



FRANK
LLOYD
WRIGHT
TRUST

INSPIRED BY FIRE: THE GREAT CHICAGO FIRE, TALIESIN AND FRANK LLOYD WRIGHT

GRADE: 6-12

TIME: Two 1-hour sessions

Frank Lloyd Wright's life was impacted by many fires. Fires created tragedy among his family and community, but also opportunities for his career, allowing him to create new buildings to replace those lost. In this lesson, students will study the Great Chicago Fire and the Iroquois Theater Fire, two fires that influenced fireproofing in architecture during Wright's residence in the Chicago area. Then, students will examine images of Wright's designs produced as rebuilds after fires, including Wright's own home, Taliesin in Spring Green, Wisconsin. Students will read a 1907 magazine, *Ladies' Home Journal*, that advertises "A Fireproof House for \$5000" and examine Wright's design choices to prevent future fires. Students will identify fire-prone and fireproof building materials as they research various fires that impacted Wright. Finally, students will use their understanding of fireproofing to create a modern fireproof home designed to withstand today's wildfires, given the occurrence of so many fires currently plaguing the United States today as a result of climate change.

INTEGRATED SUBJECTS: Media Literacy, Social Studies, Visual Arts

OBJECTIVES

MATERIALS | RESOURCES

Pencils

Internet access for independent student research

Photographs of Wright's designs built in response to fires (Appendix A)

Note-taking sheet (Appendix B)

Pencils

Paper

"A Fireproof House for \$5000." (PDF attached in Appendix, available online at <https://hdl.handle.net/2027/mdp.39015013140838?urlappend=%3Bseq=352%3Bowner-id=109669300-351> or full text version available online at <https://www.antiquehome-style.com/plans/lhj/1907/flw0407-fireproof.htm>)

1. Explore the history of major Chicagoland fires that occurred around the time of Wright's residence in the Chicago area.
2. Examine Wright's relationship with fires as an opportunity to create.
3. Compile a list of fireproof and fire-prone design choices to understand fireproof building practices.
4. Analyze a historical magazine article written by Wright.
5. Create a design for a fireproof home to combat modern wildfires.

ESSENTIAL QUESTIONS

1. What factors contributed to the Great Chicago Fire and Iroquois Theater Fire?
2. How did Wright intend to create a fireproof home?
3. In Wright's time, what design choices made a structure more fireproof or fire-prone?
4. How can homes be designed to be more fireproof to combat climate change in the future?

LESSON PROCEDURE

EXPLORE

Session One

- Tell students that they will be asked to design a modern-day fireproof home at the end of the lesson. Let students know they will inform their design by researching historical fires to understand what makes a building fire-prone or fireproof.
- Distribute the note-taking sheet (Appendix A) to students. Tell students that whenever they learn about a cause of a fire, a flammable building material, or a design choice that increases risk of fire, they should list that information in the “fire-prone” section. Whenever students encounter a non-flammable material or design choice that decreases a building’s risk of fire, have students list that information in the “fireproof” section.
- Provide background knowledge to students by discussing the Great Chicago Fire and the Iroquois Theater Fire. Instruct students to focus on what caused the fire, what allowed the fire to spread, and what code changes were made in response. Allow students to independently research the historic fires.
 - ◇ (For more resources about the Great Chicago Fire visit the Chicago History Museum at <https://gretchicagofire.org/>. For more information on the Iroquois Theater Fire, visit <https://www.smithsonianmag.com/history/how-theater-blaze-killed-hundreds-forever-changed-way-we-approach-fire-safety-180969315/>.)
- Discuss students’ findings by posing the following questions:
 1. What is a possible cause of the Great Chicago Fire?
 2. What allowed the Great Chicago Fire to spread quickly?
 3. What was the cause of the Iroquois Theater Fire?
 4. What design changes were made in response to the fires you researched?

ENGAGE

Session One

- Distribute the article or ask students to independently access and read “A Fireproof House for \$5000” (located in Appendix). Direct students to look for ways Wright planned on creating a fire-resistant structure.
- Have students continue to list their findings on their note-taking sheet by listing the fireproofing choices Wright proposed in the article under the “Fireproof” section of their sheet.
- Distribute images of original structures and structures rebuilt by Wright after fires (Appendix B). Ask students to compare and contrast each set of structures, and encourage them to notice different materials used, stylistic choices and layout differences. Have students research the fires at the Nathan Moore House, Unity Temple and Taliesin, reminding students to continue to add to their note-taking sheet as they learn more about fireproofing.

EXPLORE

Session Two

- Direct students to review their note-taking sheet from yesterday. Reflect on Session One’s research by leading a discussion using the following questions:
 1. What was the cause of the fire at the Nathan Moore House? Unity Temple? Taliesin?
 2. What design changes were made in Wright’s rebuilds of the Nathan Moore House? Unity Temple? Taliesin?
 3. How did fires influence Wright’s use of materials?
 4. How was Wright’s career affected by fires?

LESSON PROCEDURE (continued)

5. What technology is used today to promote fire safety?
 6. Is fireproofing a relevant issue today? Why or why not?
 7. How does climate change affect the need for fireproof architecture?
- **Display the short video or ask students to independently watch “How Can You Build a Fireproof Home?”** https://youtu.be/wpef4v_ZYjQ. Encourage students to listen for modern-day fireproofing techniques as they watch.

DESIGN

Session Two

- **Tell students that the fireproof home they design will be for a modern-day setting given today’s threat of climate change. Remind students of the prevalence of modern-day wildfires around the world, particularly along the west coast of the United States. Encourage students to include fire alarms, sprinklers, and any other modern technology of their choice. Allow students to continue researching fireproof architecture.**
 - ◇ (Optional: Direct students to read “How to Make My Home Fire Safe” at <https://www.livingwithfire.com/get-prepared/how-to-make-my-home-fire-safe/>.)
- **Once research is completed and students are ready to design, distribute paper and pencils. Allow students time to sketch their fireproof home designs using their notes from their research.**

CRITIQUE & INTERPRET

Session Two

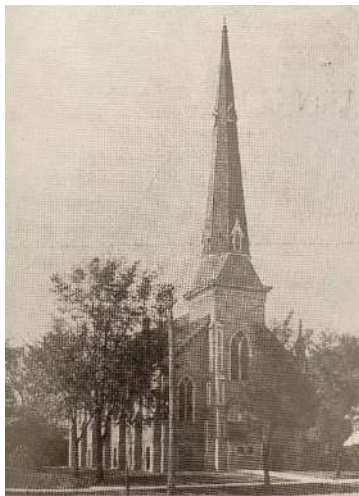
- **Once students have completed their designs, split students into groups of 4-6 to share their work. In their small groups, ask students to discuss the following:**
 1. **What is one material you used to increase your design’s safety against fire?**
 2. **What is one layout or design choice you made to increase your design’s fireproofing?**
 3. **How is your design inspired by Wright’s fireproofing choices?**
 4. **What modern technology did you include in your design?**
 5. **How does your design respond to today’s threat of climate change?**
 - ◇ Optional Extension: Encourage students to explore Safety Tips from the National Fire Protection Association. Visit <https://www.nfpa.org/en/education-and-research/home-fire-safety/safety-tip-sheets>.

DESIGNS INSPIRED BY FIRE

DESIGNED BEFORE FIRE



Wright, Nathan Moore House (1895)



Architect Unknown, Unity Temple (1872)



Wright, Taliesin I (1911)

DESIGNED AFTER FIRE



*Wright, Nathan Moore House
(redesigned in 1922)*



Wright, Unity Temple (1905 - 1908)



Wright, Taliesin III (redesigned in 1925)

APPENDIX A (continued)

DESIGNS INSPIRED BY FIRE



Fireproof vault, *Wright's Home & Studio in Oak Park* (1889 - 1909)



Concrete exterior, *The Ennis House* (1924)



Concrete exterior, *Edmund D. Brigham House* (1909)



FRANK
LLOYD
WRIGHT
TRUST

APPENDIX B

NOTE-TAKING SHEET

FIRE-PRONE

List materials and design choices below that increase a building's risk of fire.

FIREPROOF

List materials and design choices below that increase a building's safety from fire.



A Fireproof House for \$5000

Estimated to Cost That Amount in Chicago, and Designed Especially for The Journal

By Frank Lloyd Wright



One Side of the House, Showing the Trellised Extension

THE cost of building has increased nearly forty per cent. in the past six years. The thirty-five-hundred-dollar wooden house of six years ago would cost nearly five thousand dollars now; so at the present time it would seem that five thousand dollars ought to represent a low enough cost standard, if the result be permanent and the cost of maintenance lessened.

Changing industrial conditions have brought reinforced concrete construction within the reach of the average home-maker. The maximum strength peculiar to the nature of both concrete and steel is in this system utilized with great economy. A structure of this type is more enduring than if carved intact from solid stone, for it is not only a masonry monolith but interlaced with steel fibres as well. Insulated with an impervious non-conducting inner coating it is damp-proof; it is, too, warmer than a wooden house in winter and cooler in summer.

The plan for a small house of this type, submitted here, is the result of a process of elimination due to much experience in planning the inexpensive house. What remains seems sufficiently complete and the ensemble an improvement over the usual cut-up, overtrimmed boxes doing duty in this class, wherein architecture is a matter of "millwork" and the "features" are apt to peel.

As an added grace in summer foliage and flowers are arranged for as a decorative feature of the design, the only ornamentation. In winter the building is well proportioned and complete without them.

NO ATTIC, no "butler's pantry," no back stairway have been planned; they would be unnecessarily cumbersome in this scheme, which is trimmed to the last ounce of the superfluous. A closet on the level of the stair landing takes care of trunks and suit-cases, and a dry, well-lighted basement storeroom cares for whatever doesn't classify in the various closets. The open kitchen, with pantry conveniences built into it, is more pleasant and as useful as the complement of kitchen, kitchen pantry and "butler's pantry." Access to the stairs from the kitchen is sufficiently private at all times, and the front door may be easily reached from the kitchen without passing through the living-room.

The walls, floors and roof of this house are a monolithic casting, formed in the usual manner by means of wooden false work, the chimney at the centre carrying, like a huge post, the central load of floor and roof construction. Floors and roof are reinforced concrete slabs approximately five inches thick if gravel concrete is used. The roof slab overhangs to protect the walls from sun and the top is waterproofed with a tar and gravel roofing pitched to drain to a downspout located in the chimney-flue, where it is not likely to freeze. To afford further protection to the second-story rooms from the heat of the sun a false ceiling is provided of plastered metal lath hanging eight inches below the bottom of the roof slab, leaving a circulating air space above, exhausted to the large open space in the centre of the chimney. In summer this air space is fed by the openings noted beneath the eaves outside. These openings may be closed in winter by a simple device reached from the second-story windows.

All the interior partitions are of metal lath plastered both sides, or of three-inch tile set upon the floor slabs after the reinforced concrete construction is complete. After coating the inside surfaces of the outside concrete walls with a non-conducting paint, or lining them with a plaster-board, the whole is plastered two coats with a rough sand finish.

The floor surfaces are finished smooth with wooden strip inlaid for fastening floor coverings, or at additional cost noted they may be finished over a rough structural concrete with a half-inch thick dressing of magnesite mixed with sawdust, which renders them less hard

and cold to the touch, and when waxed presents a very agreeable surface in any color.

The interior is trimmed with light wood strips nailed to small, porous terra-cotta blocks, which are set into the forms at the proper points before the forms are filled with the concrete.

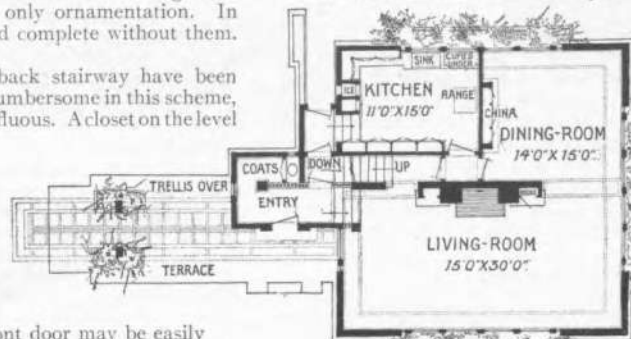
IN THE composition of the concrete for the outside walls only finely screened bird's-eye gravel is used with cement enough added to fill the voids. This mixture is put into the boxes quite dry and tamped. When the forms are removed the outside is washed with a solution of hydrochloric acid, which cuts the cement from the outer face of the pebbles, and the whole surface glistens like a piece of gray granite. This treatment insures uniformity of color, and if the wooden forms have been properly made of narrow flooring smoothed on the side toward the concrete and oiled, the surface throughout should be smooth and even without unsightly seams.

The house has been designed four sides alike in order to simplify the making of these forms, and so that, if necessary, forms made for one side may serve for all four.

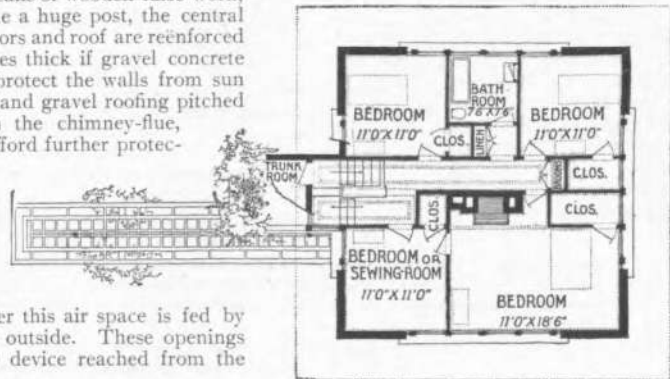
The windows are casement type, swinging outward. The screens or storm sash are fitted within as a part of the window trim, swinging in when the windows need cleaning. All windows may be operated independently of screens by a mechanical device accessible from within at all times and closing beneath the window-sills. The outer sash might at no very great additional expense be made of metal.

The trellis over the entrance might give place to a concrete roof slab similar to the roof of the house, should a covered porch be a necessity.

The house may be placed with either the living-room front or the terrace front to the street, as indicated in the exterior perspectives.



The First-Story Plan



The Second Story

Estimate of Cost

Concrete construction, masonry and plastering	\$3100
Carpentry, millwork, sash-doors and screens, labor and trimming	1100
Plumbing and furnace	460
Wiring	70
Painting and glazing	160
Hardware	90
Total	\$4980
If magnesite floors are used add	320
Total	\$5300

NOTE—The architect, Mr. Frank Lloyd Wright, Forest and Chicago Avenues, Oak Park, Illinois, has agreed to furnish plans, specifications, details and complete service for ten per cent. of the cost of the house. Where plans, specifications and details only are wanted his charge will be seven and a half per cent. of the cost, provided the purchaser agrees to employ a competent superintendent and to execute the drawings without changes, unless agreed upon in advance with the architect. As the estimate is based on Chicago prices it is well to remember that in different parts of the country the figures will vary, according to local conditions.



Another View of the House and Grounds

One of the many handsome effects in Pantasote leather furniture.

Better Than Real Leather

and sold for

One-Third the Price

This statement is absolutely true, as many thousands of users of

Pantasote LEATHER

have testified. Pantasote is more durable, is bright, odorless, easily cleaned, does not crack, is fireproof, waterproof and wears and looks like leather in every respect. Outwears most leather and costs one-third as much. Made in a variety of patterns and colorings.

SEND FOR SAMPLE CHAIR SEAT

We make it easy for all to test Pantasote by mailing postpaid, on receipt of remittance by Post Office money order or by registered letter (we will not be responsible for money or stamps which may be lost in the mail), a sample Morocco embossed square 18 x 18 inches, 25 cents; 25 x 25 inches, 50 cents; 27 x 27 inches, 70 cents; and 36 x 36 inches, \$1.00. Just the thing for a chair seat, cushion or footstool. When buying Pantasote by the yard look for PANTASOTE embossed on the selvage edge every 3/4 of a yard, for protection against fraudulent products—imitations which fail to imitate and are useless and objectionable. To protect you against fraud accept no furniture as covered with Pantasote from your dealer or upholsterer unless it bears our trade-mark label as shown below.

This Interesting Book Free

It contains the story, "THE MAN IN THE STAGE COACH," illustrated in ten colors by leading artists. It gives particulars, prices, and includes sample of the material, exact tints from which to select. It also includes cuts showing the handsome and most extensive line of leather-covered furniture, giving prices and details of each piece. It will be sent postpaid. The number is limited. Write to-day. Address all communications to Dept. L., Main Office.

THE PANTASOTE COMPANY

Main Office: 11 Broadway, New York
 Showrooms: 26 West 34th St., N.Y.

This Label on Genuine Pantasote Leather Furniture

Lamp-chimneys with my name on them live to a ripe old age unless an unusual accident happens to them. They never break from heat. They give the best light, too, because they fit and are made of tough glass, clear as crystal.

Let me send you my Index to Lamp-Chimneys. It's free. Address, MACBETH, Pittsburgh.



Our Ornamental Brick Mantels

cannot be equaled. They are artistic, durable, healthful and not too costly. Easily set by local mason. Send for illustrated catalog.

PHILA. & BOSTON FACE BRICK CO., Dept. 27
 Office and Showroom, 165 Milk St., Boston, Mass.

This Paint Book FREE

If you are interested in the appearance and protection of a home, there are valuable facts and suggestions for you in our new book, "Paint and Painting." It tells how to get ready to paint; how to direct your painter for best results and least cost; where to learn about color combinations. And it proves in a clinching, convincing way why "High Standard" Liquid Paint, ready-to-use, assures the greatest paint efficiency and economy. Let us mail you a copy of "Paint and Painting." It will prepare you to decide intelligently on the paint question, and will save you many dollars on your next painting job.

The Lowe Brothers Co., 36-46 Wayne St., Dayton, O.