



***House Beautiful*, Climate Control Project (1949–1958)**

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Abstract

The postwar transition to suburbia inaugurated a trend in which most American builders opted to clear the land and build standardized houses without any regard for the site conditions and local climate. Elizabeth Gordon (1906–2000) was the editor of *House Beautiful* a popular design magazine. She launched the Climate Control Project (1949–1958) to offer the homebuilder guidance on constructing houses suited for the local climate using design principles of orientation, sun control, site planning, and ventilation. This paper examines the Climate Control Project from 1948 to 1953, prior to the creation of air conditioning. Gordon was a strong critic of the International Style that developed in Europe in the interwar period and came to America. This paper will examine the techniques prescribed through the Climate Control Project and draw conclusions about the ideal postwar house promoted by the magazine. Using the Climate Control project, *House Beautiful* advanced strategies for physiological comfort and efficient utilization of space as central objectives for its readers. By analyzing the articles published throughout the project's duration, this study concludes that the Climate Control Project promoted the idea of a regional American home as the ideal postwar home – as an alternative to the prefabricated mass-produced suburban homes during this time period and the International Style.

Keywords: Climate Control, Passive Design, House Beautiful

Introduction

Anxieties about the shortage of supplies during the Second World War continued to worry conservationists after the war and were articulated in the two 1948 bestselling books Fairfield Osborn's *Our Plundered Planet* and William Vogt's *Road to Survival*, which warned about population growth and limited resources (Rome, 2001). From 1945 to 1947 – the rise of suburbia combined with the spike in car usage and ownership – led to an increase in the U.S. demand for petroleum products by 12% and an 80% rise in the price of crude oil (Hamilton, 2013). The increased prices of crude oil and shortage of heating oil left many homeowners without heating in the winter of 1947 (Hamilton, 2013). In 1948, oil rationing and shortages created a demand for energy efficient houses through which homeowners could save heating bills, which led to the suburban home as an important site for experimentation on new technologies of energy conservation (Barber, 2016).

After the Second World War, research on architecture suited to the local climate – to increase physiological comfort in order to lower fuel costs – began to emerge both in professional research publications and popular design magazines such as *House Beautiful*. Elizabeth Gordon (1906–2000), who was the editor of *House Beautiful* from 1941 to 1964, launched the Climate Control Project (1949–1958) to publish techniques geared at homebuilders on how to construct houses suited for the local climate, known as climate control. The Climate Control Project guided homebuilders on how to build houses using design principles of:

1. Orientation
2. Sun Control
3. Site Planning
4. Ventilation

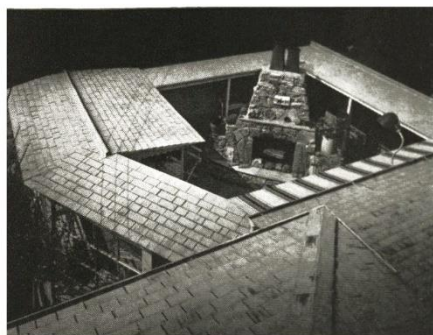
In architectural terminology, orientation means placing a home on a site to maximize the benefit from all of the natural elements such as sun, wind, water, trees, and hills; and minimize the exposure to undesirable natural elements (Kouhirostami, 2018). Sun control and solar design collectively constitute a set of practices to prevent the sun from excessively heating the house in summer and harnessing the solar radiation in the winter for heating the house to cut down on heating bills. Closely related to orientation, is the concept of site planning, which means placing the house on the lot to make the best use of site conditions. Ventilation comprises a set of practices to increase air flow through the house, which was needed in summers and, to mitigate excessive heat (Lechner, 2014).

In an editorial titled, “The Threat to the Next America” published in the April 1953 issue of *House Beautiful*, Gordon expressed her strong distaste of European modernism. She wrote: “They are promoting unlivability, stripped-down emptiness, lack of storage space and therefore the lack of possessions. They are praising designs that are unscientific, irrational and uneconomical-illogical things like whole walls of unshaded glass on the west, which cause you to fry in the summer, thus misusing one of our finest new materials” (Gordon, 1953). Gordon was adamantly against the International Style that developed in Europe in the interwar period and came to America after the war. The International Style was used to describe the new modern architecture that was abstract, austere, devoid of applied ornamentation and embellishment, and was built of steel, reinforced concrete, and glass. The International Style was based on ideas of universalism and mass production. The purpose of this paper is to investigate how *House*

Beautiful's Climate Control Project proposed climate specific design as the basis of new a suburban ideal home in postwar America that represented a critique of Modernism. To meet this goal, this paper will use archival research methods and investigate the series of Climate Control Project articles published in the first four years from 1949 to 1953 in *House Beautiful*, prior to the rise of air-conditioned homes, to demonstrate how the magazine advanced the idea of regional architecture.

***House Beautiful's* Early Publications on Climate Control**

In 1937, Elizabeth Gordon, prior to becoming the editor of *House Beautiful*, had coauthored a book titled *More House for You Money* with Dorothy Ducas. This book detailed techniques geared at the homeowner to cut costs through efficient planning of homes (Gordon & Ducas, 1937). Starting in August 1943, as editor-in-chief of *House Beautiful* Gordon started publishing articles to educate her readers on how to build cost-effectively using local climate and site conditions to one's advantage to create comfort, enhance aesthetics, and cut energy costs. As early as 1943, Gordon authored an article titled "Demonstrating the Wonderful Principle of 'Windbreaks' and 'Sunpockets,'" in the August 1943 issue of *House Beautiful*. Here Gordon coined the term "the windbreak sunpocket principle," which an idea based on the principle of orientation (Gordon, 1943). As shown in Figure 1, using the Weetman Home in Los Angeles, California, Gordon demonstrated how the house plan could be used to create spaces that would be sheltered from the wind but would receive sun to create a warm spot, thus the warm spot was a "sunpocket" and sheltered from the wind, hence the term windbreak (Gordon, 1943).



Crow's-eye view of the Weetman patio explains the plan above. It shows how the patio is attached to the garage and how it relates to the house and why it is such a snug little nook against the warmth-robbing winds. Literally hundreds of variations of this principle exist

Figure 1. View of sunpocket in the Weetman home

Source: Gordon, E. (1943). Demonstrating the Wonderful Principle of "Windbreaks" and "Sunpockets." *House Beautiful*, 85(8), 51.

In the 1940s Gordon frequently published how the sun could be used to heat the house in the winter using south-facing windows to capture sun's heat. In the September 1943 issue of *House Beautiful* an article titled "Did You Know... That the Heat of the Sun Can Help Heat Your House in Winter?" that used the Duncan Home in Homewood, Illinois introduced the readers to the idea of orientation. The article showed how solar radiation could be used to heat rooms in a house to supplement conventional heating methods with large south-facing windows with overhangs to capture winter sun, while using overhangs to protect the windows from high summer sun (House Beautiful, 1943a).

Through other articles in the September 1943 issue such as "What a Big Difference a Little Re-Orienting Makes," *House Beautiful* educated its readers on orientation by comparing two different site plans of the same house – one, in which the house was placed on the site without regard to the movement of the sun; and two, in which the house was located on the site to gain solar heat in the winter and avoid sun exposure in the summer (House Beautiful, 1943c). In addition to orientation, *House Beautiful* encouraged their readers to use a new window glass known as "Thermopane," introduced by the Libby-Owens-Ford glass company, which was insulated glass in double or triple thickness with dehydrated air cavities that enabled the use of large window areas without them becoming too heavy (House Beautiful, 1943b).

George Fred Keck (1895–1980) was a Chicago based architect, who was one of the pioneers of solar houses in the 1930s and 1940s and the designer of House of Tomorrow in the Century of Progress International Exposition in Chicago in 1933. Keck's House of Tomorrow was an all glass octagonal house that used the huge expanses of glass to capture sun's heat using radiation (Barber, 2014). Keck's houses were frequently featured in *House Beautiful* and in November 1943 he wrote an article prophesizing the ideal postwar home in "Here's The Kind Of Thinking That Will Influence GOOD Post War Houses," in which he gave tips on heating and cooling the house without the excessive use of fossil fuels. He advised readers to use evaporative water cooling in the summer, to use the heat of the sun for heating rooms in the winter, to design and locate windows to capture the heat of sun in the winter and keep it out in the summer, to use radiant panel heating to heat the structure itself not just the air, to use the latest technology in insulated windows, to orient the house for the sun and winds, and to improve lighting throughout the home (Keck, 1943). Subsequently, these strategies of saving fuel costs gained even more urgency with spike in the prices of crude oil in 1947 and 1948.

House Beautiful's Climate Control Project (1949–1953)

In response to energy anxieties of 1947 and 1948, *House Beautiful* under the leadership of Elizabeth Gordon launched the Climate Control Project in its October 1949 issue, as shown in Figure 2. The magazine recruited a team of eight scientists to work on the Climate Control Project. By incorporating the knowledge from disciplines such as anthropology, physiology, meteorology, geography, *House Beautiful* was able to give their readers extensive knowledge on how to create comfortable and affordable homes. The scientists were asked to do three things – one, measure the climates of key areas in the United States; two, describe what each climate meant in terms of human physiological comfort; and three, prepare a set of strategies of how to design comfortable houses for these key areas (Fitch, 1949b). Their recommendations were based on – increasing comfort without increasing the energy costs by placing rooms within the house for the local climate, investing in initial higher building costs to lower maintenance costs in the future, and avoiding unnecessary costs (Colean, 1949). In order to achieve this goal, the magazine presented houses in different regions, which would be known as climate control houses to demonstrate how a house plan ought to be custom designed for that region (Fitch, 1949a).



Figure 2. Cover of *House Beautiful's* October 1949 issue.
Source: House Beautiful. (1949). Cover. *House Beautiful*, 91(10).

Through the Climate Control Project, Gordon educated her readers how to use orientation, site planning, window location and sizes, insulated glass, insulation, shade makers (overhangs, fins and louvers, awnings, trees, vines), ventilation devices, radiation control, basements and heating and cooling plants to build a regional house that was distinctly American (House Beautiful, 1950a).

Orientation and Sun Control

In an article titled, “How to Put a Harness on the Sun,” published in the inaugural October 1949 issue of the Climate Control Project, Henry Wright explained the seasonal path of the sun and how the angle of the sun varies by the day and the season (Wright, 1949). On the basis of the movement of the sun, Wright made four observations on the movement of the sun and design recommendations on that basis, shown in Figures 3 and 4. One, in the American temperate zones the summer noonday sun is 45 degrees higher in the sky than the noon midwinter sun, and two, a comparison of the sun’s path between sunrise and sunset in summer and winter reveals that in the summer the sun charts 60 degrees more than the winter sun between sunrise and sunset – and both these facts in orientation terms meant that south facing windows were ideal for letting in sun in the winter and keeping the sun out in the summer and likewise east and west facing windows would be worse, as they would let in lots of sunshine in the summer and very little in the winter (Wright, 1949). Third, through sun path diagrams, Wright showed how “Winter” and “summer” as we perceive them in terms of temperature, do not exactly correspond with the sun’s winter and summer paths, which meant that the sun enters its winter path a month before we feel the winter temperatures and the sun is in a summer path before we feel warm summer temperatures (Wright, 1949). This meant that in addition to placing windows for sun exposure in winter and sun prevention in the summer, homeowners would need other architectural and landscape forms of sun-control to avoid the late summer sun and let the sun in late winter and early spring (Wright, 1949). Lastly, Wright urged the readers to design the house keeping in mind that the summer it rises in the northeast and sets in the northwest, which meant that rooms in the house in which the owner desires sunshine in the morning, like the breakfast room, must be at the east-facing and rooms in which the family spends time in the afternoon could be at the west end of the house (Wright, 1949).

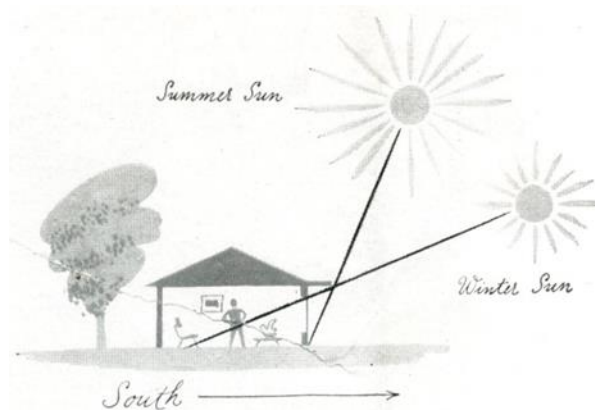


Figure 3: Demonstration of the change in angle of the sun in the summer and winter.

Source: Wright, H. (1949). How to Put a Harness on the Sun. *House Beautiful*, 91(10), 158–161, 220–222.

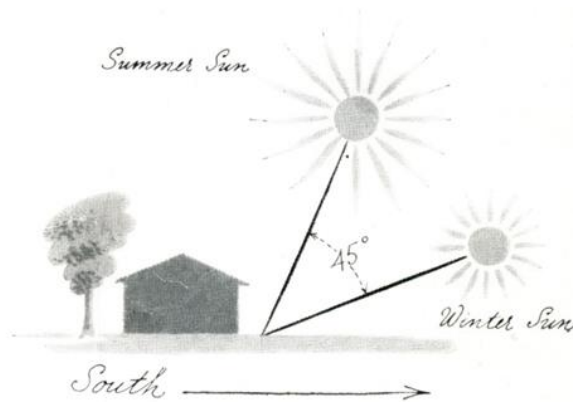


Figure 4. Demonstration of the difference in the interior angle of the sun through a southern window in the summer and winter. Source: Wright, H. (1949). How to Put a Harness on the Sun. *House Beautiful*, 91(10), 158–161, 220–222.

In hotter months and hot climates, the combination of proper orientation and landscape design become devices to control the amount of sun intake in the house. In a March 1950 article titled, “How to Manipulate Sun and Shade” Langewiesche outlined how the hot summer sun could be controlled through the design of the roof (Langewiesche, 1950b). He explained that the primary modes through which the summer sun heats the home is through the sun exposure of the roof, windows, and walls, which be controlled using different types of roof overhangs to block out the sun on the walls and windows (Langewiesche, 1950b). Through a series of illustrations with how roof overhangs work in summers and winters, Langewiesche suggested architectural solutions to control the sun (Langewiesche, 1950b). Since air-conditioning was not widely

available in 1950, the only way to keep cool in the summer was to protect the house from the sun and use fans. In addition, *House Beautiful*, advised readers on how roofs that are lined with reflective surfaces keep away solar heat to keep the interior of a home cool, as shown in Figure 5 (Conklin, 1949). For example, the November 1953 Pace-Setter House in Florida designed by Alfred Browning Parker used a rooftop garden surfaced with white tiles to create an entirely new multi-purpose area for hosting events or relaxation. The white tiles worked to reflect away heat during the boiling summers, keeping the home temperature to 85 degrees directly below even when the tiles were 100 to 130 degrees in the full sun (Wright, 1953).

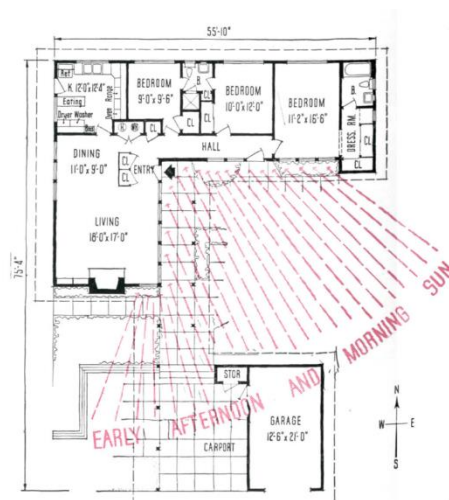
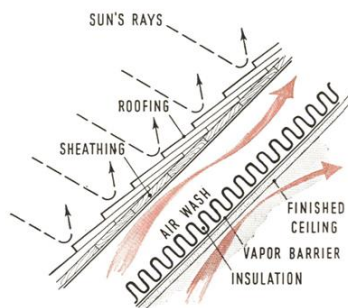


Figure 5. Illustration of an effective roof assembly.

Source: Conklin, Groff. (1949). You'll be comfortable under a summer cooled roof. *House Beautiful*, 91(8), 82.



Three R's for any roof: It should *reflect* summer sun-heat (dotted arrows), *remove* internal heat and moisture by steady wash of air, *retard* heat conduction through proper, year-round insulation. In addition, vapor seal under insulation will cut winter condensation damage, and lots of ventilation throughout house will add to summer comfort. See how this principle works in houses shown opposite.

Figure 6. L-shaped plan with large south facing insulated windows, sun control devices, and an internal planning to build the house in tune with the sun's path in the sky. Source: House Beautiful. (1950b). *How the American Style Looks When It Merges with Climate Control. House Beautiful*, 92(6), 94.

As shown in Figure 6, based on orientation in temperate regions of the United States, *House Beautiful* recommended an L-shaped plan, large south facing insulated windows, sun control devices, and an internal planning to build the house in tune with the sun's path in the sky (House Beautiful, 1950b). Through orientation, *House Beautiful*, pointed out how houses should not be replicated without regard for a particular place and the climate (Langewiesche, 1950a). Thus, orientation for climate became one of the cornerstones of a site-specific house, as opposed to a mass-produced house with no regard for local specificities.

Site Planning

In the October 1949 *House Beautiful* article titled "How to PICK your private climate" Wolfgang Langewiesche pointed out that although latitude location affects the climate of entire states – for example, South Carolina faces the sun more directly which makes it warmer than northern Ontario – yet different neighborhoods in the same town can experience climate differently (Langewiesche, 1949). As a first step towards site planning, examining the local climate and making note of the site features were important steps in the design of an efficient house. This is demonstrated in the labeled illustration from *House Beautiful* in Figure 7. Langewiesche urged readers to consider the geographic features close to the site, for example – homes located next to lakes could harness prevailing winds for coolness in summer, sites with lots of trees could benefit from shade that could cool down surfaces such as pavements and walls, homes in proximity to valleys that collect sinking chilled air need to be designed

accordingly, and homes on a sloping site receive sun depending on the slope of the land (Langewiesche, 1949).

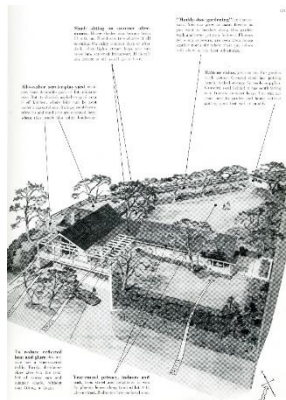


Figure 7. Labeled drawing of the site features readers should consider in this efficient home example. Source: House Beautiful. (1949b). Good Site Planning Can Double Your Outdoor Living. *House Beautiful*, 91(10), 173.

House Beautiful advised readers on starting the home building project with making a climatic checklist for the site on which they would build a house. The homebuilder would begin with – identifying how to get the best southern exposure for harnessing winter sun, capturing summer winds, and protection from winter winds (House Beautiful, 1949b). *House Beautiful* warned readers to ensure that they never build a house in the leeward direction of smoky industrial areas and advised readers to plant deciduous trees to the south and west of the site (House Beautiful, 1949b).

Through climate wise site planning, the homeowner could create sun-pockets and terraces to prolong outdoor living time. Sun-pockets, an area of outdoor space that is sheltered from the wind and exposed to the sun and warmth, could allow for two to three months of extra outdoor living (House Beautiful, (1949a). Likewise, terraces could be used for outdoor and becomes spaces for enjoying the cool breezes in hotter months. Langewiesche emphasized good site planning results in houses designed efficiently for climate which have – lower fuel bills, moisture-free basements, minimal snow-shoveling, clean draperies, water pipes that would not freeze in the winter, and blinds that would not be rattled by unwanted winds (Langewiesche, 1949). As *House Beautiful* promoted site-specific houses Climate Control Project, the underlying message was to reject ideas of universalism – houses that were built without any regard for place or site.

Ventilation

At the time the Climate Control Project was implemented air-conditioning was not widely and cheaply available for domestic use. The Climate Control team advised on achieving summer comfort through proper air circulation within a home using – one, orientation; two, ventilation techniques to capture breezes with breezeways, moveable screen doors, and louvers; and three, fans for internal circulation (Langewiesche, 1951). In a Climate Control House in Washington D.C. designed by architect Chloethiel W. Smith, the principle of “chimney effect” technique ventilation was presented in an April 1951 article titled, “How to Make Your Own Private Breeze.” Here through a combination of drawing and photography, shown in Figure 8, an ingenious method of ventilation using an attic fan and louvered windows was illustrated to show how homebuilders could create comfort with simple techniques (House Beautiful, 1951).

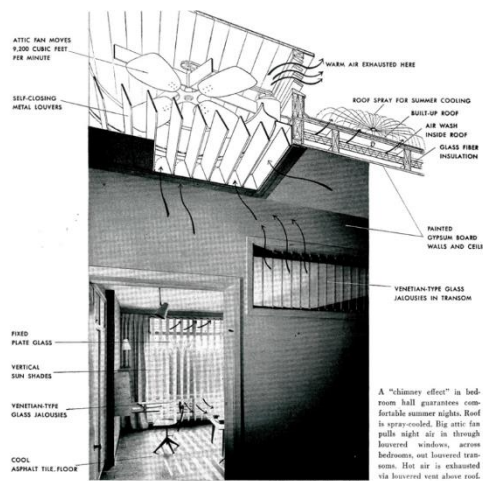
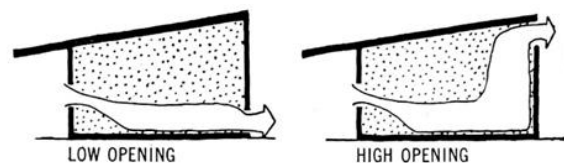
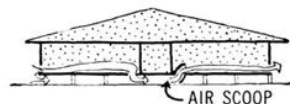


Figure 8. Illustration and photograph combined to demonstrate ventilation with an attic fan and louvered windows. House Beautiful. (1951). How to Make Your Own Private Breeze. *House Beautiful*, 93(4), 132–133.

House Beautiful made a grant to the Texas Engineering Experiment Station, College Station, Texas to perform ventilation experiments. The findings of this study were published in the May 1953 issue of the magazine in an article titled, “How to Use the Wind” (Langewiesche 1953). Wolfgang Langewiesche explained the findings of the experiment and advised readers how to increase ventilation through the house on the basis of five recommendations and demonstrated in Figure 9. One, the breeze flow through a room does not necessarily occur a straight line from the inlet to the outlet; two, the breeze path depends entirely on the location and design of the inlet and no so much on the outlet; three, inlet windows are commonly set too high in the room; four, using deflector vanes the breeze can be brought to a lower level in the rooms; and finally the fifth finding was that in order to build airflow in rooms inlets should be big to let in the breeze and outlets should be smaller to let the breeze out (Langewiesche 1953). Thus, Gordon showed her readers how rational ideas of climate control could be used to create highly customized homes for better living.



This shows that the inlet window determines where the breeze will go inside a room. The location of the outlet window does not have much effect upon the direction of the flow.



Ventilation does not have to be by windows only. Two unusual ways to get air into house and out again: outlets in floor in windward rooms and intake scoops in floor in lee-side rooms.

Figure 9. Illustration of inlet windows and air scoop ventilation technique.

Source: Langewiesche, W. (1953). How To Use The Wind. *House Beautiful*, 95(5), 180–182, 244.

Conclusion

Although *House Beautiful's* Climate Control Project was couched in strategies for physiological comfort while lowering energy use, and efficient utilization of space as central objectives for its readers; the underlying philosophy of the project was to promote a distinctly American regional way of living that was not only unique to each region, but each site. *House Beautiful's* Climate Control Project was a unique endeavor through which Gordon took upon the daunting task of educating people about climatic design. Recommendations made by the Climate

Control Project promoted the idea of a regional American home as the ideal postwar home. The projects main design principles of orientation, sun control, site planning, and ventilation were studied and presented through a series of site specific strategies and examples of successful climate controlled homes. The solutions presented by the magazine provided an alternative to the prefabricated mass-produced suburban homes of this time period.

The techniques promoted by *House Beautiful* began losing currency when air-conditioning became extremely widespread beginning in the mid-1950s. However, with the OPEC oil crisis in 1973, interest in energy saving architecture returned. As energy costs continued to grow, new construction began to revisit climatic and sustainable design. Thus, the research presented in *House Beautiful's* Climate Control Project began to resurface. The techniques promoted by the Climate Control Project subsequently came to be known as passive design techniques and eventually found new application in sustainable architecture (Baweja, 2017).

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References

- Barber, D. A. (2016). *A House in the Sun: Modern Architecture and Solar Energy in the Cold War*. Oxford University Press.
- Baweja, V. (2017). A Brief History of Sustainable Architecture. In J. Caradonna (Ed.), *Routledge Handbook of the History of Sustainability* (pp. 273–295). Routledge.
- Colean, M. (1949). Climate Control Can Save You Money. *House Beautiful*, 91(10), 145, 249.
- Conklin, Groff. (1949). You'll be comfortable under a summer cooled roof. *House Beautiful*, 91(8), 82–83.
- Fitch, J. M. (1949a). How You Can Use House Beautiful's Climate Control Project. *House Beautiful*, 91(10), 143.
- Fitch, J. M. (1949b). The Scientists Behind Climate Control. *House Beautiful*, 91(10), 144.
- Gordon, E. (1943). Demonstrating the Wonderful Principle of "Windbreaks" and "Sunpockets." *House Beautiful*, 85(8), 50–51, 81.
- Gordon, E. (1953). The Threat to the Next America. *House Beautiful*, 95(4), 126–131.
- Gordon, E., & Ducas, D. (1937). *More House for Your Money*. William Morrow and Company.

- Hamilton, J. (2013). History of Oil Shocks. In R. E. Parker & R. Whaples (Eds.), *Routledge Handbook of Major Events in Economic History* (pp. 239–265). Routledge.
- House Beautiful. (1943a). Did You Know... That the Heat of the Sun Can Help Heat Your House In Winter??. *House Beautiful*, 85(11), 59–66.
- House Beautiful. (1943b). This guinea pig house proved that properly oriented LARGE WINDOWS CAN SAVE FUEL. *House Beautiful*, 85(9), 64–65.
- House Beautiful. (1943c). What a Big Difference a Little Re-Orienting Makes. *House Beautiful*, 85(9), 64–65.
- House Beautiful. (1949a). A lesson in Climate Control. *House Beautiful*, 91(10), 164–168.
- House Beautiful. (1949b). Good Site Planning Can Double Your Outdoor Living. *House Beautiful*, 91(10), 172–173.
- House Beautiful. (1950a). There Are Only 7 Devices You Can Manipulate to Get Climate Control. *House Beautiful*, 92(10), 176.
- House Beautiful. (1950b). How the American Style Looks When It Merges with Climate Control. *House Beautiful*, 92(6), 94–95.
- House Beautiful. (1951). How to Make Your Own Private Breeze. *House Beautiful*, 93(4), 132–133.
- Keck, G. F. (1943). Here's the kind of thinking that will influence GOOD post war houses. *House Beautiful*, 85(11), 76.
- Kouhirstam, Maryam. *Natural Ventilation Through Windows in a Classroom (CFD Analysis Cross-Ventilation of Asymmetric Openings: Impact of Wind Direction and Louvers Design)*. 8 Nov. 2018.
- Langewiesche, W. (1949). How to Fix Your Private Climate. *House Beautiful*, 91(10), 150–155, 192–197, 204–205.
- Langewiesche, W. (1950a). How to Control the Sun. *House Beautiful*, 92(3), 104–107, 130–138.
- Langewiesche, W. (1950b). How to Manipulate Sun and Shade. *House Beautiful*, 92(7), 42–47.
- Langewiesche, W. (1951). Too Hot? Here Is a Checklist for Hot Weather Comfort. *House Beautiful*, 93(7), 52–53.
- Langewiesche, W. (1953). How To Use The Wind. *House Beautiful*, 95(5), 180–182, 244.
- Lechner, N. (2014). *Heating, Cooling, Lighting: Sustainable Design Methods For Architects*. John Wiley & Sons.
- Rome, A. (2001). *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*. Cambridge University Press.
- Wright, H. (1949). How to Put a Harness on the Sun. *House Beautiful*, 91(10), 158–161, 220–222.
- Wright, H. (1953). A Room and Garden on the Roof. *House Beautiful*, 95(11), 254–259.