want to ... right?
The ... needs to be ...

Student A: You are an architect. Talk to Student B about:

- proposed changes to a project
- a problem with the changes
- a solution to the problem

Student B: You are an architect. Talk to Student A about proposed changes to a project.

Writing

9 **Use the conversation from Task 8 to complete the memo to a client.**

To: Smith-Rogers, Inc.
From: Belgrave Architectural Firm

Dear Mr. Smith,

As you requested, we made some changes to your office design. We expanded the _____ into the _____ area. We also moved the _____ next to _____. This will give us enough _____ to make the lobby bigger. Let us know if you have any questions.

Shirley Belgrave, Senior Architect

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Living Portals

Specialty and Custom Window Designers

Every house needs windows, so why not get creative? Make your windows special with custom designs from Living Portals!

Most window designs are shaped like **squares** or **rectangles**. Do you prefer something more interesting? We'll tilt it to the side to make a **diamond**, or we'll curve it into an elegant **arch**. Do you want something really bold? Let us know at least a week in advance and we can create a custom **polygon** – like a **triangle** – to fit your design needs.

And who says that windows must have straight **sides**? Check out our selection of **circles** and **ovals**. These smooth, round designs are beautiful and practical. You'll have no more difficult **corners** to clean and the prices are the same as for our square windows!

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different shapes with curved edges?

2 What architectural shapes are most commonly found in your country?

Reading

2 Read the webpage. Then, mark the following statements as true (T) or false (F).

1 ___ Custom shapes like polygons take longer to create than other windows.

2 ___ Circles are more expensive than other window shapes.

3 ___ Triangle-shaped windows are easier to clean than circle-shaped windows.

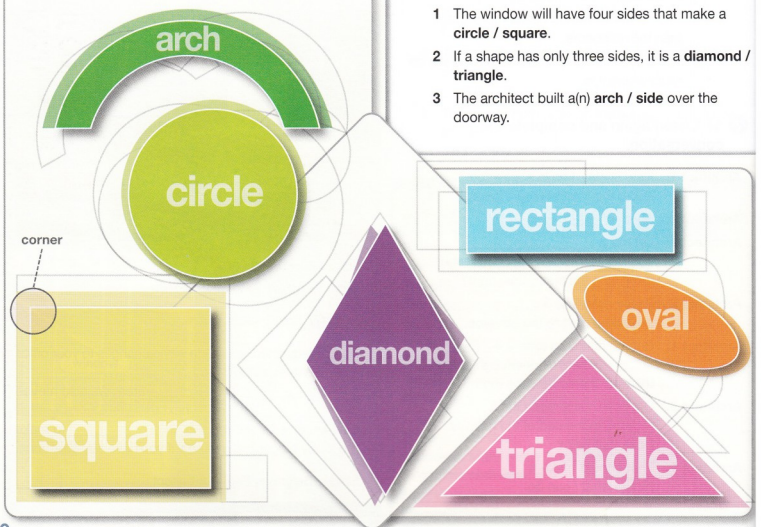
Vocabulary

3 Read the sentences and choose the correct words.

1 The window will have four sides that make a **circle / square**.

2 If a shape has only three sides, it is a **diamond / triangle**.

3 The architect built a(n) **arch / side** over the doorway.



4 **Place the words from the word bank under the correct headings.**

WORD BANK

side oval corner polygon
diamond rectangle circle

Parts of a shape	Shapes with curved edges	Shapes with straight edges
_____	_____	_____
_____	_____	_____
_____	_____	_____

5 **Listen and read the webpage again. How long does it take to make a custom window?**

Listening

6 **Listen to a conversation between a salesperson and a customer. Choose the correct answers.**

1 What is the conversation mainly about?
- **A** a problem with the woman's new windows
- **B** the cost of installing custom windows
- **C** the man's experience in window design
- **D** which windows the woman likes best

2 What shape will most of the kitchen windows be?
- **A** rectangles
- **B** circles
- **C** arches
- **D** ovals

7 **Listen again and complete the conversation.**

Salesperson: Good to see you again, Ms. Lewis. How did you like the **1** _____ _____?

Customer: Your company makes such unusual windows.

Salesperson: Yes, we do. Are you interested in any **2** _____ _____?

Customer: My house already has too many corners. I don't want any more **3** _____.

Salesperson: Sure. What **4** _____ _____ _____ of circles?

Customer: That's pretty bold for the whole kitchen. Maybe just some **5** _____ _____.

Salesperson: We can certainly do that. Do you want the same design for all the kitchen windows?

Customer: Mostly. But **6** _____ _____ might look nice over the sink.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Are you interested in ...
I don't want ...
What do you think of ...

Student A: You are a salesperson. Talk to Student B about:
- windows for his or her house
- which shapes he or she likes
- which shapes he or she does not like

Student B: You are a customer. Talk to Student A about windows for your house.

Writing

9 **Use the conversation from Task 8 to complete the work order.**

Living Portals

Order for Services

Customer: _____

Part of house: _____

Describe shapes and locations of windows:

_____
_____
_____
_____

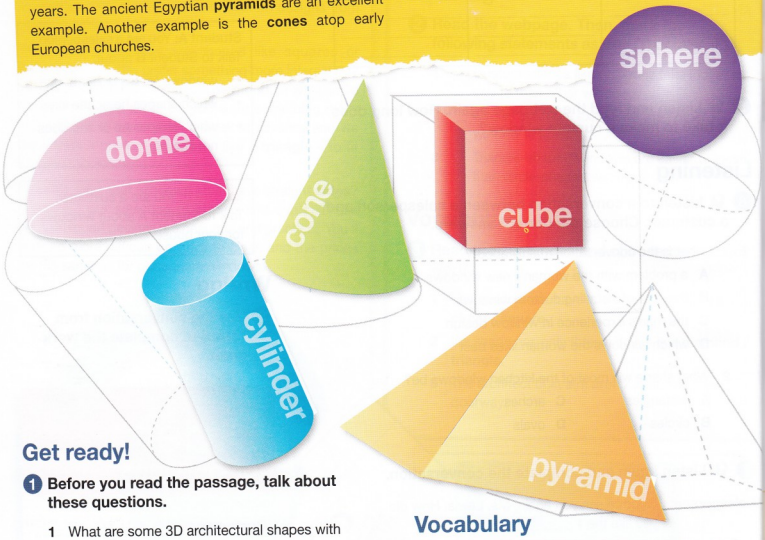
Modern Architecture

Spotlight: Unusual Shapes in the Real World

A **cuboid** is the most popular building shape. Flat, simple **faces** make them easy to design and build. The interior space is easily divided into numerous **cubes**. However, great architects create buildings with virtually any **3D** shape.

Architects have used creative shapes for thousands of years. The ancient Egyptian **pyramids** are an excellent example. Another example is the **cones** atop early European churches.

Today, unusual shapes make urban environments more exciting. "The Gherkin" in London is a **cylinder**. Its rounded **surface** adds visual interest to the cityscape. **Spheres** and sphere-like shapes have a similar effect. Many sports stadiums are topped with **domes**, which are breathtaking from the interior and the exterior.



Get ready!

1 Before you read the passage, talk about these questions.

1 What are some 3D architectural shapes with straight edges?

2 What are some 3D architectural shapes with rounded edges?

Reading

2 Read the textbook chapter. Then, mark the following statements as true (T) or false (F).

1 __ According to the section, cuboids are usually easy to build.

2 __ The section uses the cylinder as an example of historical architecture.

3 __ "The Gherkin" features a sphere.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __ 3D
2 __ face
3 __ cube
4 __ dome
5 __ cylinder
6 __ pyramid

A a shape that is similar to half of a ball
B a shape with straight sides and a circular base
C having the dimensions of length, width, and depth
D a flat surface on something
E a shape with six equal square sides
F a shape with triangular sides

4 **Read the sentences and choose the correct words.**

1 Typical houses are built in the shape of a **pyramid / cuboid**.
2 A **cone / cylinder** is narrow at the top and wide at the bottom.
3 The **dome / surface** of the wall is flat.
4 A basketball is shaped like a **cube / sphere**.

5 **Listen and read the textbook chapter again. What is the most popular building shape?**

Listening

6 **Listen to a conversation between an instructor and a student. Choose the correct answers.**

1 What is the main idea of the conversation?
A methods for constructing unusual 3D shapes
B local buildings with different 3D shapes
C the histories of particular 3D shapes
D advantages of using certain 3D shapes

2 What is true about the skyscraper?
A It has triangular faces.
B It looks like half a sphere.
C Its roof is a dome.
D It is the shape of a cylinder.

7 **Listen again and complete the conversation.**

Instructor: Okay, Lisa. Do you feel pretty comfortable with **1** _____ _____ ?
Student: I think so. I've been studying.
Instructor: What are some **2** _____ _____ ?
Student: Let's see. A **3** _____ has a round base. And a sphere is completely round.
Instructor: That's right. What **4** _____ _____ have those shapes?
Student: For one, the roof of the football stadium is a dome. That's like **5** _____ _____ _____ .
Instructor: Good. Can you think of any buildings downtown?
Student: Oh, of course. The Marina Towers are in the shape of a **6** _____ .

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Do you feel comfortable with ...
For one ...
Can you think of any ...

Student A: You are an instructor. Talk to Student B about:
- 3D shapes in architecture
- similarities and differences between shapes
- examples of buildings with particular shapes

Student B: You are a student. Talk to Student A about 3D shapes in architecture.

Writing

9 **Use the conversation from Task 8 to complete the student's classroom worksheet.**

Exercise #4

3D Shapes

Shape: _____

This shape features _____ _____ .

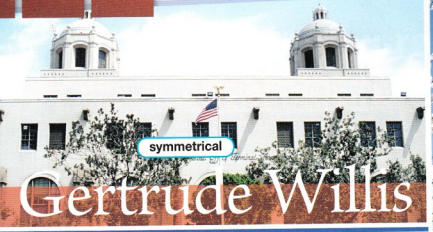
A historical building with this shape is _____ _____ .

Shape: _____

This shape features _____ _____ .

A building with this shape is _____ _____ .

6 Describing Shapes and Structures



Gertrude Willis

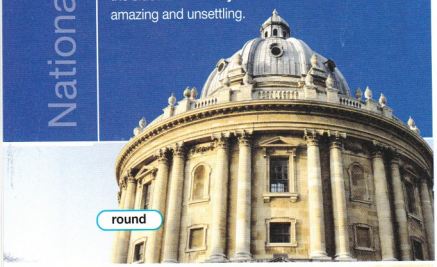
Architect and Artist

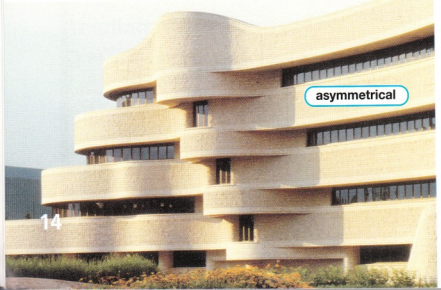
National Foundations

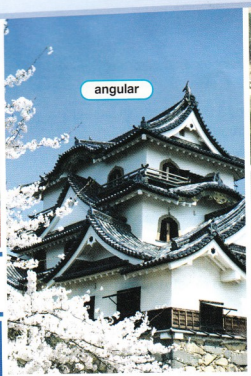
Gertrude Willis is one of today's most interesting architects. Visit Finn City and see for yourself.

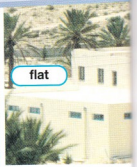
Willis designed the city hall twenty-five years ago. The building's **round** dome is made of bronze. Copper snakes **climb** the **symmetrical** pillars on each side. Willis became known for her **curvy** style. You rarely see **straight** lines in her early work.

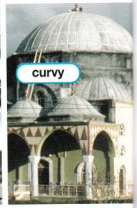
Today, Willis is trying new approaches. Her most recent project was the Finn Museum. Its **sharp** edges are part of her new **angular** style. The **flat** roof slants upwards. Then it **bends** sharply toward the sidewalk. The **asymmetrical** effect is both amazing and unsettling.











Get ready!

1 Before you read the passage, talk about these questions.

1 What are some words to describe surfaces of buildings?
2 What are the features of a famous building in your country?

Reading

2 Read the article. Then, mark the following statements as true (T) or false (F).

1 __ The architect's early work was very curvy.
2 __ The city hall features mostly straight lines.
3 __ The designs of the city hall and the museum are similar.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __ flat
2 __ round
3 __ angular
4 __ straight
5 __ symmetrical
6 __ asymmetrical

A not having identical sides that mirror each other
B having a smooth, even surface
C continuing in one direction without bending
D having curves instead of angles
E having identical sides that mirror each other
F having angles instead of curves

4 **Read the sentence pairs. Choose which word best fits each blank.**

1 **sharp / curvy**

A The _____ lines soften the building's appearance.

B _____ lines and angles give the building well-defined edges.

2 **climbs / bends**

A The pillar looks like a snake that _____ up to the top of the building.

B The roof _____ down gradually towards the sidewalk.

5 **Listen and read the article again. What is the woman known for?**

Listening

6 **Listen to a conversation between two architects. Check (✓) the qualities that describe the woman's design plans.**

1 ❑ angular
2 ❑ asymmetrical
3 ❑ round
4 ❑ curvy
5 ❑ sharp

7 **Listen again and complete the conversation.**

Architect 1: Hey, Gertrude. What are you **1** _____ _____?

Architect 2: The city asked me to design the new bus depot.

Architect 1: That's exciting! Do you have **2** _____ _____?

Architect 2: I want to do something **3** _____.

Architect 1: **4** _____ _____ do you mean by that?

Architect 2: Well, something **5** _____ _____ _____. I want it to grab people's attention.

Architect 1: So, it should have lots of **6** _____ _____ and surfaces that bend suddenly.

Architect 2: Exactly. Maybe you can help me come up with some ideas.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I want to do something ...
What exactly do you ...
So it should have ...

Student A: You are an architect. Talk to Student B about:

- a project that he or she is working on
- what the project should look like
- the design features of the project

Student B: You are an architect. Talk to Student A about a project that you are working on.

Writing

9 **Use the conversation from Task 8 to complete the project proposal.**

Willis Architectural Designs

Project Proposal

Client: _____

Project: _____

Design qualities: _____

_____

_____.

How these qualities will affect the overall appearance: _____

_____

_____.

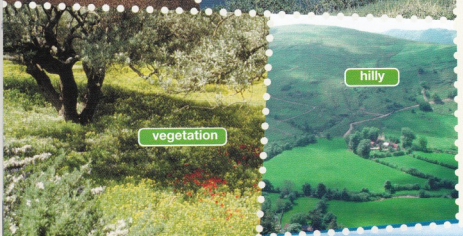
7 Describing Landscapes

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some common landscape problems that architects encounter?

2 What land features are best for building?



Reading

2 Read the email. Then, choose the correct answers.

1 What is the purpose of the email?
- **A** to describe landscape preparations in progress
- **B** to compare two areas of land
- **C** to give pros and cons of building on hills
- **D** to suggest two new building sites

2 What can you infer about vegetation?
- **A** It is very expensive to clear it.
- **B** It is more common on level land than hilly land.
- **C** It makes building easier.
- **D** It stabilizes land on a slope.

3 What is true about the Prairie Grove site?
- **A** It is a bad place for houses.
- **B** It has a small slope.
- **C** It is an open area of land.
- **D** It is probably unstable.

To: JohnMartin@easternhomearchitects.com
From: sjohnson@sjohnsonsurveyors.com
Subject: Sites for Residential Development

Hi John,

I surveyed your proposed building sites. The **topography** at Green Acres isn't suitable. The **terrain** is too **hilly**. Some **slopes** have very **steep grades**. Making them **level** will take a lot of work, which will be expensive. Plus, you need to clear the **vegetation** and that can make the slopes unstable.

Prairie Grove has a better **landscape** for residential development. It's mostly flat. The area does **rise** on the north end, however, the grade is minor so I don't expect it to be a problem. This area also has some vegetation but we can clear it to create an **open** space.

If you need anything else, let me know.

Sharon Johnson

Vocabulary

3 **Match the words (1-5) with the definitions (A-E).**

1 __ rise
2 __ steep
3 __ hilly
4 __ vegetation
5 __ topography

A an area's plants and trees
B to incline or move upward
C an area's physical characteristics
D having many hills
E having a sharp incline

4 **Read the sentence pairs. Choose which word best fits each blank.**

1 **landscape / slope**

A The mountains and trees are part of the area's beautiful _____.

B The house sits at the bottom of a _____.

2 **terrain / grade**

A The _____ of the hill is too steep for building.

B The _____ in the area is rough and rocky.

3 **level / open**

A Large areas with no buildings or trees are called _____ land.

B The site used to have a slope, but now it is completely _____.

5 **Listen and read the email again. What is wrong with Green Acres as a building site?**

Listening

6 **Listen to a conversation between an architect and a surveyor. Mark the following statements as true (T) or false (F).**

1 __ The proposed building site is mostly open space.
2 __ The slope makes the land difficult to build on.
3 __ The eastern end of the property is very hilly.

7 **Listen again and complete the conversation.**

Architect: So what **1** _____ _____ _____ about this plot of land?
Surveyor: The landscape is beautiful. There's a lot of **2** _____. And the mountains are nearby.
Architect: Exactly. It's the **3** _____ _____ for a resort.
Surveyor: Well, it's not perfect. This slope is very **4** _____.
Architect: Is the grade **5** _____ _____?
Surveyor: I think so. It's **6** _____ _____ to build on terrain like this.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

What do you think about ...
The land is too/very ...
It's a great place for ...

Student A: You are an architect. Talk to Student B about:

- a proposed building site
- the positive features of the building site
- the negative features of the building site

Student B: You are a land surveyor. Talk to Student A about a proposed building site.

Writing

9 **Use the conversation from Task 8 to complete the meeting notes.**

Notes

Meeting with Surveyor

Project: _____

Pros of proposed site:

_____

_____

Cons of proposed site:

_____

_____

8 Basic Math

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some ways to describe adding numbers together?

2 What is the process for finding an average?

Hello James,

I surveyed the development land. The plot is eleven **hundred** acres. You can fit four hundred houses, as planned. They will have an **average** of 1.5 acres each.

This breakdown includes the number of houses **multiplied by** the acres per house:

- 400 **times** 1.5 **comes to** 600 acres.
- The available space is 1,100 acres. The houses require 600 acres. 1,100 **minus** 600 **equals** 500 acres. You can use that for roads and parks.

Also, the neighboring plot is for sale. It is four hundred acres (**less** one hundred for roads):

- 400 minus 100 equals 300 acres for houses. 300 **divided by** 1.5 equals 200 houses.

That's 200 houses **plus** your original 400 houses. It comes to 600 houses total. Think about it and let me know.

Rachel Graves, Surveyor

Reading

2 Read the letter. Then, mark the following statements as true (T) or false (F).

1 ___ The plot cannot hold as many houses as planned.

2 ___ The parks and roads on the original plot will occupy 500 acres.

3 ___ The neighboring plot can hold more houses than the original plot.

Vocabulary

3 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **hundred / average**

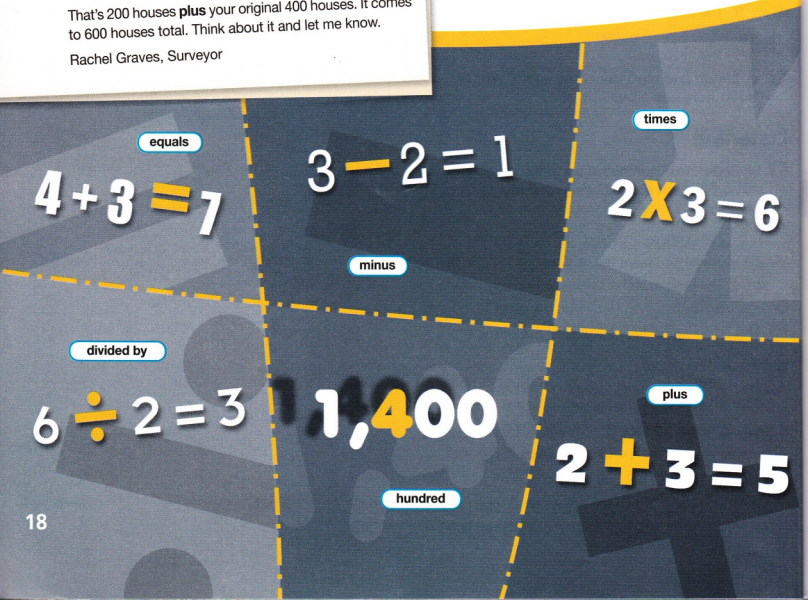
A The surveyor calculated the _____ size of all the plots.

B The architect is planning a development on a fifteen-_____ acre plot.

2 **multiplied by / divided by**

A Six _____ two equals three.

B Two _____ three equals six.



4 **Place the words from the word bank under the correct headings.**

WORD BANK

equals plus and less comes to minus

Adding numbers	Subtracting numbers	Expressing results
_____	_____	_____
_____	_____	_____
_____	_____	_____

5 **Listen and read the letter again. Why is the other plot of land mentioned?**

Listening

6 **Listen to a conversation between an architect's assistant and an architect. Choose the correct answers.**

1 What is the conversation mainly about?

A how to measure acreage
B the amount of available space for building
C a mistake on a building plan
D a change in plot dimensions

2 What error did the woman make?

A She measured the acreage incorrectly.
B She multiplied instead of dividing.
C She did not include roads and parks in her calculations.
D She used the wrong number of acres per house.

7 **Listen again and complete the conversation.**

Assistant: I'm confused about these **1** _____ _____.
Architect: What's the problem?
Assistant: The plot is eleven hundred acres. **2** _____ _____ _____ room for at least seven hundred houses?
Architect: You're right about the **3** _____ _____. But we can't fit that many houses on the land.
Assistant: Why not? It's 1.5 **4** _____ _____ _____. Eleven hundred divided by 1.5 comes to more than seven hundred.
Architect: That's correct. But it's eleven hundred minus space for **5** _____ _____ _____.
Assistant: Oh, I forgot. That makes **6** _____ _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I'm confused about ...
Shouldn't there be ...
You're right about ...

Student A: You are an architect's assistant. Talk to Student B about:

- a building plan
- a measurement that you do not understand
- your calculations

Student B: You are an architect. Talk to Student A about his or her calculations.

Writing

9 **Use the conversation from Task 8 to complete the building plan summary.**

Grady's Architecture and Construction

Project Summary

Project: _____

Size of land: _____

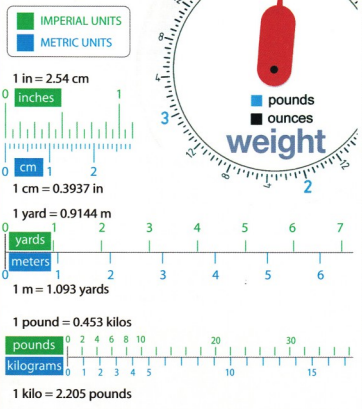
Number of buildings needed: _____

Amount of land needed for each building: _____

Calculate the amount of space left for other features:

_____
_____
_____
_____
_____

9 Measurements 1



Get ready!

1 Before you read the passage, talk about these questions.

1 What are some common units of measurement in your country?

2 What is important when converting different units of measurement?

Reading

2 Read the textbook chapter. Then, mark the following statements as true (T) or false (F).

1 __ Three inches equal one yard.

2 __ One ton is equal to 2,000 cubic feet.

3 __ To determine cubic feet, multiply length, width, and height in feet.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __	inch	3 __	yard	5 __	pound
2 __	foot	4 __	ton	6 __	imperial

A a unit of length that equals 1/12 of a foot

B a unit of weight that equals 2,000 pounds

C system that uses the ounce and the inch

D a unit of length that equals 36 inches

E a unit of length that equals 1/3 of a yard

F a unit of weight that equals 16 ounces

The International Architect: Chapter 2.1

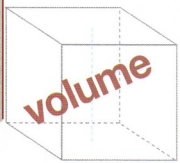
Imperial Units: The Basics

Length:
12 **inches** = 1 **foot**
3 feet = 1 **yard**

Area:
1 **acre** = 43,560 square feet

Volume:
1,728 **cubic inches** = 1 **cubic foot**

Weight:
16 **ounces** = 1 **pound**
2,000 pounds = 1 **ton**



Knowing your units is invaluable. For instance, you can determine how much concrete a foundation needs by multiplying length, width, and height in feet. That gives you cubic feet. One cubic foot of concrete weighs about 145 pounds. So multiply your cubic feet by 145. Then divide that by the weight of each bag of cement. The answer tells you how many bags you need.

4 Write a word or phrase that is similar in meaning to the underlined part.

1 The foundation of the building is 285 units of volume measured in feet.
_ _ _ i _ _ e _ _

2 She owns a piece of land that has about forty units used to measure area.
_ _ r _ s

3 Each metal piece is 13 units of weight equal to 1/16 of a pound.
_ _ n _ _ s

4 The small box only measures about six units of volume measured in inches.
_ _ b _ _ _ n _ _ _ s

5 Listen and read the textbook chapter again. Why is it important to know unit measurements?

Listening

6 Listen to a conversation between an architect and a client. Choose the correct answers.

1 What is the conversation mainly about?
- **A** problems with a previous conference room
- **B** design changes for a conference room
- **C** a disagreement about measurements of a conference room
- **D** the best location for a conference room

2 How does the woman want to change the room?
- **A** reduce its length and width
- **B** turn it into a new office
- **C** combine it with another conference room
- **D** make it bigger

7 Listen again and complete the conversation.

Architect: So, let's talk about your **1** _____ _____.
Client: What did you **2** _____ _____ _____?
Architect: Well, it's about **3** _____ _____ long by fifteen feet wide.
Client: Hmm. That's a little **4** _____. Sometimes we have twenty-five people in a meeting.
Architect: I see. Do you want to **5** _____ _____ _____?
Client: Yes, definitely. Can we use some space from the office **6** _____ _____?

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

The ... is about ... by ...
Do you want to ...
That sounds ...

Student A: You are an architect. Talk to Student B about:
- a project you are designing for him or her
- current measurements
- changes the client wants to make

Student B: You are the architect's client. Talk to Student A about changes you want to make to a project.

Writing

9 Use the conversation from Task 8 to complete the notes on the building plans.

Notes

Project Update

Original measurements: _____

Changes requested: The _____ is too _____.

To fix this, we need to _____.

New room measurements: _____

10 Measurements 2

Get ready!

1 Before you read the passage, talk about these questions.

1 Why should architects understand both metric and imperial systems?

2 Why might some people prefer the metric system instead of the imperial system?

The International Architect: Chapter 2.2

Now you know imperial units. But what if you need **metric** measurements? Check the conversion chart below.

	Metric Unit		Approximate Imperial Value
Volume	1 **liter**	=	61.02 cubic inches
Weight	1 **kilogram**	=	2.2 pounds
Length	1 **meter**	=	3.28 feet
Area	1 **hectare**	=	2.47 acres

To convert metric units into imperial units, multiply.
15 liters to cubic inches: 15 x 61.02 = 915.30 cubic inches

To convert imperial units into metric units, divide.
12 pounds to kilograms: 12 ÷ 2.2 = 5.45 kilograms

You can also convert within the metric system.

	Convert...	To...	By...
Volume	liters	**cubic centimeters**	multiplying by 1000
		cubic meters	dividing by 1000
Weight	kilograms	**grams**	multiplying by 1000
		tonnes	dividing by 1000
Length	meters	**centimeters**	multiplying by 100

Reading

2 Read the textbook chapter. Then, mark the following statements as true (T) or false (F).

1 ___ A liter is larger than a cubic inch.

2 ___ The chapter recommends multiplying to convert meters to feet.

3 ___ The chapter recommends dividing to convert kilograms to grams.

Vocabulary

3 Write a word or phrase that is similar in meaning to the underlined part.

1 The building site is 3.2 units of area equal to 2.47 acres.
_ e c _ _ _ e s

2 The measurements for the project should all be based on the kilogram and the liter.
m _ _ _ _ _

3 The wood glue label listed the size in units of volume equal to 0.001 liters.
c _ _ i _ _ e n _ i _ _ _ e r s

4 **Place the words from the word bank under the correct headings:**

WORD BANK

cubic meter centimeter kilogram
liter tonne gram meter

Units of weight	Units of length	Units of volume

5 **Listen and read the textbook chapter again. Based on the text, why are metric units easy to remember?**

Listening

6 **Listen to a conversation between two architects. Choose the correct answers.**

1 What is the purpose of the conversation?
- **A** to correct a measurement error
- **B** to confirm measurements for a project
- **C** to update an architect on new measurements
- **D** to convert measurements into another system

2 Why is the woman having a problem with her measurements?
- **A** She is used to imperial units.
- **B** She made a mathematical error.
- **C** She doesn't know which system to use.
- **D** She misplaced the correct measuring tools.

7 **Listen again and complete the conversation.**

Architect 1: Hey, Ryan. Would you **1** _____ _____ _____ _____ for a moment?

Architect 2: Sure. What can I do for you?

Architect 1: I need to estimate the size of this room. Where I'm from, we don't use the **2** _____ _____.

Architect 2: I see. Do you have the **3** _____ measurements?

Architect 1: Yes. It's forty feet long by twenty-nine feet wide.

Architect 2: Okay. There are 3.28 feet **4** _____ _____ _____.

Architect 1: So forty **5** _____ _____ 3.28 equals 12.2 meters long.

Architect 2: Right. And twenty-nine divided by 3.28 is 8.84 **6** _____ _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Would you give me ...
Where I'm from ...
There are ... in a ...

Student A: You are an architect. Talk to Student B about:
- a measurement you need
- units that you need to convert into the metric system
- how to make a conversion

Student B: You are an architect. *Talk to Student A about units that* he or she needs to convert into the metric system.

Writing

9 **Use the conversation from Task 8 to complete the memo from one architect to another architect.**

Hi Lois,

I know you are used to the imperial system, however we use metric measurements for all of our projects. Here are the conversions for the measurements you submitted:

Units of Length: There are 3.28 feet (imperial) in one meter (metric).

Therefore, five feet equals 1.52 meters.

Units of area: There are _____ acres (imperial) in one _____ (metric).

Therefore, eight _____ (imperial) equals _____ _____ (metric).

Thanks,
Ryan

11 Materials 1

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some common building materials?

2 How are different materials commonly used in structures?

concrete

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the purpose of the webpage?

A to list available building materials from a company

B to recommend building materials for particular projects

C to advertise sale prices for building materials

D to describe manufacturing processes for building materials

2 According to the webpage, which of the following is NOT true of bricks?

A They are fire resistant.

B They have a contemporary appearance.

C They require little maintenance.

D They withstand bad weather

3 What service does the webpage offer?

A delivering I-beams to construction sites

B constructing brick buildings

C installing stone floors and walls

D making custom-length rebar

HOME | ABOUT US | SERVICES | CONTACT

Welcome to BuildersChoice.com!

Builder's Choice is the #1 source for materials, including ...

Cements & Aggregates

Mix your own **concrete** with our **sand**, gravel, and cement, or choose our ready-mixed concrete. We'll even deliver it to your site!

Bricks & Mortar

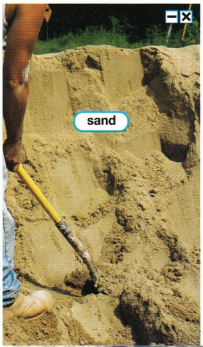
Low-maintenance bricks resist weather and fire. Unlike many contemporary styles, traditional bricks have a timeless, classic appearance.

Natural & Manufactured Stone

Granite, marble, slate — we have it all! Construct durable floors and walls. Enhance your architectural features with decorative stone.

Metal Beams & Bars

Our **steel I-beams** are 98% **iron** and 2% carbon. They're built to last! Our rods of **rebar** come in 20, 40, and 60 feet. We also provide custom cuts.



Vocabulary

3 **Match the words (1-8) with the definitions (A-H).**

1 __ iron
2 __ steel
3 __ metal
4 __ rebar
5 __ sand
6 __ concrete
7 __ cement
8 __ mortar

A metal pieces that builders put in concrete to make it stronger
B a material composed of iron and carbon
C a mixture of water, sand, and lime that helps bricks stay together
D a grainy substance composed of tiny rock particles
E a powder made up of sand and gravel
F a material used to make steel
G a hard substance made with aggregate and cement
H a hard, shiny, malleable material

4 **Choose the sentence that uses the underlined part correctly.**

1 **A** To make concrete, the builders use different types of metal.
B The second floor is supported by I-beams.

2 **A** Rebar is often used for decoration.
B Aggregate is a mixture of sand, gravel, and broken stones.

3 **A** They made the floor with a stone called granite.
B Steel is a very unstable material.

4 **A** Sand is mostly made up of iron.
B Fire does not destroy walls made of bricks.

5 **Listen and read the webpage again. What are the benefits of using bricks?**

Listening

6 **Listen to a conversation between a building supplier and a client. Mark the following statements as true (T) or false (F).**

1 __ The woman's desired building materials are available right away.
2 __ The man offers a special price for delivery.
3 __ The woman purchases bricks and mortar.

7 **Listen again and complete the conversation.**

Supplier: Thanks for calling Builder's Choice. This is Tim. How can I **1** _____ _____?
Client: Hi. I was wondering if you carry bricks?
Supplier: Yes. They're seventy-five cents per **2** _____ _____.
Client: I'll need about two thousand square feet. Could you fill **3** _____ _____ today?
Supplier: Certainly. And we can deliver it **4** _____ _____ _____.
Client: Great. How much is your rapid-set **5** _____?
Supplier: It's $15 for a 60-pound bag. Would you like me to start the order?
Client: I'm just **6** _____ _____ for now. I might call again this afternoon.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

This is ... How can I help you?
Do you carry ...
How much is your ...

Student A: You are a building supplier. Talk to Student B about:

- materials that he or she needs
- how much the materials cost
- other services you offer

Student B: You are a client. Talk to Student A about materials you need for a project.

Writing

9 **Use the conversation from Task 8 to complete the order form.**

Customer Order Form

Item	Quantity	Price/unit	Total
_____	_____	_____	_____
_____	_____	_____	_____

12 Materials 2

Get ready!

1 Before you read the passage, talk about these questions.

1 What materials are typically found behind the walls in a house?

2 What materials are used to make fancy or decorative floors?

To: kelly.nolan@sunnymail.net
From: c.baxter@baxterarchitecture.net
Subject: Materials

Hello Ms. Nolan,

Thank you for your interest in our services. Here is some information about the materials we use.

Wall surfaces We offer the best **drywall** available. We create a variety of textures with our versatile **plaster**.

Wall interiors Behind your walls, you will find a frame of sturdy **timber**. Also, we use strong **fiberglass** for plumbing and ducts. Thick **rubber** hoses and gaskets keep you safe from leaks.

Windows We recommend traditional **glass** to most homeowners, but we also offer transparent **plastics** that are less expensive.

Floors We have a wide selection of floor **tiles**. Do you want something fancy? Go with **marble** for your entryway or staircase.

Fixtures We install beautiful kitchen and bathroom fixtures made from fine **porcelain**.

Reading

2 Read the email. Then, mark the following statements as true (T) or false (F).

1 __ The company uses one type of plaster to create different textures.

2 __ The email recommends plastic windows instead of glass.

3 __ The email suggests using porcelain for fancy floors.

Vocabulary

3 Match the words (1-5) with the definitions (A-E).

1 __ glass 3 __ drywall 5 __ porcelain

2 __ marble 4 __ rubber

A a delicate building material made from clay

B a polished stone that is used as a building material

C a flexible material made from natural substances and chemicals

D a material made with paper and plaster

E a transparent substance used in windows

4 **Fill in the blanks with the correct words from the word bank.**

WORD BANK

tiles fiberglass timber plastic plaster

1 _____ is made from strands of glass, but it is not transparent.
2 The _____ on the bathroom floor are several different colors.
3 Cheap windows are sometimes made from transparent _____.
4 The frame of the house is made of strong _____.
5 _____ is a very common material that is used for covering walls.

5 **Listen and read the email again. Why are plastic windows offered?**

Listening

6 **Listen to a conversation between a client and an architect. Choose the correct answers.**

1 What is the conversation mainly about?
- **A** a problem with a window installation
- **B** a comparison of window materials
- **C** safety features of different windows
- **D** changes to a window design

2 What does the woman decide?
- **A** to choose the windows after the drywall is complete
- **B** to buy the less expensive window option
- **C** to get windows that show fewer scratches
- **D** to keep the windows that are currently installed

7 **Listen again and complete the conversation.**

Client: Hi, this is Kelly Nolan. I got your email about **1** _____ _____.
Architect: Hello, Ms Nolan. Do you have any questions?
Client: Actually, yes. You said you have windows made from **2** _____?
Architect: That's right. They are **3** _____ _____ than glass, but they scratch more easily.
Client: I see. And either type is **4** _____ _____ _____?
Architect: Yes. They also come in the same sizes. They'll fit right into your **5** _____.
Client: In that case, I'll **6** _____ _____ _____ glass. I'd rather not see a lot of scratches.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Do you have any ...
You said you have ...
I'll go with ...

Student A: You are a client. Talk to Student B about:
- materials for your home
- the benefits of different materials
- your decision

Student B: You are an architect. Talk to Student A about materials for his or her home.

Writing

9 **Use the conversation from Task 8 to complete the email from a client to an architect.**

To: c.baxter@baxterarchitecture.net
From: kelly.nolan@sunnymail.net
Subject: Re: Materials

Dear Mr. Baxter,

Thank you for the information about available building materials. For my windows, I've decided to go with glass because I don't want to see a lot of scratches . For my _____, I've decided to go with _____ because _____.

Sincerely,
Kelly Nolan

13 Describing Materials

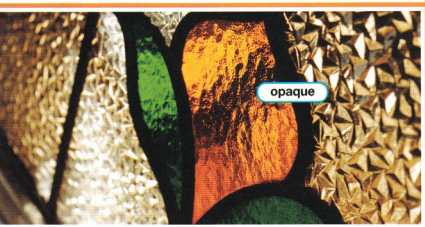
NATIONAL FOUNDATIONS

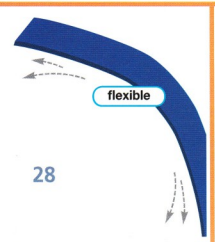
Building with the Times

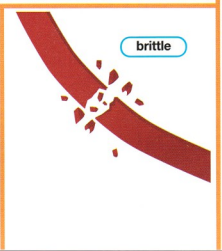
Many designers prefer traditional building materials. They choose wood and metal instead of plastics. This was once reasonable, since early plastics were often **brittle**. However, today's technology makes plastics both **durable** and **flexible**. A wise architect understands the benefits of building with plastics.

Some plastics are **opaque** and others are **transparent**. That means some can be used to construct walls and others can be used to make windows. Plastics also vary in **hardness**. **Rigid** plastics create strong, solid structures. More **elastic** products make excellent insulators and sealants.

Plastics are also easy to work with because they are often **lightweight**. However, they are often stronger than many other **heavy** materials.







Get ready!

1 Before you read the passage, talk about these questions.

1 What are some benefits of building with plastics instead of traditional materials?

2 How do different surfaces affect the way light enters a building?

Reading

2 Read the article. Then, choose the correct answers.

1 What is the article mainly about?

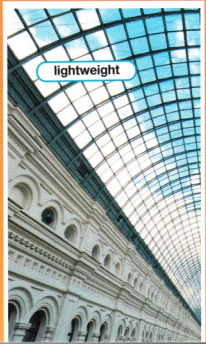
- **A** advantages of building with new types of building materials
- **B** methods of building with traditional building materials
- **C** processes for manufacturing different building materials
- **D** available building materials from a company

2 Which of the following is NOT a feature of plastics?

- **A** They come in different degrees of hardness.
- **B** They are made into flexible sealants.
- **C** They can be used to create windows.
- **D** They are usually heavier than other building materials.

3 According to the article, what is true about older plastics?

- **A** They were sometimes brittle.
- **B** They were more flexible than today's plastics.
- **C** They were usually transparent.
- **D** They were more popular than wood and metal.



Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __ rigid
2 __ heavy
3 __ elastic
4 __ opaque
5 __ durable
6 __ hardness

A having a great weight
B not able to be seen through
C maintaining a form and not stretching easily
D not easily broken
E the quality of how firm or solid something is
F able to stretch easily

4 Read the sentences and choose the correct words.

1 The wall was **durable / brittle**, so it cracked easily.
2 The architect installed a(n) **opaque / transparent** panel to let in more light.
3 The **flexible / rigid** sealant can be squeezed into small spaces.
4 The door is **heavy / lightweight**, so one person can easily carry it.

5 Listen and read the article again. What is the benefit of a lightweight building material?

Listening

6 Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).

1 __ The man recommends using lightweight building materials.
2 __ The woman needs a flexible building material.
3 __ The woman agrees with the man's advice.

7 Listen again and complete the conversation.

Architect 1: Are you working on the airport storage sheds?
Architect 2: Yes. I can't decide on the building material. **1** _____ _____ you use?
Architect 1: Hmm. Well, it certainly needs to be **2** _____.
Architect 2: Oh, definitely. There's a lot of **3** _____ _____ out there.
Architect 1: I'd probably go with something **4** _____, though.
Architect 2: That's a **5** _____ _____. These sheds are supposed to be portable.
Architect 1: Yeah, I think a newer material is the way to go.
Architect 2: You're **6** _____ _____. I'll check out some strong, rigid plastics.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

What would you ...
It needs to be ...
I'd probably go with ...

Student A: You are an architect. Talk to Student B about:

- a project that he or she is working on
- the desired qualities of the building materials
- which building materials to use

Student B: You are an architect. Talk to Student A about building materials for a project that you are working on.

Writing

9 Use the conversation from Task 8 to complete the project proposal.

Greene Architectural Design

Project Proposal

Location: _____

Type of building: _____

Recommended building materials: __

_____

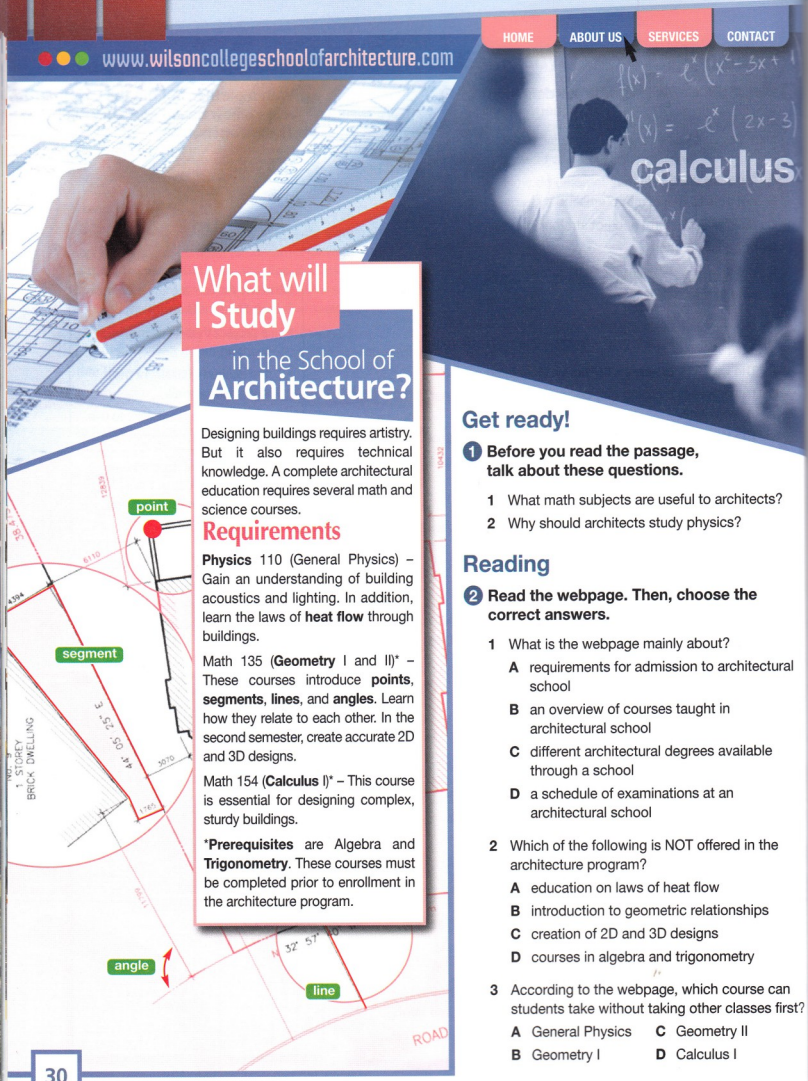
Why do you recommend these materials?

_____

_____

_____

_____



What will I Study in the School of Architecture?

Designing buildings requires artistry. But it also requires technical knowledge. A complete architectural education requires several math and science courses.

Requirements

Physics 110 (General Physics) – Gain an understanding of building acoustics and lighting. In addition, learn the laws of **heat flow** through buildings.

Math 135 (**Geometry** I and II)* – These courses introduce **points**, **segments**, **lines**, and **angles**. Learn how they relate to each other. In the second semester, create accurate 2D and 3D designs.

Math 154 (**Calculus** I)* – This course is essential for designing complex, sturdy buildings.

***Prerequisites** are Algebra and **Trigonometry**. These courses must be completed prior to enrollment in the architecture program.

Get ready!

1 Before you read the passage, talk about these questions.

1 What math subjects are useful to architects?
2 Why should architects study physics?

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the webpage mainly about?
- **A** requirements for admission to architectural school
- **B** an overview of courses taught in architectural school
- **C** different architectural degrees available through a school
- **D** a schedule of examinations at an architectural school

2 Which of the following is NOT offered in the architecture program?
- **A** education on laws of heat flow
- **B** introduction to geometric relationships
- **C** creation of 2D and 3D designs
- **D** courses in algebra and trigonometry

3 According to the webpage, which course can students take without taking other classes first?
- **A** General Physics
- **B** Geometry I
- **C** Geometry II
- **D** Calculus I

Vocabulary

3 **Match the words (1-5) with the definitions (A-E).**

1 __ point
2 __ segment
3 __ physics
4 __ heat flow
5 __ calculus

A a line between two points
B an area of mathematics used to calculate rates of change, among other things
C the study of the relationship between matter and energy
D an exact location on a surface
E the transfer of hot energy to a cool area

4 **Write a word that is similar in meaning to the underlined part.**

1 This shape formed from two lines crossing each other measures 90 degrees.
_ n _ _ e
2 There are no activities one must do first for this class.
_ _ e _ _ _ _ i s _ _ _ s
3 An education in the study of the size and shape of figures is essential for architects
_ _ o m _ _ _ _
4 Draw a perfectly straight geometric figure on the graph.
_ i _ _
5 The study of triangles helps architects design pitched roofs.
_ r _ _ _ _ _ _ e t _ _

5 **Listen and read the webpage again. Why do students need geometry and calculus classes?**

Listening

6 **Listen to a conversation between a student and an advisor. Mark the following statements as true (T) or false (F).**

1 __ The man is concerned that the physics course will be difficult.
2 __ The man needs to take a course in trigonometry.
3 __ Calculus is a prerequisite for the physics course.

7 **Listen again and complete the conversation.**

Student: So do I need to take **1** _____ next semester?
Advisor: Yes. It's a **2** _____ for your degree.
Student: Hmm. It just seems **3** _____ _____. Why do I need it?
Advisor: Well, it explains the science of **4** _____ _____. It'll help you understand heat flow, sound, and lighting.
Student: I guess those are pretty important concepts. Are there any **5** _____?
Advisor: Just a course in **6** _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Do I need to take ...
It explains ...
I recommend taking ...

Student A: You are an architecture student. Talk to Student B about:

- classes you need to take
- why the classes are important
- prerequisites for the class

Student B: You are an advisor. Talk to Student A about course requirements.

Writing

9 **Use the conversation from Task 8 to complete the description of course requirements.**

SCHOOL OF ARCHITECTURAL STUDIES

Math Requirements

One math course:
_____: This class will help students _____.
It will also _____.
Prerequisites: _____
Trigonometry also recommended.

15 Education 2

CAREER KNOWS | ABOUT US

PROFESSIONS

ARCHITECT

Q *I want to be an architect. What education do I need?*

A Most places require at least a **bachelor's degree**. Some require further education, such as a **master's degree**. Make sure you attend an **accredited** institution.

Q *What should I study?*

A To become **licensed**, you must **major in** architecture. Choose an **emphasis** in an area that you want to pursue. This should prepare you for the standard licensing **examinations**.

Q *What should I do after I graduate?*

A Apply for **internships**. You'll gain valuable work experience. Also, remember that technology changes rapidly. To **maintain** your knowledge and abilities, enroll in **continuing education**.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different levels of education for architects?

2 What education is required to become an architect in your country?

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the webpage mainly about?

A courses offered at an architectural school

B changes in architectural education

C the education required to become an architect

D how to select an architectural school

2 Which of the following is NOT a recommendation on the webpage?

A Earn an architectural degree from an accredited institution.

B Take examinations in preparation for choosing an emphasis.

C Gain work experience through internships.

D Use continuing education to maintain skills.

3 According to the webpage, why should architects enroll in continuing education?

A to qualify for internships

B to keep up with new technology

C to gain extra work experience

D to pass licensing examinations

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __ licensed
2 __ internship
3 __ accredited
4 __ examination
5 __ bachelor's degree
6 __ continuing education

A a status indicating that someone has completed an education program

B following standards that are defined by an official organization

C having official approval from an organization to do something

D a temporary job in which students gain work experience

E short-term or part-time educational programs for professional adults

F an official test of someone's knowledge and abilities

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **majored in / maintained**

A The student _____ architectural engineering at the university.

B The architect _____ her skills by taking night classes.

2 **master's degree / emphasis**

A The course is for students with a(n) _____ on historical architecture design.

B The student earned a(n) _____ in architecture last year.

5 Listen and read the webpage again. Why should graduates apply for internships?

Listening

6 Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).

1 __ The man wants an applicant who majored in a different subject.

2 __ The applicant will graduate from architectural school soon.

3 __ The man agrees to interview the applicant.

7 Listen again and complete the conversation.

Architect 1: Did you look over the **1** _____ _____?

Architect 2: Yes. This one **2** _____ _____: Harriet Gunderson.

Architect 1: Let's see. So, she **3** _____ _____ architectural engineering. That's perfect.

Architect 2: Yeah. And she got her **4** _____ _____ at Southern School of Architecture.

Architect 1: That's a great school. How did she do on her **5** _____ _____?

Architect 2: Oh, she **6** _____ _____ them yet.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Did you look over ...
This one looks ...
Let's give ... a shot.

Student A: You are an architect. Talk to Student B about:

- an applicant for an internship
- the applicant's education
- whether or not to interview the applicant

Student B: You are an architect. Talk to Student A about an applicant for an internship.

Writing

9 Use the conversation from Task 8 to complete the internship applicant review.

DBD Architectural Firm

Internship
Applicant Review

Applicant: _____

Level of Education: _____

Emphasis: _____

Has the applicant graduated? Y / N

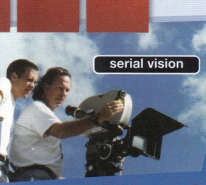
Do you recommend hiring this applicant? Why or why not? _____

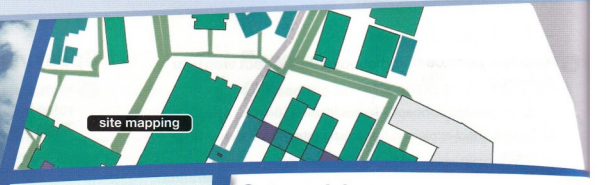
_____

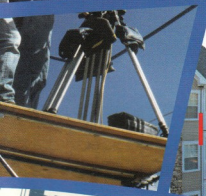
_____

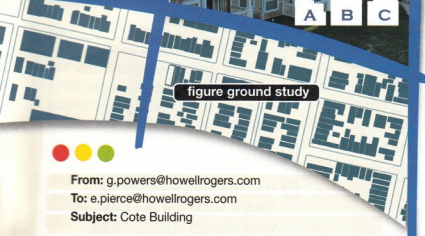
_____

8 Site Survey and Analysis









From: g.powers@howellrogers.com
To: e.pierce@howellrogers.com
Subject: Cote Building

Emmett,

Let me bring you up to date on the Cote Building project. As you know, we're beginning major **site analysis** next week. The building will be in the center of the north campus. Basic site **mapping** is already done, and space is limited. The university's **existing** buildings are very close together. What we need you to do first is a **figure ground study**. Students will still need **access** to the surrounding buildings. The figure ground study will highlight the campus walkways.

Your second priority is the **site survey**. Just **measure** the construction site and the **adjacent** buildings. Don't worry about the surrounding terrain. We have plenty of detailed **historical tracings** of the site. If you have time, go ahead and make a **serial vision**. That will give us some different perspectives of the **locality**.

Obviously, we already know about factors like **climate** and **temperature.** We will compile the results of your survey with existing data. From there, we can move on to the planning process.

Gail Powers

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different methods of site analysis?
2 What is the purpose of a site survey?

Reading

2 Read the email. Then, mark the following statements as true (T) or false (F).

1 __ The new building will be surrounded by other buildings.
2 __ The surveyors will complete a figure ground study after a site survey.
3 __ The surveyor will do a historical tracing of the site.

Vocabulary

3 Match the words and phrases (1-9) with the definitions (A-I).

1 __ access
2 __ climate
3 __ mapping
4 __ locality
5 __ measure
6 __ temperature
7 __ site survey
8 __ site analysis
9 __ serial vision

A the detailed study of a site
B the process of making a flat representation of a location
C a site mapping technique that shows the mapper's viewpoint
D the average long-term weather pattern for a region
E the degree of heat or coolness
F a specific place or location
G to find the dimensions of something
H a quantitative analysis of the physical aspects of a site
I the ability to use or enter something

Glossary

3D [ADJ-U5] If something is **3D**, it extends in three directions and has length, width, and depth.

accredited [ADJ-U15] If something is **accredited**, it has demonstrated that it follows certain standards that are defined by an official organization.

acre [N-COUNT-U9] An **acre** is an imperial unit used to measure area. It is equal to 4,840 square yards.

aggregate [N-UNCOUNT-U11] **Aggregate** is grainy material such as gravel, broken stones, and sand that builders use to make cement.

airport [N-COUNT-U1] An **airport** is a building that is usually very large, where people board, depart, and wait for airplanes.

angle [N-COUNT-U14] An **angle** is a shape that forms where two lines meet each other.

angular [ADJ-U6] If something is **angular**, it has angles instead of curves.

arch [N-COUNT-U4] An **arch** is a shape that is curved at one end and has corners or an opening at the other end.

asymmetrical [ADJ-U6] If something is **asymmetrical**, it does not have two identical sides that mirror each other.

attic [N-COUNT-U2] An **attic** is a room at the top of a building, just below the roof.

average [N-COUNT-U8] An **average** is a number that represents a value in the middle of a set of values. It is calculated by adding several values together and then dividing the total by the number of values that were used.

bachelor's degree [N-COUNT-U15] A **bachelor's degree** is a certificate indicating that someone has completed an educational program, usually after four years of study, and is qualified to work in a particular field.

basement [N-COUNT-U2] A **basement** is a room below ground level.

bathroom [N-COUNT-U2] A **bathroom** is a room with a toilet and a sink, and often has a bathtub or shower.

bedroom [N-COUNT-U2] A **bedroom** is a room where someone sleeps.

bend [V-I-U6] To **bend** is to move or extend along a curve.

brick [N-COUNT-U11] A **brick** is a rectangular block made of hardened clay used for building walls and similar structures.

brittle [ADJ-U13] If something is **brittle**, it is likely to break apart rather than bend or stretch.

building [N-COUNT-U1] A **building** is a structure that typically has walls and a roof, and is usually occupied by people for some purpose.

calculus [N-UNCOUNT-U14] **Calculus** is an advanced branch of mathematics that deals with rates of change and complex measurements of physical properties.

cement [N-UNCOUNT-U11] **Cement** is a powder that builders mix with gravel and sand to make concrete.

centimeter [N-COUNT-U10] A **centimeter** is a metric unit of length or distance equal to 1/100 of a meter or about 0.39 inches.

circle [N-COUNT-U4] A **circle** is a shape that is round, in which each point along the edge is an equal distance from the center.

climb [V-T-U6] To **climb** something is to move or extend upward along it.

closet [N-COUNT-U2] A **closet** is a small room or cabinet that is used for storage.

come to [V-T-U8] To **come to** something is to equal a particular number after a mathematical operation.

concrete [N-UNCOUNT-U11] **Concrete** is a hard building material made from a mixture of cement, gravel, water, and sand.

cone [N-COUNT-U5] A **cone** is a 3D shape that has a circle at the base and rounded sides that meet at a point at the opposite end.

conference room [N-COUNT-U3] A **conference room** is a large room in an office building that is usually used for meetings.

continuing education [N-UNCOUNT-U15] **Continuing education** is education consisting primarily of short-term or part-time courses provided for adults who are no longer enrolled in a formal education system.

corner [N-COUNT-U4] A **corner** is the part of a shape where two edges or lines meet.

cube [N-COUNT-U5] A **cube** is a 3D shape that has six square sides.

cubic centimeter [N-COUNT-U10] A **cubic centimeter** is a metric unit of volume equal to 1/1000 of a liter or 0.6 cubic inches.

cubic foot [N-COUNT-U9] A **cubic foot** is an imperial unit of volume, equal to the space of a cube with a length, width, and height of one foot each.

cubic inch [N-COUNT-U9] A **cubic inch** is an imperial unit of volume. A cube with a length, width, and height of one inch each has a volume of one cubic inch.

cubic meter [N-COUNT-U10] A **cubic meter** is a metric unit of volume equal to 1000 liters or about 35.31 cubic feet.

cuboid [N-COUNT-U5] A **cuboid** is a 3D shape that has six square or rectangular sides.

curvy [ADJ-U6] If something is **curvy**, it has rounded surfaces.

cylinder [N-COUNT-U5] A **cylinder** is a 3D shape that has straight sides and a circle at each end.

diamond [N-COUNT-U4] A **diamond** is a shape that has four straight sides that are all the same length and different angles where the sides meet.

divide by [V-PHRASE-U8] To **divide** a number (x) **by** another number (y) is to split number x evenly into y number of parts.

dome [N-COUNT-U5] A **dome** is a rounded 3D shape that is similar to the top half of a ball.

door [N-COUNT-U2] A **door** is a divider that can be moved aside to allow people to move into and out of buildings or rooms.

drywall [N-UNCOUNT-U12] **Drywall** is a material that is used to make walls, consisting of large sheets of paper and plaster.

durable [ADJ-U13] If something is **durable**, it lasts a long time and cannot be broken easily.

elastic [ADJ-U13] If something is **elastic**, it can be stretched and returned to its original form.

elevator [N-COUNT-U3] An **elevator** is a machine that moves people or objects up and down in a building, from one floor to another.

emphasis [N-COUNT-U15] An **emphasis** is an academic subject that someone gives extra focus or attention to.

entrance *[N-COUNT-U3] An* ***entrance*** *is a place where people can get in and out of a building, usually through a door.*

equal [V-T-U8] To **equal** something is to be precisely the same number or amount as something else.

examination [N-COUNT-U15] An **examination** is an official test of someone's knowledge or abilities.

face [N-COUNT-U5] A **face** is a flat surface on a 3D shape.

fiberglass [N-UNCOUNT-U12] **Fiberglass** is a strong, rigid substance made from thin strands of glass that is used to create various products, including building materials.

fire escape [N-COUNT-U3] A **fire escape** is a set of stairs on the outside of a building that people use as an exit in case of emergency.

flat [ADJ-U6] If something is **flat**, it has a level surface without curves.

flexible [ADJ-U13] If something is **flexible**, it can be bent into a different shape easily.

floor [N-COUNT-U3] A **floor** is a section or level in a building that may be higher or lower than other floors.

foot [N-COUNT-U9] A **foot** is an imperial unit of length equal to 12 inches.

garage [N-COUNT-U2] A **garage** is a room next to a house with a large door and is used for storing cars and other objects.

geometry [N-UNCOUNT-U14] **Geometry** is an area of mathematics that involves the study of points, lines, angles, and the size and shape of figures.

glass [N-UNCOUNT-U12] **Glass** is a hard material that is usually transparent and is often used to make windows.

grade [N-COUNT-U7] A **grade** is the measurement of how steep a slope is.

gram [N-COUNT-U10] A **gram** is a metric unit of weight equal to 1/1000 kilogram or about 0.035 ounces.

hallway [N-COUNT-U3] A **hallway** is a narrow passage that leads from one area to another in a building.

hardness [N-UNCOUNT-U13] **Hardness** is the quality of how firm or solid something is.

heat flow [N-UNCOUNT-U14] **Heat flow** is the transfer of hot energy to a cool area.

heavy [ADJ-U13] If something is **heavy**, it has great weight and may be difficult to move.

hectare [N-COUNT-U10] A **hectare** is a metric unit of area equal to 10,000 square meters or about 2.47 acres.

high-rise [N-COUNT-U1] A **high-rise** is a tall building with many stories.

hilly [ADJ-U7] If an area is **hilly**, it has many hills or slopes.

hospital [N-COUNT-U1] A **hospital** is a building where people go for medical help.

hundred [N-COUNT-U8] **Hundred** is a way of expressing numbers in the thousands by counting how many times 100 goes into the number. For example, the number 1,400 could be expressed as "fourteen hundred."

I-beam [N-COUNT-U11] An **I-beam** is a steel bar that supports heavy loads and which looks like a capital I.

imperial [ADJ-U9] If a measurement is **imperial**, it uses the system that is based on the ounce and the inch.

inch [N-COUNT-U9] An **inch** is an imperial unit of length equal to 1/12 of a foot.

internship [N-COUNT-U15] An **internship** is a temporary (usually unpaid) job in which students can gain practical work experience.

iron [N-UNCOUNT-U11] **Iron** is a metal building material that is used to make steel.

kilogram [N-COUNT-U10] A **kilogram** is a metric unit of weight equal to 1000 grams or about 2.2 pounds.

kitchen [N-COUNT-U2] A **kitchen** is a room that is used for preparing food, and typically has a sink, countertops, and appliances.

landscape [N-COUNT-U7] A **landscape** is an area or region of land with a particular appearance.

laundry room [N-COUNT-U2] A **laundry room** is a room with a washing machine that is used for washing clothes.

less [PREP-U8] **Less** is used to show that something is being subtracted.

level [ADJ-U7] If something is **level**, it is flat and even.

licensed [ADJ-U15] If someone is **licensed**, he or she has official approval from an organization or government body to do something.

lightweight [ADJ-U13] If something is **lightweight**, it is not heavy.

line [N-COUNT-U14] A **line** is a perfectly straight geometric figure that passes through points in both directions.

liter [N-COUNT-U10] A **liter** is a metric unit of volume equal to 1000 cubic centimeters or about 61.02 cubic inches.

living room [N-COUNT-U2] A **living room** is a room in a home for general use, usually including furniture for sitting, a television, stereo, etc.

lobby [N-COUNT-U3] A **lobby** is an open area just inside the entrance to a building.

maintain [V-T-U15] To **maintain** something is to keep it current or functional.

major in [V-T-U15] To **major in** something is to officially study a particular area or subject in order to earn a degree in that area.

marble [N-UNCOUNT-U12] **Marble** is a type of smooth stone that is often polished and used as a building material.

master's degree [N-COUNT-U15] A **master's degree** is the qualification that someone has completed a course of study at a higher level than a bachelor's degree.

metal [N-COUNT-U11] A **metal** is a building material that is hard, shiny, and malleable.

meter [N-COUNT-U10] A **meter** is a metric unit of length or distance equal to 100 centimeters or about 3.28 feet.

metric [ADJ-U10] If a measurement is **metric**, it uses the system that is based on the kilogram and the liter.

minus [PREP-U8] To **minus** one number from another number means that the second number is subtracted or taken away from the first number.

mortar [N-UNCOUNT-U11] **Mortar** is a mixture of water, sand, and lime that is used to hold bricks and stones together.

multiply by [V-PHRASE-U8] To **multiply** a number (x) **by** another number (y) is to add number x to itself y number of times.

office [N-COUNT-U3] An **office** is a room or group of rooms where people work or conduct business, usually at desks.

office building [N-COUNT-U1] An **office building** is a building in which people work (in offices).

opaque [ADJ-U13] If something is **opaque**, it cannot be seen through.

open [ADJ-U7] If an area is **open**, it is uncovered and does not have many features such as vegetation or buildings.

ounce [N-COUNT-U9] An **ounce** is an imperial unit of weight equal to 1/16 of a pound.

oval [N-COUNT-U4] An **oval** is a shape that is rounded and longer than it is wide, similar to an egg.

parking structure [N-COUNT-U1] A **parking structure** is a building, usually with several levels, in which people park cars.

physics [N-UNCOUNT-U14] **Physics** is the scientific study of how matter and energy, such as heat and light, interact with each other.

plaster [N-UNCOUNT-U12] **Plaster** is made of sand, lime, and water and hardens when it dries.

plastic [N-COUNT-U12] A **plastic** is a lightweight substance made from chemicals that is used to create a wide range of products, including building materials.

plus [PREP-U8] When a number is **plus** another number, the two numbers are added together.

point [N-COUNT-U14] A **point** is a precise position on a surface that has no dimensions.

polygon [N-COUNT-U4] A **polygon** is a shape that has three or more straight sides.

porcelain [N-UNCOUNT-U12] **Porcelain** is a smooth, delicate substance that is made from heating clay.

pound [N-COUNT-U9] A **pound** is an imperial unit of weight equal to 16 ounces.

prerequisite [N-COUNT-U14] A **prerequisite** is something that someone is required to do before doing something else, such as a basic class that a student must take before taking an advanced class.

pyramid [N-COUNT-U5] A **pyramid** is a 3D shape with a polygon at the base and triangular sides that meet at a point at the opposite end.

rebar [N-UNCOUNT-U11] **Rebar**, or reinforcing bar, is a steel bar that is encased in concrete to make a structure stronger and able to support more weight.

rectangle [N-COUNT-U4] A **rectangle** is a shape that has four straight sides, with each side the same length as the opposite side.

residence [N-COUNT-U1] A **residence** is a building in which people live.

rigid [ADJ-U13] If something is **rigid**, it maintains its form and does not stretch or bend easily.

rise [V-I-U7] To **rise** is to incline or move upward.

round [ADJ-U6] If something is **round**, it has curves and is shaped like a circle.

rubber [N-UNCOUNT-U12] **Rubber** is a strong, elastic substance made from plants and often chemicals.

Glossary

sand [N-UNCOUNT-U11] **Sand** is a loose, grainy substance made up of tiny rock particles.

school [N-COUNT-U1] A **school** is a building, usually with many rooms, where people go to learn.

segment [N-COUNT-U14] A **segment** is the part of a line located between two points.

sharp [ADJ-U6] If something is **sharp**, it has a thin point or edge.

side [N-COUNT-U4] The **side** of an object or area is one of its edges.

skyscraper [N-COUNT-U1] A **skyscraper** is a very tall building that is usually found in large cities.

slope [N-COUNT-U7] A **slope** is an inclined area, generally on the side of a mountain or hill.

sphere [N-COUNT-U5] A **sphere** is a round 3D shape like a ball in which all points around the outside are an equal distance from the center.

square [N-COUNT-U4] A **square** is a shape that has four straight sides that are all the same length and four equal angles where the sides meet.

stairwell [N-COUNT-U3] A **stairwell** is an area that contains stairs for walking from one level to another in a building.

steel [N-UNCOUNT-U11] **Steel** is an extremely strong metal made from iron and carbon.

steep [ADJ-U7] If something is **steep**, it inclines upward sharply.

stone [N-UNCOUNT-U11] **Stone** is a hard, natural substance that comes from rock and is used as a building material.

straight [ADJ-U6] If something is **straight**, it continues in one direction, without curving or bending.

structure [N-COUNT-U1] A **structure** is something that is made of multiple parts and usually stands by itself.

surface [N-COUNT-U5] A **surface** is the top or outside layer of something

symmetrical [ADJ-U6] If something is **symmetrical**, it has identical sides that mirror each other.

terrain [N-COUNT-U7] A **terrain** is an area of land with particular physical features.

tile [N-COUNT-U12] A **tile** is a flat piece of stone or clay that is used to cover a surface, such as a floor or wall.

timber [N-UNCOUNT-U12] **Timber** is wood that forms part of a building.

times [PREP-U8] If a number is **times** another number, it is multiplied by that number.

ton [N-COUNT-U9] A **ton** is an imperial unit of weight equal to 2,000 pounds.

tonne [N-COUNT-U10] A **tonne** is a metric unit of weight equal to 1000 kilograms or about 2204 pounds.

topography [N-UNCOUNT-U7] **Topography** is the physical characteristics of an area of land.

transparent [ADJ-U13] If something is **transparent**, it can be seen through easily.

triangle [N-COUNT-U4] A **triangle** is a shape that has three straight sides and three angles.

trigonometry [N-UNCOUNT-U14] **Trigonometry** is an area of mathematics that involves examination of triangles, their sides, and their angles.

vegetation [N-UNCOUNT-U7] **Vegetation** is all the plants in an area.

vestibule [N-COUNT-U3] A **vestibule** is a hallway that leads from an entrance to the main part of a building.

warehouse [N-COUNT-U1] A **warehouse** is a building with a large, open space inside, typically used for storage.

window [N-COUNT-U3] A **window** is an opening in a wall that people can see through but rarely use as an entrance or exit.

yard [N-COUNT-U9] A **yard** is an imperial unit of length equal to 36 inches or 3 feet.

CAREER PATHS

Architecture

Book 2

Virginia Evans
Jenny Dooley
Dave Cook, AIA

Express Publishing

Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Qualities of an Architect	Job listing	artistic, attention to detail, computer savvy, creative, dedicated, enthusiastic, hardworking, logical, organized, outside the box, patient, persistent	Giving examples
2	People in Architecture	Article	acoustic engineer, architect, building surveyor, client, consultant, contractor, electrical engineer, firm, geotechnical surveyor, land surveyor, landscape architect, mechanical engineer, self-employed, structural engineer	Estimating time
3	Scale	Textbook chapter	design, express, fraction, full-size scale, hundredth, one-to- (1:), percent, proportion, ratio, scale system, space, to scale	Admitting confusion
4	Sketches	Webpage	abstract, analytical sketch, component, conceptual sketch, draw, in detail, observational sketch, pen, pencil, preliminary, rough, sketch	Offering constructive criticism
5	Perspective	Guide	constructed perspective, converge, horizon, horizontal plane, line of view, perspective, sketch perspective, two-point perspective, vanishing point, vertical plane, viewpoint	Identifying differences
6	Orientation	Email	face, heat gain, natural light, orientation, placement, position, prevailing wind, rise, set, shadow, site, solar heat gain	Asking for clarification
7	Concept	Advertisement	brief, concept, develop, discuss, factor, function, goal, idea, impression, interview, purpose, specification, take into consideration, vision	Asking for more detail
8	Site Survey and Analysis	Email	access, adjacent, climate, existing, figure ground study, historical tracing, locality, mapping, measure, serial vision, site analysis, site survey, temperature	Expressing a concern
9	Design Factors	Memo	apply, building occupancy classification, building permit, code, easement, floor-area-ratio, frontage, impervious surface, law, ordinance, regulation, septic analysis, setback, zoning	Giving good news
10	Design Elements	Pamphlet	design, drainage, exterior, form, heating, interior, landscaping, layout, lighting, materiality, route, ventilation	Introducing oneself on the phone
11	Detail Development	Letter	appliance, budget, cabinet, cost estimate, detail development, determine, finalize, floor plan, furnishing, HVAC system, insulation, modeling, plumbing fixture	Asking for advice
12	Elements of Construction	Textbook chapter	construction, curtain wall, foundation, framework, framework construction, load bearing wall, opening, pile-driven foundation, roof, slab-on-grade, solid construction, structure, support	Providing reassurance
13	Construction Process	Blog	bid, break ground, construction documents, contract, excavation, finishing, framing, grade, inspection, installation, phase, plumbing, walk-through, wiring	Stating a preference
14	Prefabrication	Article	assemble, element, housing unit, limit, mass produced, off-site, on-site, option, prefabricated, preformed, quality control, transport, uniform	Listing pros and cons
15	Finished Building	Build sheet	cladding, cornice, door schedule, drop ceiling, finish, frame, interior finishing, partition, remarks, siding, trim, window schedule	Confirming information

Table of Contents

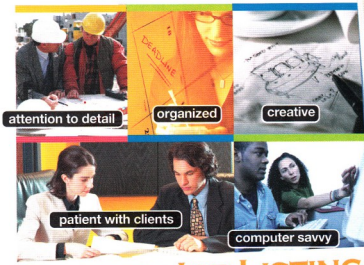
1 Qualities of an Architect

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some of the qualities of a good architect?

2 Why must an architect be both artistic and logical?



artistic

RHODES JOB LISTINGS

Architect Wanted

Date: January 14
Reply to: jobs@curtis-burke.com

A local architecture partnership is looking for a **creative**, **dedicated** architect. We are seeking a candidate with experience designing residences. We want to work with someone who is **enthusiastic** about home design! Experience with custom home building is a plus, but not necessary. The ideal candidate will be **hardworking** and **computer savvy**. Up-to-date knowledge of drafting software is essential. A qualified candidate will have a working knowledge of design trends.

Our partnership creates custom homes for clients in the southwest area. Candidates should be **persistent**, **organized**, and **patient** with our clients. **Attention to detail** is a must. Many of our clients have unconventional visions for their homes. Architects must be **artistic** and able to think **outside the box**. They must also think of **logical** solutions to design problems.

Please send résumés and cover letters to the above email address. You can also send a hard copy by mail. Please visit our website for further contact information.

Reading

2 Read the job listing. Then, choose the correct answers.

1 What does the architecture partnership do?
- **A** educate architects about new drafting software
- **B** build custom homes with unconventional designs
- **C** cultivate enthusiasm for home design
- **D** hold training on current trends in architecture

2 Which is NOT required of applicants?
- **A** experience building custom homes
- **B** knowledge of current drafting software
- **C** ability to implement both artistic and logical solutions
- **D** functional understanding of design trends

3 According to the listing, why should architects be able to think outside the box?
- **A** because of the particular region that the company works in
- **B** because they need patience to handle clients
- **C** because the company places emphasis on dedication
- **D** because clients have unconventional design ideas

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ logical
2 __ artistic
3 __ organized
4 __ dedicated
5 __ patient
6 __ computer savvy
7 __ outside the box
8 __ attention to detail

- **A** skilled with planning and arranging in an orderly manner
- **B** having a strong aesthetic sense
- **C** committed to an idea or purpose
- **D** able to solve problems rationally
- **E** educated and skilled in the use of current technology
- **F** able to handle situations calmly and without rushing
- **G** ability to identify and appreciate small aspects of the overall whole
- **H** done in an atypical or unconventional way

4 Read the sentence pairs. Choose which word best fits each blank.

1 **creative / persistent**

A A _____ person will not give up easily.

B _____ people come up with unique ideas.

2 **hardworking / enthusiastic**

A _____ people put a lot of effort into their work.

B _____ people are very passionate about what they do.

5 Listen and read the job listing again. What should candidates be able to do when confronted with design problems?

Listening

6 Listen to a conversation between an interviewer and an applicant. Mark the following statements as true (T) or false (F).

1 __ The man gives an example of his creative problem-solving skills.

2 __ The man thinks artistic people are typically the most organized.

3 __ The woman offers the man the architect position.

7 Listen again and complete the conversation.

Interviewer: Let's get started. First off, we're looking for someone who can use the new drafting software. Are you pretty **1** _____ _____?

Applicant: Yes. **2** _____ _____ with all the latest design software.

Interviewer: Great. And would you say you're a **3** _____ thinker?

Applicant: Yeah, I try to **4** _____ _____ _____ _____ as much as possible.

Interviewer: Could you give me an example of a time you solved a problem creatively?

Applicant: Well, my client's kitchen was small, but she wanted lots of counter space. So, I **5** _____ a drop-leaf kitchen island.

Interviewer: Fantastic. And what makes you the ideal candidate for our firm?

Applicant: Well, I try to be both creative and logical. I'm also very organized A lot of artistic people **6** _____ _____ _____.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

We're looking for ...

Would you say ...

I try to be ...

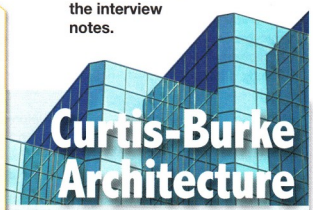
Student A: You are an interviewer. Talk to Student B about:

- qualities you are looking for in a candidate
- his or her qualities
- whether or not he or she is a good fit for the job

Student B: You are a job applicant. Talk to Student A about your qualities as an employee.

Writing

9 Use the conversation from Task 8 to fill out the interview notes.



Applicant Name:

Qualities: _____

_____

Do you plan to hire the applicant? Y / N

Why or why not? _____

_____

_____

2 People in Architecture

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some of the different careers in architecture?

2 What other building professionals do architects work with?

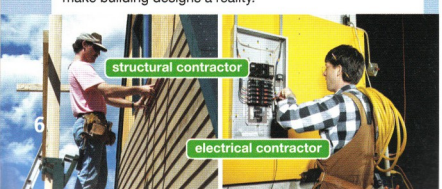
Careers in Architecture

Are you planning on a career in architecture? If so, you probably want to be an **architect**, but some students don't understand the diversity of this field. Whether **self-employed** or with a **firm**, architects depend on relationships with other professionals. They interact daily with **clients**, surveyors, **contractors**, and **consultants**.

Before any construction can begin, architects work with surveyors. For new construction, **land surveyors** and **geotechnical surveyors** usually assess the site first. **Building surveyors** are often called in to assess existing structures.

Many engineers contribute to the project before and during construction. **Structural engineers** work with the architect to ensure the building's structural integrity. **Electrical engineers** and **mechanical engineers** design the building's utilities. **Acoustic engineers** handle noise reduction. This is especially important in apartment buildings.

Specialists allow architects to focus on what they do best. Some architects have specialties of their own, like **landscape architects**. No single person can become an expert in every field. Architectural teams work together to make building designs a reality.



Reading

2 Read the article. Then, choose the correct answers.

1 What is the purpose of the article?

- **A** to review the benefits of internship at architectural firms
- **B** to explain how technology has changed architectural careers
- **C** to describe different kinds of people that architects work with
- **D** to compare modern architectural careers with those of the past

2 Which job is NOT completed by an engineer?

- **A** assessing the construction site
- **B** designing the building's utilities
- **C** ensuring the building's structural integrity
- **D** handling noise reduction

3 Which professional's work is especially important when building apartments?

- **A** building surveyor
- **B** structural engineer
- **C** acoustic engineer
- **D** landscape architect

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ firm
2 __ client
3 __ contractor
4 __ consultant
5 __ self-employed
6 __ building surveyor
7 __ structural engineer
8 __ mechanical engineer

- **A** working for oneself rather than an employer
- **B** a business involving the partnership of two or more people
- **C** a person who designs a building's heating and ventilation systems
- **D** a person or company responsible for the physical construction of a building
- **E** a person who measures and draws the existing landscape and buildings
- **F** a person responsible for making sure the building is safe
- **G** a person or entity for whom a job is performed
- **H** an expert who provides professional advice

4 Write a word or phrase that is similar in meaning to the underlined part.

1 Lauren is studying to be a person who plans and designs buildings. a _ _ h _ _ _ c _
2 After primary construction was finished, the company hired a person who specializes in outdoor designs.
_ a _ d s _ _ _ e a r _ _ i _ _ _ t
3 In apartment buildings, it's especially important to have a person who specializes in noise reduction.
_ _ o _ s _ _ _ e _ _ _ n e _ r
4 The company hired a new person who determines the boundaries of a property. _ _ a n _ _ _ u _ _ v e _ _ _ _
5 James used to be a person who designs a building's electrical systems. _ l e _ t _ _ c _ _ _ _ _ i _ _ e _
6 If the ground is unstable, the person who assesses the earth at a site will discover it.
g _ _ _ e c _ _ _ c _ l _ u _ _ _ y _ _

5 Listen and read the article again. Who do architects work with before construction begins?

Listening

6 Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).

1 __ The contractor requested clarification about the revisions.
2 __ The structural engineer is still going over the plans.
3 __ The architects will order materials right away.

7 Listen again and complete the conversation.

Architect 1: Hey, Josie. Have you heard back from the **1** _____ for the Anderson project?
Architect 2: Not yet, Mark. Not since we sent him the **2** _____ _____.
Architect 1: That's not good. I wonder what's taking so long?
Architect 2: I don't know. Have you been in touch with the engineers?
Architect 1: I talked to the electrical engineer and the **3** _____ _____. They're all ready to go.
Architect 2: What about the **4** _____ _____?
Architect 1: She's still going over the plans. She said she'd **5** _____ _____ _____ by the end of the week.
Architect 2: How long do you think it'll be before we can begin construction?
Architect 1: I think **6** _____ _____ _____ sometime in the next two weeks.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Have you heard ...
I talked to ...
We'll be ready ...

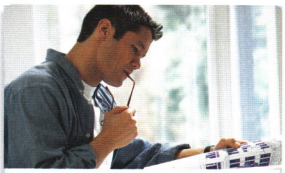
Student A: You are an architect. Talk to Student B about:

- progress on an architectural project
- whom you have and have not heard from
- when you will be ready to proceed with the project

Student B: You are an architect. Talk to Student A about progress on a project.

Writing

9 Use the conversation from Task 8 to fill out the progress update for the client.



Hi Tina,

This is a progress update on: _____

Progress: _____

_____

We are currently waiting for ... _____

Construction: _____

Let me know if you have any questions.
Mark

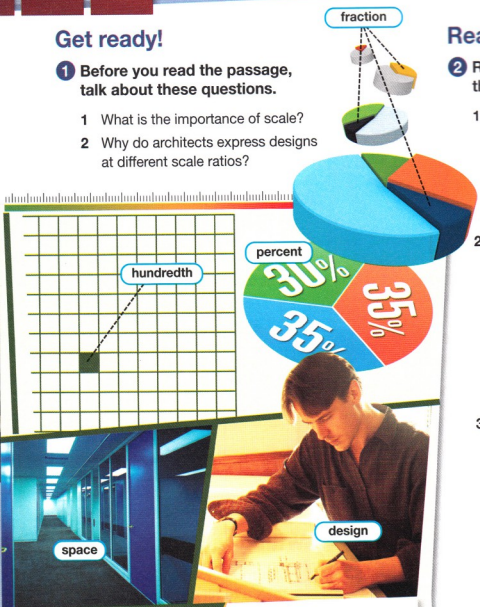
3 Scale

Get ready!

1 Before you read the passage, talk about these questions.

1 What is the importance of scale?

2 Why do architects express designs at different scale ratios?



Architecture Made Easy

Scale

Drawing **to scale** is an essential part of architectural plans. Appropriate scale helps us understand the dimensions of a **space**. When architects **design** buildings, they must take scale into account.

Note: Casual viewers often need visual references to understand the ***scale system****. Features like people and furniture provide a sense of* ***proportion****.*

Architects **express** designs in different scales depending on the size. Sometimes they create detailed models of small areas at **full-size scale**. For drawings, a **one-to**-one (1:1) **ratio** is far too large. Even at fifty **percent**, this is usually a problem.

The sizes of buildings, rooms, and construction sites vary greatly, but all the drawings need to be about the same size. That's why different areas require different ratios. Details typically appear on a 1:8 scale. For a large building, a one-**hundredth** scale drawing might be appropriate. Architects draw whole sites at a **fraction** of the size. For these, ratios of 1:1000 or 1:1250 are common.

Reading

2 Read the textbook chapter. Then, choose the correct answers.

1 What is the passage mainly about?

A how technology has changed scale drawing
B why architects draw building plans to scale
C who architects draw scale renderings for
D when to do particular types of scale drawings

2 According to the chapter, what is wrong with a fifty percent scale?

A It is usually much too large.
B It can only be used for detail models.
C It is inconsistent with the rest of the scale system.
D It does not account for variations in building size.

3 Which is NOT an idea mentioned in the passage?

A Scale helps people understand the dimensions of a space.
B A one-to-one ratio is too large to be practical for drawings.
C Different scales are appropriate for different drawings.
D Architects use different scale ratios than other professionals.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ ratio
2 __ design
3 __ fraction
4 __ express
5 __ space
6 __ to scale
7 __ -hundredth
8 __ scale system

A an area within an architectural plan, such as a room
B a numerical representation of part of a whole
C done proportionately to the size of the real object
D a relationship between two quantities
E to represent something in a certain way
F a method of expressing relationships between dimensions or quantities
G one of one hundred equal parts of a whole
H to conceive of and render plans for something

4 **Fill in the blanks with the correct words and phrases from the word bank.**

WORD BANK

one-to- proportion -hundredth
percent full-size scale

1 For the client renderings, we reduced the size by twenty _____.
2 Bridgette constructed a model at _____.
3 The student's drawing was slightly out of _____.
4 A _____ five ratio is common for construction details.
5 The architect drew the plans using a one _____ scale.

5 **Listen and read the textbook chapter again. Why should drawings sometimes include features like people and furniture?**

Listening

6 **Listen to a conversation between an architect and a client. Mark the following statements as true (T) or false (F).**

1 __ The woman is dissatisfied with the sketches she received.
2 __ The woman requests a scale drawing of the building layout.
3 __ The man is going to draw a staircase with additional details.

7 **Listen again and complete the conversation.**

Architect: Well, like I said in my email, I'll be doing some more formal renderings **1** _____ _____.
Client: Okay, I'm **2** _____ _____ _____ about all the different scale drawings. Why do you have to do more than one?
Architect: Well, we draw things at different scale **3** _____ to show different things.
Client: Like what?
Architect: For instance, we're going to **4** _____ the building layout in a one-to-one hundred scale. That way, we can see the plans for the whole house.
Client: If it shows everything, what do we need the others for?
Architect: You need to see some areas up close. For example, we'll do a drawing of the main staircase at a **5** _____ - _____ - _____ scale.
Client: **6** _____ _____. So you use a different ratio to show more or less detail.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Like I said ... / I'm a little confused ...
For instance ...

Student A: You are an architect. Talk to Student B about:

- what scale drawings you plan to do
- why you use different scales
- which features you will show with different scales

Student B: You are a client. Talk to Student A about scale drawings he or she plans to do.

Writing

9 **Use the conversation from Task 8 to fill out the order form for scale drawings.**

Wolfsburg Architecture

Request for Scale Drawings

Client Name: _____

Type of Drawing	Room/ Building/Detail	Scale
Construction	Main stairs	1:5

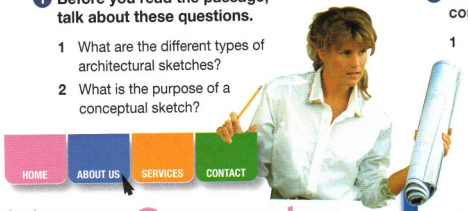
4 Sketches

Get ready!

1 Before you read the passage, talk about these questions.

1 What are the different types of architectural sketches?

2 What is the purpose of a conceptual sketch?



About the Design Process

When you build a home, you want to learn and trust your architect's process. Every architect is different, so many people don't know what to expect. My design process begins with a series of simple **sketches**.

As we discuss your ideas, I generally **draw** a **conceptual sketch**. These are **rough** renditions of your new home in **pencil**. I usually do several **preliminary** sketches to explore different possibilities. These **abstract** drawings give me a general sense of the space. If you are planning a remodel, please bring some photos. They will show me what we are starting with.

When I first visit a site, I start with **observational sketches**. I need to know what the existing space looks like. Next, I will draw the **analytical sketches**. These are more formal drawings in **pen** and ink. They show the designs **in detail**. Multiple analytical sketches will highlight different design **components**. From here, we will move into the planning stages.

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the purpose of the webpage?

A to offer advice on drawing effective sketches

B to compare the architect's sketches to someone else's

C to describe examples of the architect's past sketches

D to explain how sketches are used in building design

2 Why does the architect draw conceptual sketches?

A to highlight the design components of the space

B to provide a reference to the existing building

C to get a general idea of what the space will be like

D to explore the new design in greater detail

3 Which is NOT part of the design process described in the webpage?

A detailed pen and ink drawings

B abstract conceptual sketches

C rough pencil sketches of design components

D observational sketches for remodeling

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ pen
2 __ draw
3 __ rough
4 __ sketch
5 __ in detail
6 __ conceptual sketch
7 __ analytical sketch
8 __ observational sketch

A a writing implement that uses ink to make marks

B a formal drawing that explores a specific design element

C to create a two-dimensional representation of something

D a drawing of an existing building or landscape

E an abstract drawing done at the moment an idea is conceived

F imprecise or unfinished

G a drawing done by hand

H including small elements of the design

4 **Read the sentence pairs. Choose which word best fits each blank.**

1 **preliminary / abstract**

A _____ sketches come before any other kind of sketches.

B _____ sketches are not literal representations of the design.

2 **component / pencil**

A An analytical sketch highlights a design _____.

B Many architects prefer to draw in _____.

5 **Listen and read the webpage again. When does the architect do observational sketches?**

Listening

6 **Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).**

1 __ The man is working on an analytical sketch for a client.

2 __ The woman suggests doing a series of rough sketches.

3 __ The man decides to do an observational sketch.

7 **Listen again and complete the conversation.**

Architect 1: Hi, Jack. What are you **1** _____?

Architect 2: It's a **2** _____ _____ for the Niemans' guest house.

Architect 1: It looks really good. Is this a first draft?

Architect 2: Yeah, this is just a **3** _____ idea of what they want. I haven't been to the property yet.

Architect 1: When are you going to see it?

Architect 2: Tomorrow afternoon.

Architect 1: You should do some **4** _____ _____ while you're there. That'll give you a better idea of what you're working with.

Architect 2: Yeah, that's a good idea. **5** _____ _____ do that.

Architect 1: It'll help when it's time to do your **6** _____ _____. You'll have a good starting point.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

What are you ...

This is just ...

You should do ...

Student A: You are an architect. Talk to Student B about:

- a sketch he or she is working on
- his or her progress on the sketch
- your suggestions for the next sketch

Student B: You are an architect. Talk to Student A about the sketch you are drawing.

Writing

9 **Use the conversation from Task 8 to fill out the planning notes for your client.**

Mona Carpenter - Residential Architect

Client's Planning Notes

Client Name: _____

Completed sketches: _____

Next phase and sketches needed: __

_____

_____

_____

_____

5 Perspective

Get ready!

1 Before you read the passage, talk about these questions.

1 How do architects use perspective drawings?
2 What are some different types of perspective?

Reading

2 Read the guide. Then, mark the following statements as true (T) or false (F).

1 __ An architect must identify the vanishing point before finding the viewpoint.
2 __ The vanishing point is where two vertical planes converge.
3 __ Constructed perspective is done with scale measurements.

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

1 __ viewpoint
2 __ perspective
3 __ converge
4 __ line of view
5 __ vertical plane
6 __ horizontal plane
7 __ sketch perspective
8 __ two-point perspective

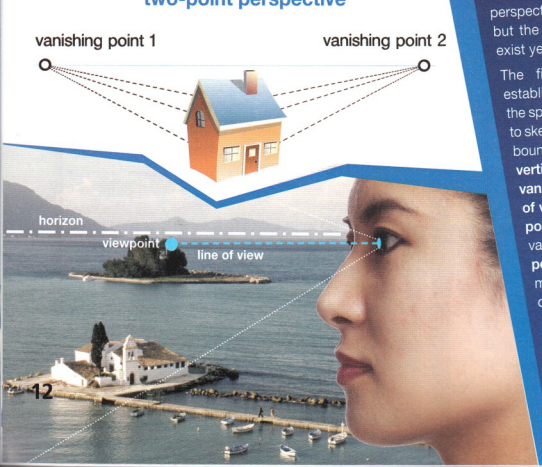
A the way a two-dimensional image displays depth or distance
B an imaginary line made up of objects or planes in the drawing
C to meet or touch at a specific place
D an angle from which a drawing is done
E a surface like a floor that divides a drawing into segments from top to bottom
F a type of perspective that has two distinct vanishing points
G the type of perspective used in a sketch or drawing
H a surface like a wall that divides a drawing into segments from side to side

Guide to Perspective Drawing

For architects, drawing in **perspective** is an extremely useful skill. Some people, including clients, are not trained to read plans. In essence, perspective drawing is like taking a photograph — but the subject of this "photograph" might not exist yet.

The first step in perspective drawing is establishing the **viewpoint**. Decide what view of the space you want to show. Then you can begin to sketch the different components. Establish the boundaries of the **horizontal planes** and **vertical planes**. It is usually helpful to find the **vanishing point**. Sketch the **horizon** and **lines of view** to see where they **converge**. In **two-point perspective**, there are two distinct vanishing points. When drawing **constructed perspective**, you will use actual scale measurements. Once you establish the lines of view, fill in the details.

*Remember, there are many different types of **sketch perspective**. Each type has its own rules to follow. Make sure you understand the perspective you choose.*



4 Write a word or phrase that is similar in meaning to the underlined part.

1 Architects usually draw in a kind of perspective that relies on actual dimensions. _ _ n s _ _ u _ _ e _ p _ r _ _ e _ t i _ _

2 Dr. Green asked his students to find the point where the lines of view converge. _ a _ _ _ h _ n _ _ _ i n _

3 Jenny sketched the imaginary line where the ground meets the sky into her drawing. h _ _ i _ o _

5 Listen and read the guide again. What should architects do first when drawing in perspective?

Listening

6 Listen to a conversation between a professor and a student. Choose the correct answers.

1 What is the conversation mainly about?

A the man's critique of the woman's perspective drawing
B the kind of perspective drawing the woman will do next
C the woman's grade on a perspective assignment
D the man's recommendation for good courses on perspective

2 What suggestion does the man make?

A using fewer vanishing points
B recalculating the building's measurements
C sketching a building from the corner
D practicing one-point perspective drawings

7 Listen again and complete the conversation.

Professor: This week, I'd really like to see you move on to something more advanced. I think you should try drawing in **1** _____ - _____ _____.

Student: Okay. How does that work?

Professor: Well, in two-point perspective, you have two distinct **2** _____ _____. Can you picture what that would look like?

Student: I think so. Would it be like looking at the corner of a building?

Professor: Exactly. That's the best way to start. In one-point perspective, you were drawing a building **3** _____ _____ _____. In two-point perspective, you're usually looking at the corner.

Student: Okay, I think I understand.

Professor: Start by drawing the same building you drew last time. Just change the **4** _____.

Student: All right, **5** _____ _____ _____ right away.

Professor: Remember, you're still drawing **6** _____ _____. Make sure to use the measurements.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I think you should ...
Would it be ...
Start by ...

Student A: You are a professor. Talk to Student B about:

- what kind of perspective he or she should draw next
- the difference between types of perspective
- what he or she should remember while drawing

Student B: You are a student. Talk to Student A about the next drawing you will do.

Writing

9 Use the conversation from Task 8 to fill out the feedback on the student's drawing.

Architectural Drawing 201

Unit: _____

Student: _____

Score: ____ / 10

Comments: _____

_____

_____

Suggestions for Improvement: _____

_____

_____

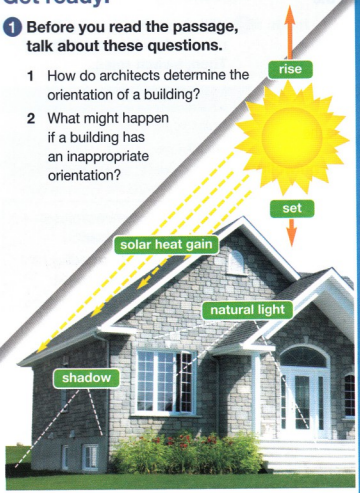
6 Orientation

Get ready!

1 Before you read the passage, talk about these questions.

1 How do architects determine the orientation of a building?

2 What might happen if a building has an inappropriate orientation?



To: n.jenkins@bluemail.com
From: ted@bolinarchitects.com

Hello Natasha,

I just got back from the building **site**. Based on the terrain, the house should **face** south. This **orientation** will let us take advantage of **natural light**. Since the climate is cold, **solar heat gain** is good. Maximizing **heat gain** is a big issue, especially in winter. We may have to adjust the **position** slightly to avoid **shadows**. We don't have to worry about other buildings, but some of the surrounding trees are fairly tall. However, the trees will actually be useful as they will act as a buffer against the **prevailing wind**.

Based on the current room **placement**, the bedrooms will face east. They will get plenty of light when the sun **rises**. As the sun **sets**, the kitchen will get the most light. If you like, we can go over the plans together, and I can answer any questions you might have.

Ted Pearson

Reading

2 Read the email. Then, choose the correct answers.

1 What is the email mainly about?
- **A** increasing the amount of natural light a building will get
- **B** changes to bedroom placement in a building plan
- **C** tree removal at a construction site
- **D** reducing solar heat gain in a new house

2 What is true about the trees at the site?
- **A** they provide necessary shade
- **B** they help maximize heat gain
- **C** they will protect against the wind
- **D** they prevent solar heat gain

3 What does NOT affect the orientation of the house?
- **A** maximizing use of natural light
- **B** position of surrounding buildings
- **C** avoiding the shadows of trees
- **D** improving heat gain in winter

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ set
2 __ site
3 __ face
4 __ rise
5 __ orientation
6 __ placement
7 __ natural light
8 __ solar heat gain

- **A** to have the front pointed in a certain direction
- **B** illumination from the sun
- **C** the location where a building will be constructed
- **D** to go below the horizon
- **E** increase in thermal energy from direct sunlight
- **F** the relative direction an object is pointed
- **G** the chosen location for an object
- **H** to come up above the horizon

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 **position / prevailing wind**

A The architect had to adjust the building's _____ .

B A row of thick bushes can protect against the _____ .

2 **heat gain / shadow**

A The tree casts a _____ over the parking lot.

B Thick insulation can improve a building's _____ .

5 **Listen and read the email again. How does the climate affect the orientation of the woman's house?**

Listening

6 **Listen to a conversation between a client and an architect. Mark the following statements as true (T) or false (F).**

1 __ The woman prefers the plan's original orientation.

2 __ The proposed orientation will help the house hold more heat.

3 __ The trees will be removed from the property.

7 **Listen again and complete the conversation.**

Client: In your email, you said we should build the house with a southern exposure. But, I thought we wanted the house to **1** _____ _____ .

Architect: That's what we were planning initially, yes.

Client: So, why the change in **2** _____ ?

Architect: There are two main reasons. For one, if the house faces south, it'll **3** _____ _____ _____ in winter.

Client: Okay. And what else?

Architect: Well, the trees block most of the **4** _____ _____ from the west.

Client: Oh, I see. **5** _____ _____ _____ to cut down any of the trees .

Architect: Of course not. Also, if the house **6** _____ _____ , it'll help keep snow off the driveway.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

But I thought ...
Why the change ...
For one ...

Student A: You are an architect. Talk to Student B about:

- the orientation of a building
- the benefits of the chosen orientation
- why another orientation is unsuitable

Student B: You are a client. Talk to Student A about the orientation of a building.

Writing

9 **Use the conversation from Task 8 to write a note to the engineers about the building orientation.**

Hi team,

We need to change the orientation of the Jenkins house.

Problems with the original orientation:

_____

_____

Benefits of a different orientation:

_____

_____

Ted

7 Concept

Get ready!

1 Before you read the passage, talk about these questions.

1 Why do architects conduct interviews with their clients?

2 Why do clients need architects to develop ideas?

Schwartz Underwood Architects

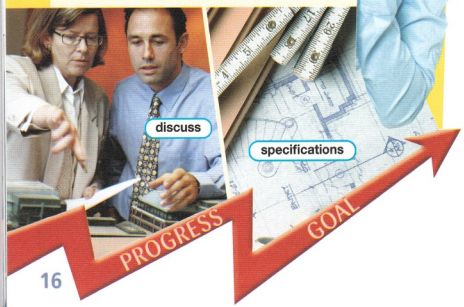
Specializing in Unique Commercial Design

At Schwartz Underwood, we turn **visions** into reality. We have over 40 years of experience in commercial architecture. Schwartz Underwood is the oldest commercial design firm in Clinton.

Client **interviews** at Schwartz Underwood are one-of-a-kind. Clients **discuss** their **ideas** with our architects in detail. Our **goal** is to understand and **develop** your design **concepts**. Our architects **take into consideration** the building's **purpose** as well as its appearance. The **function** and aesthetic appeal are equally important **factors**. Your business should be as efficient as it is impressive.

Our architects will compose a **brief** containing their design plans. We continually ask our clients for their **impressions** and opinions. We value client input throughout the design process. Our attention to the clients' visions sets us above our competitors. We work according to your **specifications** every step of the way.

Schwartz Underwood
Pushing the Limits of Possible.



Reading

2 Read the advertisement. Then, choose the correct answers.

1 What is the advertisement mainly about?
- **A** the most popular design factors in commercial architecture
- **B** the types of design concepts the firm prefers
- **C** an example of the firm's collaboration with a client
- **D** how the firm develops clients' design ideas

2 According to the advertisement, what is NOT true of the firm?
- **A** They specialize in commercial architecture.
- **B** They emphasize function over aesthetic appeal in their designs.
- **C** They have been in business for over forty years.
- **D** They ask their clients for their opinions frequently.

3 According to the advertisement, what distinguishes this firm from other architectural firms?
- **A** They are the oldest local commercial design firm.
- **B** They carefully follow their clients' unique visions.
- **C** They have appreciation for both function and appearance.
- **D** They value constant input from their clients.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ goal
2 __ idea
3 __ develop
4 __ purpose
5 __ factor
6 __ interview
7 __ impression
8 __ take into consideration

- **A** a meeting in which someone obtains information from someone else
- **B** the cause for something to exist or be done
- **C** an opinion based on thoughts and feelings
- **D** a thought or collection of thoughts
- **E** something that contributes to the end product
- **F** the ultimate desired result or outcome
- **G** to elaborate upon something
- **H** to think about something carefully

4 **Read the sentences and choose the correct words or phrases.**

1 John's design **concept / factor** involved colored lights.
2 The architect explained her artistic **interview / vision** to her client.
3 The architect has several factors to **take into consideration / develop** when planning his schedule.
4 Mr. Pace requested changes to the written **brief / factor**.
5 The **purpose / specifications** called for granite countertops.
6 The **function / impression** of the lamp is to provide light.

5 **Listen and read the advertisement again. What are some factors that the architects take into consideration?**

Listening

6 **Listen to a conversation between a client and an architect. Mark the following statements as true (T) or false (F).**

1 __ The woman knows where she wants to put the waterfalls.
2 __ The design theme separates inside space from outside space.
3 __ The man suggests installing a different feature instead of a waterfall.

7 **Listen again and complete the conversation.**

Architect: Hello, Judy. It's nice to meet you. Are you ready to **1** _____ your new office building?
Client: Yes, I have a few **2** _____ I'd like to talk about.
Architect: Great. Tell me about your **3** _____ for the building.
Client: Well, the main **4** _____ I have in mind is waterfalls.
Architect: Okay. And **5** _____ _____ _____ _____ do you picture the waterfalls?
Client: I'd really like to have one running down the outside of the building. And I want another one inside, in the main lobby.
Architect: So you want the waterfalls to be the main theme of the building?
Client: That's right. I want them to connect the outside to the inside space.
Architect: Bringing the natural world into your professional environment. I can definitely **6** _____ that idea.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Tell me about ...
I'd really like ...
So you want ...

Student A: You are an architect. Talk to Student B about:

- his or her new office building
- his or her design ideas
- whether or not the concept is practical

Student B: You are a client. Talk to Student A about your vision for a new office building.

Writing

9 **Use the conversation from Task 8 to fill out the brief on your client's design ideas.**

Client's Design ideas

Client/Project Name: _____

Basic Design Concept: _____
_____
_____
_____

Practical Factors to Consider: _____
_____
_____
_____

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **adjacent / existing**

A The building that is _____ to this one is blocking the sunlight.

B An _____ structure is one that is already there.

2 **figure ground study / historical tracing**

A A _____ shows the evolution of a site over time.

B A _____ highlights positive and negative space.

5 Listen and read the email again. What kind of site analysis conveys the surveyor's personal impression of the site?

Listening

6 Listen to a conversation between a surveyor and an architect. Choose the correct answers.

1 What is the conversation mainly about?

A the details of an upcoming site analysis

B instructions for making a historical tracing of a site

C a request to take additional measurements at a site

D a potential problem discovered during a site survey

2 What will the woman likely do next?

A make a serial vision of the locality

B measure the current temperature at the site

C find a figure ground study of the neighborhood

D assemble a historical tracing of the locality

7 Listen again and complete the conversation.

Surveyor: Hey, Ed. Can I talk to you about the results of the **1** _____ _____?

Architect: Sure. **2** _____ _____?

Surveyor: Well, I measured all of the site dimensions, and I'm worried about a **3** _____ _____ with the house next door.

Architect: Okay. What kind of problem?

Surveyor: There's a shared walkway between the properties. And it's only about a foot wide.

Architect: And the **4** _____ house is right on the edge of the walkway?

Surveyor: Exactly. But **5** _____ _____ _____ – they have a side door that opens onto the walkway.

Architect: I see. So if we build at the edge of the property, the neighbors won't have **6** _____ to their door.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Can I talk to you ...
I'm worried about ...
Not only that ...

Student A: You are a surveyor. Talk to Student B about:

- the results of a site survey
- a potential problem
- how to resolve the problem

Student B: You are an architect. Talk to Student A about the results of a site survey.

Writing

9 Use the conversation from Task 8 to fill out the memo to the surveyors.

memo

To the survey team,

The site survey revealed a problem with the building plan.

Problem: _____

_____

_____

_____

Solution: _____

_____

_____

_____

_____

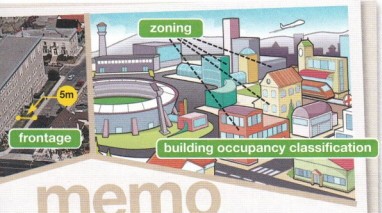
9 Design Factors

Get ready!

1 Before you read the passage, talk about these questions.

1 What laws govern the construction of new buildings in your country?

2 Why do some areas have regulations about impervious surfaces?



memo

From: Joseph Russell
To: Staff
RE: Carson Chemical Project

Hello team,

Carson Chemical is our first project in Riverside Industrial Park. Since we are new to this area, we need to do some extra research. The **building occupancy classification** is Group H (high-hazard). We need to look up local **ordinances** and **zoning laws**. There are a lot of **regulations** for chemical plant construction. We need to know the applicable building **code**.

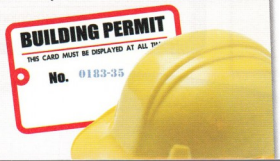
What we need to find out:

- the exact **frontage** of our construction site
- the required degree of **setback**
- any **floor-area-ratio** restrictions for high-hazard construction
- any regulations concerning **impervious surfaces**

With a Group H building, there are probably no property **easements**. However, we should double-check just in case. We need to **apply** for a **building permit** next month. Our plans should be up to code before we apply. In the meantime, we'll go ahead with the **septic analysis**.

Let me know if you have any questions,

Joe



Reading

2 Read the memo. Then, choose the correct answers.

1 What is the purpose of the memo?
- **A** to share the results of research into local zoning laws
- **B** to explain why regulations are stricter in a particular area
- **C** to compare new ordinances with the previous regulations
- **D** to list necessary research for a new project

2 Which is NOT likely to affect construction?
- **A** local construction ordinances
- **B** required building setback
- **C** laws regarding septic analysis
- **D** relevant property easements

3 What is true about the architectural team?
- **A** They have not worked in this district before.
- **B** They miscalculated the new building's floor-area-ratio.
- **C** They are waiting for a response to a building permit application.
- **D** They need further research before they do a septic analysis.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ law
2 __ code
3 __ setback
4 __ ordinance
5 __ easement
6 __ septic analysis
7 __ impervious surface
8 __ building occupancy classification

- **A** a structure covered by materials that water cannot pass through
- **B** a rule governing actions and enforced by the government
- **C** a local government regulation to support the general welfare of the public
- **D** the category given to a building depending on its usage
- **E** the required distance between a building and the edge of a lot
- **F** a right to use property without owning it
- **G** an examination of sewage and waste disposal systems
- **H** a set of rules to which buildings must adhere

4 Fill in the blanks with the correct words and phrases from the word bank.

WORD BANK

ordinance zoning frontage
floor-area-ratio building permit apply

1 The _____ is 3.0, or three times the buildable area.
2 A local _____ prohibits buildings more than seven stories tall.
3 _____ keeps neighborhoods and industrial areas separate.
4 The contractors failed to display a(n) _____ at the site.
5 The architects are ready to _____ for a permit.
6 The plot's _____ is 40 yards.

5 Listen and read the memo again. What does the staff need to double-check?

Listening

6 Listen to a conversation between an architect and an assistant. Mark the following statements as true (T) or false (F).

1 __ The woman found a problem during her research.
2 __ The team must adjust the floor-area-ratio to comply with regulations.
3 __ The team is ready to apply for a building permit.

7 Listen again and complete the conversation.

Assistant: Well, **1** _____ _____ _____, our floor-area-ratio is well within the restrictions. So we don't have to worry about that.
Architect: That's a relief. What did you find out about the **2** _____?
Assistant: **3** _____ _____ _____ the minimum setback for a residence is 45 feet.
Architect: Okay, that's about what we expected. Did anything unusual come up?
Assistant: Not that I could find. No new **4** _____ or regulations to watch out for.
Architect: Great. I think that covers everything.
Assistant: Do we need to look into any **5** _____ _____?
Architect: No, but there's a small pond at the back of the property. Take a look at any property laws or easements relating to the pond. Other than that, we can apply for a **6** _____ _____ right away.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

What did you ...
Lucky for us ...
Do we need ...

Student A: You are an architect. Talk to Student B about:

- the results of his or her research
- whether additional research is necessary
- the next step in the project

Student B: You are an assistant. Talk to Student A about the results of your research.

Writing

9 Use the conversation from Task 8 to fill out the research report.

Research Report

Date: _____
Project: _____
Areas of research: _____
Findings: _____
_____
Further research: _____
_____
_____

10 Design Elements

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some systems that are installed in buildings?

2 How does the building route affect the occupant's experience?

Reading

2 Read the pamphlet. Then, mark the following statements as true (T) or false (F).

1 __ According to the brochure, materiality is just as important as layout.

2 __ The firm's specialty is disabled accessibility for private residences.

3 __ The firm hires another company for landscape design.

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

1 __ form
2 __ route
3 __ design
4 __ heating
5 __ layout
6 __ drainage
7 __ materiality
8 __ landscaping

A the arrangement of plants and other aesthetic features around a building

B a path by which people move through a building

C a system for providing warm air to a building

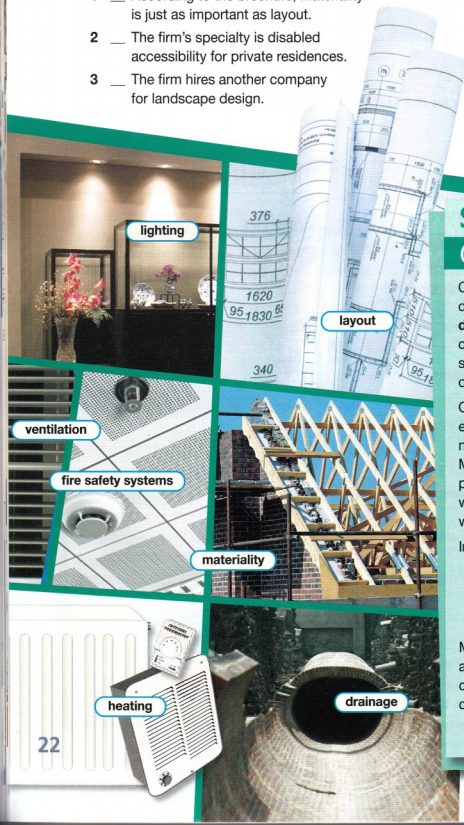
D the structural and aesthetic considerations of a building

E the use of different elements or substances in a building

F the arrangement of rooms within a building

G a system that allows water to flow away from something

H a plan for the construction of a building



Sanchez-Clarke Architecture

Our Design Process

Choosing your **layout** and building **route** are big decisions. But building layout is only one part of the **design**. **Materiality** is an equally important consideration. Do you want to build with wood, metal, or stone? How do you want to use glass in your building design? We'll help you understand your options.

Other design factors include utilities like plumbing, electrical and **heating** systems. Every building also needs **ventilation**, fire safety systems, and restrooms. Most of our clients own commercial buildings. In these public buildings, entrances must be accessible to people with disabilities. We'll ensure all specifications comply with local building codes.

In addition, we provide advice on:

- refrigerated air and evaporative cooling
- **lighting** for **interiors** and **exteriors**
- attractive **drainage** solutions

Many people overlook the importance of **landscaping** in architectural design. Our in-house landscape architects create attractive, functional exteriors. At Sanchez-Clarke, combining **form** and function is our specialty.

4 **Read the sentence pairs. Choose which word best fits each blank.**

1 **ventilation / lighting**

A Improper _____ can make it difficult to see.

B _____ encourages air flow inside a building.

2 **interior / exterior**

A The new landscaping improves the appearance of the _____.

B Most of the _____ is painted blue, but the kitchen is yellow.

5 **Listen and read the pamphlet again. What aspect of architectural design do many people forget about?**

Listening

6 **Listen to a conversation between a client and an assistant. Choose the correct answers.**

1 What is the conversation mainly about?

A a design change that the man wants to make

B the woman's ideas about design elements

C an upcoming appointment to talk about a design

D reasons to choose particular design elements

2 What is the man confused about?

A materiality **C** layout

B lighting **D** landscaping

7 **Listen again and complete the conversation.**

Client: Oh, hi. That **1** _____ _____ _____. I do need to talk to Anne about the design.

Assistant: Yes. That's what she said. She wants to discuss some ideas for **2** _____ _____ _____.

Client: Great. I'm getting overwhelmed with **3** _____ _____ _____. I'm eager to hear her recommendations.

Assistant: I understand. Are you available at 10:30 on **4** _____ _____?

Client: Yes, 10:30 sounds great. **5** _____ _____ _____, could you give Anne a message from me?

Assistant: Of course.

Client: I'm confused about the **6** _____ _____. She talked about letting in more sunlight. But I don't understand how she plans to do that.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

This is ... at ...

Are you available ...

By the way ...

Student A: You are a client. Talk to Student B about:

- plans for a new design
- your availability for an appointment
- a design aspect that confuses you

Student B: You are an assistant at an architectural firm. Talk to Student A about an appointment with the architect.

Writing

9 **Use the conversation from Task 8 to fill out the calendar entry.**

Client Name: _____

Appointment Date/Time: _____

Topics to Discuss: _____

Message from the client: _____

_____

_____

_____

_____

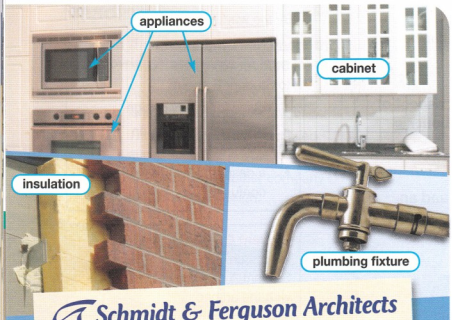
11 Detail Development

Get ready!

1 Before you read the passage, talk about these questions.

1 Aside from the basic structure, what are some design details that make up a building?

2 Why are details important when forming a cost estimate for a client?



Schmidt & Ferguson Architects

www.schmidtandferguson.com

Dear Mr. Keeling,

I want to update you on the plans for your building. We are nearly finished with **detail development**. We are ready to move forward with a **cost estimate**. But first, we need you to **finalize** several details:

- During the **modeling** process, we had to change the layout. We need your approval on the new **floor plan**. You will notice the main hallway is two feet wider. This makes it easier to move **furnishings** in and out.
- We need to finalize the locations of **appliance** hook-ups. The position of the refrigerator and oven will affect counter space.
- Please make a final decision about the kitchen **cabinets**. We also need your approval on the sink and other **plumbing fixtures**.

I included recommendations for **insulation** and **HVAC systems**. Let us know if you have any questions.

As soon as you finalize these details, we can **determine** a **budget.**

Sincerely,
Warren Schmidt
Laura Ferguson

Reading

2 Read the letter. Then, choose the correct answers.

1 What is the letter mainly about?
- **A** a breakdown of a final budget and cost estimate
- **B** a request for the client to finalize details
- **C** an invoice for the purchase of several materials and systems
- **D** a schedule for installation of different detail elements

2 Which of the following is NOT something that the client must do?
- **A** sign and return a budget proposal
- **B** review recommendations for HVAC systems
- **C** choose new kitchen cabinets
- **D** give approval for plumbing fixtures

3 What part of the design has changed?
- **A** the type of insulation
- **B** the appliance brand
- **C** the floor plan
- **D** the cabinet style

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ budget
2 __ finalize
3 __ modeling
4 __ determine
5 __ appliance
6 __ furnishing
7 __ plumbing fixture
8 __ detail development

- **A** a movable item for use in a building
- **B** the process of creating a three-dimensional representation of something
- **C** to make a decision after considering different possibilities
- **D** the process of designing the small elements of a building
- **E** a device that serves a practical purpose
- **F** to complete a plan or arrangement
- **G** a plan for the use of resources
- **H** an item for the use and distribution of water

4 Write a word or phrase that is similar in meaning to the underlined part.

1 The layout for the interior of the building shows a spiral staircase.
_ l _ _ r p _ a _

2 The architect wrote an educated guess of how much money was needed for the project. c _ _ t _ s t _ _ a _ e

3 The client decided to put extra material to prevent loss of heat in the attic.
_ _ s _ l _ t _ _ n

4 Leslie painted the piece of furniture for the storage and display of items white.
_ a b _ n _ _

5 My office bought a new system for the circulation of warm and cool air.
_ _ A _ s y _ _ _ m

5 Listen and read the letter again. What will happen after the client finalizes the details?

Listening

6 Listen to a conversation between a client and an architect. Mark the following statements as true (T) or false (F).

1 __ The woman has made a decision about the HVAC system.
2 __ The woman wants advice about the plumbing fixtures.
3 __ The man's recommendation will exceed the budget.

7 Listen again and complete the conversation.

Client: Hi, Leon. I'm ready to **1** _____ the details we talked about last week.

Architect: That's great. What did you decide about the kitchen **2** _____?

Client: Well, I had a hard time choosing, but I decided to go with the cathedral panel doors.

Architect: Okay. And the **3** _____ _____ for the master bathroom?

Client: I **4** _____ _____ the stainless steel faucets.

Architect: All right. The last item was the **5** _____.

Client: Yes, I'm really not sure about the insulation. I can't decide between rock wool and fiberglass. What do you recommend?

Architect: Between those two, I find that rock wool is more efficient. But we'll go over **6** _____ with that one.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

What did you ...
I decided on ...
What do you ...

Student A: You are a client. Talk to Student B about:

- finalizing detail development
- a detail you are still unsure about
- his or her recommendation

Student B: You are an architect. Talk to Student A about finalizing detail development.

Writing

9 Use the conversation from Task 8 to fill out the detail development notes.

Date: _____

Client/Project Name: _____

Which details are finalized?

_____

_____

_____

Which details still need to be finalized?

_____

_____

_____

What will help the client make a decision?

_____

_____

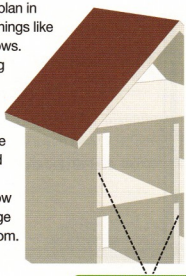
_____

3.7 Construction

Architects must understand the physical limitations of their medium. Without an understanding of **construction**, architects cannot understand a building's possibilities and limitations. There are several features that all buildings have in common. Among them are **foundations**, **roofs**, walls, and **openings**.

Every building begins with a solid foundation. Most buildings have either a **slab-on-grade** or **pile-driven foundation.** From here, the **structure** of the building begins to take shape. There are two main types of building structure. In **solid construction**, the walls **support** the building. In **framework construction**, a light **framework** holds the building together. This framework may be made of wood, metal, or even concrete.

Architects must know the difference between different types of walls. **Load bearing walls** are integral to the structures of the building. Architects must plan in advance for openings like doors and windows. Non-load bearing walls provide much greater design flexibility. **Curtain walls** are exterior non-load bearing walls. Curtain walls allow an immense range of creative freedom.



Get ready!

1 Before you read the passage, talk about these questions.

1 What are the basic structural elements of a building?
2 What are the benefits of framework construction?

Reading

2 Read the textbook chapter. Then, choose the correct answers.

1 What is the chapter mainly about?
- **A** a comparison of construction elements from different eras
- **B** the pros and cons of a particular type of construction
- **C** an analysis of different construction materials
- **D** an introduction to structural parts of a building

2 Which of the following does NOT support a building's weight?
- **A** a curtain wall
- **B** a pile-driven foundation
- **C** a slab-on-grade
- **D** a load bearing wall

3 According to the passage, what is true of framework construction?
- **A** It is supported by load bearing walls.
- **B** It can be constructed with multiple types of materials.
- **C** It is generally built on a pile-driven foundation.
- **D** It is not recommended when using curtain walls.

Vocabulary

3 Match the words and phrases (1-9) with the definitions (A-I).

1 __ roof
2 __ structure
3 __ opening
4 __ foundation
5 __ support
6 __ construction
7 __ framework
8 __ solid construction
9 __ framework construction

- **A** to bear weight or prevent something from collapsing
- **B** the base of a building that touches the ground
- **C** a skeleton-like internal structural system
- **D** a basic system that holds something together
- **E** a building process in which the walls support weight
- **F** the external protective structure at the top of a building
- **G** a building process in which a skeleton-like structure supports weight
- **H** the process of assembling a building
- **I** an empty space that people or things can move through

4 **Read the sentence pairs. Choose which phrase best fits each blank.**

1 **pile-driven foundation / slab-on-grade**

A A _____ is built into the ground.

B A _____ is built on top of the ground.

2 **curtain wall / load bearing wall**

A If you remove a _____, the building will fall down.

B Removing a _____ does not damage the building's structure.

5 **Listen and read the chapter again. Why do architects need to know the difference between load bearing and non-load bearing walls?**

Listening

6 **Listen to a conversation between an architect and a contractor. Mark the following statements as true (T) or false (F).**

1 __ The woman made an error on a building plan.

2 __ The woman believes that a load bearing wall will not be strong enough.

3 __ The man will check with the structural engineer about the changes.

7 **Listen again and complete the conversation.**

Architect: Hi there, Sarah. How is **1** _____ coming along?

Contractor: The **2** _____ is finished and the walls are ready to go up.

Architect: That's great. Did you get the revisions I sent you?

Contractor: Yeah, I did. To be honest, I'm a little concerned about the changes.

Architect: You mean the additional **3** _____?

Contractor: Yes. The client wants to put a door in a **4** _____ _____ _____.

Architect: Are you concerned that the wall won't be able to **5** _____ the weight?

Contractor: Frankly, yes. I'm afraid the door will weaken the **6** _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

To be honest ...
You mean ...
Don't worry ...

Student A: You are an architect. Talk to Student B about:

- the progress of a construction project
- a potential problem with construction
- your opinion about the potential problem

Student B: You are a contractor. Talk to Student A about a potential problem with a construction project.

Writing

9 **Use the conversation from Task 8 to fill out the construction status report.**

Project Title: _____

Date: _____

Current status of construction: _____

_____

_____

Potential problems or concerns: _____

_____

_____

_____

13 Construction Process

Get ready!

1 Before you read the passage, talk about these questions.

1 What are the major phases of the construction process?

2 Why should clients do a walk-through of the building?

Take It From the Master Builder ...

Homeowner's Guide to the Construction Process

Construction can be a stressful process for first-time homeowners. Here is a guide to help you set your expectations:

Phase 1: Paperwork

During this phase, contractors will make **bids** for the project. Remember to have an attorney review all of your **contracts**! When the **construction documents** are finalized, the construction phase begins.

Phase 2: Principal Construction

It's exciting when contractors **break ground** on your new house. **Excavation** will be the first step in building your home. Next, the contractors will **grade** the site to create a level surface. Once the foundation is poured, the **framing** process will begin.

Phase 3: Installation and Finishing

As the walls go up, installation begins. The contractors will install **plumbing**, **wiring**, and other fixtures. They will finish walls, floors, and ceilings.

Phase 4: Inspection

The inspector will make sure the house is up to code. After the inspection, you will do a **walk-through** of the house. Congratulations, your new home is ready for move-in!

Reading

2 Read the blog. Then, choose the correct answers.

1 What is the purpose of the blog?
- **A** to explain standard safety procedures
- **B** to announce the start of construction on a new housing project
- **C** to introduce innovative new construction techniques
- **D** to educate homeowners about the construction process

2 When will principal construction begin?
- **A** after installing the plumbing and wiring
- **B** after the construction documents are finalized
- **C** after the inspector visits the property
- **D** after the contractors grade the site

3 Which of these will NOT occur before the wiring is installed?
- **A** The construction team will excavate the site.
- **B** The owner will do a walk through of the building.
- **C** The contractor will make a bid for the project.
- **D** The builders will pour the foundation.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ bid
2 __ contract
3 __ wiring
4 __ framing
5 __ finishing
6 __ installation
7 __ walk-through
8 __ construction documents

- **A** the system by which electricity is distributed through a building
- **B** the process of covering rough surfaces and installing hardware
- **C** an inspection done by a client prior to moving in
- **D** the process of putting fixtures into a building
- **E** a legally binding document detailing costs and responsibilities
- **F** the paperwork containing the details of a construction project
- **G** the process of building the underlying structure of the building
- **H** a proposal for construction including costs and materials

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 **phase / inspection**

A Bidding is the first _____ of the construction process.

B The _____ ensures the safety and quality of the building.

2 **plumbing / excavation**

A During _____, the builders discovered that the ground was too soft for building.

B The architect changed the plans for the _____ in the bathroom.

3 **break ground / grade**

A To _____ at a site is to begin construction.

B To _____ a site is to level the soil for the foundation.

5 **Listen and read the blog again. What should new homeowners do before construction begins?**

Listening

6 **Listen to a conversation between an architect and a client. Mark the following statements as true (T) or false (F).**

1 __ The construction project is in the excavation process.

2 __ The man would prefer to see the project move more quickly.

3 __ The man will ask the contractor to change the schedule.

7 **Listen again and complete the conversation.**

Architect: Hi, Angela. I want to give you an update on the construction process.

Client: That would be great, Ben. Did they **1** _____ _____ on schedule?

Architect: Yes, they did. They're in the **2** _____ process now.

Client: Okay. When will that be finished?

Architect: I think they'll be ready to **3** _____ and pour the foundation next week.

Client: All right. And when will they start **4** _____?

Architect: My best guess would be in about two weeks.

Client: That seems slow. Can we ask her to **5** _____ _____?

Architect: Well, **6** _____ _____ _____ she work at her own pace. I've worked with this contractor before. She isn't fast, but she gets everything right the first time.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Did they ...

My best guess ...

I'd rather ...

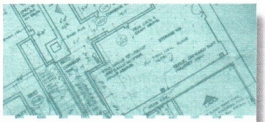
Student A: You are an architect. Talk to Student B about:

- current progress on a construction project
- when the next phase of construction will begin
- your opinion about the progress so far

Student B: You are a client. Talk to Student A about the progress of a construction project.

Writing

9 **Use the conversation from Task 8 to fill out the note to the contractor.**



Dear _____,

I spoke to our client today.

We discussed ...

_____

_____

The client ...

_____

_____.

Thanks,

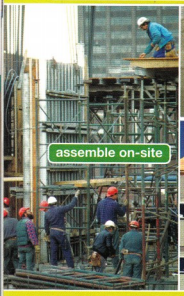
_____

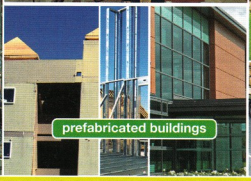
Prefabrication:
The New Craze in Architecture?

Prefabricated buildings are more common than many people think. In the past, prefabricated buildings were boxy and unattractive, but nowadays, they are becoming an increasingly popular housing **option**.

The main advantages of prefabricated buildings are speed and cost. **Mass-produced** building **elements** are inexpensive and highly **uniform**. Building parts are manufactured **off-site**. Then trucks **transport** them from the factory to the building location. Construction teams **assemble** the components **on-site**. This allows companies to build many **housing units** quickly. Even private homeowners see the advantages of assembling **preformed** pieces. Prefabrication is a very popular choice for cost-effective vacation homes.

However, prefabrication also has its drawbacks. Standards of **quality control** can vary greatly among manufacturers. Some homeowners also believe prefabrication **limits** their design options. Another disadvantage is that homeowners often pay more money up front. In traditional construction, the homeowner pays overtime. Also, mass-produced modules may not be suitable for extreme climates. Prefabrication is not the best choice for everyone.





Get ready!

1 Before you read the passage, talk about these questions.

1 What are the advantages of prefabrication in construction?

2 What are the disadvantages of prefabrication in construction?

Reading

2 Read the article. Then, mark the following statements as true (T) or false (F).

1 __ Mass-produced elements are made in factories off-site.

2 __ According to the article, vacation homes are commonly prefabricated.

3 __ Prefabricated buildings are recommended for extreme climates.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ limit
2 __ on-site
3 __ off-site
4 __ element
5 __ preformed
6 __ housing unit
7 __ quality control
8 __ mass-produced

A done at a final location
B a process of ensuring manufactured goods meet certain standards
C to put restrictions on something
D made in very large quantities
E a component of a larger whole
F done somewhere other than the final location
G a space intended as a private residence
H made in advance

4 **Write a word that is similar in meaning to the underlined part.**

1 For some people, traditional construction is not a(n) choice. _ p t _ _ _

2 The contractor hired a shipping company to move the building elements. t _ _ n _ p _ _ t

3 Inspectors at the factory make sure their products are all the same. _ n _ _ o r _

4 The city decided to use factory-made elements for the new housing project. _ _ e _ a _ r _ _ a t _ _

5 The parts turned out to be difficult to put together. a _ _ _ m b _ _

5 **Listen and read the article again. What is the advantage of assembling preformed pieces on-site?**

Listening

6 **Listen to a conversation between a civil engineer and an architect. Choose the correct answers.**

1 What is the conversation mainly about?

A the results of a public survey about prefabrication

B a problem with a preformed housing manufacturer

C how many workers are needed for a prefabricated housing project

D the pros and cons of prefabricated buildings

2 What does the man say about prefabricated housing?

A It's the fastest way to build a large number of housing units.

B It's likely to require lower quality control standards.

C It's risky when elements are transported over long distances.

D It's becoming more popular among private homeowners.

7 **Listen again and complete the conversation.**

Architect: Hi Lucy, I'm Keith. So the city is considering **1** _____ housing?

Engineer: Yes, that's right. I was hoping you could give me some insight about **2** _____ _____ housing.

Architect: Sure, I'd be happy to. What's your main concern?

Engineer: Well, we're just not sure if **3** _____ _____ assembly is going to be as fast as we want it to be.

Architect: Well, it's definitely fast. In my opinion, it's the quickest way to build a large number of **4** _____ _____.

Engineer: That's encouraging.

Architect: But, **5** _____ _____ _____ _____, the city will have to set a high standard of quality control.

Engineer: I see. Will prefabrication **6** _____ our layout options?

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I was hoping ...

In my opinion, ...

On the other hand, ...

Student A: You are a civil engineer. Talk to Student B about:

- a new city housing project
- the pros and cons of prefabrication
- his or her opinion of prefabricated construction

Student B: You are an architect. Talk to Student A about a new city housing project.

Writing

9 **Use the conversation from Task 8 to fill out the report to the city housing authority.**

Date: _____

Subject: Prefabricated Housing Project

Today I met with an architect to discuss the pros and cons of prefabrication.

Pros: _____

_____

Cons: _____

_____

My opinion: _____

_____

15 Finished Building

GENERAL NOTES/ITEMS TO BE COMPLETED

1 Complete exterior **cladding** to protect from rain and other weather.
2 Apply knockdown **finish** to all drywall.
3 Install shutters for all windows.
4 Apply finish to dining room floors.
5 Apply knockdown finish to **drop ceiling.**
6 Paint exterior **trim** color GT 6992.
7 Install **cornice** molding around interior perimeter. Paint color GT 7632.
8 Complete installation of wood **siding.**
9 Complete all **interior finishing**, including all interior painting. Refer to notes for paint colors.
10 Apply caulking and finish to cornices around interior **partitions**.

DOOR SCHEDULE: REMARKS

1 Insulated door – paint color GT 7632
2 French doors for dining room area – glass panel
3 French doors for master bedroom – solid wood
4 Slab doors for bedrooms 2, 3, & 4

WINDOW SCHEDULE: REMARKS

1 Insulated vinyl **frames** on ALL windows
2 Casement windows in the basement
3 Double hung windows in all bedrooms
4 Bay window in living room

Get ready!

1 Before you read the passage, talk about these questions.

1 What are the final elements added to a building?
2 What is the purpose of door and window schedules?

Reading

2 Read the build sheet. Then, mark the following statements as true (T) or false (F).

1 __ The trim and the cornices will be painted the same color.
2 __ One bedroom will have different doors than the other bedrooms.
3 __ The plan calls for multiple types of window frames.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1	__ trim	5	__ cornice
2	__ finish	6	__ cladding
3	__ frame	7	__ partition
4	__ remarks	8	__ interior finishing

A the decorative wood finish around windows and doors
B the materials and process of covering the walls, floors, and ceiling
C the stationary part of a window or doorway
D a protective covering added to an exterior
E a boundary that divides an interior space
F a decorative surface covering
G a section of a schedule containing more information
H a decorative covering around the perimeter of an interior

4 **Read the sentences and choose the correct words or phrases.**

1 Mr. Pace requested a knife texture on the **drop ceiling / remarks**.
2 We checked the **window schedule / trim** to see which frames to order.
3 The contractors installed wooden **partition / siding** on the exterior.
4 The **door schedule / frame** contained information about the installation.

5 **Listen and read the build sheet again. What will be installed on all of the windows?**

Listening

6 **Listen to a conversation between an architect and a contractor. Mark the following statements as true (T) or false (F).**

1 __ The woman is unsure about which cornices to install.
2 __ The clients changed their minds about the finish.
3 __ The window frames were damaged during delivery.

7 **Listen again and complete the conversation.**

Contractor: Hi Mark, this is Diane. I need to confirm a few details about the **1** _____ _____.

Architect: Okay. What do you need to know?

Contractor: The schedule says to use the standard **2** _____ everywhere except the master bedroom. Is that right?

Architect: Yes, the clients selected a custom finish for the master bedroom.

Contractor: Okay, I just wanted to make sure. We also **3** _____ _____ a problem with the bathroom windows.

Architect: Oh, what's the problem?

Contractor: Two of the **4** _____ were broken on delivery. We had to send them back and order replacements.

Architect: That's too bad. When will the replacement frames **5** _____ _____?

Contractor: We should have them by next week. In the meantime, we're installing the interior **6** _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I need to ...
We ran into ...
That sounds ...

Student A: You are a contractor. Talk to Student B about:

- final stages of construction
- a delay in construction
- how you are handling the delay

Student B: You are an architect. Talk to Student A about the final stages of construction.

Writing

9 **Use the conversation from Task 8 to fill out the schedule.**

General Items to be Completed

1. _____
   _____
2. Apply standard finish to interior walls.
3. Install and paint interior cornices.

DOOR SCHEDULE: REMARKS

1. _____
2. _____

WINDOW SCHEDULE: REMARKS

1. Install replacement bathroom window frames.
2. _____

Glossary

abstract [ADJ-U4] If a sketch is **abstract**, it is not a literal representation of an object.

access [N-UNCOUNT-U8] **Access** is the ability to use or acquire something or enter somewhere.

acoustic engineer [N-COUNT-U2] An **acoustic engineer** is a person who specializes in aspects of design related to noise reduction.

adjacent [ADJ-U8] If two objects are **adjacent**, they are next to each other or share a common boundary.

analytical sketch [N-COUNT-U4] An **analytical sketch** is an exploration of a specific design element, usually done more or less to scale.

appliance [N-COUNT-U11] An **appliance** is a device, such as a refrigerator or stove, that performs a practical function.

apply [V-T-U9] To **apply** for something is to make an official request for it.

architect [N-COUNT-U2] An **architect** is a person who plans and designs buildings.

artistic [ADJ-U1] If someone is **artistic**, he or she has a strong aesthetic sense.

assemble [V-T-U14] To **assemble** something is to put its parts together.

attention to detail [N-UNCOUNT-U1] **Attention to detail** is the ability to notice and appreciate small or subtle aspects of the overall whole.

bid [N-COUNT-U13] A **bid** is a proposal for construction that includes costs and materials.

break ground [V-PHRASE-U13] To **break ground** is to begin construction.

brief [N-COUNT-U7] A **brief** is a formal outline of a design concept.

budget [N-COUNT-U-11] A **budget** is a plan for the use of resources and money.

building occupancy classification [N-COUNT-U9] A **building occupancy classification** is the category given to a building depending on the activities for which it will be used.

building permit [N-COUNT-U9] A **building permit** is an official statement of permission to construct a building.

building surveyor [N-COUNT-U2] A **building surveyor** is a person who measures and draws the existing building and landscape features prior to construction.

cabinet [N-COUNT-U11] A **cabinet** is a fixed piece of furniture with shelves or drawers that is used for storage or the display of items.

cladding [N-UNCOUNT-U15] **Cladding** is the application of one material over another for aesthetic or protective purposes.

client [N-COUNT-U2] A **client** is the person or entity for whom a project or business contract is completed.

climate [N-COUNT-U8] The **climate** is the average long-term pattern in weather for a particular area.

code [N-COUNT-U9] A **code** is a set of rules, usually related to safety, to which all buildings in a particular category or jurisdiction must adhere.

component [N-COUNT-U4] A **component** is a part of an overall whole.

computer savvy [ADJ-U1] If someone is **computer savvy**, he or she is educated and skilled in computer use.

concept [N-COUNT-U7] A **concept** is a general idea formed from inference and imagination.

conceptual sketch [N-COUNT-U4] A **conceptual sketch** is a quick sketch done at the moment an idea is first conceived.

constructed perspective [N-UNCOUNT-U5] **Constructed perspective** is a type of perspective drawing that is based on actual measurements.

construction [N-UNCOUNT-U12] **Construction** is the process and method of assembling a building.

construction documents [U-COUNT-U13] **Construction documents** are papers including building plans, specifications, and other information that guide clients, architects, and builders during a construction project.

consultant [N-COUNT-U2] A **consultant** is an expert in a given field who is hired to provide professional advice.

contract [N-COUNT-U13] A **contract** is a legally binding document detailing responsibilities and costs of something.

contractor [N-COUNT-U2] A **contractor** is a person responsible for the physical construction of a building.

converge [V-I-U5] To **converge** is to meet or come together at a specific point.

cornice [N-COUNT-U15] A **cornice** is a piece of finishing around the perimeter of an interior and is often used to conceal fixtures.

cost estimate [N-COUNT-U11] A **cost estimate** is an educated guess about how much money is needed to do something.

creative [ADJ-U1] If someone is **creative**, he or she is imaginative and capable of thinking of new or unusual ideas.

curtain wall [N-COUNT-U12] A **curtain wall** is an external wall that does not support the weight of a building.

dedicated [ADJ-U1] If someone is **dedicated**, he or she is committed to an idea or purpose.

design [N-COUNT-U10] A **design** is a plan for the construction of a building.

design [V-T-U3] To **design** something is to plan the way that something will be created.

detail development [N-UNCOUNT-U11] **Detail development** is the process of designing the small elements of a building.

determine [V-T-U11] To **determine** something is to make a decision after considering different options.

develop [V-T-U7] To **develop** a concept or idea is to elaborate upon it, bringing it closer to reality.

discuss [V-T-U7] To **discuss** something is to talk about it in detail.

door schedule [N-COUNT-U15] A **door schedule** is a construction document containing a detailed list of all the doors to be installed/painted.

drainage [N-UNCOUNT-U10] **Drainage** is a system for allowing water to flow away from the building.

draw [V-T-U4] To **draw** something is to create a two-dimensional representation of it by making marks on a surface.

drop ceiling [N-COUNT-U15] A **drop ceiling** is a ceiling that is hung below the main ceiling.

easement [N-COUNT-U9] An **easement** is a right to use property for certain activities without having ownership of it.

electrical engineer [N-COUNT-U2] An **electrical engineer** is a person who designs a building's electrical systems.

element [N-COUNT-U14] An **element** is a part of a larger whole.

enthusiastic [ADJ-U1] If someone is **enthusiastic**, he or she displays passion for a subject.

excavation [N-UNCOUNT-U13] **Excavation** is the process of removing soil and rock from a site.

existing [ADJ-U8] If something is **existing**, it is already real or occurring.

express [V-T-U3] To **express** something is to represent it in a certain way.

exterior [N-COUNT-U10] The **exterior** is the outside of the building or the area immediately surrounding a building.

face [V-T-U6] To **face** something is to have the front pointed in that direction.

factor [N-COUNT-U7] A **factor** is something that contributes to an end product or decision.

figure ground study [N-COUNT-U8] A **figure ground study** is a kind of site map that highlights a location's buildings and spaces.

finalize [V-T-U-11] To **finalize** something is to complete the plan or arrangements.

Glossary

finish [N-COUNT-U15] A **finish** is a decorative surface covering.

finishing [N-UNCOUNT-U13] **Finishing** is the final phase of construction in which floors, rough walls, and ceilings are covered, and doors, windows, and hardware are installed.

firm [N-COUNT-U2] A **firm** is an unincorporated business involving the partnership of two or more people.

floor-area-ratio [N-COUNT-U9] A **floor area ratio** is the ratio between a building's total floor area and the area of the lot on which it is constructed. Sometimes referred to as FAR.

floor plan [N-COUNT-U11] A **floor plan** is the layout for the interior of a building.

form [N-UNCOUNT–U10] **Form** is the structural and aesthetic considerations of a building.

foundation [N-COUNT-U12] The **foundation** is the base of a building that touches or is built into the ground.

fraction [N-COUNT-U3] A **fraction** is a numerical representation of a part of a whole.

frame [N-COUNT-U15] A **frame** is the stationary part of a door or window opening to which the moving parts are attached.

framework [N-UNCOUNT-U12] A **framework** is a skeleton-like network of parts that provides the structure for a building.

framework construction [N-UNCOUNT-U12] **Framework construction** is a type of construction in which the building is shaped and supported by a skeleton-like structural system.

framing [N-UNCOUNT-U13] **Framing** is the process of building the underlying structure of a building.

frontage [N-UNCOUNT-U9] **Frontage** is the length of a plot of land as measured along the adjacent road.

full-size scale [N-UNCOUNT-U3] **Full-size scale** is a scale at which all objects in a drawing or model are rendered according to the same measurements as the real objects.

function [N-COUNT-U7] A **function** is the action for which something is intended.

furnishing [N-COUNT-U11] A **furnishing** is a movable item, such as a table or chair, that people use in a building.

geotechnical surveyor [N-COUNT-U2] A **geotechnical surveyor** is a person who assesses the earth at the building site in order to determine the proper foundation materials.

goal [N-COUNT-U7] A **goal** is the ultimate result or outcome towards which attention and effort are directed.

grade [V-T-U13] To **grade** something is to make something flat and even.

hardworking [ADJ-U1] If someone is **hardworking**, he or she is diligent in his or her work.

heat gain [N-UNCOUNT-U6] **Heat gain** is a measure of a building's ability to gain/hold heat, especially when outdoor temperatures are cold.

heating [N-UNCOUNT-U10] **Heating** is a system for providing warm air to a building.

historical tracing [N-UNCOUNT-U8] **Historical tracing** is the process of laying several same-scale maps from different time periods over one another to see a site's development over time.

horizon [N-COUNT-U5] The **horizon** of a drawing is the line where the ground meets the sky.

horizontal plane [N-COUNT-U5] A **horizontal plane** is a flat surface in a drawing, such as a floor or ceiling, that divides the space into horizontal segments.

housing unit [N-COUNT-U14] A **housing unit** is a building or part of a building that is intended as a private home.

hundredth [N-COUNT-U3] A **hundredth** is one of one hundred equal parts of a whole.

HVAC system [N-COUNT-U11] An **HVAC** (heating, ventilation, and air-conditioning) **system** is a device or network of devices that distributes warmed or cooled air throughout a building.

idea [N-COUNT-U7] An **idea** is a thought or collection of thoughts or concepts.

impervious surface [N-COUNT-U9] An **impervious surface** is a structure or area of ground that is covered by materials that water cannot pass through.

impression [N-COUNT-U7] An **impression** is a notion or opinion of something based on thoughts and feelings.

in detail [ADV PHRASE-U4] If a sketch is drawn **in detail**, it includes small elements of the design.

inspection [N-COUNT-U13] An **inspection** is an official process for checking that something is made or done according to correct specifications.

installation [N-UNCOUNT-U13] **Installation** is the act of putting a fixture into the building during construction.

insulation [N-UNCOUNT-U11] **Insulation** is material that is used to prevent loss of heat in a building.

interior [N-COUNT-U10] The **interior** is the inside of the building.

interior finishing [N-UNCOUNT-U15] **Interior finishing** is the materials and process of covering the walls, floors, and ceiling.

interview [N-COUNT-U7] An **interview** is a meeting in which one person obtains information from a second person, usually concerning the second party's personal values, ideas, or qualifications.

land surveyor [N-COUNT-U2] A **land surveyor** is a person who verifies or determines the boundaries of a property.

landscape architect [N-COUNT-U2] A **landscape architect** is a person who designs the outdoor spaces surrounding a building.

landscaping [N-UNCOUNT-U10] **Landscaping** is the arrangement of plants and other aesthetic features around a building.

law [N-COUNT-U9] A **law** is a rule governing actions that is enforceable by the government.

layout [N-COUNT-U-10] A **layout** is the arrangement of rooms within a building.

lighting [N-UNCOUNT-U10] **Lighting** is a system for providing illumination in a building.

limit [V-T-U14] To **limit** something is to place restrictions on it.

line of view [N-COUNT-U5] A **line of view** is a line made up of objects or planes in the drawing that ultimately meets the horizon.

load bearing wall [N-COUNT-U12] A **load bearing wall** is a wall that supports the weight of a building.

locality [N-UNCOUNT-U8] A **locality** is a specific place or location.

logical [ADJ-U1] If someone is **logical**, he or she can solve problems rationally.

mapping [N-UNCOUNT-U8] **Mapping** is the process of making a flat representation of a location.

mass-produced [ADJ-U14] If something is **mass-produced**, it is created in large quantities.

materiality [N-UNCOUNT-U10] **Materiality** is the use of particular materials or substances when building a structure.

measure [V-T-U8] To **measure** something is to find its dimensions.

mechanical engineer [N-COUNT-U2] A **mechanical engineer** is a person who designs a building's mechanical systems, such as heating and ventilation.

modeling [N-UNCOUNT-U11] **Modeling** is the process of creating a three-dimensional representation of an object.

natural light [N-UNCOUNT-U6] **Natural light** is illumination from the sun.

observational sketch [N-COUNT-U4] An **observational sketch** is a sketch of an existing building or landscape.

off-site [ADV-U14] If something is done **off-site**, it is done in another place before it is moved to its final location.

one-to [ADJ PHRASE-U3] If a scale is **one-to**-x, it has a ratio of one unit for every x number of units.

Glossary

on-site [ADV-U14] If something is done **on-site**, it is done at its final location.

opening [N-COUNT-U12] An **opening** is an empty space in something that people or things can move through.

option [N-COUNT-U14] An **option** is something that can be chosen.

ordinance [N-COUNT-U9] An **ordinance** is a local government regulation, usually designed to preserve the general welfare of the public.

organized [ADJ-U1] If someone is **organized**, he or she is skilled in planning and arranging things in an orderly manner.

orientation [N-COUNT-U6] **Orientation** is the direction an object is facing.

outside the box [ADV PHRASE-U1] If something is done **outside the box**, it is done in a creative or unconventional way.

partition [N-COUNT-U15] A **partition** is something that divides an interior space.

patient [ADJ-U1] If someone is **patient**, he or she handles adversity calmly and is not overly hasty.

pen [N-COUNT-U4] A **pen** is a writing implement that uses ink to make marks, and is usually not erasable.

pencil [N-COUNT-U4] A **pencil** is a writing implement that uses soft graphite to make marks, and can be erased with relative ease.

percent [N-COUNT-U3] A **percent** is one of one hundred equal parts of a whole.

persistent [ADJ-U1] If someone is **persistent**, he or she continues to do something or strive for something even when it becomes very difficult.

perspective [N-UNCOUNT-U5] **Perspective** is a the way that a two-dimensional image displays depth or distance to give the impression that the image is three-dimensional.

phase [N-COUNT-U13] A **phase** is a step in a larger process or event.

pile-driven foundation [N-COUNT-U12] A **pile-driven foundation** is a deep foundation consisting of thick rods that are inserted into the ground.

placement [N-UNCOUNT-U6] **Placement** is the chosen location for an object or space, such as a room within a building.

plumbing [N-UNCOUNT-U13] **Plumbing** is the system of pipes and other fixtures used to distribute and use water in a building.

plumbing fixture [N-COUNT-U11] A **plumbing fixture** is an installed item for the distribution and use of water, including pipes and sinks.

position [N-COUNT-U6] A **position** is the location of something relative to its surroundings.

prefabricated [ADJ-U14] If a building is **prefabricated**, its components are made in a factory for easy shipment and assembly.

preformed [ADJ-U14] If something is **preformed**, it is made in advance.

preliminary [ADJ-U4] If a sketch is **preliminary**, it comes before other conceptual drawings or discussions.

prevailing wind [N-COUNT-U6] **Prevailing wind** is a recurring wind that blows from a specific direction.

proportion [N-UNCOUNT-U3] **Proportion** is the comparative relationship of dimensions or quantities.

purpose [N-COUNT-U7] A **purpose** is the basis or cause for something to exist or be done.

quality control [N-UNCOUNT-U14] **Quality control** is a set of activities performed to ensure that manufactured products meet certain standards.

ratio [N-COUNT-U3] A **ratio** is the relationship between two or more quantities.

regulation [N-COUNT-U9] A **regulation** is a rule from an official organization governing the way in which something is done.

remarks [N-UNCOUNT-U15] **Remarks** is a section of a schedule providing more information.

rise [V-I-U6] To **rise** is to come up above the horizon, especially in reference to celestial bodies.

roof [N-COUNT-U12] A **roof** is the external protective structure on top of a building.

rough [ADJ-U4] If a sketch is **rough**, it is imprecise or unfinished.

route [N-COUNT-U10] A **route** is the path by which people move through a building.

scale system [N-COUNT-U3] A **scale system** is a method of establishing the relationship between two sets of dimensions.

self-employed [ADJ-U2] If someone is **self-employed**, he or she works for him- or herself instead of an employer.

septic analysis [N-COUNT-U9] A **septic analysis** is a detailed examination of sewage treatment and disposal systems.

serial vision [N-UNCOUNT-U8] **Serial vision** is a site mapping technique in which a series of points on the map are identified and then sketched from the mapper's viewpoint.

set [V-I-U6] To **set** is to go below the horizon, especially in reference to celestial bodies.

setback [N-COUNT-U9] A **setback** is the required distance between a building and the edge of the lot.

shadow [N-COUNT-U6] A **shadow** is partial darkness created when an object fully or partially obscures a light source.

siding [N-UNCOUNT-U15] **Siding** is metal, plastic, or wooden material used to cover the exterior of a building.

site [N-COUNT-U6] A **site** is the location where a building will be constructed.

site analysis [N-UNCOUNT-U8] **Site analysis** is the detailed study of a site, including its physical, quantitative, and qualitative aspects.

site survey [N-COUNT-U8] A **site survey** is a quantitative analysis of the physical aspects of a site.

sketch [N-COUNT-U4] A **sketch** is a drawing done by hand to illustrate an idea.

sketch perspective [N-UNCOUNT-U5] **Sketch perspective** is the type of perspective used in a sketch or drawing.

slab-on-grade [N-COUNT-U12] A **slab-on-grade** is a shallow foundation consisting of a concrete structure formed from a mold and set on the ground.

solar heat gain [N-UNCOUNT-U6] **Solar heat gain** is the increase of thermal energy inside a building due to exposure to direct sunlight.

solid construction [N-UNCOUNT-U12] **Solid construction** is a type of construction in which the walls support the building.

space [N-COUNT-U3] A **space** is an area within an overall architectural plan, usually referring to one room or the existing boundaries within which multiple rooms will be constructed.

specification [N-COUNT-U7] A **specification** is a particular detail of a design agreed upon by the client and the architect.

structural engineer [N-COUNT-U2] A **structural engineer** is a person who works within the architectural design to make sure a building is structurally sound.

structure [N-COUNT-U12] A **structure** is a basic system that holds something together.

support [V-T-U12] To **support** something is to bear its weight or prevent it from collapsing.

take into consideration [V PHRASE-U7] To **take** something **into consideration** is to think about it carefully.

temperature [N-COUNT-U8] **Temperature** is the degree of warmth or coolness.

to scale [ADV-U3] If a drawing or model is done **to scale**, it is done with the same proportions as the real object, even though the size may be different.

transport [V-T-U14] To **transport** something is to move it from one place to another.

trim [N-UNCOUNT-U15] **Trim** is the borders or molding of a building, usually around windows and doors.

two-point perspective [N-UNCOUNT-U5] **Two-point perspective** is a perspective in which the drawing has two distinct vanishing points.

uniform [ADJ-U14] If multiple things are **uniform**, they all have the same specifications or qualities.

vanishing point [N-COUNT-U5] The **vanishing point** is the place in the drawing where horizon lines and lines of view meet.

ventilation [N-UNCOUNT-U10] **Ventilation** is a system for distributing air throughout a building.

vertical plane [N-COUNT-U5] A **vertical plane** is a flat surface in a drawing, such as a wall, that divides the space into vertical segments.

viewpoint [N-COUNT-U5] The **viewpoint** of a drawing is the angle from which a drawing is done, simulating the viewer's relative location to the scene.

vision [N-COUNT-U7] A **vision** is a plan conceived from the imagination.

walk-through [N-COUNT-U13] A **walk-through** is an inspection that a building owner performs shortly before occupancy to ensure the construction was done as agreed.

window schedule [N-COUNT-U15] A **window schedule** is a construction document containing a detailed list of all the windows to be installed.

wiring [N-UNCOUNT-U13] **Wiring** is a system by which electricity, telephone, and other signals are distributed in a building.

zoning [N-UNCOUNT-U9] **Zoning** is a set of rules governing land use, including restrictions like the prevention of commercial construction in residential areas.

CAREER PATHS

Architecture

Book 3

Virginia Evans
Jenny Dooley
Dave Cook, AIA

Express Publishing

Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Design Tools and Materials	Webpage	45/90 triangle, balsa wood, basswood, bow compass, bumwad, drafting board, drafting vellum, mechanical pencil, parallel bar, protractor, stencil, T square, tracing paper, triangular scales	Discussing necessity
2	Models	Webpage	CAD modeling, concept model, detail model, finished model, manipulate, model, physical model, representation, revise, rough model, surrounding, urban model	Making a suggestion
3	Drawings 1	Cover letter	axonometric drawing, bird's-eye view, elevation drawing, façade, full set, horizontal cross section, isometric drawing, oblique drawing, orthographic projection, overhead, plan, section drawing, vertical cross-section	Narrowing options
4	Drawings 2	Magazine article	accuracy, CAD drawing, convention, deconstruct, detail drawing, drafting, exploded view, hand sketch, manual drawing, mechanical drafting, obsolete, photomontage, reassemble, schematic	Stating preferences
5	Blueline Prints 1	Guide	action line, break line, center line, dashed, dimension line, leader line, lettering, line type, line weight, phantom line, primary object, secondary object, section line, solid	Changing topics
6	Blueline Prints 2	Email	cross-reference symbol, cutting-plane line, detail symbol, door number symbol, elevation datum, elevation mark, graphic symbol, material symbol, section symbol, title block, window letter symbol	Making an apology
7	Presentations: Storyboarding	Blog	backdrop, caption, communicate, narrative, over time, pitch, potential, presentation, scene, series, storyboarding, suggest, technique, unfold	Listing benefits
8	Presentations: Portfolios	Webpage	A1, A3, collection, double-page spread, electronic portfolio, golden section, ISO, landscape, on screen, portfolio, portrait, projector, resolution, work	Wishing someone well
9	Historical Architecture	Magazine article	buttress, classical architecture, column, diameter, Egyptian pyramids, five orders, Gothic, height, lintel, Renaissance, ribbed vault, spacing	Giving an opinion
10	Modernism	Textbook chapter	Bauhaus, Brutalism, decoration, efficient, form follows function, functionalism, industrial, International Style, machine, Modernism, monolithic, open plan, sheet glass, stark, transparency, truth to materials	Asking for more detail
11	Postmodernism	Brochure	bland, characterize, countermovement, double coding, dual purpose, icon, monumentalism, ornament, Postmodernism, primary, reactionary, symbolic	Correcting a misconception
12	Contemporary Architecture 1	Textbook chapter	aesthetic, contemporary, Deconstructivism, distort, dynamic, exaggerated, Expressionist Architecture, fluid, illusion, influence, innovative, Novelty Architecture, Sculpturism, unexpected	Politely disagreeing
13	Contemporary Architecture 2	Journal article	Blobitecture, bulge, Critical Regionalism, draw, High-Tech, inspiration, integrate, local, Neoclassical, Neomodern, Organic Architecture, resurgence, simplicity, Structural Expressionism	Listing options
14	Sustainability 1	Journal article	adobe, cob, cordwood construction, earthbag, ecological footprint, environmental impact, green construction, natural building, rammed earth, reclaimed lumber, recycled material, reduce, straw bale, sustainable, timber frame	Expressing doubts
15	Sustainability 2	Brochure	bottle wall, convection, earth-bermed, energy efficient, gray water, heat flow, heat sink, off the grid, passive solar design, photovoltaic panel, rainwater harvesting system, repurpose, scrap tire, skylight, thermal mass	Discussing benefits

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1 Design Tools and Materials

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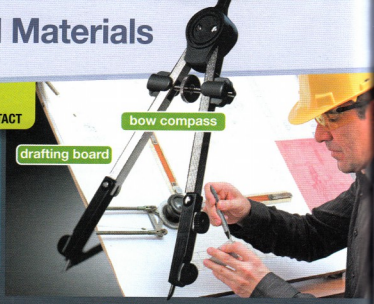


Welcome to Architect's Attic!

With thousands of products, we are your source for all your architectural needs.

Paper

50-yard **bumwad** (rolls of **tracing paper**) — Ideal for rough sketches using regular or **mechanical pencils**.
100% cotton **drafting vellum** — The perfect paper for perfect drawings! Use it for high-quality final drawings made with lead or ink. If you have to erase something, you won't see any marks.

Model Construction

Balsa Wood and **basswood** — We have sticks, boards, blocks, and sheets. These woods are easy to cut and can be painted or stained any color.

Drafting Tools

Drafting board — Make drafting easier. Drafting boards come with adjustable pedestals and attached straight-edge rulers.
Templates — Use these plastic **stencils** to draw circles, rectangles, triangles, and irregular shapes.
T squares — Get a durable wood or stainless steel ruler up to 36" long.
Parallel bars — Create parallel lines at any distance apart. They ensure precision and avoid unwanted movement.
Triangular scales — Choose from architectural or engineering. Draw everything to scale with these aluminum rulers. Each type has the standard measurements used by professionals in that particular field.
Protractors — 180° and 360°. These clear plastic protractors measure in ½° increments.
45/90 triangle — These aluminum, non-marking triangles have sides up to 1 foot long.
Bow compass — Create perfect circles up to 10" around.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are the different types of rulers used for?
2 What are some basic architectural drawing tools?

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the purpose of the webpage?
- **A** to describe a store's products
- **B** to explain how to use drafting tools
- **C** to compare drafting tools from different companies
- **D** to give prices for architectural supplies

2 According to the website, what is true about drafting vellum?
- **A** It can be painted any color.
- **B** It is best for rough sketches.
- **C** It is most effective with pencil drawings.
- **D** It does not show eraser marks.

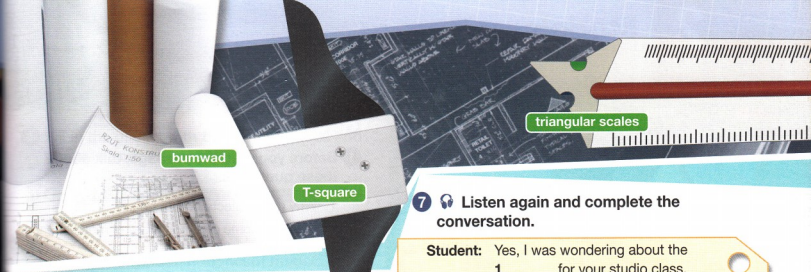
3 What can you infer about architects and engineers?
- **A** They prefer not to use aluminum rulers.
- **B** They each use different measurements on their triangular scales.
- **C** They typically do not make drawings to scale.
- **D** They need rulers that move easily.

Vocabulary

3 Match the words and phrases (1-6) with the definitions (A-F).

1 __ bumwad
2 __ basswood
3 __ 45/90 triangle
4 __ drafting vellum
5 __ drafting board
6 __ parallel bar

- **A** a device that holds paper in place for easier drawing
- **B** a roll of lightweight sketching paper
- **C** a tool that allows workers to draw specific angles
- **D** a paper made from cotton, wood pulp, or a man-made material
- **E** a tool that is used to draw lines that are side-by-side
- **F** a fine-grained material used for architectural models



4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 **balsa wood / protractor**

A The new _____ comes from trees in South America.

B The architect used the _____ to measure a 28° angle.

2 **bow compass / mechanical pencil**

A The _____ provides a more precise line than a regular wooden one.

B One leg of the _____ has a needle that holds it to the paper.

3 **stencil / tracing paper**

A The plastic _____ has circles in 20 different sizes.

B The image is visible through the _____.

4 **T square / triangular scale**

A The _____ helps you make drawings to scale.

B The perpendicular lines were drawn using a _____.

5 **Listen and read the webpage again. What is the difference between tracing paper and drafting vellum?**

Listening

6 **Listen to a conversation between an architecture student and a professor. Mark the following statements as true (T) or false (F).**

1 __ The woman needs drafting vellum for final drawings.

2 __ A bow compass is not necessary for the man's class.

3 __ The man recommends buying wood before the class begins.

7 **Listen again and complete the conversation.**

Student: Yes, I was wondering about the **1** _____ for your studio class.

Professor: Okay. Let me get you a list. You'll need some basics – lots of **2** _____ _____, for instance. I would get some bumwad.

Student: All right. Do I need **3** _____ _____ as well?

Professor: Yes. It's necessary for all **4** _____ _____.

Student: I understand. What about **5** _____ _____ – rulers, compasses and such?

Professor: You can't **6** _____ _____ _____ a parallel bar. It will help you draw parallel lines.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Do I need ...
You can't get by without ...
You can do without ...

Student A: You are an architecture student. Talk to Student B about:

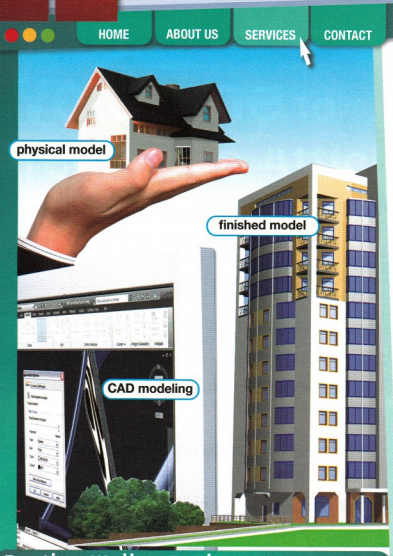
- tools you need for an architecture class
- the purpose of each tool
- which tools are not necessary

Student B: You are a professor. Talk to Student A about the supplies needed for your class and how they will be used.

Writing

9 **Use the reading passage and conversation to write an email to students about materials for a class. Include: the materials they will need, why they need them, and which tools are not necessary.**

2 Models



Bentley-Walker Designs

Modeling Your Architectural Design

Some people say that a picture is worth a thousand words. At Bentley-Walker Designs, we believe that three-dimensional **models** are worth even more. **Physical models** bring designs to life before construction even begins!

We create many types of models. First we make a **rough model** or **concept model**. These general **representations** show our basic ideas. Once the design is chosen, we create **detail models**. These show specific design elements — how a complex area is constructed or an interesting interior feature. We also create **urban models** to show how a design fits into its **surrounding** area. They include neighborhoods, geographic features, and even entire towns. These are especially useful for city planning.

A **finished model** completes the design process. These can show scale versions of *everything*, from interior details to surrounding landscape. They give a complete picture of a building.

We work extensively with digital modeling equipment. During planning, we usually start with **CAD modeling**. We can **revise** and **manipulate** these digital renderings easily. As the project progresses, we then use them as a basis for our physical models. We make models for all our projects — museums, high-rise buildings, airports, and many more. Our clients use them for permanent displays, fundraising efforts, and presentations.

Let Bentley-Walker make one for you!

Get ready!

1 Before you read the passage, talk about these questions.

1 Why do architects build models?
2 What are some common types of models that architects use?

Reading

2 Read the webpage. Then, choose the correct answers.

1 What is the webpage mainly about?
- **A** training courses in model construction
- **B** the best materials to use for creating models
- **C** local projects that a company has created models for
- **D** the purposes of different types of models

2 Which of the following is NOT included on the webpage?
- **A** CAD models based on physical models
- **B** models for city planning campaigns
- **C** scale versions of landscapes
- **D** computer-generated images

3 According to the webpage, what do clients use models for?
- **A** manipulating digital renderings
- **B** making presentations
- **C** changing interior details
- **D** selling designs to other companies

Vocabulary

3 Match the words and phrases (1-5) with the definitions (A-E).

1 __ model
2 __ finished model
3 __ manipulate
4 __ detail model
5 __ rough model

- **A** a model that shows all the interior and exterior details of a design
- **B** a model that shows the most basic elements of a design
- **C** a model that focuses on a particular part of a design
- **D** any three-dimensional or digital representation of something that shows its features
- **E** to change, fix, or move an object

4 **Fill in the blanks with the correct words and phrases from the word bank.**

WORD BANK

revise surrounding urban model
representation CAD modeling
physical model concept model

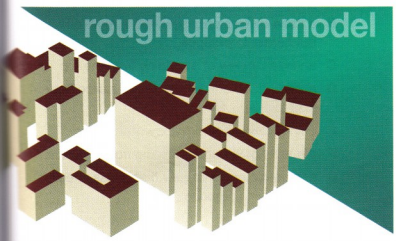
1 The firm uses special software for _____.
2 The building's design fits in well with the _____ landscape.
3 The _____ shows the entire neighborhood around the building site.
4 The client wants smaller rooms, so the architect will _____ the plans.
5 The drawing is a two-dimensional _____ of the exterior of the hotel.
6 The _____ shows the architect's abstract ideas for the design.
7 A(n) _____ gives clients a better understanding of a design than blueline prints.

5 **Listen and read the webpage again. What types of models does the company usually create first?**

Listening

6 **Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).**

1 __ The architects plan to produce a rough model for the client.
2 __ The man is concerned that the detail models will be a waste of materials.
3 __ The woman needs more information for the urban model.



7 **Listen again and complete the conversation.**

Architect 1: Hey, Linda. Our new clients want to **1** _____ _____ _____ for their hotel.
Architect 2: Okay. **2** _____ _____ _____ make some models for them?
Architect 1: We've already made a **3** _____ _____. I think they want to see how it will look on the building site.
Architect 2: Then we should make **4** _____ _____ model.
Architect 1: I agree. But let's make it very **5** _____.
Architect 2: Of course. We just need to give them an idea of **6** _____ _____ compared to surrounding buildings.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Why don't we ...
Perhaps we could ...
I'll start ...

Student A: You are an architect. Talk to Student B about:

- models you need for a client meeting
- models you are not ready to make yet
- what you will do next

Student B: You are an architect. Talk to Student A about models you need for a client meeting.

Writing

9 **Use the reading passage and conversation to write an email from one architect to another architect. Include: information that a client requested, which models the team will make, and why some models are more appropriate than others.**

3 Drawings 1

Dear Ms. Carson,
As you requested, enclosed is a **full set** of house drawings. They should give you a good idea of what your house will look like.
In the first section, you will find the **orthographic projections**:

- The **elevation drawings** show the exterior of your house. It includes the building's **façades** from all four sides. There is also a **bird's-eye view** with an **overhead** perspective of the roof. This shows other structures on the lot as well.
- The **plan** shows a **horizontal cross section** of the house interior. This is an overview of where each room will be. Think of this as a map of your house.
- The **section drawings** show several **vertical cross sections** of the house. These let you see the height relationships between different rooms in the house. Notice the higher ceilings in the kitchen and living room.

The second section includes the **oblique drawings**. These images will help you picture your house in three dimensions. I suggest using the **isometric drawings**. You will find those most helpful. However, I have also included our preliminary **axonometric drawings** for additional reference.
Please let me know if you have any questions.
Sincerely,
Daniel Otteson
Williams & Otteson Architectural Firm

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different orthographic projections?
2 What is the difference between an isometric drawing and an axonometric drawing?

Reading

2 Read the letter. Then, mark the following statements as true (T) or false (F).

1 __ Other structures on the lot are displayed in the plan.
2 __ The house features multiple ceiling heights.
3 __ The letter recommends using the elevation drawings instead of the isometric drawings.

Vocabulary

3 Match the words and phrases (1-7) with the definitions (A-G).

1 __ overhead
2 __ bird's eye view
3 __ section drawing
4 __ elevation drawing
5 __ isometric drawing
6 __ axonometric drawing
7 __ horizontal cross section

A a representation that shows a slice of a building from top to bottom
B a three-dimensional view that is more effective but harder to produce
C an exterior view of a building from the top
D a view of something that shows a slice from side to side
E being or viewing from above something
F the exterior view of a building from one side
G a three-dimensional view that is less effective but easier to produce

4 **Fill in the blanks with the correct words and phrases from the word bank.**

WORD BANK

full set façade orthographic projection plan vertical cross section oblique drawing

1 If something were sliced from top to bottom, it would show a(n) _____.

2 The _____ included drawings from several perspectives.

3 A(n) _____ looks like a map of the building's interior.

4 The building looks three-dimensional in the _____.

5 One exterior wall of a building is a(n) _____.

6 A bird's-eye view is a type of _____.

5 **Listen and read the letter again. What is the difference between a plan and a bird's-eye view?**

Listening

6 **Listen to a conversation between an architect and a client. Choose the correct answers.**

1 What is the conversation mainly about?

A an inconsistency between building dimensions on two drawings

B a drawing that is missing from the full set

C which drawings the woman found most helpful

D a change that the woman wants to make to the drawings

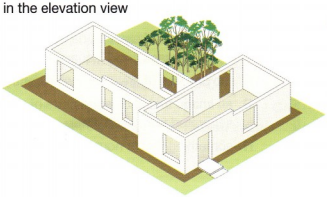
2 Where did the woman see a problem?

A in the plan

B in the bird's-eye view

C in the horizontal cross section

D in the elevation view



7 **Listen again and complete the conversation.**

Architect: Have a seat, Ms. Carson. Did you get a chance to look over the **1** _____ _____ of drawings?

Client: Yes, I did. **2** _____ _____ _____ _____, I was really pleased with them.

Architect: I'm glad to hear it. Was there anything that didn't look **3** _____ _____ _____?

Client: Actually, yes. There was something on the **4** _____ _____.

Architect: Do you mean the **5** _____ - _____ _____ or the plan?

Client: Um, I'm not sure. Not the **6** _____ _____ _____. It's the one that shows the exterior.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Did you get a chance to ...

Do you mean the ... or the ...

It looks like the ... is too ...

Student A: You are an architect. Talk to Student B about:

- drawings for his or her house
- which drawing he or she found the problem on
- a change that he or she wants to make to the design

Student B: You are a client. Talk to Student A about a change you want to make to your house design.

Writing

9 **Use the reading passage and conversation to write a letter to a client explaining design changes. Include a description of two changes that the client requested and which drawings show the details of the changes.**

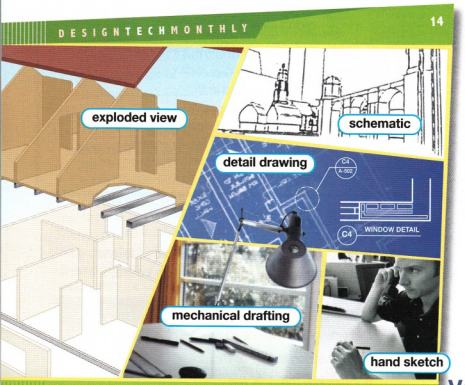
4 Drawings 2

Get ready!

1 Before you read the passage, talk about these questions.

1 How do architects usually create early ideas for a design?

2 What are some advantages of using CAD for architectural drafting?



CAD: The Future at Your Fingertips

The architectural industry has seen great improvements in **drafting** over the last several years. Advances in **CAD drawing** have made design production quick and easy. Every architect must have the knowledge and skills to harness today's impressive technology.

Architects no longer have to rely on **mechanical drafting** to produce presentable materials. For decades, designers spent hours laboring over final drafts. Adhering to **conventions** of quality and **accuracy** was a time-consuming effort.

Today, the old methods are mostly **obsolete**. With CAD, you can set up computer links to **detail drawings**, or change to an **exploded view** at the click of a button. Then, after you **deconstruct** an image, you can easily **reassemble** it again. Reviewing these models just takes a few seconds! Do you want your clients to see how a project will actually be used? You can really impress them with **photomontages**.

Of course, **manual drawing** still has its uses. Architects often prefer to experiment with ideas using **hand sketches**. Rough, **schematic** drawings are often a good place to start development. However, CAD is essential when the project reaches more advanced stages.

If you're an architect, don't fall behind. Make sure every client presentation features CAD drawings. See page 29 for reviews of top CAD software brands.

Reading

2 Read the article. Then, choose the correct answers.

1 What is the article mainly about?
- **A** where to find the best CAD training
- **B** the benefits of CAD over traditional drafting methods
- **C** answers to frequently asked questions about CAD
- **D** a comparison of different CAD brands

2 Which of the following is NOT a recommended use of design software?
- **A** reassembling images after deconstructing them
- **B** setting up links to detail drawings
- **C** showing photomontages to clients
- **D** creating experimental hand sketches

3 According to the article, when should architects use design software?
- **A** after schematic development is complete
- **B** at the beginning of each project
- **C** when a client requests photomontages
- **D** before attempting manual drawing methods

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

1 __ reassemble
2 __ convention
3 __ deconstruct
4 __ CAD drawing
5 __ photomontage
6 __ exploded view
7 __ manual drawing
8 __ mechanical drafting

- **A** to separate something into its fundamental components
- **B** to put the fundamental components of something back together
- **C** a diagram that is created with computer software
- **D** a computer-generated image that envisions how something will be used
- **E** the process of creating designs with tools such as compasses and T squares
- **F** the process of creating designs entirely by hand
- **G** an image that shows the parts of something separated from each other
- **H** something that is normal or expected

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 **obsolete / schematic**

A The architect used the _____ drawings to come up with something more detailed.

B Now that the new software is available, the old software is _____.

2 **hand sketch / detail drawing**

A A _____ is usually a close-up of one part of a design.

B The first step in the design process is usually a _____.

3 **drafting / accuracy**

A Architecture students must take a course in traditional methods of _____.

B The architect checked the measurements several times to ensure _____.

5 **Listen and read the article again. Why do some architects use a combination of manual drawing and CAD?**

Listening

6 **Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).**

1 __ The woman is still developing schematic features for her project.

2 __ The woman is concerned about making errors with the CAD software.

3 __ The man recommends showing the hand sketches to the client.

7 **Listen again and complete the conversation.**

Architect 1: Are you still working on the **1** _____ from this morning?

Architect 2: Yes. I've been trying a few different ideas.

Architect 1: **2** _____ _____ would probably be more accurate.

Architect 2: I know, but **3** _____ _____ _____ use manual drawing at this point.

Architect 1: Really? You don't think you're spending **4** _____ _____ _____ on that?

Architect 2: Not at all. I'm still working on **5** _____ _____.

Architect 1: And you can't do that with CAD?

Architect 2: I don't have **6** _____ _____ _____. Once I have some definite information, I'll plug the details into the CAD program.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Are you still working on ...

I'd really rather ...

So you agree that ...

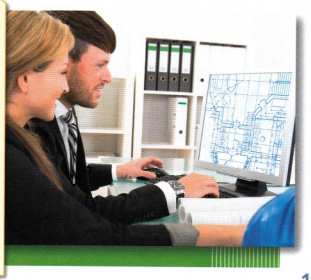
Student A: You are an architect. Talk to Student B about:

- a project that he or she is working on
- the advantages of his or her current design method
- advantages of other design methods

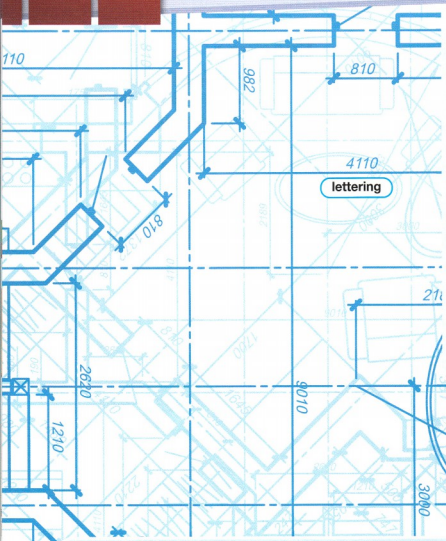
Student B: You are an architect. Talk to Student A about the advantages of different design methods.

Writing

9 **Use the reading passage and conversation to write a project schedule for a client. Include: two or three different phases of design, which design methods will be used during each phase, and the benefits of each design method.**



5 Blueline Prints 1



Get ready!

1 Before you read the passage, talk about these questions.

1 What are some different lines on blueline prints?
2 Why is attention to detail important on blueline prints?

Reading

2 Read the guide. Then, mark the following statements as true (T) or false (F).

1 __ Walls are represented by a bold line weight.
2 __ A center line looks similar to a section line.
3 __ A break line and a leader line are often used for the same purpose.

Blueline Prints Made Easy

line weight

Making blueline drawings may seem complicated, but the basics are actually quite simple. Different types of lines distinguish **primary objects** from **secondary objects**. Primary objects, like walls, are always drawn using a bold **line weight**. Secondary objects, like countertops and cupboards, use a medium line weight. Various line weights are used for **lettering**, depending on the importance of the label. Blueline prints use several types of lines, each with different functions. The chart below explains the major **line types**.

Line Type	Description	Function
Action line	**Solid**, straight, or curved	Action lines indicate movement, like the swinging of a door.
Phantom line	**Dashed**, straight, or curved	Phantom lines show that an object may have an alternate position.
Leader line	Solid with an arrow at the end	Leader lines are used to connect objects to notes.
Break line	Solid, wavy, irregular	Break lines are used to shorten dimensions that are too long for the drawing.
Center line	Very long and short dashes	Center lines indicate the middle of a plan or other object.
Section line	Long and short	Section lines show where a section drawing begins.
Dimension line 3.45 in	Solid, straight	Dimension lines show the measurement of an object.

Vocabulary

3 **Match the words and phrases (1-8) with the definitions (A-H).**

1 __ solid
2 __ lettering
3 __ action line
4 __ primary object
5 __ center line
6 __ line weight
7 __ secondary object
8 __ dashed

A the width or thickness of lines
B a main structural feature on a blueline print
C a line used to indicate movement
D written information used to label objects
E made up of small lines which are separated by small breaks
F having no breaks or interruptions
G a detail added to a blueline print
H a line with long and short dashes that is used to indicate the middle of an object

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 line types / line weights

A Some _____ are dashed, while others are solid.

B Primary objects and secondary objects are recognized by their different _____.

2 phantom line / section line

A A _____ shows the outline for a different view of the floor plan.

B A _____ shows that an object may have a different placement.

5 **Listen and read the guide again. What line weights are used for primary objects, secondary objects, and lettering?**

Listening

6 **Listen to a conversation between a professor and a student. Mark the following statements as true (T) or false (F).**

1 __ The woman's use of line weights has improved.
2 __ The woman used break lines instead of phantom lines.
3 __ The woman plans to take the blueline print exam again.

7 **Listen again and complete the conversation.**

Student: Hi, Professor Stanton. Could I ask you about the grade I got on my **1** _____ _____?

Professor: Sure. **2** _____ _____?

Student: Well, I worked really hard on using the **3** _____ _____ _____ for primary objects.

Professor: Yes. I noticed that you've improved on that.

Student: But I still got a C-minus **4** _____ _____ _____. What happened?

Professor: For starters, you didn't use any **5** _____ _____. Measurements are a big part of the grade.

Student: Oh, I **6** _____ _____ about that.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Could I ask ...
I noticed ...
You should've used ...

Student A: You are a student. Talk to Student B about:

- how well you did on an assignment
- why you received a particular grade
- what you can do to improve

Student B: You are a professor. Talk to Student A about what he or she can do to improve his or her blueline prints.

Writing

9 **Use the reading passage and conversation to write comments on a student's blueline print assignment. Include: errors in the blueline print assignment, what the student did well, and what the student can do to improve.**

6 Blueline Prints 2

Get ready!

1 Before you read the passage, talk about these questions.

1 What is the purpose of blueline print symbols?
2 What are some different types of cross-reference symbols?

Reading

2 Read the email. Then, choose the correct answers.

1 What is the email mainly about?
- **A** how to draw effective blueline prints
- **B** problems with a blueline print design
- **C** descriptions of several symbols on a blueline print
- **D** where to learn more about blueline print symbols

2 According to the email, which of the following is NOT something that the client needs to verify?
- **A** that the construction materials are what she wanted
- **B** that the roof line is the right height
- **C** that the doors and windows are the correct type
- **D** that the shortened countertop is as she expected

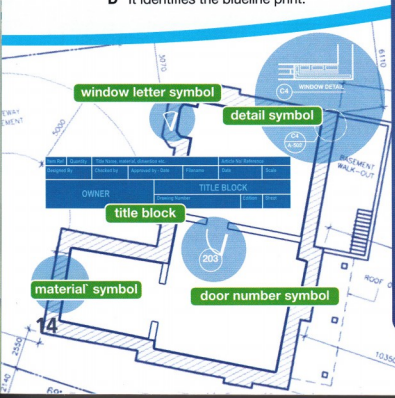
3 What can you infer about the title block?
- **A** It is decorative.
- **B** It is difficult to locate.
- **C** It isn't always included on blueline prints.
- **D** It identifies the blueline print.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ elevation datum
2 __ detail symbol
3 __ cutting-plane line
4 __ graphic symbol
5 __ section symbol
6 __ elevation mark
7 __ title block
8 __ material symbol

- **A** the information on a blueline print that includes the name of the project
- **B** a symbol indicating that a detail drawing is available for a particular section
- **C** a symbol that represents an object on a blueline print, such as a type of door
- **D** a symbol on a blueline print that contains information about where to find a section drawing
- **E** a symbol that is used on a floor plan to show from which direction the blueline print was drawn
- **F** a symbol on a blueline print that shows what different structures will be made of
- **G** a symbol used to provide a level line from which the height of something can be measured
- **H** an indication on a blueline print of where a section drawing begins



To: t.paxton@bluemail.com
From: bobby.smith@tmrbuilders.com
Subject: Friday's meeting

Hi Trisha,
I know we were supposed to review your blueline prints this Friday. Unfortunately, I have to leave town for a few days on urgent business. For now, you can pick up the prints from my assistant. We'll reschedule the meeting for next week.
First, check the **title block** to make sure you have the right print. Then take a look at the **material symbols**. Double-check that we're using the right materials in each area. You'll also notice the **graphic symbols** on the doors and windows. Compare the **door number symbols** and the **window letter symbols** to the attached pictures. You wanted to shorten the countertop on the north side. Cross sections of the new version are marked with **section symbols** and a **cutting-plane line**. You should make sure that this looks as you expected. You will also see other **cross-reference symbols**, including **elevation marks** and **detail symbols**. These correspond to the section drawings and detail drawings on subsequent pages. You may notice the new measurements under the **elevation datum**. You really don't need to worry about this section. We just brought the roof up slightly to accommodate the vaulted ceiling. We can talk about those more at our meeting.
Thanks,
Bobby Smith

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **material symbol / cross-reference symbol**

A Check the _____ to ensure that the correct material is used.

B The _____ on the first page should correspond with one on the third page.

2 **graphic symbol / window letter symbol**

A I accidentally put a door number symbol instead of a _____.

B An architect can use a _____ on a blueline print to show types of doors and windows.

5 Listen and read the email again. What is the importance of the title block?

Listening

6 Listen to a conversation between an architect and a client. Mark the following statements as true (T) or false (F).

1 __ The woman discovered a mistake on the blueline print.

2 __ The woman needs help identifying door number symbols.

3 __ The man is not sure when he will be available to meet.

7 Listen again and complete the conversation.

Client: Hi Bobby, it's Trisha. I was just looking at the **1** _____ and had some questions.

Architect: Sure. I know blueline prints can be pretty confusing.

Client: I was trying to make sure the **2** _____ _____ _____ are right, but they look the same on the print.

Architect: The doors are all **3** _____ _____ _____. But for windows, you'll see letters instead. The symbol shapes are also slightly different.

Client: I see that now. Also, I can't make out where the **4** _____ - _____ of the diagram begins.

Architect: You'll have to look for the **5** _____ _____ to find what page it's on.

Client: Okay. I also wanted to check that all the construction materials are correct – like the ceramic tile.

Architect: The **6** _____ _____ for ceramic tile looks like small squares inside a rectangle.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I had some questions about ...
You'll have to look ...
Can we ...

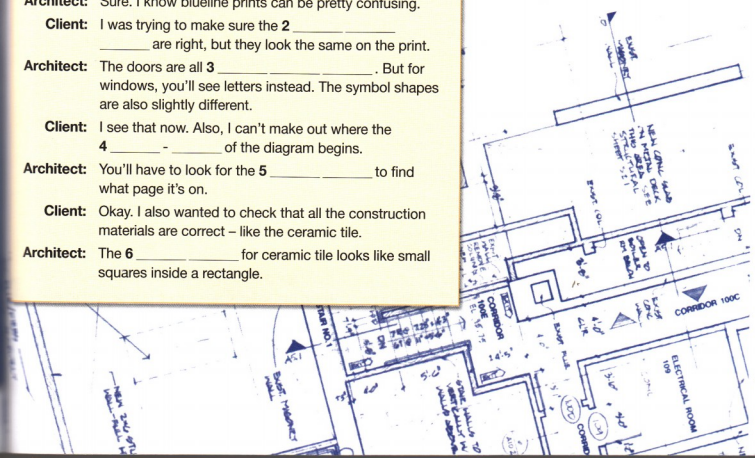
Student A: You are a client. Talk to Student B about:

- symbols on a blueline print
- information that needs to be clarified
- rescheduling a meeting

Student B: You are an architect. Talk to Student A about a blueline print.

Writing

9 Use the reading passage and conversation to write an email to a client. Include: types of symbols, what each symbol represents, and what to double-check for accuracy.



7 Presentations: Storyboarding

Get ready!

1 Before you read the passage, talk about these questions.

1 Why should architects know how to make effective presentations?

2 What are some benefits of storyboarding?

Architecture:
Designing Life by Architectural Critic James Welbourne

I recently attended a **presentation** at an architectural firm. The firm was trying to get the contract for a new conference center. The presenter **pitched** her idea very effectively. I was impressed with her **technique**, known as **storyboarding**.

Storyboarding is not new, but it hasn't been widely used in the architecture industry. Presenters use a **series** of illustrations to grab the attention of the audience. When a story **unfolds** gradually, it can create a lasting impression. Incorporating detailed and realistic **backdrops** draws clients into the **narrative**. The purpose of storyboarding is, quite simply, to **communicate** a story.

The **scene** was a day in the life of the conference center. Brief **captions** at the bottom displayed only the time and place of each event. The rest of the story was conveyed through pictures. Guests arrived and greeted each other around the courtyard fountain. Their body language **suggested** that they were relaxed and happy. We saw the guests enjoying lunch in the elegant dining room. After that, they retired to their rooms, where they slept comfortably. The whole presentation was very effective.

I have also seen architects use storyboards to show the life of the building **over time**. A storyboard really lets clients see the **potential** of the proposed building.

After this architect's excellent presentation, I'm sure she easily secured the job.

Reading

2 Read the blog. Then, choose the correct answers.

1 What is the article mainly about?
- **A** a client's personal reaction to a presentation
- **B** the techniques used for an effective presentation
- **C** an outline for an upcoming presentation
- **D** ways that a presentation could be better

2 Which of the following is NOT a benefit of storyboarding?
- **A** It maintains the interest of the audience.
- **B** It gives the audience information quickly.
- **C** It draws the audience into the story.
- **D** It demonstrates the potential of a project.

3 What was included in the architect's presentation?
- **A** a description of the benefits of storyboarding
- **B** a timeline of the building's uses over several years
- **C** a caption displaying the dialogue in each scene
- **D** a story about people arriving at the building

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

1 __ scene
2 __ suggest
3 __ unfold
4 __ storyboarding
5 __ over time
6 __ pitch
7 __ presentation
8 __ technique

- **A** the process of displaying ideas in a visual format
- **B** the skilled manner in which tasks are accomplished
- **C** a formal speech in front of a group of people
- **D** being developed during an extended period of time
- **E** to be revealed in a methodical way
- **F** an image of people and events that tell a story or make an impression
- **G** to present an idea, usually to a group of people
- **H** to put forward an opinion in order to influence a decision

4 Choose the sentence that uses the underlined part correctly.

1 **A** A good storyboard uses a narrative to involve the audience.
B Bill sets up a potential in order to create imagery.

2 **A** Good illustrations include scenes to explain their meaning.
B You need to communicate your ideas clearly.

3 **A** The backdrop really helps the audience understand where the story takes place.
B The architect gave the clients a technique about possible uses for the building.

5 Listen and read the blog again. Why is storyboarding sometimes a better option than a simple presentation?

Listening

6 Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).

1 ___ The man has never done a storyboard before.
2 ___ The architects are competing with other firms for the job.
3 ___ The man and the woman agree to do two types of presentations.

7 Listen again and complete the conversation

Architect 1: Well, I was thinking just a **1** _____ _____. Nothing fancy.

Architect 2: You want to keep it simple? Don't you think the client would be more impressed **2** _____ _____ _____?

Architect 1: I don't think doing a presentation on a **3** _____ _____ requires the attention of a storyboard. I've done storyboards and they are quite elaborate.

Architect 2: There are a lot of details involved. I really think we'd make a **4** _____ _____ if we used a storyboard.

Architect 1: Why do you think that?

Architect 2: For starters, we could make **5** _____ that would help the client actually visualize the building in use.

Architect 1: True. What else?

Architect 2: Also, we could really **6** _____ _____ _____ _____. It would include all the activities in the recreation center.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I was thinking ...
I don't think ...
We could really ...

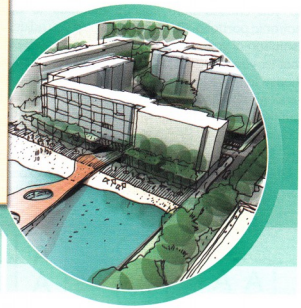
Student A: You are an architect. Talk to Student B about:

- an upcoming presentation
- what will be included in the presentation
- how storyboarding will improve the presentation

Student B: You are an architect. Talk to Student A about an upcoming presentation.

Writing

9 Use the reading passage and conversation to write an email to a coworker on storyboarding. Include: what you like about storyboarding, how a storyboard will improve a particular project, and why the client might like a storyboard better than a simple presentation.



8 Presentations: Portfolios

Get ready!

1 Before you read the passage, talk about these questions.

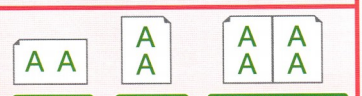
1 What must architects consider when designing a physical portfolio?

2 How do electronic portfolios differ from traditional ones?

Archisplay is a new website designed primarily to help architects organize their **portfolios**. To begin, simply upload a **collection** of your **work**. Once your collection is uploaded, our experts can help you organize it. We can help you proportion your work using the **golden section**. This can help transform simple **portrait** and **landscape** formats into an engaging display, as well as into corresponding **ISO** layouts. In most regions, architecture firms prefer that portfolio pages conform to either **A1** or **A3** layouts. Our programs easily adapt your work to these sizes.

Once your portfolio is complete, you can host it on our site. We help you choose from various methods to display your **electronic portfolio**. Our service will help you adjust the display **resolution** of your works. This makes your portfolio stand out whether you display it **on screen** or with a **projector**. If you choose to use a traditional portfolio in addition to your online version, we also provide printing services. Our specialized printing technology ensures that **double page spreads** continue seamlessly.

Helping you create an effective portfolio is our goal at Archisplay. Whether you are a novice or an expert, you need a sharp, professional portfolio. Let Archisplay get your career started on the right track!



Reading

2 Read the webpage. Then, mark the following statements as true (T) or false (F).

1 __ The webpage offers sample displays of other architects' portfolios.

2 __ According to the webpage, some architecture firms prefer portrait formatting while others prefer landscape.

3 __ The company can convert online portfolios into traditional portfolios.

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ A1
2 __ A3
3 __ work
4 __ portrait
5 __ on screen
6 __ collection
7 __ landscape
8 __ double page spread

A something produced as part of someone's job
B a layout that is wider than it is tall
C a layout that continues across two pages
D an 11.69 by 16.54 inch page size
E a layout that is taller than it is wide
F a 23.39 by 33.11 inch page size
G displayed on a computer or other digital display
H a number of items grouped together

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **electronic portfolio / golden section**

A A page with _____ dimensions is more visually appealing.

B I saved my _____ onto a flash drive so I can display it on a computer.

2 **portfolio / projector**

A The architectural firm liked the layout of my _____.

B I used a _____ to display my designs on a larger screen.

3 **ISO / resolution**

A If images have low _____, they might be blurry.

B The _____ makes sure that page sizes are the same in different countries.

5 🎧 **Listen and read the webpage again. Why does the service help adjust the display resolution of its customers' works?**

Listening

6 🎧 **Listen to a conversation between an architect and a representative of an architectural firm. Choose the correct answers.**

1 What is the conversation mainly about?

- **A** which works to include in a portfolio
- **B** what items to bring to an interview
- **C** why the firm requires certain formats
- **D** how to fix technical problems with electronic portfolios

2 What does the woman suggest?

- **A** bringing a projector to display the portfolio
- **B** paying special attention to the physical portfolio
- **C** bringing the portfolio in different formats
- **D** making A1- and A3-sized copies of the portfolio

7 🎧 **Listen again and complete the conversation.**

Applicant: Oh. That's great. If I bring an **1** _____ _____, will it be shown on-screen or projected?

Representative: We'll probably project it in one of our conference rooms.

Applicant: In that case, should I **2** _____ _____ _____?

Representative: No. We have computers, **3** _____, _____ _____. All you need is your portfolio.

Applicant: What sort of media should I bring it on?

Representative: A CD or USB drive will do. Or, we can access your online web portfolio. I'd **4** _____ _____ _____ though.

Applicant: Why is that?

Representative: So you'll have a backup if **5** _____ _____ _____.

Applicant: That's a great idea. Thanks. You've answered all my questions.

Representative: No problem. **6** _____ _____ on your interview.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

What ... do you prefer?
Should I bring ...
All you need is ...

Student A: You are a job applicant. Talk to Student B about:

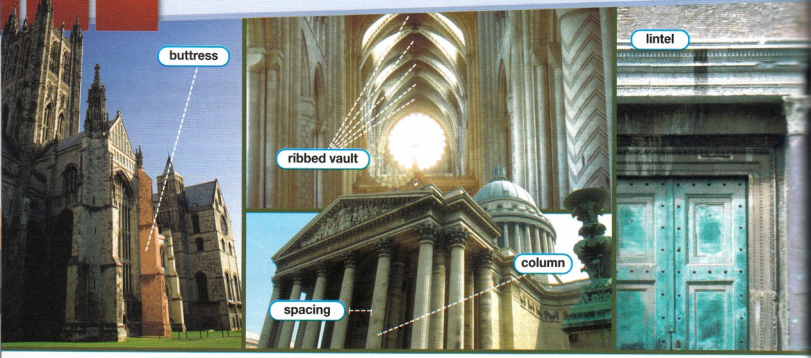
- what types of portfolios the firm prefers
- what equipment the firm has to display portfolios
- what you should bring to the interview

Student B: You are a representative of an architectural firm. Talk to Student A about he or she will need for an interview.

Writing

9 **Use the reading passage and conversation to write some notes about an upcoming job interview. Include: the firm's portfolio formatting preferences, available equipment for viewing portfolios, and what you need to bring.**

9 Historical Architecture



NATIONAL FOUNDATIONS

A Return to the Classics

More and more contemporary architects are turning to historical designs for inspiration. Early building styles add both elegance and history to new structures.

Many new designs incorporate elements of **Gothic** architecture. The **ribbed vault** on the ceiling of the famous Gracetown Theater is one example. It was built five years ago, but it feels like a structure from another century. It even has the classic **buttresses** along its outer walls.

Some architects are also reviving the strong, bold styles of **classical architecture**. Some features, like the classical dome, have never gone out of fashion. Many **Renaissance** buildings also have classical elements.

Some modern architects construct classical **columns** according to the rules of the **five orders**. Early books on the subject are becoming more and more popular in classrooms and architectural firms. Architects diligently ensure that each column has the **diameter** and **height** required by each order. Then they construct the columns with the proper **spacing**. Broad **lintels** can be found across wide entryways.

So what will historically-minded architects bring back next? Some ambitious architects are designing buildings to look like **Egyptian pyramids**. Could that be the next big trend in architecture? We'll see.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some features of classical architecture?

2 What are some features of Gothic architecture?

Reading

2 Read the article. Then, mark the following statements as true (T) or false (F).

1 __ The Gracetown Theater was built during the Gothic period.

2 __ Classical column designs each have rules regarding size and spacing.

3 __ According to the article, some architects are renovating deteriorating Egyptian pyramids.

Vocabulary

3 Write a word or phrase that is similar in meaning to the underlined part.

1 The architects studied the style of the <u>ancient tombs in Egypt</u>.
_ _ y _ _ _ a _ p _ _ _ m _ _ s

2 The design of the theater has elements of <u>styles from ancient Greece and Rome</u>.
c _ _ _ s _ _ a _ a _ _ _ _ t e _ _ _ _ _

3 Many architects have guides to the <u>different types of classical columns</u>.
_ i _ _ o _ _ e _ s

4 The cathedral ceiling features a <u>Gothic arched design</u>.
r _ b _ _ _ _ a u _ _

4 **Place the words from the word bank under the correct headings.**

WORD BANK

Renaissance column Gothic classical spacing height buttress diameter lintel

Historical periods	Types of structures	Measurements

5 **Listen and read the article again. How can an architect ensure historical accuracy of classical column designs?**

Listening

6 **Listen to a conversation between two architects. Choose the correct answers.**

1 What is the conversation mainly about?

A which classical features to use for a design
B a problem with a classical design
C old buildings featuring classical elements
D how to construct domes in a classical style

2 What will the man likely do next?

A Contact the client to discuss the design.
B Find a book on the five orders.
C Help the woman select building materials.
D Look for information about classical domes.

7 **Listen again and complete the conversation.**

Architect 1: Do you have **1** _____ _____ _____?
Architect 2: I was thinking of **2** _____ _____ _____ in the center.
Architect 1: You could do that. But **3** _____ _____ _____ _____, columns are the best way to convey a classical appearance.
Architect 2: You're probably right. But I want to make sure that they're **4** _____ _____.
Architect 1: That's the **5** _____ _____!
Architect 2: What do you mean?
Architect 1: Well, all you have to do is choose one of the **6** _____ _____.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I was thinking of ...
If you ask me ...
Let me find my ...

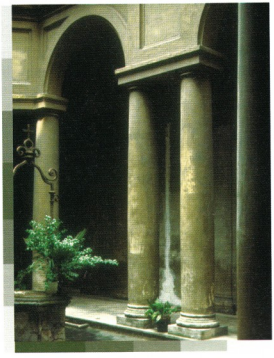
Student A: You are an architect. Talk to Student B about:

- historical architecture for his or her project
- what design features to use
- where to get more information about historical styles

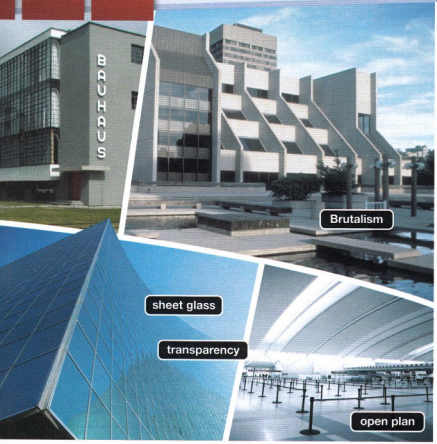
Student B: You are an architect. Talk to Student A about historical architecture for your project.

Writing

9 **Use the reading passage and conversation to write a project proposal for a client. Include: the historical style of the project, which design features you will use, and how you will ensure historical accuracy.**



10 Modernism



Architectural Styles: Modernism

In the early twentieth century, **functionalism** swept the architectural world. Architects adopted the phrase "**form follows function**" as a design principle. They favored **stark**, **efficient** designs. These ideas fueled **Modernism**.

Architects like Frank Lloyd Wright and Le Corbusier embraced simplicity and function in their designs.

Le Corbusier famously said, "A house is a **machine** for living in." In other words, a building's primary function is to be useful, much like a car or telephone.

Indeed, the new technology of the day inspired modern designs. Materials were very **industrial**. Architects used iron, steel, concrete, **sheet glass**, and **monolithic** stone. They believed in the principle of **truth to materials**. They didn't try to hide the natural appearance of their materials. As such, many modern structures are beige, gray, white, or black.

Bauhaus was one of the earliest and most influential architectural schools. Throughout the 1920s and 1930s, Bauhaus architects created buildings with simple shapes and flat surfaces. They featured **open plans** that lacked **decoration**.

Bauhaus later evolved into **International Style**. This style employed frequent use of **transparency**. Architects created "curtain walls" out of glass. In the 1950s, **Brutalism** would reject this trend. Instead, Brutalist architects used concrete and brick. They wanted their work to feel heavy and substantial, not light and airy.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some design characteristics of modern architecture?

2 What are some materials used in modern architecture?

Reading

2 Read the textbook chapter. Then, complete the table.

Architectural Style	Design feature
Bauhaus	1 _____
2 _____	Frequent use of transparency
Brutalism	3 _____

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

1 __ efficient
2 __ machine
3 __ decoration
4 __ monolithic
5 __ transparency
6 __ functionalism
7 __ Brutalism
8 __ International Style

A a mechanical device that is designed to perform a particular function

B not wasteful of materials or energy

C a style that used substantial materials and repetitive shapes

D design element that makes something more visually appealing

E the quality of being easy to see through

F an architectural principle that focuses on purpose rather than appearance

G made or appearing to be made with a single, large stone

H a school that rejected designs linking a structure to a specific location

4 **Write a word or phrase that is similar in meaning to the underlined part.**

1 The architect's motto is "the building's shape should be based on how it is used."
_ _ r_ _ o l _ _ s _ u _ _ t i _ _

2 The school that combined art and technology started in Germany in 1919.
_ _ u _ a _ _

3 The designer prefers bare, minimal designs instead of elaborate ones.
_ t _ _ _

4 The movement that emphasized function and simplicity lasted until the 1960s.
_ _ d e _ _ _ s _

5 The single large space instead of numerous small rooms makes the building feel bigger.
_ _ e _ p _ _ _

6 Architects believed in the notion of "using materials in their natural form."
_ _ u t _ _ _ _ a _ e _ _ a _ _

7 The architect designed a large wall made of a flat, clear material.
_ _ e _ t _ _ a _ _

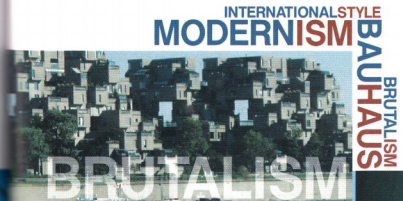
8 Architects used materials that are very frequently found in factories.
_ _ d _ s t _ _ _ _

5 **Listen and read the textbook chapter again. What shapes did Bauhaus architects use?**

Listening

6 **Listen to a conversation between a professor and a student. Mark the following statements as true (T) or false (F).**

1 __ International Style originated in Germany.
2 __ The student dislikes Bauhaus structures.
3 __ International style arose in opposition to Bauhaus.



7 **Listen again and complete the conversation.**

Student: I see. So a building in **1** _____ _____ could have a functionalist appearance?

Professor: Sure. Can you tell me more about **2** _____ _____ _____ from Bauhaus construction?

Student: Let's see. They had **3** _____ _____ _____ and simple shapes.

Professor: That's right. A lot of designs were very rectangular or cubic.

Student: Yeah, I don't **4** _____ _____ them. I think they look like boxes.

Professor: They're not **5** _____ _____. But it's still important to understand the concepts.

Student: So those are features of **6** _____ _____?

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

So what would a ... look like?
What are the principles of ...
So what's the difference between ...

Student A: You are a student. Talk to Student B about:

- Modern architectural principles
- the characteristics of Modern styles
- the principles behind Modern styles

Student B: You are a professor. Talk to Student A about Modern architectural principles.

Writing

9 **Use the reading passage and conversation to write a student's report about an architectural movement. Include: when the movement started, principles behind the movement, and typical design elements.**

11 Postmodernism

DeGrasse Museum Presents

Postmodern Images: Reintroducing Beauty into Architecture

The DeGrasse Museum invites you to explore **Postmodernism** at a new exhibit. See 25 physical models and more than 100 photographs of notable Postmodern buildings.

This fascinating architectural style is a direct **countermovement** to early twentieth-century Modernism. While Modernism featured stark, **bland** designs, Postmodernism embraces color and **ornaments**. Its followers believe that architecture should be **dual purpose**, having both function and visual appeal. This **reactionary** attitude revived ideas from styles before Modernism.

Unexpected images and bold shapes **characterize** Postmodern architecture. **Monumentalism** is also apparent in the featured model of the Fadner Building. The building's **primary** design is based on Modernism, and from the ground to the fifteenth floor, it features simple lines and boxes. However, the top is a dramatic example of **double coding**. Neoclassical columns support a grand, asymmetrical structure that overhangs the street.

Don't miss two lectures by architectural historian Greta Moss. On Saturday, she will discuss the reasons for popular architecture's departure from Modernism. She will also address arguments from late twentieth-century Modernists. During her Sunday lecture, Moss will talk about the art and philosophy of Postmodernism. Learn about the importance of **symbolic** elements in Postmodern construction. This session will focus on the use of **icons** in several famous Postmodern buildings. Visit www.degrassemuseum.com for details and tickets.

Get ready!

1 Before you read the passage, talk about these questions.

1 What is the difference between Modern and Postmodern architectural features?

2 What is the artistic philosophy behind Postmodernism?

Reading

2 Read the brochure. Then, mark the following statements as true (T) or false (F).

1 __ According to the brochure, foundations of Postmodernism came before Modernism.

2 __ The exhibit's featured model is a blend of different architectural styles.

3 __ One of the lectures will focus on similarities between Modern and Postmodern symbolism.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

1 __ icon
2 __ bland
3 __ primary
4 __ characterize
5 __ dual purpose
6 __ Postmodernism

A an image that is associated with a particular idea
B an architectural movement featuring functional and decorative elements
C considered plain or uninteresting
D most basic or important
E to be a fundamental feature or quality of something
F serving multiple functions

4 Fill in the blanks with the correct word or phrase from the word bank.

WORD BANK

monumentalism symbolic
double coding ornament
countermovement reactionary

1 In a(n) _____, one set of ideas directly opposes another set of ideas.
2 The carving of a sword is _____ of the people's resistance to the government.
3 The fireplace is not real; it's just a(n) _____.
4 The blend of classical features with contemporary features is an example of _____.
5 "Advocates for Function" is a(n) _____ group of Modernists.
6 _____ usually features very large buildings with bold façades.

5 Listen and read the brochure again. What is the Postmodern view of functionalism?

Listening

6 Listen to a conversation between a museum guide and a visitor. Choose the correct answers.

1 What is the conversation mainly about?
- **A** how to interpret Postmodern icons
- **B** notable Postmodern architects in the region
- **C** the differences between Postmodernism and previous styles
- **D** when Postmodernism became popular

2 According to the woman, what is a feature of the Fadner Building?
- **A** It is not functional.
- **B** It displays monumentalism.
- **C** It is very bland.
- **D** It features symbolism.

7 Listen again and complete the conversation.

Guide: Before we start the tour, does anyone have any questions?
Visitor: Are we going to **1** _____ _____ _____ of the Grasswood Center?
Guide: No. The Grasswood Center is actually not **2** _____ _____.
Visitor: Really? It's so simple. I was **3** _____ _____ _____ be part of the exhibit.
Guide: I think you're confusing Postmodernism **4** _____ _____.
Visitor: But the primary purpose of Postmodern buildings is to be functional. Isn't that why they're **5** _____ _____ _____?
Guide: Actually, it's the **6** _____ _____ _____. Strict functionalism is a feature of Modernism.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I was sure it would ...
Actually, it's the other ...
Let's look at ...

Student A: You are a museum guide. Talk to Student B about:
- a Postmodern exhibit
- the features of Postmodernism
- architectural styles of local buildings

Student B: You are a museum visitor. Talk to Student A about architectural styles of local buildings.

Writing

9 Use the reading passage and conversation to complete a feedback form about your museum tour. Include: the exhibit you visited, the information that the tour guide covered, and the most interesting fact you learned on the tour.

12 Contemporary Architecture 1

Contemporary Architecture:

Fluidity

In today's architecture, we see many surprising forms and structures. Some types of **contemporary** architecture are simply **innovative** approaches to traditional styles. Other types are radically different from historical architectural styles. In any case, contemporary architecture typically blends functionalism with **aesthetic** value. It tends to have a delicate, **fluid** appearance, which creates fascinating visual **illusions**.

Many types of architecture are associated with this **dynamic** style. **Deconstructivism** is characterized by unconventional shapes that create something **unexpected**. The outcome includes lines and forms that appear to be in motion rather than static. **Expressionist Architecture** is centered on communicating emotions. Forms are **distorted** to achieve an emotional effect. These designs can be breathtaking, disturbing, and beautiful, all at once. **Sculpturism** is characterized by the **influence** of the fine arts. These buildings typically involve bold, curved structures. Sometimes these designs include recognizable representations of scenes and people. In other cases, the meaning of the form is up for interpretation.

These styles should not be confused with **Novelty Architecture**. Its **exaggerated** shapes sometimes look like Deconstructivism, Sculpturism, and other contemporary forms. However, Novelty Architecture is generally commercial, and very literal. Contemporary architecture is more symbolic. It is based on artistic and philosophical ideas.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some types of contemporary architecture?

2 What are some characteristics of Expressionist Architecture?

Reading

2 Read the textbook chapter. Then, choose the correct answers.

1 What is the article mainly about?

A the characteristics of different types of architecture

B why certain types of architecture are better than others

C how modern architecture has influenced contemporary architecture

D the different materials used in contemporary buildings

2 According to the chapter, which of the following is a feature of Expressionist Architecture?

A rigid shapes

B fine arts influence

C distorted forms

D bold lines

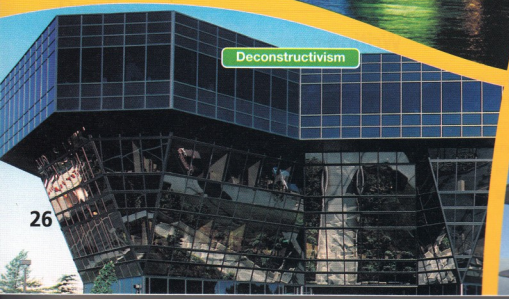
3 What does Novelty Architecture have in common with contemporary architecture?

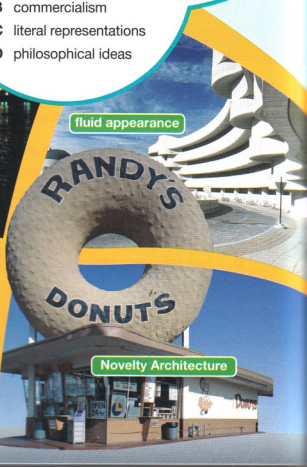
A exaggerated shapes

B commercialism

C literal representations

D philosophical ideas





Vocabulary

3 **Match the words (1-9) with the definitions (A-I).**

1 __ dynamic
2 __ influence
3 __ exaggerated
4 __ distort
5 __ unexpected
6 __ Sculpturism
7 __ aesthetic
8 __ fluid
9 __ contemporary

A having characteristics that flow
B being dramatically magnified
C related to beauty
D not something that people think will occur
E to change something so it no longer resembles its previous form
F having characteristics that change or progress
G a person or thing that affects on outcome
H made up of characteristics of the present
I an architectural style that is influenced by the arts

4 **Read the sentence pairs. Choose which word or phrase best fits each blank.**

1 **Expressionist Architecture / illusion**
A It gives the _____ of movement.
B In _____, buildings are designed to convey or provoke emotional responses.

2 **Novelty Architecture / Deconstructivism**
A The big donut on top of the shop is an example of _____.
B In _____, shapes are sometimes confusing and disturbing.

5 **Listen and read the textbook excerpt again. What are some characteristics of contemporary architecture?**

Listening

6 **Listen to a conversation between two architects. Mark the following statements as true (T) or false (F).**

1 __ According to the woman, the building is typical of Novelty Architecture.
2 __ The woman suggests that people like details on buildings.
3 __ The man thinks that a Modern approach is more appropriate.

7 **Listen again and complete the conversation.**

Architect 1: Well, it looked to me like it had a lot of **1** _____ _____.
Architect 2: Definitely. I **2** _____ _____ that there were some Sculptural influences. Lots of unusual shapes and curves.
Architect 1: What did you think of it?
Architect 2: I prefer a more **3** _____ _____. In my opinion, it should be simpler.
Architect 1: I see what you're saying, but I think the **4** _____ _____ _____ for a library.
Architect 2: Why is that?
Architect 1: Expressionist styles are about **5** _____ _____. And books in a library should provoke emotions.
Architect 2: When I think of a library, I think of a **6** _____ _____ that has four walls and a roof.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

Have you seen ...
It looked like ...
I see what you're saying, but ...

Student A: You are an architect. Talk to Student B about:
- a new building
- what styles you noticed
- why you like or dislike the building's style

Student B: You are an architect. Talk to Student A about the style of a new building.

Writing

9 **Use the reading passage and conversation to write a critic's review of a new building. Include: the building's contemporary architectural style, the features of the style, and the critic's opinion of the style.**

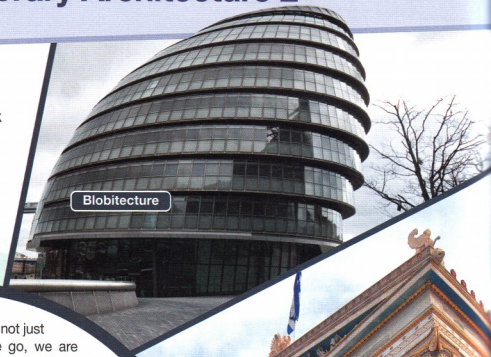
13 Contemporary Architecture 2

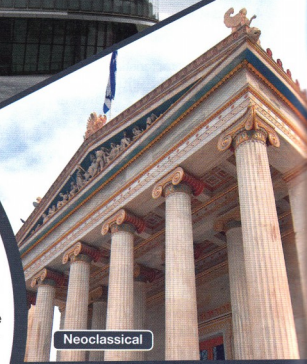
Get ready!

1 Before you read the passage, talk about these questions.

1 What are some characteristics of contemporary architecture?

2 What are some common styles of architecture in your country?





EVERYDAY ART: ARCHITECTURE

Art is everywhere, and not just in museums. Wherever we go, we are likely to see extraordinary and imaginative art in contemporary buildings. Each style **draws** from different time periods. For example, today's **Organic Architecture** really emerged in the late nineteenth century. Its purpose was to **integrate** buildings with their natural surroundings. In contemporary schools, Organic Architecture still seeks that union.

Neoclassical Architecture began as a **resurgence** of classical styles in the mid-eighteenth century. Much of its **inspiration** came from ancient Greece and Rome. Today, Neoclassical architects focus on emphasizing large walls and planes to create a grand effect.

Structural Expressionism or **High-Tech** architecture emerged in the mid-twentieth century. Over the years, its characteristics have varied. But High-Tech buildings still display technical parts, such as steel structures and piping. In the 1980s, **Critical Regionalism** gave buildings local character by drawing inspiration from geographical surroundings. Today, buildings in this style use **local** materials to enhance their identities.

Appearing in the early twenty-first century, **Blobitecture** gave buildings an organic, wavy shape. These buildings often feature **bulges** protruding from their façades. The **Neomodern** period also largely influences architecture today. It is characterized by a renewed **simplicity**, as first seen in the modern era.

Reading

2 Read the article. Then, choose the correct answers.

1 What is the article mainly about?

- **A** local examples of contemporary architecture
- **B** architects who specialize in contemporary architecture
- **C** time periods reflected in contemporary architecture
- **D** likely future trends in contemporary architecture

2 Which of the following is true of Critical Regionalism?

- **A** It draws from early Greek and Roman styles.
- **B** It incorporates local materials.
- **C** It typically displays technical parts.
- **D** It is characterized by straight, rigid lines.

3 Which contemporary influence emerged most recently?

- **A** Organic Architecture
- **B** Structural Expressionism
- **C** Neoclassical Architecture
- **D** Blobitecture

Vocabulary

3 **Match the words and phrases (1-8) with the definitions (A-H).**

1 __ Blobitecture
2 __ inspiration
3 __ Neoclassical
4 __ High-Tech
5 __ Neomodern
6 __ Organic Architecture
7 __ simplicity
8 __ Structural Expressionism

A having structural qualities that are functional and simple
B the quality of being plain
C someone or something that influences others' actions
D a type of architecture that focuses on technical and functional components
E a type of architecture in which buildings have an organic, wavy form
F being built to show its technical structure
G a type of architecture that focuses on union with nature
H being reminiscent of ancient styles and traditions

4 **Write a word that is similar in meaning to the underlined part.**

1 The building where I had my meeting had a <u>swollen, rounded area</u> on the front of it. b _ l _ _
2 In the late 1900s, there was a <u>reappearance</u> of more simple techniques. _ e _ _ r _ _ n c _
3 The builders tried to <u>incorporate</u> two different styles into the design. _ _ t _ _ r _ _ e
4 When Harold needs ideas for designs, he <u>gathers information</u> from classic architecture. _ r _ w _

5 **Listen and read the article again. What are the features of Neomodern architecture?**

Listening

6 **Listen to a conversation between an architect and a client. Mark the following statements as true (T) or false (F).**

1 __ The man recommends Organic Architecture.
2 __ The woman prefers classical styles.
3 __ According to the man, High-Tech buildings are appropriate for businesses.

7 **Listen again and complete the conversation.**

Client: I want to build a fairly large, **1** _____ _____ downtown.
Architect: That won't be a problem. Our builders have a lot of experience in that area.
Client: I want it to be **2** _____ _____ _____ _____.
Architect: Of course. There are **3** _____ _____ that you can choose from.
Client: What are my options?
Architect: We could do a **4** _____ _____. That focuses on a more rounded look.
Client: That sounds interesting. I've never seen a **5** _____ _____ _____.
Architect: Or if you prefer, we could go with a Neoclassical style. We'd **6** _____ a lot of the inspiration from Classical Greece.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I want ...
There are several ...
If you prefer ...

Student A: You are a client. Talk to Student B about:

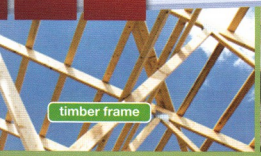
- designs for your new building
- styles that interest you
- styles that do not interest you

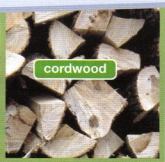
Student B: You are an architect. Talk to Student A about designs for a building.

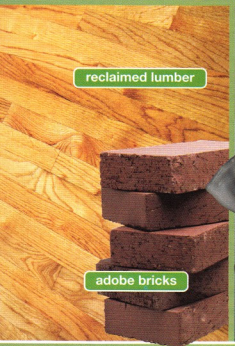
Writing

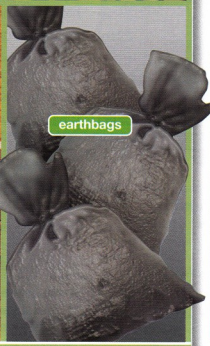
9 **Use the reading passage and conversation to write a letter to an architect. Include: what you need to build, what styles you prefer, and what styles you want to avoid.**

14 Sustainability 1









National Foundations

ATTENTION: RESIDENTS OF EARTH

Around the world, concern about the **environmental impact** of humans is growing. Many people want to **reduce** their **ecological footprint**, but they don't know how. So what can you do to help the environment? One way is to live in an ecologically **sustainable** home.

Green construction is possible with a variety of materials; and most of them are cheap and easily obtainable. Dirt and gravel are abundant resources. Consequently, **earthbags** and freeform **rammed earth** make inexpensive building materials. Similarly, **adobe** is a popular substance made with clay.

While these are easy construction materials to find, they are not always the most efficient. In areas with cold, harsh weather, these materials may not provide adequate insulation. Instead, builders can use **straw bales**. However, this strategy also has drawbacks. Straw bales occupy a lot of space, and they are vulnerable to moisture damage.

Some people avoid **natural building** because of these challenges. However, any builder can still minimize environmental harm, even with conventional building methods. **Cordwood construction** applies traditional masonry techniques to natural mixtures like **cob**. **Timber frame** can even qualify as green, but only if builders use **recycled materials**. **Reclaimed lumber** is perfectly functional. Often, it even makes a structure more visually appealing.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some common green building materials?
2 How can builders use traditional building methods for green construction?

Reading

2 Read the article. Then, complete the table.

Method	Advantages	Disadvantages
Earthbag	1 _____	provides inadequate insulation
2 _____	provides excellent insulation	3 _____
4 _____	5 _____	is only green if recycled materials are used

Vocabulary

3 Match the words and phrases (1-8) with the definitions (A-H).

1 __ cob
2 __ straw bale
3 __ sustainable
4 __ timber frame
5 __ rammed earth
6 __ recycled material
7 __ green construction
8 __ environmental impact

A continuing for a long time without destroying resources
B the effect that something has on the natural world
C the act of building in a way that minimizes harm to the natural world
D an object or substance that is used and then processed for use again
E a building material made with gravel, clay, and sand
F a building material made with clay and straw
G the process of creating structures with wooden beams
H a building material made with dried, compressed plant stems

4 Fill in the blanks with the correct words and phrases from the word bank.

WORD BANK

ecological footprint reduce earthbag
adobe cordwood construction
reclaimed lumber natural building

1 _____ uses both wood and masonry.
2 The architects took a pledge to minimize their _____.
3 The _____ is from a barn that was recently demolished.
4 A(n) _____ is made mostly of dirt.
5 An environmental group praised the architect for using various methods of _____.
6 The city promises to _____ the use of new materials and use recycled products instead.
7 _____ is mostly made of clay, sometimes with no other ingredients.

5 Listen and read the article again. What building material do some people want to avoid?

Listening

6 Listen to a conversation between an architect and a client. Mark the following statements as true (T) or false (F).

1 __ The man is not familiar with sustainable building.
2 __ The woman has designed straw bale homes for other clients.
3 __ Adobe will not provide enough insulation for the man's house.

7 Listen again and complete the conversation.

Architect: Well, we've built a few local homes **1** _____ _____ _____. They provide excellent insulation in this climate.
Client: Hmm. I don't know about that. That doesn't **2** _____ _____ _____.
Architect: It does **3** _____ _____ _____. By themselves, straw bales can easily retain too much moisture and rot.
Client: That doesn't sound good at all. There must be a **4** _____ _____.
Architect: Well, we could look at adobe. But we'll need to add an additional material **5** _____ _____.
Client: That sounds better. **6** _____ _____ that option.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I've been reading about ...
We're always looking for ways to ...
Let's explore ...

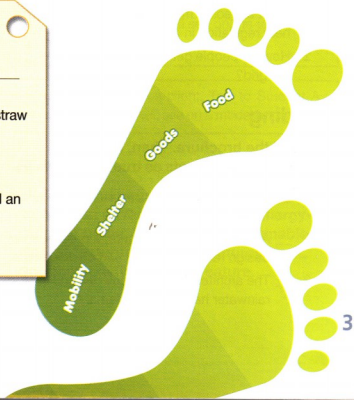
Student A: You are an architect. Talk to Student B about:

- plans for his or her new house
- available green construction methods
- advantages of different building materials

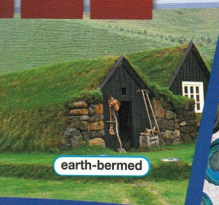
Student B: You are a client. Talk to Student A about plans for your new house.

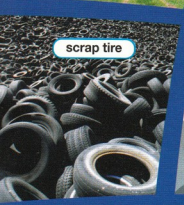
Writing

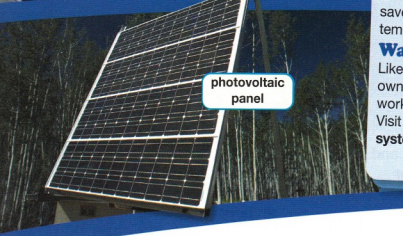
9 Use the reading passage and conversation to write an architect's meeting notes. Include: the client's goals for sustainability, the client's concerns about particular building methods, and which methods you recommended.



15 Sustainability 2







Make your next home a NatraHome!

NatraHome Architectural leads the industry in sustainable, **energy-efficient** building designs. Call us today for your free consultation!

Construction

We recycle and **repurpose** a variety of materials for construction. We make many exterior walls with rammed earth and **scrap tires**. We also build **earth-bermed** homes for additional temperature regulation. Your walls are your first defense against unwanted **heat flow**. We'll recommend materials with the right **thermal mass** for your climate. **Bottle walls** are often decorative, but they can also be effective **heat sinks** in warm climates.

Energy

Many people are afraid to live **off the grid**. We often hear people ask, "How will I get electricity?" **Photovoltaic panels** are great for generating electricity. **Skylights** reduce the need for electric lights during the day. With our excellent **passive solar designs**, you'll barely think about heating and cooling. Our systems work with the seasonal positions of the sun. This keeps you comfortable and saves you money. Simple ventilation systems regulate air temperature through **convection**.

Water

Like electricity, water is a resource that you can harness on your own. Why pay for water when it's available for free? NatraHome works closely with Aquitero, a local water purification company. Visit www.aquitero.com for prices on custom **rainwater harvesting systems**. Their experts also design systems for filtering **gray water**.

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some methods of energy-efficient heat regulation in a home?

2 How do people get clean water when living off the grid?

Reading

2 Read the brochure. Then, mark the following statements as true (T) or false (F).

1 __ Bottle walls can be used as a heat source in the winter.

2 __ According to the brochure, a passive solar design reduces heating and cooling costs.

3 __ The architectural company designs custom rainwater harvesting systems.

Vocabulary

3 Match the words and phrases (1-7) with the definitions (A-G).

1 __ heat flow
2 __ repurpose
3 __ convection
4 __ bottle wall
5 __ off the grid
6 __ thermal mass
7 __ passive solar design

A existing without a connection to public utilities

B a structure built with reused glass containers

C the movement of warmth from one area to another

D a heat regulation system that depends on the seasonal position of the sun

E to use something again after it is no longer needed for its original purpose

F the movement of gases or fluids from one area to another

G the quality that affects how well something prevents temperature fluctuations

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **scrap tires / skylights**

A The architect created walls made of _____ and rammed earth.

B Lots of _____ will reduce the need for artificial light.

2 **energy-efficient / earth-bermed**

A The builders installed _____ windows in the new house.

B The building is _____, so it's partly underground.

3 **rainwater harvesting system / photovoltaic panel**

A Electric lights can run on energy from the _____.

B The _____ is connected to the bathroom shower.

4 **gray water / heat sink**

A _____ must be filtered before it can be used again.

B Thick walls create a _____ and keep the house cool.

5 Listen and read the brochure again. What is one way to make a home more energy-efficient?

Listening

6 Listen to a conversation between an architect and a client. Choose the correct answers.

1 What is the conversation mainly about?

A how to convert the woman's home to a solar design

B the challenges of living off the grid

C which type of sustainable architecture the woman likes best

D the features of a particular energy-efficient home

2 What can you infer about the woman?

A She is installing a new roof and windows.

B She recently purchased a new house.

C She wants to live in a sustainable home.

D She has not used photovoltaic panels before.

7 Listen again and complete the conversation.

Architect: This particular model has a **1** _____ _____ _____.

Client: That sounds fancy. What does that mean?

Architect: It's actually very simple. Its roof and windows are designed to **2** _____ _____ from the sun. It works in the summer and the winter.

Client: Wow. That sounds **3** _____ _____ _____ _____.

Architect: It sure is. And the electricity comes from **4** _____ _____.

Client: Oh, I like those. So this house really **5** _____ _____ _____ _____, doesn't it?

Architect: That's a good **6** _____ _____ _____ _____. But it also has a great system for processing water.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

You'll be amazed at ...
What features ...
That sounds ...

Student A: You are an architect. Talk to Student B about:

- a model home tour for sustainable housing
- features he or she will see on the tour
- benefits of sustainable housing

Student B: You are a client. Talk to Student A about features you will see on a model home tour.

Writing

9 Use the reading passage and conversation to write an advertisement for an energy-efficient home. Include: two sustainable design features, how the features work, and the benefits of each feature.

Glossary

45/90 triangle [N-COUNT-U1] A **45/90 triangle** is a triangular-shaped tool that allows architects to draw 45° and 90° angles.

A1 [N-UNCOUNT-U8] **A1** is a paper size specified by the ISO that measures 23.39 inches by 33.11 inches.

A3 [N-UNCOUNT-U8] **A3** is a paper size specified by the ISO that measures 11.69 inches by 16.54 inches.

accuracy [N-UNCOUNT-U4] **Accuracy** is a measure of how few mistakes or errors someone or something has.

action line [N-COUNT-U5] An **action line** is a line on a blueline print that is used to indicate movement, like the swinging of a door.

adobe [N-UNCOUNT-U14] **Adobe** is a building material that is made with clay and mud.

aesthetic [ADJ-U12] If something is **aesthetic**, it is related to how beautiful or pleasing to the eye it is.

axonometric drawing [N-COUNT-U3] An **axonometric drawing** is an oblique projection with the length and width rotated to 45 degrees from the horizontal axis, which is a quick, simple image to produce but tends to exaggerate the top or roof of the object.

backdrop [N-COUNT-U7] A **backdrop** is the imagery where a story takes place.

balsa wood [N-UNCOUNT-U1] **Balsa wood** is a strong, lightweight wood that is used to build architectural models.

basswood [N-UNCOUNT-U1] **Basswood** is a fine-grained, easy-to-cut wood that is used to build architectural models.

Bauhaus [N-UNCOUNT-U10] **Bauhaus** is an early twentieth century architectural school that sought to combine artistic principles and technology in its designs.

bird's-eye view [N-COUNT-U3] A **birds-eye view** is an image of something that is shown from a position above it.

bland [ADJ-U11] If something is **bland**, it is plain and considered uninteresting.

Blobitecture [N-UNCOUNT-U13] **Blobitecture** is a type of architecture in which buildings have an organic, wavy form.

bottle wall [N-COUNT-U15] A **bottle wall** is a structure that is built with repurposed bottles or jars between layers of mortar.

bow compass [N-COUNT-U1] A **bow compass** is a tool that has adjustable legs which, depending on their positions, allows architects to draw circles of various sizes.

break line [N-COUNT-U5] A **break line** is a solid, wavy line on a blueline print that is used to shorten dimensions that are too long for the drawing.

Brutalism [N-UNCOUNT-U10] **Brutalism** is a mid-twentieth century architectural school that used substantial materials like concrete and repetitive geometric shapes.

bulge [N-COUNT-U13] A **bulge** is a part of something that protrudes or sticks outs to form a rounded area.

bumwad [N-UNCOUNT-U1] **Bumwad** is lightweight paper used for tracing and making sketches.

buttress [N-COUNT-U9] A **buttress** is a structure that supports a wall.

CAD drawing [N-UNCOUNT-U4] **CAD** (computer aided design) **drawing** is the process of creating technical designs with computer software.

CAD modeling [N-UNCOUNT-U2] **CAD modeling** is a technique used by architects to create a two- or three-dimensional representation of a design on a computer before making a physical one.

caption [N-COUNT-U7] A **caption** is text printed below a picture to indicate what the image is communicating.

center line [N-COUNT-U5] A **center line** is a line on a blueline print with long and short dashes that is used to indicate the center of an object.

characterize [V-T-U11] To **characterize** something is to have a feature or quality that is typical or specific to something.

classical architecture [N-UNCOUNT-U9] **Classical architecture** is a building style based on ancient Greek and Roman designs, starting around the sixth century BCE.

cob [N-UNCOUNT-U14] **Cob** is a building material that is made with clay and straw.

collection [N-COUNT-U8] A **collection** is multiple items grouped together and thought of as a whole.

column [N-COUNT-U9] A **column** is a post or pole that acts as support or decoration for a structure.

communicate [V-T-U7] To **communicate** something is to share ideas with someone.

concept model [N-COUNT-U2] A **concept model** is a model that shows abstract qualities of a design, such as themes of a building or how light, shade, and shadows figure into the design.

contemporary [ADJ-U12] If something is **contemporary**, it is made up of characteristics of the present time period.

convection [N-UNCOUNT-U15] **Convection** is the movement of gases or fluids from one area to another.

convention [N-COUNT-U4] A **convention** is something that is normal or expected in a particular context or situation.

cordwood construction [N-UNCOUNT-U14] **Cordwood construction** is a building method that involves the use of wood and a masonry or cob mixture.

countermovement [N-COUNT-U11] A **countermovement** is an organized set of ideas or actions that is intended to oppose another set of ideas or actions.

Critical Regionalism [N-UNCOUNT-U13] **Critical Regionalism** is a type of architecture that seeks to give buildings identity and character by using geographical surroundings as inspiration.

cross-reference symbol [N-COUNT-U6] A **cross-reference symbol** is a symbol on a blueline print that provides orientation and clarification on the drawing.

cutting-plane line [N-COUNT-U6] A **cutting-plane line** is a line accompanied by section symbols that shows where an accompanying section drawing begins.

dashed [ADJ-U5] If a line is **dashed**, it is made up of small lines which are separated by small breaks.

deconstruct [V-T-U4] To **deconstruct** something is to break it apart into its fundamental components.

Deconstructivism [N-UNCOUNT-U12] **Deconstructivism** is a type of architecture characterized by distortion of lines and shapes.

decoration [N-UNCOUNT-U10] **Decoration** is any design element that exists only to make something more visually appealing.

detail drawing [N-COUNT-U4] A **detail drawing** is an enlarged image of part of a design, showing more details than the complete plan or section view.

detail model [N-COUNT-U2] A **detail model** is a model that focuses on one particular aspect of an architectural design.

detail symbol [N-COUNT-U6] A **detail symbol** is a symbol used to indicate that a detail drawing is available for a particular section of a blueline print.

diameter [N-COUNT-U9] A **diameter** is the distance between two opposite sides of a round object or surface.

dimension line [N-COUNT-U5] A **dimension line** is a solid line on a blueline print that is used to show the measurement of something.

distort [V-T-U12] To **distort** something is to change it so it no longer resembles its previous form.

door number symbol [N-COUNT-U6] A **door number symbol** indicates the type of door being used or the number of the door on a blueline print.

double coding [N-UNCOUNT-U11] **Double coding** is the process of incorporating two or more themes, messages, or meanings into an artistic expression.

double page spread [N-COUNT-U8] A **double page spread** is a layout that continues over two pages that face each other.

Glossary

drafting [N-UNCOUNT-U4] **Drafting** is the process of drawing detailed, accurate designs and diagrams that show plans or processes for making something.

drafting board [N-COUNT-U1] A **drafting board** is an angled board that is attached to a pedestal. It holds paper in place to allow the user to produce accurate drawings.

drafting vellum [N-UNCOUNT-U1] **Drafting vellum** is a semi-translucent paper made of cotton, wood pulp, or a man-made material. It is used for tracing and drawing.

draw [V-T-U13] To **draw** something is to gather it from a particular source.

dual purpose [ADJ-U11] If something is **dual purpose**, it has two main functions.

dynamic [ADJ-U12] If something is **dynamic**, it has characteristics that change or progress.

earthbag [N-COUNT-U14] An **earthbag** is a bag that is made of strong fiber and filled with dirt or other natural substances, and is used as a building material.

earth-bermed [ADJ-U15] If a building is **earth-bermed**, it is built partially underground to improve temperature regulation.

ecological footprint [N-COUNT-U14] An **ecological footprint** is the ratio of the speed at which people use resources to the speed at which the resources can be renewed.

efficient [ADJ-U10] If something is **efficient**, it doesn't waste materials or energy.

Egyptian pyramids [N-COUNT-U9] The **Egyptian pyramids** are a series of large, ancient pyramid-shaped masonry structures that were built as Egyptian tombs, starting around the 27th century BCE.

electronic portfolio [N-COUNT-U8] An **electronic portfolio** is a digitally-produced portfolio that can be viewed or projected using a computer.

elevation datum [N-COUNT-U6] **Elevation datum** is a symbol used to provide a level line from which the height of something can be measured, like a ceiling.

elevation drawing [N-COUNT-U3] An **elevation drawing** is an orthographic projection that shows an exterior view of a building from the side.

elevation mark [N-COUNT-U6] An **elevation mark** is a symbol that is used on a floor plan to show from which direction the drawing was made.

energy-efficient [ADJ-U15 If something is **energy-efficient**, it functions without excessive amounts of a resource, such as fuel or electricity.

environmental impact [N-COUNT-U14] **Environmental impact** is the effect that something has on the natural world.

exaggerated [ADJ-U12] If something is **exaggerated**, it is dramatically magnified.

exploded view [N-COUNT-U4] An **exploded view** is a diagram that shows the parts of something slightly separated from each other so each component is displayed clearly.

Expressionist Architecture [N-UNCOUNT-U12] **Expressionist Architecture** is a type of architecture that has the quality of communicating emotions.

façade [N-COUNT-U3] A **façade** is one exterior side of a building.

finished model [N-COUNT-U2] A **finished model** is a detailed model that shows all interior and exterior aspects of an architectural design.

five orders [N-COUNT-U9] The **five orders** are a set of classical architecture styles that are differentiated by the features of their columns.

fluid [ADJ-U12] If something is **fluid**, it has characteristics that flow.

form follows function [EXPRESSION-U10] **Form follows function** is a principle dictating that the shape, appearance, and features of a building should be based on how it will be used.

full set [N-COUNT-U3] A **full set** is a collection of drawings that includes the elevation, plan, and section drawings.

functionalism [N-UNCOUNT-U10] **Functionalism** is an architectural principle which dictates that a building's appearance, or form, should be suited to how the building is used, or its function.

golden section [N-UNCOUNT-U8] The **golden section** is a set of mathematical proportions used to create shapes that are considered visually appealing among certain groups of people.

Gothic [ADJ-U9] If something is **Gothic**, it is related to a European style of architecture that occurred between the 12th and 16th centuries CE.

graphic symbol [N-COUNT-U6] A **graphic symbol** is a symbol that represents an object on a blueline print like a specific kind of door, window, or opening.

gray water [N-UNCOUNT-U15] **Gray water** is water that has been used and is not suitable for drinking, but can still be used for other purposes.

green construction [N-UNCOUNT-U14] **Green construction** is the act of creating structures that minimize harm to the environment, both during the construction process and when the building is in use.

hand sketch [N-COUNT-U4] A **hand sketch** is a realistic architectural drawing that is done manually without mechanical or digital tools.

heat flow [N-UNCOUNT-U15] **Heat flow** is the movement of heat energy from one area to another.

heat sink [N-COUNT-U15] A **heat sink** is a building insulation system that absorbs heat during the day, without transferring it to the interior of a building, and then releases the heat at night.

height [N-COUNT-U9] **Height** is the distance from the bottom to the top of something.

High-Tech [ADJ-U13] If a building is **High-Tech**, it is built to show its technical structure, such as steel framework.

horizontal cross section [N-COUNT-U3] A **horizontal cross section** is a view of something that shows how it would look if it were cut from side to side and viewed from the top.

icon [N-COUNT-U11] An **icon** is an image that is widely associated with a particular group or idea.

illusion [N-COUNT-U12] An **illusion** is something that distorts how the brain perceives reality.

industrial [ADJ-U10] If something is **industrial**, it has characteristics of or uses materials similar to those found in factories.

influence [N-COUNT-U12] An **influence** is a person or thing that affects the outcome of something.

innovative [ADJ-U12] If something is **innovative**, it is new and original.

inspiration [N-COUNT-U13] An **inspiration** is someone or something that influences or prompts others' actions.

integrate [V-T-U13] To **integrate** something is to combine separate units into one whole.

International Style [N-UNCOUNT-U10] **International Style** is an early twentieth century architectural style that emphasized function, simplicity, and a lack of design elements that would link it to a particular place.

ISO [N-UNCOUNT-U8] The **ISO** (International Organization for Standardization) is an organization formed to standardize measurements between countries.

isometric drawing [N-COUNT-U3] An **isometric drawing** is an oblique drawing with the length and width rotated to 30 degrees from the horizontal axis, which is more difficult to create than an axonometric drawing but produces a more effective representation of an object.

landscape [N-UNCOUNT-U8] **Landscape** is a page orientation in which a page is wider than it is tall.

leader line [N-COUNT-U5] A **leader line** is a solid line on a blueline print with an arrow at the end that connects objects to notes.

lettering [N-UNCOUNT-U5] **Lettering** is the written information on a blueline print used to label objects.

line type [N-COUNT-U5] A **line type** is a set of properties that defines particular lines on a blueline print.

line weight [N-COUNT-U5] A **line weight** is the width or thickness of a line on a blueline print.

lintel [N-COUNT-U9] A **lintel** is a beam above a window or door that supports the weight of the structure above it.

local [ADJ-U13] If something is **local**, it belongs to a certain place and is not widespread.

machine [N-COUNT-U10] A **machine** is a mechanical device that is designed to perform a particular function.

manipulate [V-T-U2] To **manipulate** something is to alter, fix, or shift it.

manual drawing [N-UNCOUNT-U4] **Manual drawing** is the process of creating hand sketches without mechanical or digital tools.

material symbol [N-COUNT-U6] A **material symbol** is an image that represents types of construction materials on a blueline print.

mechanical drafting [N-UNCOUNT-U4] **Mechanical drafting** is the process of creating technical sketches with physical tools, such as T-squares, parallel bars, compasses, and other devices.

mechanical pencil [N-COUNT-U1] A **mechanical pencil** is a writing or drawing instrument, typically made of plastic, that uses replaceable lead and does not require sharpening.

model [N-COUNT-U2] A **model** is a scale version of a building that is either a small physical version or a digital version, and is used to show the buildings design features.

Modernism [N-UNCOUNT-U10] **Modernism** is an architectural movement beginning in the early twentieth century that emphasized simplicity and functionality.

monolithic [ADJ-U10] If something is **monolithic**, it is, or appears to be, made with a single, massive stone.

monumentalism [N-UNCOUNT-U11] **Monumentalism** is an architectural style that emphasizes large, grand features.

narrative [N-COUNT-U7] A **narrative** is a storyline.

natural building [N-UNCOUNT-U14] **Natural building** is a structure made with local materials that come from natural sources.

Neoclassical [ADJ-U13] **Neoclassical** architecture is reminiscent of classical styles and traditions.

Neomodern [ADJ-U13] **Neomodern** architecture is functional and simple.

Novelty Architecture [N-UNCOUNT-U12] **Novelty Architecture** is a type of architecture in which buildings are given unusual shapes that attract attention, usually for commercial or entertainment purposes.

oblique drawing [N-COUNT-U3] An **oblique drawing** is a two-dimensional representation of an object or space that has the appearance of being three-dimensional.

obsolete [ADJ-U4] If something is **obsolete**, it is no longer useful or current because something newer better serves its particular purpose.

off the grid [ADV-U15] If something exists **off the grid**, it exists or functions without being connected to public utility systems, such as municipal electricity or water.

on screen [ADJ-U8] If something is **on screen**, it can be viewed on a television or computer monitor.

open plan [N-COUNT-U10] An **open plan** is a floor plan with one large, open space instead of numerous smaller rooms.

Organic Architecture [N-UNCOUNT-U13] **Organic Architecture** is a type of architecture that focuses on uniting buildings with their natural surroundings.

ornament [N-COUNT-U11] An **ornament** is an object that is used to make something more attractive.

orthographic projection [N-COUNT-U3] An **orthographic projection** is a representation of a three-dimensional object that shows two-dimensional views of it.

over time [ADV-U7] If something is done **over time**, it develops during an extended period of time.

overhead [ADJ-U3] If something is **overhead**, it is in a position above something else.

parallel bar [N-COUNT-U1] A **parallel bar** is a tool used to draw parallel lines.

passive solar design [N-COUNT-U15] A **passive solar design** is a heat-regulation system in a building that captures sunlight in the winter and deflects sunlight during the summer.

phantom line [N-COUNT-U5] A **phantom line** is a line on a blueline print that is made of medium dashes alternated with short dashes that is used to show an alternate position of an object or the movement of that object.

photomontage [N-COUNT-U4] A **photomontage** is a computer-generated image that shows a design with additional images inserted to envision how the design will be used.

photovoltaic panel [N-COUNT-U15] A **photovoltaic panel** is a device that converts solar energy into usable electricity.

physical model [N-COUNT-U2] A **physical model** is a tangible copy of an object that can be smaller or bigger than the original object.

pitch [V-T-U7] To **pitch** something is to present an idea, usually to a group of people.

plan [N-COUNT-U3] A **plan** is an orthographic projection that shows a horizontal cross section of a building.

portfolio [N-COUNT-U8] A **portfolio** is a set of someone's creative work that is organized to show his or her skills.

portrait [N-UNCOUNT-U8] **Portrait** is a page orientation in which the page is taller than it is wide.

Postmodernism [N-UNCOUNT-U11] **Postmodernism** is an architectural movement beginning in the mid to late twentieth century that rejected the pure functionalism of Modernism and instead embraced art and beauty as part of the architectural form.

potential [N-UNCOUNT-U7] **Potential** is the quality of being able to do or become something, usually in a positive way.

presentation [N-COUNT-U7] A **presentation** is a formal speech in front of a group of people with the goal of informing or persuading them.

primary [ADJ-U11] If something is **primary**, it is the most basic or important feature of something.

primary object [N-COUNT-U5] A **primary object** is a main structural feature on a blueline print, such as the walls of a house.

projector [N-COUNT-U8] A **projector** is a device used to display images on a large screen.

protractor [N-COUNT-U1] A **protractor** is a tool shaped like a half-circle which allows architects to measure and draw angles.

rainwater harvesting system [N-COUNT-U15] A **rainwater harvesting system** is a way of collecting, storing, and processing water for household use.

rammed earth [N-UNCOUNT-U14] **Rammed earth** is a mixture of compacted gravel, clay, and sand that is used as a building material.

reactionary [ADJ-U11] If something is **reactionary**, it is thought or done in opposition to new or changing cultural trends.

reassemble [V-T-U4] To **reassemble** something is to put its components back together after taking them apart.

reclaimed lumber [N-UNCOUNT-U14] **Reclaimed lumber** is wood that has been previously used and is now used again for new construction.

recycled material [N-COUNT-U14] **Recycled material** is an object or substance that is used and then processed for use again, for the same or a different purpose.

reduce [V-T-U14] To **reduce** something is to lessen something or make it smaller.

Renaissance [ADJ-U9] **Renaissance** refers to a European style of art and architecture that occurred between the 14th and 17th centuries CE.

Glossary

representation [N-COUNT-U2] A **representation** is a picture or model that reproduces something on a smaller scale.

repurpose [V-T-U15] To **repurpose** something is to use it again after it is no longer needed for its original purpose, usually for a different purpose.

resolution [N-UNCOUNT-U8] **Resolution** is the capability of a screen or image to show sharp details.

resurgence [N-COUNT-U13] A **resurgence** is a reappearance or renewed popularity of something from the past.

revise [V-T-U2] To **revise** something is to change it in order to make it better.

ribbed vault [N-COUNT-U9] A **ribbed vault** is a type of arched ceiling support structure that was popular during the Gothic period.

rough model [N-COUNT-U2] A **rough model** is a model that is constructed early in the design phase. It shows the basic components and designs of a building.

scene [N-COUNT-U7] A **scene** is an image of people and events that is used to tell a story or make an impression.

schematic [ADJ-U4] Something is **schematic** when it shows the main parts of something, but does not show great detail.

scrap tire [N-COUNT-U15] A **scrap tire** is a piece of rubber that was once used to cover the wheels on a vehicle.

Sculpturism [N-UNCOUNT-U12] **Sculpturism** is the architectural technique of creating buildings that resemble or use works of art.

secondary object [N-COUNT-U5] A **secondary object** is a detail added to a drawing, such as countertops and cupboards in a house, that does not affect the integrity of the building.

section drawing [N-COUNT-U3] A **section drawing** is an orthographic projection that shows a vertical cross section of a building.

section line [N-COUNT-U5] A **section line** is a line on a blueline print with long and short dashes that is used to show a cutaway view of a floor plan.

section symbol [N-COUNT-U6] A **section symbol** is a symbol that indicates where to find a section drawing that corresponds to a particular part of a blueline print.

series [N-COUNT-U7] A **series** is a grouping of things that share the same topic.

sheet glass [N-UNCOUNT-U10] **Sheet glass** is a large piece of flat glass, commonly used for windows or to make walls.

simplicity [N-UNCOUNT-U13] **Simplicity** is the quality of being plain.

skylight [N-COUNT-U15] A **skylight** is a window that is built into a roof so that it allows a lot of light to enter all day.

solid [ADJ-U5] If something is **solid**, it does not have breaks or interruptions in its form.

spacing [N-UNCOUNT-U9] **Spacing** is the measurement of distance between parts of something.

stark [ADJ-U10] If something is **stark**, it is bare, minimal, and lacks decoration.

stencil [N-COUNT-U1] A **stencil** is a piece of paper, plastic, or metal with shapes cut into it so that a person can draw them easily.

storyboarding [N-UNCOUNT-U7] **Storyboarding** is the process of displaying ideas in a visual format that outlines how something will occur or be accomplished.

straw bale [N-COUNT-U14] A **straw bale** is a block of dried plant stems that is compressed and bound together, and is used as a building material.

Structural Expressionism [N-UNCOUNT-U13] **Structural Expressionism** is a type of architecture that focuses on the technical and functional components of buildings.

suggest [V-T-U7] To **suggest** something is to put forward an opinion in order to influence a decision.

surrounding [ADJ-U2] **Surrounding** refers to something that exists or occurs in the area around something.

sustainable [ADJ-U14] If something is **sustainable**, it can continue for a long period of time without using up or destroying its resources.

symbolic [ADJ-U11] If something is **symbolic**, it represents a particular idea without explicitly stating the idea.

T square [N-COUNT-U1] A **T square** is a ruler that has a perpendicular crosspiece that can slide up and down the ruler. It is typically used to draw parallel lines.

technique [N-COUNT-U7] A **technique** is a skilled manner in which tasks are accomplished.

thermal mass [N-UNCOUNT-U15] **Thermal mass** is the quality of a building or surface that determines how well it prevents fluctuations in temperature.

timber frame [N-COUNT-U14] **Timber frame** is a very common building method that involves constructing walls and a roof around a basic structure of wooden beams.

title block [N-COUNT-U6] A **title block** is information on each sheet of a blueline print including the name of the project, the sheet title, and the sheet number.

tracing paper [N-UNCOUNT-U1] **Tracing paper** is translucent paper. It is generally placed over another image for the purposes of tracing or copying it.

transparency [N-UNCOUNT-U10] **Transparency** is the quality of being clear or easy to see through.

triangular scale [N-COUNT-U1] A **triangular scale** is a ruler that has a different unit of length on each side which allows architects to create drawings that are to scale.

truth to materials [EXPRESSION-U10] **Truth to materials** is the principle that materials should only be used in settings where they are appropriate and that their natural appearance should not be altered.

unexpected [ADJ-U12] If something is **unexpected**, it is not something that people think will occur.

unfold [V-I-U7] To **unfold** is to be revealed in a methodical way.

urban model [N-COUNT-U2] An **urban model** is a model that shows an architectural design in its intended location, including features and topography of the site.

vertical cross section [N-COUNT-U3] A **vertical cross section** is a view of something that shows how it would look if it were cut from top to bottom and viewed from the side.

window letter symbol [N-COUNT-U6] A **window letter symbol** identifies windows on a blueline print and may indicate the type of window being used or the window number.

work [N-UNCOUNT-U8] **Work** is something that someone produces, usually as part of his or her job.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