

RECREATING AN EARLY 20TH-CENTURY KITCHEN:
A CASE STUDY IN PRESERVATION AND GREEN DESIGN

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Dedication

For my parents, whose enthusiasm for my work is well beyond reasonable.

Thanks for always pushing without being pushy.

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Chapter One.

Introduction and Literature Review

This thesis concerns the problem of renovating a kitchen in a century-old house that would incorporate current technologies in sustainable design. Kitchen design is often about installing the newest, fastest and latest equipment, and demolitions are therefore more common than the preservation of existing resources. Because the most sustainable action one can take is to utilize what already exists, this thesis sets out to illustrate the value in creating a kitchen design that follows the guidelines set forth during its original construction and that these historical principles relate to and have possibly influenced modern principles of sustainability.

Research has focused on kitchens, of the first quarter of the century. In addition to looking at resources of that period, late 19th-century material was also reviewed. Another restriction applied to research was to focus on middle-class housing. Both decisions result from the site selection of a post-Victorian house in a middle-class neighborhood. This thesis attempts to formulate design principles to provide a realistic approach to renovating existing kitchens, including identifying historic elements. Modern, sustainable technologies tend to favor function over aesthetics, but this thesis assumes that a compromise between the two ends of the design spectrum can be achieved with a synthesis of historical guidelines and contemporary environmental views.

The thesis is made up of three main sections; 1) kitchen design guidelines for early 20th-century, middle-class housing; 2) recent guideline developments for sustainable renovations to kitchens; and 3) the site selection and the application of design

principles developed through the synthesis between the past and present theories researched. The following literature review corresponds to these divisions.

Review of Pertinent Literature:

20th-century Kitchen Design and Guidelines: The Middle-Class Residence:

To gain a better understanding of the thesis site's design origins, both secondary and primary resources were reviewed. Beginning with secondary resources, David Handlin's account of American domestic architecture in his 1979 book, *The American Home: Architecture and Society, 1815-1915*, is a study of the cultural influence and shaping of society in which architecture participated in rather than a history of architecture during the period. Throughout the book, he seeks to understand the questions and discussions raised during the 19th century that eventually led to an American interpretation of the built environment. Stemming from a desire to develop housing that was more than simply adjusting European ideas to the American landscape, Americans found themselves seeking their own identity through the shelters they constructed. Whether for individual recognition or national influence, it was important to the citizens of the United States to create their own voice through the built environment. Handlin examines architectural concepts ranging from the rural cottage to the city studio apartment. He writes about the influence of culture and key people, from the housewife as family overseer to Frank Lloyd Wright and the House Beautiful movement.

Handlin does not touch much on kitchens during the century period he studies, however he does point out the prominent concepts surrounding kitchen and interior design, including the late 19th-century desire for efficiency in the kitchen and household duties. Efficiency was viewed as a means of creating more time for the housewife to

attend to her family. Though few would propose the housewife use her extra time in any sort of professional manner outside the home, many agreed it was unhealthy to be cooped up in an ill-appointed kitchen, having the majority of her time spent cooking and cleaning. Handlin refers to Harriet Beecher Stowe and Catherine Beecher's critical work, *The American Woman's Home* as well as to *Ladies' Home Journal*, and the role the two resources played in the dominant "design" theory of economizing "time, labor, and expense."¹

Similar to *The American Home*, Clifford Edward Clark Jr.'s *The American Family Home: 1800-1960* (published in 1986), examines the concerns of American society and the desire to create an identity through the built environment. The house, seen as a "symbol of independence and personal identity,"² can, according to Clark, reveal more about cultural history than just the evolution of design tastes. From the late 1800s to the early 1900s, Clark specifically looks at the changing attitudes resulting from the shift of the Victorian era into the progressive era, and how it affected domestic architecture.

As technologies improved and economies changed, the Victorian kitchens were seen as inefficient and labor-intensive work areas. Size was once a necessity for the preparation of elaborate, multi-course dinners, the movements of servants, and the ventilation of the stove, but as servants became less affordable for the majority of families, and the lady of the house became the sole operator of the kitchen, large spaces

¹ Handlin, David P. *The American Home: Architecture and Society, 1815-1915*. Boston: Little, Brown & Co., 1979; pg.406

² Clark, Jr., Clifford Edward. *The American Family Home: 1800-1960*. Chapel Hill: University of North Carolina Press, 1986; pg. xii

suddenly seemed inconvenient. Clark illustrates the move from large to small spaces through the emphasis on organization and cleanliness, and stresses the phrase “a place for everything, and everything in its place”³ as a motto for early 20th-century kitchens. In addition to the rejection of “Victorian justification of art and beauty as complex and inspirational”⁴ for the acceptance of aesthetics that promoted simplicity and practicality, Clark also discusses the cultural shifts surrounding women’s roles and education. Feminism and the new theories of household management, and particularly kitchen use and design, were developed at the turn of the century as both home economists and nascent feminists pushed for a new view of the housewife. Feminists might campaign for women stepping outside traditional household roles, while economists encouraged the education of women in creating a healthy and efficient home permitting the woman more time with her family. Both parties agreed that the role of the woman as leader in the domestic sphere should be acknowledged, and her position considered one of professional status.

Clark includes information on the ideal progressive kitchen, from size and organization, to material selection and relationships within the rest of the house. He comments on the rise of construction, heating and plumbing costs and the resulting downsizing of residential architecture, the need for simplicity and the change from servants to self-service. The early 20th century was a time of significant change in domestic architecture.

³ Clark 1986, 158

⁴ Clark 1986, 132

In addition to the changes in design taking place during the early 20th century, Jan Jennings's 1992 work, *"Drawing on the Vernacular Interior"*, looks at the evolution of visual understanding of architectural materials by the general public. Specifically, Jennings discusses the difference in floor plans, elevations and perspective drawings that populated magazines and journals, from simple sketches to complex renderings, and how such drawings influenced society's understanding of the built environment. The availability of plan books to the general public is also noted, and the growing influence of women on design. Though the man was responsible for the final selection and purchasing of a house design, it was with the woman in mind that many plans were executed.

Jennings points out the correlation between the developing "domestic science" during the late 19th and early 20th centuries and its influence on plan-books and building trade publications. The prominent theory was to design from the inside out, and though architects might cringe at the thought of exterior designs taking second place to the interior designer's plans and arrangements, such a practice is still emphasized today. The 20th-century home economics movement stressed the importance of perfecting an interior plan before moving on to the exterior, which would most likely "arrive at itself"⁵ once the interior was addressed.

Though much of the article describes the drawings and techniques utilized at the time to create an architecturally aware society, there is some comment on kitchen design

⁵ Jennings, Jan. "Drawing on the Vernacular Interior." Chicago: University of Chicago Press for The Henry Francis du Pont Winterthur Museum, Inc., 1992; pg. 262

in regarding efficiency, creating an environment which required as few steps as possible for the housewife's movement throughout, and popular material usage. Jennings also mentions the development of the progressive movement which demanded the simplification of middle-class housing, and the kitchen as the center of a modern house. Also noted is the need for creating sanitary cooking environments, almost laboratory-like in appearances.

Sanitation and organization all became pertinent elements of "scientific management", a concept which would reach outside of the United States as well. Looking at the adoption of American "scientific management" by German society, Nicholas Bullock's *First the Kitchen- Then the Façade* examines the attempts of developing the New Dwelling during a post-WWI Germany. The New Dwelling was a design theory that sought to solve the housing shortage Germany was experiencing, and designing from the inside out, and starting with the kitchen, were crucial influences on its development. The movement for better housing involved two major areas of debate; "the role of women within the home, and the application of the techniques of rationalization and 'scientific management' to the running of the home along lines already being championed in America."⁶

As in America, a shortage of servants and the inability to afford them resulted in the shrinking of the kitchen environment. Organization and efficiency were highly valued as ways to lessen the burden of running a household alone. As stated in other sources, feminist movements picked up on "scientific management", promoting it as a

⁶ Bullock, Nicholas. *First the Kitchen- Then the Façade*. Oxford: Oxford University Press, 1988; pg 177

means of aiding the housewife in her duties, and allowing her more time to explore her own creative contributions, besides just cooking and cleaning. The kitchen was of course “the most essential area for the application of the principles of scientific management,”⁷ and though most guidelines applied could be seen as common sense (such as arranging utensils around their coordinating appliances), there was a significant emphasis on using the kitchen strictly for food preparation, and excluding all other household activities.

Though the actual establishment of the New Dwelling was unsuccessful due to costs, the ideas of simplicity and reduction in size of the kitchen and the entire household was influential. Emphasis on simplification and the removal of unnecessary decoration would welcome major components of the Modern architecture movement.

Cabinetry also became a crucial part of an organized and well managed kitchen, and Mary Anne Beecher’s account of manufactured cabinetry, (“Promoting the Unit Idea: Manufactured Kitchen Cabinets 1900-1950”, 2001), compares kitchen furniture and office furniture, with the emphasis on organization prevalent in early 20th-century kitchen design theory. As kitchens became smaller, the need for storage to maximize efficiency resulted in cabinetry becoming a crucial part of the kitchen environment. Compartmentalized cabinets and desks were items viewed as necessary for the well-run kitchen, similar to the office’s roll top desk, thus reflecting the professionalization of the housewife. As noted by other resources, the decline in servants forced women to take on more work in the household, and the need for organization and consolidation of space were key elements to productivity. Cabinetry played a major role in the new designs of

⁷ Bullock 1988, 180

progressive households, as well as apartment kitchens, where space could be even more limited.

Cabinetry was also seen as a means of establishing cleanliness in the food preparation area. Sanitary conditions were a prevalent aspect of turn-of-the-century kitchen design and products such as steel, latched cabinets were seen as a critical component for maintaining sterility. Whether in the kitchen or the office, cabinets played a major role in promoting clean and efficient environments and maximizing space.⁸

Primary resources have provided the greatest insight to how 20th-century kitchens were designed. Abbot McClure and Harold Donaldson Eberlein cover not only furnishing and decoration, but also discuss design arrangements and layouts in their book, *House Furnishing and Decoration* (1916). Of particular importance are notes on kitchen design, furnishings and utensils such as a small table for an extra work surface as well as sliding bread boards and racks for pots and pans, and material selections. The kitchen is stressed as the one room in a house that is essential,⁹ and thus treated with considerable respect. As with many guidebooks on the topic of the kitchen environment during the late 19th and early 20th centuries, cleanliness is deemed the most influential factor in creating an ideal cooking room.

McClure and Eberlein's assessments are for the most part aesthetically focused. White best-represented "cleanliness" and consequently tiles, flooring and wall treatment

⁸Beecher, Mary Anne. "Promoting the 'Unit Idea': Manufactured Kitchen Cabinets (1900-1950)." *Association for Preservation Technology International* (2001): 27-37.

⁹ McClure, Abbot and Harold Donaldson Eberlein. *House Furnishing and Decoration*. New York: Robert M. McBride and Co., 1916; pg. 139

were all prescribed for in white or similar shades such as cream or ivory. There are certainly exceptions however; to avoid grey and grimy appearances, materials such as red quarry tiles and pine board floors are also preferable choices. The authors stressed that a kitchen's beauty came from its practicality, and without being practical, no kitchen was beautiful. Therefore, all material selections, as well as the physical arrangement of the kitchen itself had to be practical.

Practicality was achieved by using common sense; advice included having a hood installed above the range, keeping the range near the sink to avoid the cumbersome task of hauling large pots filled with water back and forth, and providing both artificial and natural lighting. Orderliness was also crucial and achieved by placing frequently used items within easy reach and always returning them to their assigned location. Orderliness was also a step towards cleanliness which was the most important goal of any successful kitchen design during the early 20th century.¹⁰ It should also be noted that, like other texts to be reviewed have stated, the kitchen is a space for cooking and preparing food, and cleaning and organizing the accompanying equipment; it is not a place for eating and/or other household activities.

Probably the most influential book for kitchen design of the late 19th century and into the early 20th century was *The American Woman's Home* (1869) by Catharine Beecher and Harriet Beecher Stowe. The book touches on, and often elaborates upon issues involving much more than home design and care, but also on ideas of health and welfare, family values, education, the care of plants and animals. Although first

¹⁰ McClure and Eberlein 1916, 147

published in 1869, the book contains valuable lessons that are still pertinent. The book as a whole is a justification for the authors' belief on the necessary domestic education of the woman, and the "professionalism" in which the housewife should address her role.

Several sections contain advice on home design and kitchen arrangement that provide the basis for what would be the "scientific approach" to kitchen design. This approach, highly utilized by the early 20th century, focused on establishing a sanitary kitchen environment through organization, arrangement and material selection. Emphasis was on simplicity and efficiency, so that time spent in the kitchen could be reduced, allowing the housewife to attend to her family and the responsibilities of running a household.¹¹

Beecher and Stowe's "ideal" kitchen is likened to a ship's galley.¹² The authors point out the absurdity of an oversized kitchen, which tires the cook who must pace constantly around it, and they praise the benefits of smaller spaces with the necessary equipment within easy reach. The authors provide a detailed description of shelving styles, placement of the sink and range, and where pots and kettles, linens and silverware, and dry goods should be located. Floor plans and elevations are included, as well as a description of how the rest of the house plan can work around the kitchen in order to promote air flow and heat distribution for both winter and summer months.¹³ Also provided is a breakdown of the necessary provisions for a kitchen, depending on one's

¹¹ Beecher, Catharine E. and Harriet Beecher Stowe. *The American Woman's Home*. Connecticut: Stowe-Day Foundation, 1869, reprint: 1987; pg. 24

¹² Beecher and Stowe 1869, 32

¹³ Beecher and Stowe 1869, 33-34

budget. It is noted that social status and monetary means are not of great importance in regards to the advice, for a small household with a limited budget could benefit just as much as a large household with endless means of support with the proper management and arrangement of interior space. It is simply a matter of scale to which one decides to implement the words of guidance.¹⁴

Efficiency was the key, whether in working in a large or small area. This factor foreshadows not only the emphasis of early 20th-century design on cleanliness and organization, but also present-day concerns of the individual, both running a household and having a career. We want to have the best appliances to make life simpler, and to move faster; spend less time cooking and cleaning, and more time enjoying a delicious and healthy meal with the family. This goal concerned families long before women were so prominently a part of the work force, as evidenced by Beecher and Stowe's critical work.

John Gloag's advice in *Simple Schemes for Decoration* (1922), as it applies to kitchens, focuses on aesthetics and materials selections, with a note regarding window design to improve the overall ventilation. He compares the kitchen's use to that of a workshop, but argues there is no reason a workshop, and the chores that are performed there, should not be made more pleasant through visual characteristics. In minor contrast to other guides, less emphasis is placed on the need for a white interior to reflect cleanliness. Though cleanliness and organization are important in any workshop, Gloag

¹⁴ Beecher and Stowe 1869, 25

believes there is no reason the kitchen cannot also serve as an agreeable sitting area for the housewife.

Gloag, like other authors, believes that kitchen organization should eliminate unnecessary work and maintain efficiency. He includes recommendations for flooring materials as well as wall treatments, and describes the most convenient kitchen as one with plenty of light, both natural and artificial, tiled floors and walls, and a gas-cooker.¹⁵ His most interesting advice involves the recommendation of color based on the light in the space, and his prescription for window design which should extend to the ceiling with fan lights at the top to allow for ventilation of the hot, damp air often in the three feet below the ceiling.¹⁶

Though not very detailed, Gloag provides confirms the general preference for clean, simple and organized kitchen design during the first quarter of the 20th century.

Lillie French's book, *Homes and their Decoration* (1903), begins with an assessment of why kitchen design should be addressed. She condemns the common placement of city kitchens in the basement, labeling them as "subterranean" spaces of ingratitude for the housewife and necessary but unpleasant chores. And whether the kitchen is above or below ground, French's advice reflects influences of Beecher and Stowe, demanding that "well-trained college women... of domestic management"¹⁷

¹⁵ Gloag, John. *Simple Schemes for Decoration*. New York: Frederick A Stokes Co., 1922; pg. 133

¹⁶ Gloag 1922, 133

¹⁷ French, Lillie Hamilton. *Homes and their Decoration*. New York: Dodd, Mead & Co., 1903; pg 69

establish a system of cleanliness and simplicity as a necessary part of the household, as hygiene is a necessary part of [medical] institutions.

She stresses that utility should determine arrangement, and nothing should be included in the kitchen that is not necessary to its daily operation. Solely decorative items compromise the artistic beauty that the kitchen embraces: a beauty based on practical use. To French, the useful is the “ornament” of the kitchen. It is also necessary to create a well-appointed kitchen; “to have the façade of a house beautiful and the rear tawdry and cheap... is the most reprehensible form of architectural expression; to have a pretty and cheerful drawing room and an ill-appointed, dreary kitchen is to disobey a similar code.”¹⁸ Just as the obsession with cleanliness and hygiene influenced much of the writings of the time period, they are also present in French’s work. She discusses “modern kitchens” as those with white tiles from floor to ceiling, unglazed tiles or cement for the flooring and the use of curved tiles at joints to allow for swift cleaning and to prevent dust from collecting. The aphorism “cleanliness is next to godliness” certainly prevails in the early 20th century writings on design and home maintenance.

In *The Ross Crane book of Home Furnishing and Decoration* (1925), Crane’s advice on kitchen design is similar in detail to that of Beecher and Stowe’s work. Crane, founder of the National Better Homes Movement and former director of the extension department of the Art Institute in Chicago, emphasizes the importance of reducing the woman’s workload in the kitchen so that she may tend to the other duties she, as homemaker, is assigned. He writes in a very sympathetic tone towards a woman’s

¹⁸ French 1903, 72

struggle to be a “Renaissance Man,” but who receives little recognition for all that she does. Regarding kitchen design, he stresses comfort, convenience, and efficiency to create a plan he calls “the one-woman power kitchen.”¹⁹

Crane includes a floor plan and elevations of the four walls that make up the kitchen, and details the components the power kitchen should contain. He explains how to achieve cross-ventilation through window placement, and the neglect to provide such a comfort should be considered criminal towards the woman who must work there. As he writes at the end of the first quarter of the 20th century, the preference for white is no longer crucial to Crane, but rather color as a means of creating comfort is preferred.²⁰ He believes in compactness as a means of convenience, and describes the floor plan as being ideally achieved in smaller rooms, rather than large farm-kitchens. The woman should not have to take more than two or three steps to reach everything she needs, and he stresses the importance of compartmentalized cabinets and cupboards as a way to further create convenience; each object in its own place.²¹

While tiles are the favored wall and floor covering, other options are also described such as “inlaid linoleum”.²² Creating a beautiful environment is most significant, thus for Crane, no matter the materials chosen, as long as they are of quality and combined well within the space, then it does not matter whether tile or a properly applied paint job is used.

¹⁹ Crane, Ross. *The Ross Crane Book of Home Furnishing and Decoration: A Practical, Authoritative and Sympathetic Guide for the Amateur Home Decorator*. Chicago: Frederick J. Drake & Co., 1925; pg. 239

²⁰ Crane 1925, 240

²¹ Crane 1925, 242

²² Crane 1925, 240

The *Architectural Sweets* catalogue for 1921 provides insight for the available products and services applicable to the building industry, whether one is looking for cabinets or concrete specialists. Though limited, there are several topics pertaining to the outfitting of a kitchen, including cabinets, dishwashers, ranges, sinks, and kitchen units. A list of either products or product-makers is provided, some more detailed than others. There is no division between commercial and residential, thus some resources prove more useful than others, such as the listing of commercial kitchen units as opposed to home dishwashing units (both provided within the catalogue). Of particular interest is the division of sinks by material, including copper and white metal, sandstone, slate, and soapstone, as well as the division of ranges by gas and/or coal fuel.²³

Sustainable Design- Kitchen Renovations:

Primary resources for sustainable design are the most prevalent, since much of the practice of sustainability has become popular only fairly recently. The Green Home Guide is a website provided by the United States Green Building Council (USGBC), for the express purpose of connecting homeowners with professionals, materials, and various resources for creating “green” environments within their houses. Articles on tips for maintaining a healthy home to going “green” on a budget are provided, as well as search engines for finding specialized professionals within a user’s indicated location. Categories to search include kitchens, bedrooms, nurseries, energy efficiency, flooring

²³ *Architectural Sweets Catalogue*; 1921

and furniture as well as others. Further reading materials are suggested as well as an “Ask a Pro” tool and a directory for product and material selections.²⁴

The *ReGreen Guidelines*, developed by the American Society of Interior Designers (ASID) and the United States Green Building Council (USGBC), serve as a significant resource for performing “green” renovations and home improvements. Stemming from strategies developed for the LEED (Leadership in Energy and Environmental Design) for Homes Rating System, the guidelines hope to bring the practice and support of green design to homeowners who are working with existing structures, rather than building new. Historic preservation, though not explicitly stated, certainly has its role in the “regreening” process, as the more one can reuse and recycle is of course a major principle of sustainability.

Unlike the LEED system, however, the guidelines are not a rating system; instead they are a “best-practices” workbook, in which ten different project categories have been developed thus far. Users of the guidelines will require participants to look at various options and techniques and rather than seek one particular “right way” to achieve a goal; what worked for one project may not work for another. It is also important to realize that one cannot all “green” aspects in one project, which would “be like trying to drink from a fire hose, you will drown before you slake your thirst.”²⁵

²⁴ United States Green Building Council. *The Green Home Guide*. Retrieved January, 2009, from Green Home Guide; www.greenhomeguide.com.

²⁵ ASID and USGBC. *ReGreen: Residential Remodeling Guidelines*. Second Edition; 2008; pg. xv

The ten projects include areas of the house such as the bathrooms, living, and working spaces, as well as projects such as gut rehabs and deep energy retrofits. Of most interest to this thesis is the section on kitchens. Guidance is provided for creating a “green” kitchen environment through understanding the project scope, how the project may influence other “regreening” efforts in the house and how “regreening” will work into the lives of the owners. Working within a given space is preferable to adding additions as well as salvaging materials and recycling content; these ideas coincide with preservation, and thus it’s easy to understand the correlation between preservation and sustainability. It is also important to follow the guidance provided into the Strategy Library, a compilation of over 200 descriptions on “green” remodeling strategies found within the *ReGreen Guidelines*. Doing so allows for more opportunity for brainstorming and creative approaches to solving the various dilemmas that may arise during a project.

The guidelines provide insight into a range of elements that “green” design can involve, from the easily-accomplished aspect of simply purchasing energy efficient appliances, to the more difficult task of improving the building envelope, *i.e.* insulation, vapor barriers, and sealing “energy leaks” where loss of heat and cooling occurs. Whether repainting a room, or gutting an entire house, the guidelines provide insight and suggestions for a multitude of projects and project scales, though of course insist on the cooperation of design and construction professionals and homeowners in order to create the most successful “green” environment.

An example of creating “green” environments can be found through Pliny Fisk’s summation of the Farm Noland Residence, a demonstration project funded by the Texas

State Energy Conservation Office, shows the links between the building design process and the regional resources, businesses, and materials available. It is essentially a self-sustaining farm that utilizes “recycled content building materials, photovoltaic power, water catchment, wastewater landscape materials, and waste recycling.”²⁶ The project as a whole is meant to show various solutions appropriate for problems arising in semi-arid climates of Texas and the southwest.

The article that goes along with the Advanced Builder Demonstration Home is a discussion amongst professionals about the correlation between social justice and the environment. There is a need to recognize that material development has led to a society of by-products that few are willing to recognize; our efforts of modernization have led to highly toxic results we do not fully understand. Design professionals now, more than ever, need to be more socially conscience in what they create for future generations, not only for the environment but for our own health. The discussion is led by Pliny Fisk, the co-founder and co-director of the Center for Maximum Potential Building Systems, “a non-profit organization that has been in the forefront of sustainable design and development activities since its inception in 1975.”²⁷ Working with a variety of clients, from individual homeowners to major companies, the organization puts its effort in establishing connections between design and science in order to create economically, ecologically and socially viable answers to the built environment’s conundrums.

²⁶ Fisk, Pliny. “Projects: Advanced Builder Demonstration Home Laredo Blueprint Demonstration Farm Noland Residence.” MIT Press on behalf of *Perspecta*; 1998; pg. 1

²⁷ Fisk 1998, 2

Whether in Texas or in Maine, sustainable design involves our commitment to understanding the environment and working with it. The demonstration farm is an example of how design must involve more than aesthetic appearance, but understand and incorporate the environment and users.

Although the 2007 article “Elements that Contribute to Healthy Building Design”, by Vivian Loftness, Bert Hakkinen, Olaf Adan, and Aino Nevalainen, focuses mainly on the office environment, the description of sustainability and achieving a healthy building design is applicable to much more than just office design. There are three important elements to consider in today’s building design world; “sustainability (in terms both of natural resources and of the lifetime of the building); individual behaviors and how they affect their indoor environments; and the newest trends in building materials that can promote healthier indoor environments.”²⁸ Though historic preservation is not specifically mentioned, the sustainable concepts listed involve the necessary reuse of existing infrastructure including “main streets” and small-town planning principles, such as capturing indoor-outdoor relationships; elements that are major contributors to preservation.

Sustainable design also involves the introduction of nonpolluting materials with “lower operating energy requirements and higher durability and recyclability.”²⁹ Of course utilizing such materials also involves careful maintenance of one’s environment, including changing our own daily habits in order to provide for a more healthful

²⁸ Loftness, Vivian, Bert Hakkinen, Olaf Adan, and Aino Nevalainen. "Elements that Contribute to Healthy Building Design." *Environmental Health Perspectives* 115 (2007): 965-70; pg. 965

²⁹ Loftness et.al. 2007, 965

environment. Simple changes in the types of furniture we purchase, the cleaning solutions we use, and the frequency of vacuuming and washing of linens can greatly affect our air quality and thus our health. Choosing the correct materials can improve our health as well as improve the sustainability of our environments.

Site History:

To understand the thesis site's history, secondary sources of the surrounding historic area were reviewed. A collection of essays, the *Papers on Easton's History* looks at specific areas of Easton and their significance. Included in these papers are writings about the College Hill Residential District and its development. Similar to the National Historic Register nomination form, the papers discuss the installation of the electric trolley line, and the prominence of architect William March Michler, a graduate of Lafayette College who designed approximately 39 properties in the neighborhood. There is also mention of the Speer Lumber Company, that from 1906-1940 constructed 200 houses in the western area of the district.³⁰

The College Hill Residential District in Easton, Pennsylvania, where the thesis site is located, is, according to the National historic Register Nomination form, "the most extensive single collection of varying mid to late Victorian residential architecture within not only the city of Easton, but the Lehigh Valley Region as well."³¹ The district

³⁰ *Papers on Easton's History, Vol. I & II.* Easton, PA: Fortnightly Club, 2005.

³¹ National Historic Register Nomination form. "College Hill Residential Historic District." Retrieved October, 2008, from *ARCH: Pennsylvania's Historic Architecture and Archaeology*; http://www.arch.state.pa.us/pdfs/H096259_01B.pdf.

includes 860 contributing buildings, mostly residential structures erected beginning in the 1830's and continuing until the 1940's. The area has a multitude of styles including Queen Anne, Colonial Revival, Italianate, Federal, Tudor, and Georgian. Prominent industrialists of the time built many of the large villa-type homes, while working and middle-class members were responsible for much of the rest of the area's housing.

The district, part of the northeast corridor of the city of Easton along the Delaware River, saw development arise from the establishment of Lafayette College, whose property meets the south and west borders of the district. The area experienced further expansion after the installation of the nation's third electric trolley line, and the first to climb a steep 15% hill grade. The city grid and established landscape of the neighborhood continues to be maintained and it still serves as a middle-class suburb.

There are a few individually listed houses on the national register; however most serve as part of the whole, including the site chosen for this thesis, 630 Weygadt Drive. The most prominent architectural style featured within the district is the Queen Anne style, and the site focused on, though not a Queen Anne represents the evolution from Victorian to Progressive era design. Many of the sites within the district have individual characteristics and qualities that define the area as a whole; a high-integrity compilation of various architectural styles and concepts.

Primary resources, used to determine the thesis site's construction period, included Sanborn Fire Insurance maps and land deeds. The Sanborn maps for Easton, Pennsylvania were used to narrow down the period of construction for the chosen site of the thesis. The street corner on which the property is located, East Burke Street and

Weygadt Drive, does not appear until the 1919 map. Though Burke Street was the road on which the city's electric trolley line traveled, it ended one block west of where Weygadt Drive would eventually run. Thus, it has been determined the house was constructed between 1911 and 1919, when the majority of the block bounded by Weygadt Drive to the east, Mixell Street to the west, Burke Street to the north, and Pierce Street to the south had been developed. The only house on the block to appear in the 1911 map is the existing structure on the corner of Mixell Street and Burke Street.

The house today identified as 630 Weygadt Drive was first listed as 227 East Burke Street, and every map thereafter shows the property with both addresses. The house is indicated as a three-story dwelling of brick and wood framing. Early maps show two porches, though only one exists today. Efforts to find a map indicating the removal of the second (rear) porch have thus far been unsuccessful. The front, existing porch, which is currently smaller than the original configuration, was reduced in size sometime between the 1918 and 1927 maps.³²

The land deeds for the site, 630 Weygadt Drive, Easton, Pennsylvania, (located at the Northampton County Deeds Office in Easton, Pennsylvania), date to August 9th, 1912, when the site was acquired by Howard C. Williams.³³ The deeds describe the land only, with no mention of any structural elements or additions. The site is described as “all that certain irregular lot of ground situated in the city of Easton, on the extension of

³² Sanborn Fire Insurance Maps; 1904, 1911, 1918, 1927, 1957. Easton Public Library, Easton, Pennsylvania

³³ Land deed for 630 Weygadt Drive, Easton, Pennsylvania, Northampton County Court House, Easton, Pennsylvania; Book # B-40, pg. 432

Burke Street, being the southwest corner of Burke Street, and Weygadt Drive.”³⁴ The property remained in the Williams family until 1977, when it was then sold to Steven and Judy Passarelli.³⁵ The Passarellis then sold the property to Christopher and Linda Laskey in 1986, in whose possession it remains.³⁶

³⁴ Land deed, Book # B-40, pg. 432

³⁵ Land deed, Book # 567, pg. 481

³⁶ Land deed, Book # 707, pg. 1134

Chapter Two. **20th-century Kitchen Design History and Guidelines: The Middle-Class Residence**

The site chosen for this thesis is a post-Victorian house built between 1911 and 1918. Therefore, the kitchen design research is focused on early 20th-century design principles and its influences from the later half of the 19th century. Early 20th-century kitchen design represents the culmination of ideas about germs and disease and the corresponding emphasis on sanitation, hygiene and organization and separation of foods. By this period, built-in cabinetry and compartmentalization was becoming commonplace in kitchens, allowing for smaller spaces and more efficiency. Decoration and material usage also developed along common lines such as the popularity of white tiles and paint as a means of creating a sanitary appearance. Much of what defines early 20th-century kitchens began, however, during the last quarter of the 19th century with the publication, in 1869, of a critical source on the topic, *The American Woman's Home*, by Catharine Beecher and Harriet Beecher Stowe. The work of Beecher and Stowe aided in establishing the middle-class housewife as an important purveyor of a healthy society, and in conjunction with this work, ideas about Germ theory and cleanliness as well as efficiency and home economics all joined together to create the “modern” kitchen as we know it today.

The American Woman's Home was a manual to aid women in establishing healthy and prosperous households. Beecher and Stowe felt the education of a woman in domestic issues was critical for the overall improvement of society, emphasizing that if a woman were more efficient and productive in her household, then she could better tend to her family. Beecher and Stowe describe the ideal Christian home as one “contrived for

the express purpose of enabling every member of a family to labor with the hands for the common good, and by modes at once healthful, economical, and tasteful.”³⁷ They believed that regardless of where a family was positioned on the social and economic ladders, their methods for creating a better home could be beneficial; however, Beecher and Stowe were mainly writing for middle-class families with modest budgets.³⁸ They provided various illustrations for the interior spaces of a house, including the kitchen, and “presented modes of economizing time, labor, and expense by the close packing of conveniences.”³⁹ Middle-class families rarely had a live-in servant, and even having help during the day was not always affordable. Thus the housewife saw her duties in the kitchen begin to grow, and in order to help the woman from spending all of her day within this area, Beecher and Stowe advocated reducing size of the kitchen and organizing the work with built-in cabinetry. Their recommendations were in sharp contrast to the mid to late 19th-century “farm kitchens” which were

large, squarish, multipurpose spaces... usually contained worktables, a sink, a stove, and a freestanding cupboard for dishes. Instead of fixed cabinetry in the kitchen proper, storage pantries and closets with shelves for the cook’s supplies were located adjacent to the kitchen space.⁴⁰

Beecher and Stowe, however, rejected the idea of free standing furniture in the kitchen and drew up plans for built-in cabinets with continuous work surfaces incorporated with the sink area. Their ideas were derived from the galley kitchens of ships, where

³⁷ Beecher and Stowe 1869, 24

³⁸ Beecher and Stowe were mainly referring to white, Anglo-Saxon Protestants as they were the majority of the United States population at the time they were writing, though they were not anti-Semitic.

³⁹ Beech and Stowe 1869, 25

⁴⁰ Beecher 2001, 27

efficiency and organization were crucial to their successful operation.⁴¹ Though large kitchens were still the norm in most houses when Beecher and Stowe were writing, downsizing the kitchen area would eventually take hold in the early 20th century.

In addition to the preference for smaller kitchens, organization and sterilization would become critical influences for early 20th century kitchen design, deriving from the later 19th century hypothesis known as Germ Theory. Credited to Louis Pasteur, a French chemist and microbiologist, Germ Theory proposed that disease was spread by the invasion of the body by microorganisms.⁴² The theory obviously had a great influence on medical practice, but also held a place in household management, encouraging proper storage and separation of items. The emphasis on sterility and cleanliness not only promoted cabinetry but also the popular use of the color white.⁴³ Both paint and tiles in kitchens, for walls, floors and even ceilings, was seen as a way to create a sterile environment in which to prepare and cook food, based on the appearances of laboratories and medical facilities.⁴⁴

Though sterilization and cleanliness were important factors in the design of early 20th-century kitchens, efficiency reigned supreme. Circulation within the kitchen space was important, and Beecher and Stowe, along with subsequent design critics, discussed how poorly designed kitchens hindered the housewife's ability to not only prepare and cook meals quickly and with minimal effort, but also to clean and store dishes at the

⁴¹ Beecher and Stowe 1869, 32-34

⁴² *Encyclopedia Britannica*, "Germ Theory." Retrieved January 20, 2009, from *Encyclopedia Britannica*: <http://www.britannica.com/EBchecked/topic/230610/germ-theory>.

⁴³ Beecher 2001, 34

⁴⁴ French 1903, 69

conclusion of a meal. Having smaller kitchen areas with cabinetry that allocated a space for everything, from often used kettles and pans to bulk ingredients such as flour and sugar, meant literally less pacing for the housewife as well as less time spent searching for necessities.

Because of the popularity of their book and its extensive advice, Beecher and Stowe influenced 20th-century design critics. It was around the time of these early 20th-century works that the original kitchen of the thesis site was installed, and thus the following sources most likely reflect the appearance of the first kitchen within the site. Writing on the design of an efficient kitchen in the early 20th century was Ross Crane in his guide for the amateur home decorator. Crane, the founder of the National Better Homes Movement and former director of the extension department of the Art Institute in Chicago, elaborated on Beecher and Stowe's design advice by creating what he described as the "one woman power kitchen." Crane's book, written in 1925, defined the three characteristics of a well-designed power kitchen as comfort, convenience, and efficiency. To establish comfort, he recommended cross-ventilation with windows on at least two walls of the kitchen area and installing an electrical exhaust fan set high in the wall to remove hot air as well as cooking odor.⁴⁵ Convenience and efficiency worked in tandem. Crane's floor plans depicted the power kitchen as "a study in compactness... one woman can reach everything in one or two steps- sink, refrigerator, range, kitchen cabinet, garbage container and cupboards... and the space is almost wholly walled-in by shelves,

⁴⁵ Crane 1925, 239

cupboards and lockers.”⁴⁶ The built-in cabinets, considered an essential in the “modern kitchen,” establish the final element of efficiency along with “built in shelves and lockers beneath the sink table, the china closet above it, the rack over the range for pots and pans, the serving table next to the range- even the out-swinging casement windows.”⁴⁷

Efficiency also meant sensibility in decoration; late Victorian excess was challenged by progressive beliefs that beauty was found not in needless accessories but in the practical and useful.⁴⁸ Materials and colors were kept simple with white tiles being the most common kitchen design prescription. The popularity of white was due to its unforgiving characteristic of showing dirt, and thus one could be sure cleanliness was being maintained if no dirt showed. For walls, if tiles were not used, a well-done paint job of at least two coats in an enamel finish, preferably in white, was an appropriate substitute. Applying colors was not often advised, however, it certainly was not frowned upon as long as proper lighting, both natural and artificial, was incorporated.⁴⁹ For flooring, tiles were again common, but could range from the standard white tiles to red quarry tiles. Cement floors were an option, though sometimes they could appear dirty. Also satisfactory was hard wood flooring, which should be cleaned daily; linoleum, or a heavy oil cloth.⁵⁰ These recommendations made by Abbot McClure and Harold Donaldson Eberlein in their 1916 work, *House Furnishing and Decoration*, were

⁴⁶ Crane 1925, 240

⁴⁷ Crane 1925, 244

⁴⁸ French 1903, 65- practical as beautiful is also emphasized in the following work; McClure, Abbot and Harold Donaldson Eberlein. *House Furnishing and Decoration*. New York: Robert M. McBride and Co., 1916; pg. 140

⁴⁹ Gloag 1922, 133

⁵⁰ McClure and Eberlein 1916, 140-141

followed by stressing cleanliness, stating that “no matter what the color scheme of the kitchen may be, cleanliness, absolute cleanliness, is the one hard and fast requirement that must be stamped indelibly on the pages of the domestic rule book and referred to every moment, ‘lest one forget’.”⁵¹

Another concern of kitchen design décor was lighting, and the advice provided during the early 20th century is still applicable to the modern kitchen. It was important to include both natural as well as artificial lighting, and to make sure ample lighting was provided for the range as well as the sink. A window above the sink was important for the proper cleaning of not only fruits and vegetables, but also for making sure pots, pans and utensils were also carefully cleaned. A central lighting fixture was recommended for general lighting and wall sconces at work areas, including over the range and work surfaces.⁵²

In terms of kitchen appliances and their arrangement, two illustrated examples can be found which exemplify the period around the turn of the century. Beecher and Stowe’s descriptions and illustrations of 1869 do not change much when interpreted by later authors such as Ross Crane in 1925. For example Beecher and Stowe’s kitchen was a nine foot by nine foot space (though not including the stove area), and Crane’s was a seven foot by twelve foot space (with actual work space being seven feet by nine feet). Beecher and Stowe separated the kitchen from the stove area with sliding doors in order

⁵¹ McClure and Eberlein 1916, 144

⁵² Crane 1925, 244

to prevent the cooking smells and extra heat from escaping into the main kitchen area (Figure 2.1).

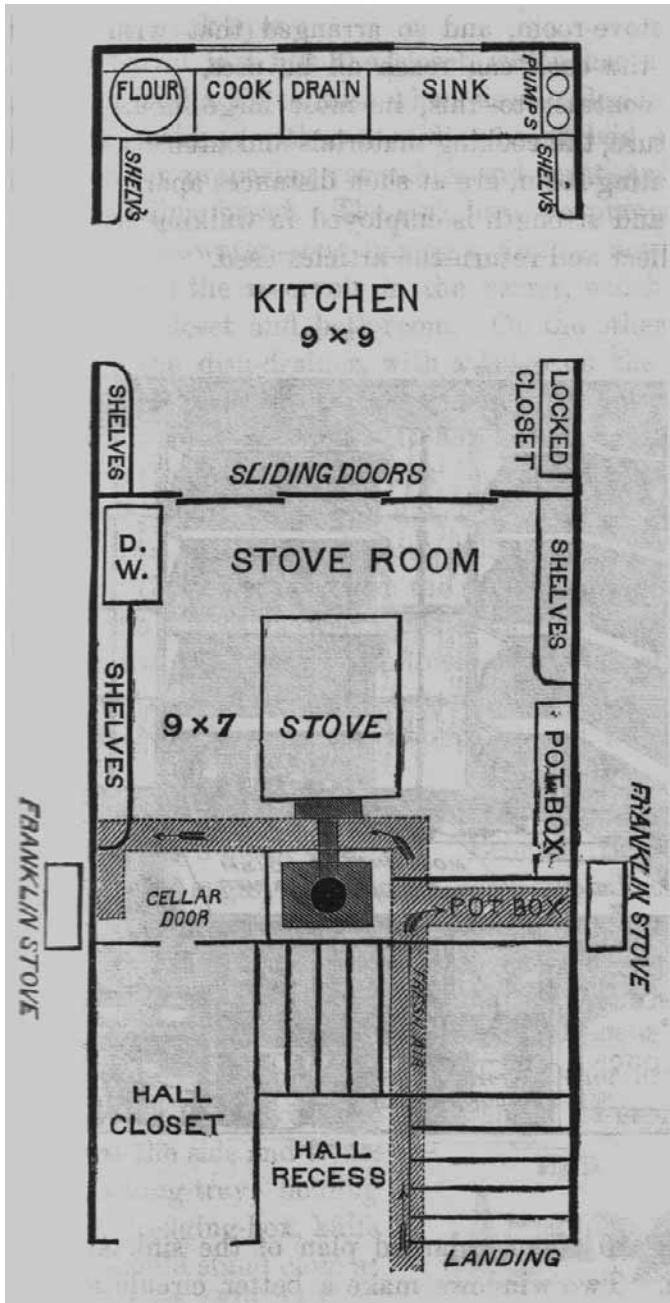


Figure 2.1: The kitchen and stove room floor plan from Beecher and Stowe's *The American Woman's Home*.

This main area was dominated by the arrangement along one wall of the flour closet (similar to a lower cabinet with no shelving), followed by the moulding and meat board, the drain and finally the sink. Beneath these areas more shelving was installed, either left open for kettles and pans, or with boxes for dry ingredients and utensils. Above the sink was a window, along with another window above the moulding and meat board to increase circulation of air, particularly during warmer months. Flanking either side of the windows was more built-in shelving (Figure 2.2).⁵³

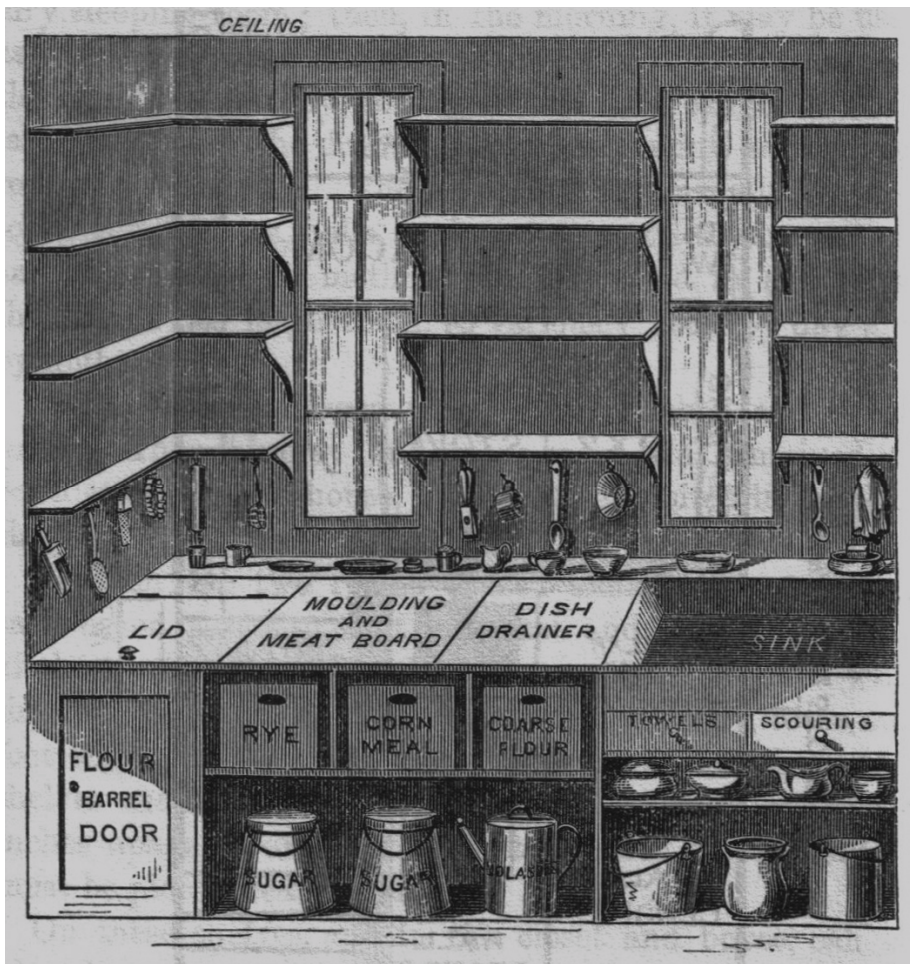


Figure 2.2: Elevation of kitchen wall from Beecher and Stowe's *The American Woman's Home*.

⁵³ Beecher and Stowe 1869, 32-35

Crane's kitchen had a U-shaped work area with adjacent screened porch for the placement of the refrigerator. The refrigerator doors, however opened into the kitchen with a casement window above it for the delivery of goods; this allowed the ice-man, and other suppliers, to deliver ice without entering into the kitchen or the house (Figure 2.3).

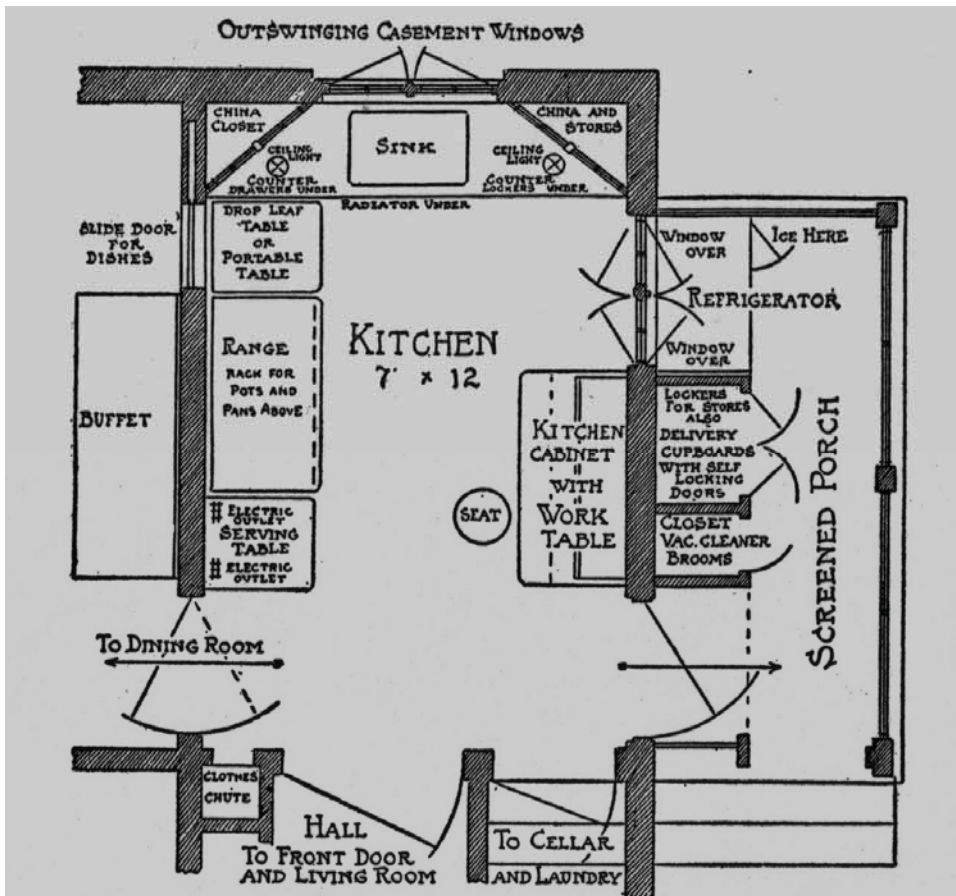


Figure 2.3: The “One-Woman Power Kitchen” from Crane’s *The Ross Crane Book of Home Furnishing and Decoration: A Practical, Authoritative and Sympathetic Guide for the Amateur Home Decorator*.

To the left of the refrigerator, making one extension of the “U”, was cabinetry along with a work table and the access door to the porch (Figure 2.4).

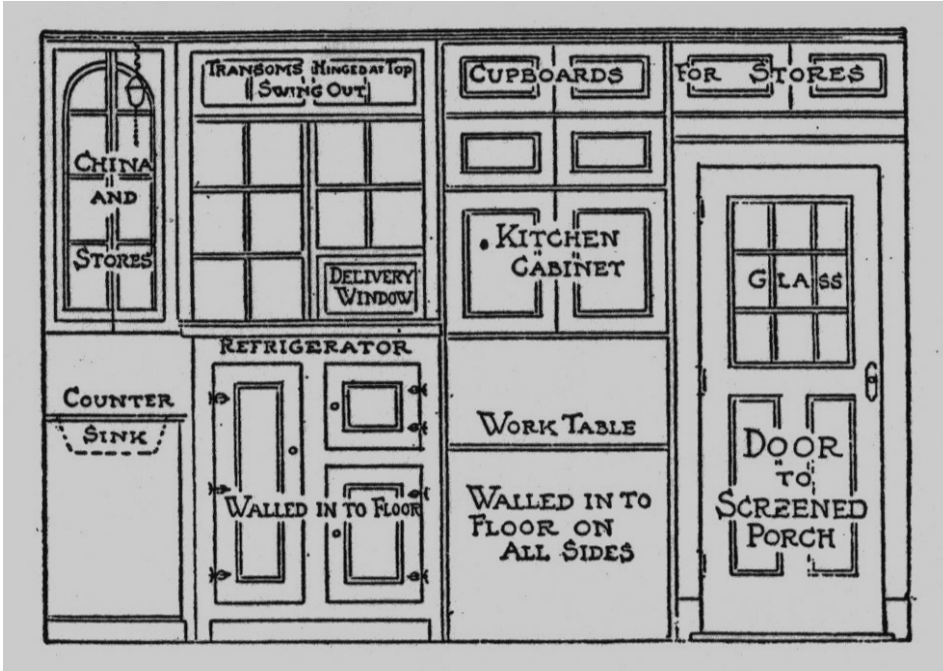


Figure 2.4: East elevation of Crane's "One-Woman Power Kitchen."

To the right of the refrigerator, creating the base of the "U", was the sink in the middle, surrounded by sliding drawers with counter tops. There was an out-swinging casement window above the sink with an electrical exhaust fan above it, and upper china cupboards on either side of the window (Figure 2.5).

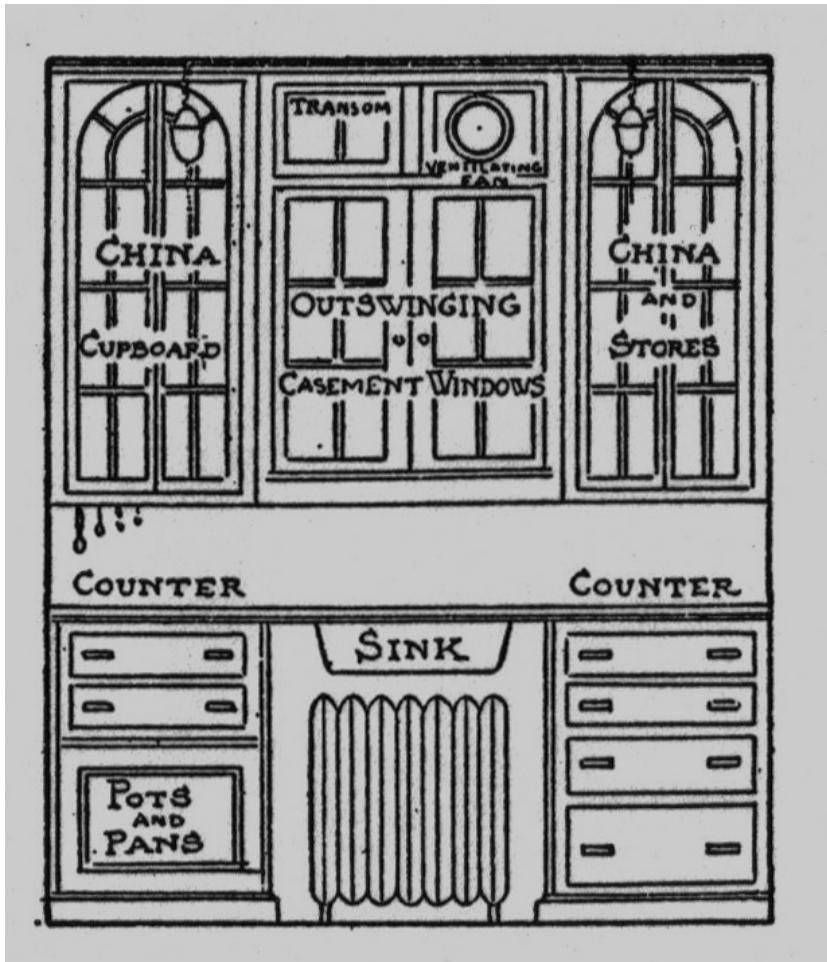


Figure 2.5: North Elevation of Crane's "One-Woman Power Kitchen."

Finally, on the wall opposite of the refrigerator and making up the other extension of the "U" was the stove in the center of the wall with a sliding door leading to the dining room (for serving) on its right along with another upper china cupboard and counter with a small sink. To the left of the stove was a serving table with storage underneath and a

cupboard or shelves above, and finally to the far left the door into the dining room. Above the stove was a rack for utensils (Figure 2.6).⁵⁴

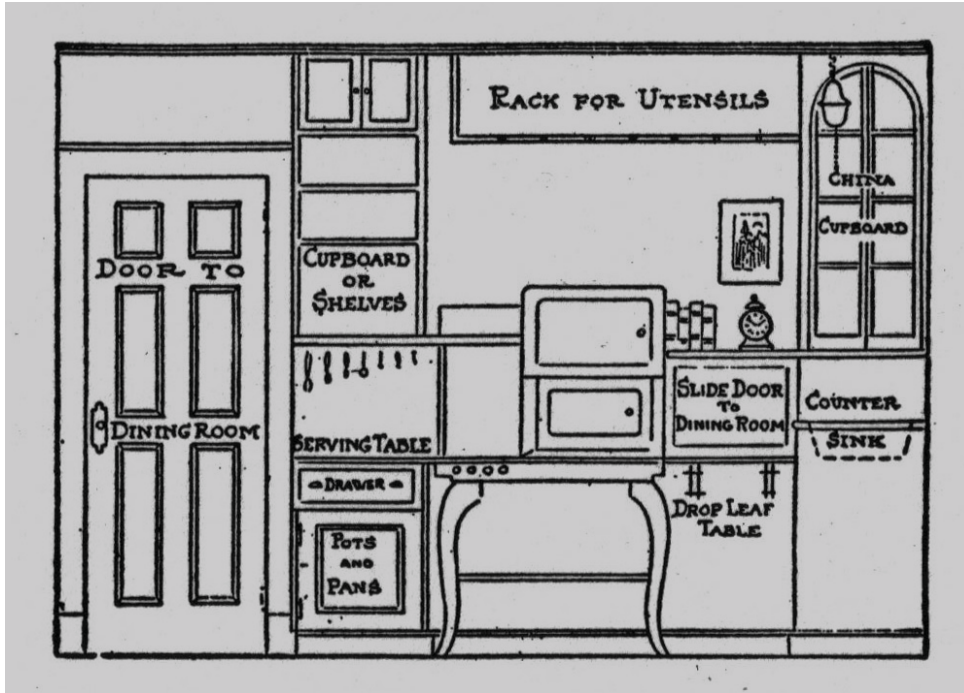


Figure 2.6: West Elevation of Crane’s “One-Woman Power Kitchen.” The location of the stove is possible because it is gas and thus does not need to be vented.

Crane’s suggestions provided a bit more built-in structure and density of appliances and storage, however it is clear that both Beecher and Stowe and Crane’s advice get the most out of using small spaces. No space is wasted, no convenience overlooked.

Today’s kitchen design has not drifted far from early 20th-century kitchen design in character and theory. We strive for efficiency today just as much as the early 20th century, if not more, as men and women often both have full-time employment in

⁵⁴ Crane 1925, 240-243

addition to running a household. Cabinetry is a crucial part of today's kitchen, and it is hard to imagine trying to design a kitchen without it. The appearance of storage may have changed stylistically, but cabinets of good quality and craftsmanship are just as highly prized today as they were when cabinets were first being constructed in the kitchen. Whether constructed with glass doors to show off china, or from wood panels to create fluidity, cabinetry has long been a part of keeping a kitchen organized. Material usage in today's kitchens is also similar to the past's, using tile and paint which can be easily cleaned, as well as similar flooring such as linoleum and hardwood floors. Today's biggest material difference is evident in the desire for environmentally friendly products, but even so, many early 20th-century materials were naturally derived, fulfilling a major characteristic of eco-friendly products. The following section will discuss what drives today's "green" kitchen design, (excluding "McMansion show house" kitchens with extensive gadgets such as computerized refrigerators and built-in televisions), how it is defined, and how understanding the above past design guidelines can aid in creating preservation and eco-friendly remodels.

Chapter Three.

Sustainable Design- Kitchen Renovations

When we build, let us think that we build forever. Let it not be for present delight nor for present use alone. Let it be such work as our descendants will thank us for; and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say, as they look upon the labor and wrought substance of them, ‘See! This our father did for us.’⁵⁵

The ideal kitchen of the early 20th century embraced efficiency and cleanliness. Efficiency and cleanliness are still important but today are part of a bigger design concept: sustainability. Early 20th-century kitchen designers and their users were unaware that sustainability was part of the elements they prescribed. From the use of local woods to build cabinetry to the development of natural linoleum (currently experiencing a revival in use for its environmentally friendly materials), the early 20th-century kitchen embraced local goods and services in both its creation and day-to-day functions. It also encouraged the reduction of kitchen space thereby reducing material usage and energy required to run it (both human and fossil fuels). The concerns may have been for saving the housewife time and insuring her family remained healthy, but the design and construction of the early 20th-century kitchen has influenced present-day ideas about sustainability.

Today consumers may be more conscious of their environmental impact than our early 20th-century predecessors, but they have not lost the desire for efficient, easily cleaned appliances, utensils, and design. Cleanliness today refers not only to the traditional goals of sanitation and health but also knowing how “clean” something is for

⁵⁵ Ruskin, John. *Audels Carpenters and Builders Guide*. New York: Theo Audel and Co., 1923.

the earth. Whether it's a cleaning product or the efficiency of appliances itself, the question is the product's effect on the environment from its production to its use. Efficiency has never played a more prominent role in residences than today. Products need to be efficient as families often require incomes from both partners in a household and thus limited time is available for cooking and cleaning. Furthermore, products need to be efficient in energy use in order to save money on bills and limit the strain on environmental resources.

But what exactly is sustainable design, why is it a concern now and how can understanding past design concepts aid in furthering the cause for "saving" our environment? The built environment and construction industry are the highest contributors to carbon dioxide emissions today, responsible for 39 percent of United States CO₂ emissions. The resulting structures are also responsible for 70 percent of United States electricity consumption.⁵⁶ Resources are limited and some will be gone if these numbers continue. Therefore, it is crucial for society to change its habits. Sustainable design is about changing the construction industry's building techniques and material usage to become more environmentally friendly. New construction seems inevitable, but that does not mean it cannot be done better. More importantly, being sustainable is about utilizing and improving what already exists. Preservation has become a key component in sustainability as it embraces existing structures and

⁵⁶ Holowka, Taryn. "USGBC: LEED — Immediate Savings And Measurable Results." *Ed+c magazine*. 12 July 2007. *Environmental Design and Construction Magazine*. Retrieved January 2, 2009 <<http://www.edcmag.com/>>.

reminds us not only of where we have been, but where we can go with a little creativity and care. When a building is demolished rather than preserved and reused, there is a two-fold loss. Not only is the energy within that building wasted, with its raw materials often destroyed and taking up space in landfills, but more energy and materials are then used up to construct a new building. With economies declining and resources dwindling, can we afford *not* to reuse, rehabilitate and/or remodel what we have already built?

Understanding what did and did not work in the past and synthesizing it with what we know today and what technology has given us is how we must approach design and sustainability for the future.

Ideas and discussions on sustainability have been circulating for many years, but an important strategic development came in 1993 with the establishment of the United States Green Building Council (USGBC). The USGBC's goal is to "transform the way buildings and communities are designed, built and operated."⁵⁷ Much of the USGBC's work has been focused on creating the LEED System, (Leadership in Energy and Environmental Design), which, in 2000, became the rating system used voluntarily by designers, engineers and city planners to promote sustainable development projects.

The LEED system has four levels of designation a project can achieve: Certified, Silver, Gold and Platinum. "Credits" or points are awarded within five categories: Site, Water, Energy, Materials and Resources, and Indoor Environmental Quality. A sixth category recognizes innovation.

⁵⁷ Holowka 2007

How the categories apply to a project also depends on which LEED system is used; as yet, there is no truly universally applicable system. As of 2007, three definitive systems had been established: LEED for New Construction (LEED-ND); LEED for Existing Buildings (LEED-EB); and LEED for Commercial Interiors (LEED-CI). Another system is in development, LEED for Core and Shell (LEED-CS), and two more systems are going through pilot tests, LEED for Homes (LEED-H) and LEED for Neighborhood Development (LEED-ND).⁵⁸ Since its initial development, the LEED system has become the American standard for sustainable design and construction and the USGBC continues to research and explore more methods with which to make environmentally friendly design a consistent and expected part of the construction world.

Preservation and historic resources, however, can sometimes be problematic to the sustainable world if one is not prepared to be creative and put forth a bit of effort. There is often a struggle to defend the value of an older piece of property when new construction can seem an “easier” option for including the latest sustainable technology. But one must remember that starting over on a property often means the demolition of resources and energy, and the use of more resources and energy to replace that which has been destroyed. We won’t be saving resources and utilizing less energy if we only build new, thus preservation must be seen as a valuable recycling program of sorts which requires its own set of guidelines. Because there is not yet a LEED for Historic or Older Properties, preservation must carve out its own rules in regards to sustainability from the existing and developing systems. Though answers may never be perfectly clear in

⁵⁸ Holowka 2007

regards to preserving existing historic properties in a sustainable manner, the USGBC has been continuing efforts to aid those in search of this goal.

In 2008, the USGBC, in collaboration with the American Society of Interior Designers (ASID), came out with *ReGreen*, a set of residential remodeling guidelines. This thesis has applied those guidelines, combined with the knowledge of early 20th-century kitchen design, for designing the kitchen at 630 Weygadt Drive. *ReGreen* is not a rating system, like LEED, but a resource that architects, interior designers, contractors, or homeowners can use to determine how to add sustainability to an existing house. Saving an old house from demolition is the first step in creating a sustainable property. Analyzing its flaws, understanding how to fix them, and applying new technology to the older setting are the challenging steps that follow.

How does *ReGreen* work? As stated before, *ReGreen* is a set of guidelines for remodeling, but it is important to understand the source of the guidelines. In addition to the USGBC's goals, ASID has promoted sustainability as a commonplace objective of its members. According to the ASID website, the organization's approach to sustainability is as follows:

A sustainable approach to design should create buildings and interiors that 1) are healthier for people and enhance productivity; 2) can be built at market rate and cost much less to operate; 3) use less fossil fuels thus conserving energy, generating less global pollution and saving on operational costs by requiring less maintenance; 4) use less water; 5) manage waste at the highest productive level; 6) reduce impacts on both developed and undeveloped land; and 7) minimize the use of materials and use materials with the lowest environmental impact.⁵⁹

⁵⁹ ASID. "Sustainable Design FAQ." Retrieved January, 2009 from ASID website; <http://www.asid.org/designknowledge/sustain/faq/>

Understanding that not everyone is building new, and that often homeowners remodel in stages, ASID joined with the USGBC to establish a resource that would be accessible to anyone seeking to make their residence more sustainable. Thus, *ReGreen* was born and its approach is certainly applicable to historic properties even if it is not stated explicitly. The guidelines lay out the specific challenges existing houses and remodeling problems present, including room configurations and health hazards such as lead or asbestos, the need for custom work because of existing design, and the integration of the old with the new.⁶⁰ These problems are familiar to the world of preservation. What preservation adds to the mix is the need to strike a balance between the applicable sustainable practices and technologies and the preservation of historic resources, a process encouraged by the guidelines. The guidelines recognize there may be no single solution to a problem because each project is unique and requires its own adjustment of pros and cons in regards to decision-making. It is impossible, and in fact highly discouraged, to try to achieve in one project all of the sustainable options discussed in the guidelines. Instead, users of the guidelines are advised to keep in mind the ultimate goal of the project which, in the case of this thesis, is to bring as much sustainability to a kitchen remodel while respecting existing character and history of the property.

ReGreen breaks down its information into ten project types; kitchen, bathroom, bedroom, living and working, finished basement, home performance, major addition, gut rehab, deep energy retrofit, and outdoor living. The guidelines incorporate a strategy

⁶⁰ ASID and USGBC. *ReGreen: Residential Remodeling Guidelines*. Second Edition; 2008; pg. x

library which includes a multitude of sustainable write-ups of remodeling strategies.⁶¹

The project types can be combined, or followed alone, and include case studies. What can be achieved on a project depends on the goals, the budget and the resources available, both in human power and in materials and products.

This thesis has utilized the kitchen project section of *ReGreen*, but first, an analysis of the project goals and aspects must be evaluated. The house has existed for nearly a century and the homeowners value its history and character. Even though they have determined the kitchen to be inefficient, they do not want to sacrifice the house's overall appearance and layout for the sake of the best technology available. Gutting the interior arrangement or adding an addition are not considerations, though some demolition work will be necessary. The goal is to create an efficient design for cooking and enjoying the kitchen space, add sustainable appliances and materials where needed, and integrate new elements with the existing character and details. It is important to recognize that the homeowners' decision to preserve the existing character is more than just a move to "save" history, but it is also a recycling of resources and as stated in *ReGreen*, "every brick, stick of lumber, or salvaged architectural detail removed from the waste stream saves valuable landfill space, conserves production energy, and can potentially add beauty and historical value to the renovation of the home."⁶² Preservation and sustainability truly go hand in hand.

Regarding kitchens, the *ReGreen* guidelines acknowledge that, as perhaps the most active space in a house, the kitchen presents the most opportunities to establish

⁶¹ *ReGreen* 2008, xi

⁶² *ReGreen* 2008, xiii

sustainability. Size becomes a crucial issue, as designers frequently struggle to incorporate the many activities that now take place in the kitchen while simultaneously avoiding doubling the overall size. Ironically enough, the guidelines state that “green kitchens don’t have to be sized like a ship’s galley, nor do they have to accommodate table tennis.”⁶³ Catharine Beecher and Harriet Beecher Stowe may be surprised to find the kitchen having such a sociable role in the household; however their ideas on efficiency have not been forgotten. The guidelines begin by addressing the function of the kitchen, the needs of the client, and, most importantly, the environmental impact of the kitchen be expressed mainly through efficient use of space.⁶⁴ Like early 20th-century design critics, sustainable design often states that less is more and stresses that the temptations to add all the latest technologies and equipment, or even doubling up on ovens, dishwashers or installing restaurant-level appliances, should be carefully weighed against the increase in energy use and space requirements.⁶⁵ For a kitchen remodel, one should definitely determine if the space is large enough for what a family may require of the space, but one should not forget that careful planning and organization, like the advice given by Beecher, Stowe and others, can enhance a smaller space.

Like the early 20th-century kitchen, effective ventilation is also important to the sustainable kitchen as well as proper natural and artificial lighting. Of course both of these topics have progressed since the early 20th century, so it is important to install energy-efficient models for electric lighting and exhaust fans. Installing energy-efficient products also goes beyond lighting and ventilation, and includes all the major appliances

⁶³ *ReGreen* 2008, 1

⁶⁴ *ReGreen* 2008, 2

⁶⁵ *ReGreen* 2008, 2

such as the refrigerator, oven, stove top and dishwasher. Product consideration and installation however depends a great deal on what is locally available. The guidelines refer to products as being “environmentally preferable”, depending on factors such as recycled-content and recyclability, locally sourced and low-emitting materials, and manufacturing and maintenance environmental impacts.⁶⁶ Determining these factors depends a great deal on the designers and clients doing research and weighing the pros and cons of different products.

For example, regarding this thesis, a product for countertops known as PaperStone,⁶⁷ made from recycled newspapers, represented a sustainable product choice; however, the only supplier was in the state of Washington requiring the product be shipped across country, which would involve a considerable amount of fossil fuels in addition to an increase in costs. The clients therefore decided to continue searching for a sustainable product produced closer to their site.

Other issues to address involve overall energy use and loss. Upgrading windows, for example, is often seen as an important step in reducing energy loss between the outdoor and indoor environments; however, this is often a challenge for historic properties since windows are part of the exterior appearance. In terms of sustainability, windows present an issue of whether to weigh historical resources over sustainable products. A local ordinance for historic properties may determine the choices made, but often cost plays a bigger role. If replacing the windows results in custom millwork with less-than environmentally friendly materials in order to appease historic character, then

⁶⁶ *ReGreen* 2008, x

⁶⁷ PaperStone. Paneltech International, Hoquiam, Washington. <http://www.paperstoneproducts.com/>

perhaps simply dealing with energy loss and keeping the old windows may be the more sustainable approach, assuming the energy loss is minor. Making these decisions depends on where individual homeowners are willing to sacrifice budget, available resources, and design aesthetic.

Each project is different, and the scope can range from simply selecting low to zero-VOC paints for a decorative change, to moving plumbing pipes and fixtures so that hot water is distributed efficiently. The kitchen guidelines include the following building systems: general design and construction strategies (design for storage, managing construction and demolition waste), building envelope (upgrading or replacing windows and doors), plumbing (installing low water-use faucets), HVAC (installing effective ventilation), lighting and electrical (providing day-lighting), appliances (installing energy-efficient appliances), wall and ceiling (using tile and trim pieces with recycled content, using low or zero-VOC adhesives, caulking and sealants), floors and flooring products (reusing existing floors and subflooring by refinishing, use flooring materials made from certified or reclaimed wood), furniture and fittings (selecting compact furniture that incorporates storage, choosing environmentally preferable countertops), and use (properly maintaining equipment, using environmentally preferable cleaning products).⁶⁸ There are many options for bringing sustainability into an existing house, including the sometimes “troublesome” historic property. Whether one utilizes a multitude of the strategies or just starts small and chooses a locally produced table made from local reclaimed wood, it is important to recognize the change in how we address

⁶⁸ *ReGreen* 2008, 3-4

what we already have and how we can make preservation a part of sustainability, and sustainability a part of preservation.

The next chapter will address the thesis site and neighborhood histories, including the unique characteristics of the site. Following this, the scope of the renovation project of the kitchen will be described. Floor plans and elevations will illustrate the existing and proposed design plans.

Chapter Four.
Site History- 630 Weygadt Drive and the College Hill Historic Neighborhood

The chosen site for this study is a post-Victorian home located at 630 Weygadt Drive, Easton, Pennsylvania, within an historic residential neighborhood known as College Hill (Figure 4.1).

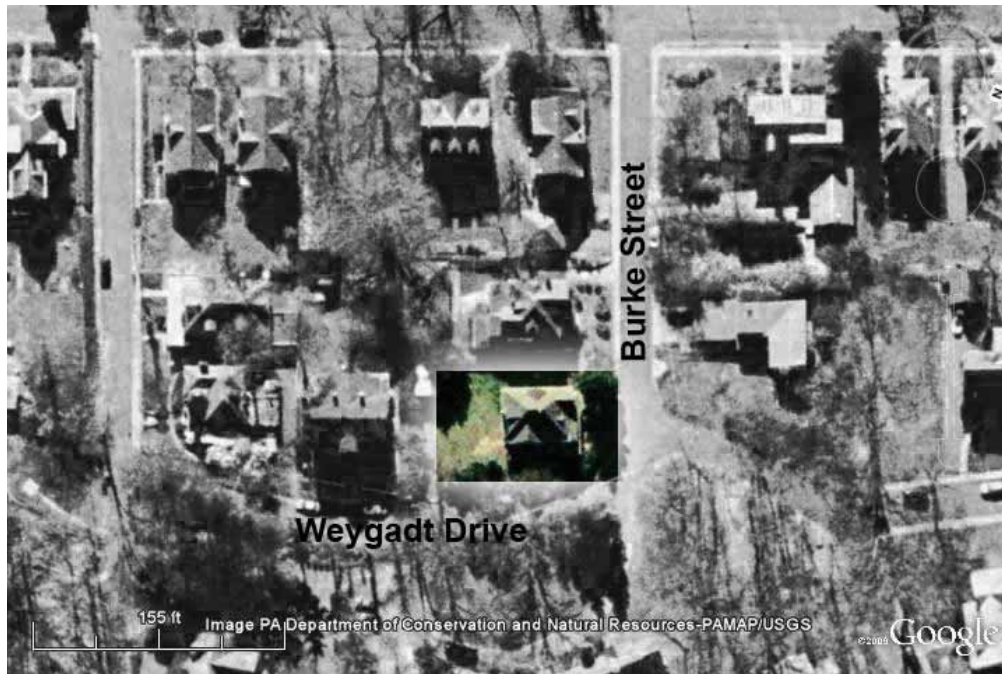


Figure 4.1: Satellite map of the corner of Weygadt Drive and Burke Street; the highlighted section depicts 630 Weygadt Drive, the site chosen for this thesis. Image courtesy of Google.

College Hill was added to the National Register of Historic Places in the early 1990s and is comprised of more than 850 contributing buildings, mainly residences. The neighborhood is an impressive collection of houses described as; “the most extensive single collection of varying mid to late Victorian residential architecture within not only the city of Easton, but the Lehigh Valley Region as well.”⁶⁹ Though only a few of the

⁶⁹ NHR form 1990

individual properties within the district are listed on the National Register, it is easy to see that many houses are worthy of such recognition. There is a tremendous amount of care and maintenance evident in the overall appearance of many of the houses and buildings, and the city grids as well as much of the landscape retain their original layout.

The area of College Hill was part of a 1,000-acre tract of land in the city of Easton, founded in 1736; however, the area did not see development until the 1830's when "Lafayette College purchased nine acres of land in the southern third of the neighborhood."⁷⁰ The college required housing for professors and employees as well as buildings for services to aid the college. Real development began in 1887 with the Lafayette Traction Company, headed by David W. Nevin, who oversaw the construction of an electric trolley from downtown Easton up to College Hill. Nevin owned several plots of land in the northeastern section of College Hill, and understood buyers of his "villa" lots would only be interested if there was a way to get up the hill. The trolley line "was the third in the United States and the first to go up over steep 15% hill grades."⁷¹ From the 1870's through the 1940's, College Hill became increasingly populated with housing first being constructed along the trolley line, but eventually expanding within the layout of the city grid.

The site chosen for this thesis was first documented on the City of Easton Sanborn Fire Insurance Map of 1918, created by the Sanborn Map Company, Inc.⁷² The 1911 map does not show the corner of East Burke Street and Weygadt Drive, just two blocks south of the Burke Street and Paxinosa Avenue intersection, where the trolley line once

⁷⁰ NHR form 1990

⁷¹ NHR form 1990

⁷² Sanborn Fire Insurance Maps, Easton Public Library

ran north towards the upper ridge of the area. The 630 Weygadt Drive property, a brick and wood frame dwelling, first appeared as 227 East Burke Street with the entrance on the north side (Burke Street) and a porch wrapping from the north side around to the east side (Figure 4.2).



Figure 4.2: The thesis site as 227 Burke Street, prior to the additional entrance at 630 Weygadt Drive and the enclosure of the northwestern end of the porch. Date: Pre-1927, Photo taken from corner of Weygadt Drive (left) and Burke Street (right). Source: homeowner's private collection.

In the 1927 fire insurance map, however, the western end of the north side porch had been enclosed and while the 227 Burke Street address was still listed, the eastern side of the house was listed as 630 Weygadt Drive. The enclosure of the porch seemed to have at first followed along the lines of original structure, however, today the existing kitchen occupies what had been the porch area, indicating the removal of the northwestern end of

the framing wall of the house.⁷³ The house is continually shown with both addresses listed, but the current “front” of the house and main entrance is on Weygadt Drive. The entrance on the Burke Street side exists as a “back” entrance, leading into the house’s present kitchen. It seems clear that the original Burke Street entrance would never have led into a kitchen, but as the kitchen exists there today, one must presume a major change in the interior layout, occurring before the porch was enclosed and the listing of 630 Weygadt Drive appeared on the 1927 Fire Insurance Map.⁷⁴

The existing interior arrangement shows evidence of the transition from Victorian-era design ideas to a more open plan. The three-story, square house has a large and open plan on the first floor, a quality preferred by progressive architectural practices to allow for multi-functional spaces within smaller areas of square footage (Illustration 1 in the Appendix).⁷⁵ The main entrance opens into a large living area with a fire place centered on the south wall and the main stair case towards the west end of the large room (Figure 4.3).

⁷³ By examining the existing floor plan, the offset of the laundry room, which is deeper than the alcove, suggests the laundry room to be about as deep as the original porch. The alcove of the kitchen, in the northwest corner, however, is not as deep as the original porch was. Though it is not perfectly clear in the earliest known photograph of the house, (Figure 4.2), it does appear that the house was originally flush along the north wall (which it also appears to be so in the city of Easton Sanborn Fire Insurance Map of 1918). The dimensions of the floor plan now (Illustration 1 in the Appendix), however, do not show a flush wall from the eastern end of the north wall to the western end of the north wall, indicating the western end of the north wall, where the kitchen now is located, may have been removed during early renovations.

⁷⁴ Sanborn Fire Insurance Maps, Easton Public Library

⁷⁵ Clark 1986, 167



Figure 4.3: The existing living room, viewed from the entrance, looking southwest. (Author's photograph)

Located in the northeast corner of the house is the formal dining room complete with a service call button in the center of the floor (Figure 4.4).



Figure 4.4: The existing dining room, viewed from the eastern end of the living room. (Author's photograph)

The kitchen is in the northwest corner. Unlike progressive housing after 1910, the kitchen has a back stair case leading to the second floor, an element no longer deemed necessary as live-in help became increasingly rare.⁷⁶ There is a possibility, however, that the back stair case may be the original stair case, and the existing main stair case was added after the floor plan had been rearranged.⁷⁷ If this were the case, then the wall enclosing the back stair case would have been added when the kitchen was moved to the north west corner of the house. The informality of the back stair case, however, challenges the idea of that it was the only stair case originally. There is also a separate stair case to the basement, which has its own exterior entrance and stairs leading to the outside; most

⁷⁶ Clark 1986, 167

⁷⁷ Theories surrounding the stair cases discussed with Michael Henry, architect and graduate professor at the University of Pennsylvania, on February 20, 2009.

likely a service entrance for the delivery and storage of kitchen goods, another characteristic of Victorian houses (Figure 4.5).⁷⁸



Figure 4.5: The door to the basement stair case (left) with the existing back stair case to the right. (Author's photograph)

Other changes the house has seen include moving a set of three windows from the southern end of the east side to the northern end of the east side, from the existing living room into the existing dining room. This change probably dates to the creation of the Weygadt Drive entrance which occupies the original location of the three windows

⁷⁸ Clark 1986, 62

(Figure 4.2). A second porch, located at the south west corner of the house and evident in the house's first appearance in the 1918 fire insurance map, has been removed. The exact date of when the porch was removed is still unknown, but it was between 1954 (the last Sanborn Fire Insurance Map available for the area) and 1986, when the current owners purchased the property, unaware a second porch ever existed. Another area of inquiry involves the fireplace in the living room which has beams extending from its mouldings (where it meets the ceiling) across the living room to the opposite wall (Figure 4.6).



Figure 4.6: The existing living room fire places with beams extending from the fireplace surround. (Author's photograph)

The beams meet the opposite wall in odd locations, just left of the center of the room, and above the door way leading into the kitchen, possibly indicating a removal of a supporting wall and the necessity of supporting beams (Figure 4.7).



Figure 4.7: The living room beams extending from the fireplace to the opposing northern wall. (Author's photograph)

The mouldings surrounding the fireplace also appear to be of a later, Colonial Revival style, and are similar to the detailing applied to the main entrance on 630 Weygadt Drive, suggesting the new entrance was concurrent with the addition of the fire place (Figure 4.8).



Figure 4.8: Comparison of the existing living room fire place (left) and the front entrance of 630 Weygadt Drive (right). (Author's photograph)

Though definitive proof of the living room fire place being a later addition is not conclusive, there is, however, another original fire place in the southwest corner of the existing dining room that is no longer functioning and has been remodeled into a built-in china cabinet (Figure 4.9).



Figure 4.9: The existing dining room china cabinet, previously a fire place. (Author's photograph)

The chimney of this dining room fire place is evident in the oldest known photo of the property, taken within the first ten years of the house's construction (Figure 4.2), and would have served as the house's original and only fireplace until the addition of the living room fireplace.

The kitchen, the area of focus for this thesis, is the most challenging area of the house in terms of understanding its history. It was apparently relocated when the main entrance was switched to 630 Weygadt Drive. The porch on the southwest corner, which no longer exists, may have represented the "back" of the house, and the kitchen may have

been located there. Currently this area is part of the open living room, complete with large French casement windows and the main staircase. This may mean that the kitchen was once in the southwest corner of the house before extensive renovations placed it in the northwest corner.

The basement and backstairs present a challenge to this theory though since the basement entrance and back stair well are in the hallway leading into the existing kitchen. If however, as previously mentioned, the back stair case is in fact the original staircase, then the wall that encloses it (giving it the appearance of a back stair case) may have been put up when the kitchen was moved to its current location, and the main stair case in the existing living room was installed. An investigation into the neighboring house at 221 Burke Street, west of the site, which is of similar architectural style and appeared on the Fire Insurance maps at the same time as the thesis site, revealed a very similar, if not the same stair case design as the back stair case of 630 Weygadt Drive (Figure 4.10).



Figure 4.10: Comparison of the back stair case of 630 Weygadt Drive (left) and the main stair case of 221 Burke Street (right). (Author's photograph)

The existing kitchen has two windows, one much wider than the other, both located on the west wall (Figure 4.11).



Figure 4.11: The kitchen windows on the west wall. (Author's photograph)

The smaller of the two windows is most likely an original window, though paint analysis of both window frames would need to be performed in order to determine if they are the same age or not. There is also the back entrance on the north wall, part of the closed-in porch area which serves as both kitchen storage and laundry area (Figure 4.12).



Figure 4.12: The existing storage and laundry room occupying the closed-in porch. (Author's photograph)

Built-in lower cabinetry exists along the south and west walls, with upper cabinets along the south and east walls (Figure 4.13).



Figure 4.13: Existing upper and lower cabinetry, southwest corner of kitchen. (Author's photograph)

A small pantry closet is across from the basement entrance and back stair well and there are doorways leading into the dining room and into the living room, on the east and south walls. The hall between the kitchen and living room, where the basement and back stairs are located, had a door at the entrance from the kitchen and at the back stairs. Both were removed by the current owners who felt that because the pantry and basement entry both had doors, there were simply too many doors in this small area. The doorway between the kitchen and the dining room had a swinging door which was removed after redecoration of the dining room in the early 1990's.

The entire house has hardwood floors with the exception of the first floor bathroom and second floor master bathroom, both of which have tiled floors. The enclosed portion of the porch on the north end of the house is also tiled. The living and dining rooms share similar wood flooring, with one and a half to two inch wide strips (Figure 4.14).



Figure 4.14: The existing hardwood floors of the living and dining rooms; one and a half to two inches wide. (Author's photograph)

The layout of the wood floors between these two rooms indicates the floors were most likely done at the same time, possibly when the kitchen was moved to its present location. In the kitchen, yellow linoleum lies over subflooring, with possibly original unfinished wood floors beneath. The wood floors beneath the subflooring are a bit wider in width; roughly two and a half inches (Figure 4.15).



Figure 4.15: The flooring in the existing kitchen- possible original flooring (far left) with subflooring laid above (center of photo), and linoleum over the subflooring (far right). (Author's photograph)

Looking up at the flooring from the basement below the kitchen, a portion of this flooring runs from the east to west walls, while the majority of the planks run from north to south. The second story floors have two and half inch wide planks (similar to what is under the subflooring in the kitchen) at the landing, the hallway, and the bedrooms at the north and south ends of the hallway. The floor planks widen to three and a half inches in the two bedrooms on the east side of the hallway.

Today, the overall open plan of the first floor and the locations of the entrances create a cohesive flow of space with logical corresponding room functions.

Understanding, however, that many of the changes revolved around the addition of the 630 Weygadt Drive entrance, it is presumed that the majority of the interior renovations occurred during the period between the house's first appearance on the Sanborn map in

1918 and the first appearance of the 630 Weygadt Drive address listing on the Sanborn map of 1927. The Sanborn map of 1927 also shows the addition of a large stone mansion across the street on Weygadt Drive, which may indicate a preference for Weygadt Drive as a more “fashionable” address and a reason to reorient the house in such a dramatic way. Regardless of the reason for the floor plan adjustments, there is no evidence of further rearranging since these early major changes, thus the clients’ desire to not only use early 20th-century guidelines for the kitchen renovation, but also to stay within the existing layout.

Chapter Five.

Project Scope- Existing and Proposed Kitchen Design Floor Plans

For the site examined in this thesis, the scope of the project has been determined by client's needs and the limits of the available space. As stated before, there will be no major gutting of the overall interior layout, nor will there be any additions made to the house. The existing arrangement of prep space, appliances, and the placement of a large table in the center, however, has made the kitchen completely inefficient. The sink is on the opposite wall from the stove and oven, forcing one to go around the table in order to navigate between the two. The refrigerator occupies a dark corner, away from the main circulation, and has no nearby counter space for loading and unloading food stuffs into the refrigerator. There are two large windows; however there is no exhaust fan for the stove, which is on an interior wall. There is a door leading outside, so ventilating the kitchen often means leaving this door open and the ceiling fan running. The clients hope to improve the traffic flow between the major appliances, properly ventilate the space, add more natural lighting, and use environmentally preferable⁷⁹ products and appliances for any replacements that will occur. They wish to save the existing upper cabinetry, some of which is original to the early 20th century, but feel the existing lower cabinetry (not original to the early 20th century) of poor construction and in need of replacement. They do not wish to replace door and window mouldings, and if suitable window replacements that fit the existing mouldings can be found, they are willing to upgrade. They would also like to add a window in the northwest corner to bring in light from an

⁷⁹ “environmentally preferable” as defined in *ReGreen*, are products which reduce environmental impact through recycled content and recyclability, locally sourced and low-emitting materials, and/or environmentally friendly manufacturing and maintenance. *ReGreen* 2008, x

additional angle and to increase ventilation. The clients hope to find a window to coordinate with the existing windows. The cracking linoleum floor which is not original, needs replacing as do the tiled countertops. The clients are prepared to rearrange the appliances as well as existing heating and plumbing systems providing it will create a more energy-efficient space while not compromising the window and door placements. An Energy Star⁸⁰ rated refrigerator and dishwasher have already been purchased, and the clients are planning to purchase a corresponding oven and range. The clients are willing to remove the table in the center of the kitchen in exchange for better circulation and more space. Seating of some sort, however, is still desired in the kitchen. The clients have no strict material preferences, other than finding products that are sustainable and that blend in with the rest of the house aesthetically. The clients do however understand that form often follows function; although they do not want to compromise the house's layout and details, new products may be chosen more for their sustainable qualities than their appearance. They are not trying to replicate an early 20th-century kitchen, but rather utilize the previously noted design elements of that period in conjunction with today's design advancements.

The areas of the kitchen to be addressed are as follows: flooring, cabinetry and countertops, appliances, lighting, ventilation, windows and doors, and paint.

⁸⁰ "Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices." Products with the Energy Star label have met energy efficiency guidelines set forth by the Environmental Protection Agency and the US Department of Energy. Energy Star. http://www.energystar.gov/index.cfm?c=about.ab_index.

Flooring

The existing hardwood floors underneath the linoleum and subflooring have not been fully revealed so there is a possibility of restoring them. If the floors are beyond repair, however, then the clients wish to replace them with a sustainable bamboo floor, maintaining the look of the wood floors, but using a more environmentally friendly product. Options being considered are from EcoTimber, a company which produces engineered, hand-scraped, and reclaimed floors from FSC (Forest Stewardship Council)-certified forests and reclaimed woods. The flooring comes in a variety of widths and shades and is installed pre-finished.⁸¹

Cabinetry and Countertops

The upper cabinetry will be reused, as the existing cabinetry on the southern wall is believed to be original, although its latches have been replaced. The upper cabinetry on the eastern wall had been moved from the western wall when the clients first moved in, and though it is not of the same style as the southern wall upper cabinetry, it appears to be handmade and of good quality. The lower cabinetry occupying the south and west walls will need replacing, because of poor quality and inappropriate aesthetics. The cabinets made by Breathe Easy are being considered as they meet LEED requirements for indoor air quality and are made from “rapidly renewable bamboo, solid woods from managed forests or sustainably designed, wood veneered MDF board.”⁸²

⁸¹ EcoTimber, <http://www.environmentalhomestore.com/products/flooring>, available at Environmental Homestore. <http://www.environmentalhomestore.com/>.

⁸² Breathe Easy Cabinetry, accessed January 11, 2009; <http://www.breathetheasycabinetry.com/greenspecs.htm>.

All the countertops will need replacing as the tiles and mortar are beginning to fail. The clients have a large work table with a butcher's block top they would like to reuse by coordinating the butcher block material with the new countertops. The new countertops would be a product called EcoTop, manufactured from recycled paper, bamboo and wood fibers. This product is made in Scranton, Pennsylvania, within a 100 mile radius of the site.⁸³

Appliances

An Energy Star rated refrigerator and dishwasher have already been purchased and the clients plan to purchase an Energy Star rated stovetop and oven. The existing sink is a possibility for reuse, though aesthetically, the clients would prefer a different style. Appliances, in general, present a significant challenge in deciding between aesthetics, whether historic or modern, and sustainable qualities. There are a variety of options for purchasing appliances that mimic early 20th-century designs, just as there are plenty of options for sleek and minimal tastes. Finding the preferred aesthetic that is also sustainable and within budget, however, is difficult. Decision-making comes down to cost and priorities, which for this project, sustainability is a more important wish than having a stove that imitates an early 20th-century model.

Lighting

The existing lighting layout is quite useable. The two windows provide a fair amount of natural lighting, though only from the west side. There is a central light

⁸³ EcoTop, http://www.environmentalhomestore.com/products/countertops/recycled_paper/ecotop/, available at Environmental Homestore. <http://www.environmentalhomestore.com/>.

fixture and adjustable track lights that provide task and ambient lighting, though the appearance of these fixtures is out of place, both in the existing and proposed kitchen design. The shades of the track lighting will need replacing as well as the central light fixture (which is also a ceiling fan) and under cabinet lighting should be added for additional light on the work surfaces. Energy efficient light bulbs will also be installed. A variety of sustainable lighting options, from lamps and lighting accessories to energy efficient light bulbs are available at the Green Depot in Philadelphia, Pennsylvania.⁸⁴

Ventilation

There is currently no ventilation beyond the windows and back door. In the current layout, the stove is placed on an interior wall with no venting system of any kind. Not only would the clients like to move the stove and oven to a different location, they would like to have the unit vented to the outside. Range hoods, though a critical part of venting the range or stove top, have only recently been designed for Energy Star ratings, and options are still very limited. The appliance company Broan-NuTone, however, does offer an Energy Star rated under cabinet range hood, with more under cabinet designs available in Canada. Whether or not chimney hoods will become available is still undetermined.

Windows and Doors

The clients would like to keep the existing windows in their current locations, however, they would like to add an additional window in the north wall within the dark nook. Replacing the windows would require custom work as the sizes of the two

⁸⁴ Please see the website www.greendepot.com for additional information in regards to available products.

windows do not match and one is particularly wide. The clients also want to keep the existing moldings, thus truly replacing the windows is not a high priority due to the probable costs. Both replacement windows as well as new, custom designed wood framed windows are available through Marvin Windows and Doors. Marvin not only has Energy-Star rated products, but also utilizes wood from managed forests which subscribe to the principles set forth by the Sustainable Forest Initiative (SFI).⁸⁵

The existing doors will also remain, though the interior kitchen door does need to be refinished. Any staining of the wood doors can be done with products such as BioShield Stain finish which has zero VOCs (volatile organic compounds).⁸⁶

Paint

The current paint scheme is white with blue trim and stenciling, and though this décor does comply with early 20th-century design tastes, the clients would like to make adjustments. Even if the clients choose a white scheme again, the kitchen does require a fresh coat after years of residue build-up because of the non-ventilated stove top. Some low to zero-VOC products include Mythic Paint, AFM Safecoat, and Ivy Coatings. The latter is produced within 500 miles, in the state of New York, qualifying it for additional LEED credits.⁸⁷

⁸⁵ Marvin Windows and Doors- "Sustainable Forestry." Accessed January 11, 2009; http://www.marvin.com/?page=Sustainable_forestry.

⁸⁶ BioShield: http://www.environmentalhomestore.com/pdfs/biosheild_stain_finish_one_sheet.pdf available at Environmental Homestore. <http://www.environmentalhomestore.com/>.

⁸⁷ Ivy Coating; <http://www.environmentalhomestore.com/products/paint> available at Environmental Homestore. <http://www.environmentalhomestore.com/>.

Design Summary

The arrangement of appliances in the kitchen will change quite significantly, though the overall footprint will not (Illustration 5 in the Appendix). In order to improve the circulation between the three main appliances, the refrigerator, sink, and stove, a central island has been added where the sink will be located. This island will also incorporate the dishwasher and seating at a bar. The stove unit will move to the west wall, between the two existing windows, where a chimney range hood will be installed, vented to the outside. Placing the stove in this location will also increase preparation space to either side of the unit. To the right of the stove, the existing butcher block will be installed as countertop, with new countertops to the left. New lower cabinetry will be installed along the south and west walls. The cabinetry will include both cabinets and large sliding drawers to better store pots and pans. The refrigerator will be placed along the west wall with counter space on either side, and a new window installed where the refrigerator was previously located in the north wall. The existing upper cabinetry on the south wall will remain where it is, while the upper cabinetry of the east wall will be moved over to align with the new island.

Conclusion

At this stage, the project has not been put into action, however, the clients are hopeful to begin as soon as a definitive budget has been outlined. Though the overall success of the project cannot yet be determined, the process of researching, understanding, and designing a sustainable yet preservation-minded kitchen has proven itself a valuable beginning. Not only has there been a greater understanding of the site and its unique history, there is also a better understanding of how to bring sustainability into existing interior environments. Good design is not only pleasing to the eye, but respectful of both past and future concepts. Acknowledging what has and has not worked, and what can work for generations to come is vital to creating sustainable design. Preservation and sustainability both recognize the importance of building, or restoring, for the future.

With research and creativity, it is not only possible, but also quite manageable to design a kitchen that can incorporate today's innovations without neglecting the past. Compromises must be made, but neither preservation nor sustainability has to bow out for the other. One does not have to replicate the past, but rather be aware of it and bring it into the present. Preservation cannot last on its own if it refuses to adapt, however, we cannot constantly depend on starting over and building new. By combining preservation and sustainability, we can be confident in knowing we have not only saved valuable energy and material resources, but we have also saved cultural resources for the future. A single kitchen renovation may not seem like much in the long run, but it is a step towards making both preservation and sustainability everyday building practices.

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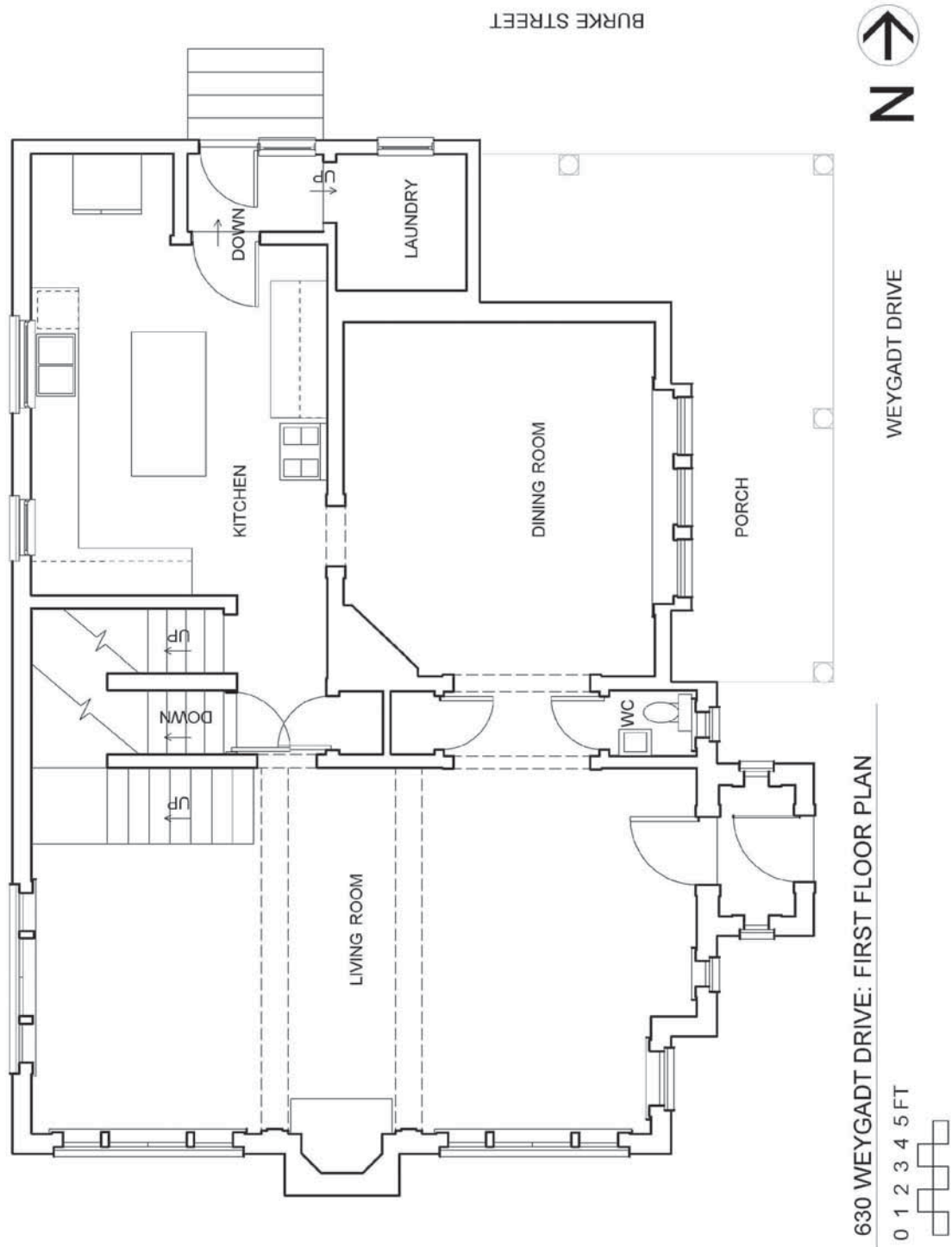


Illustration 2: Existing Kitchen Floor Plan (Author's drawing)

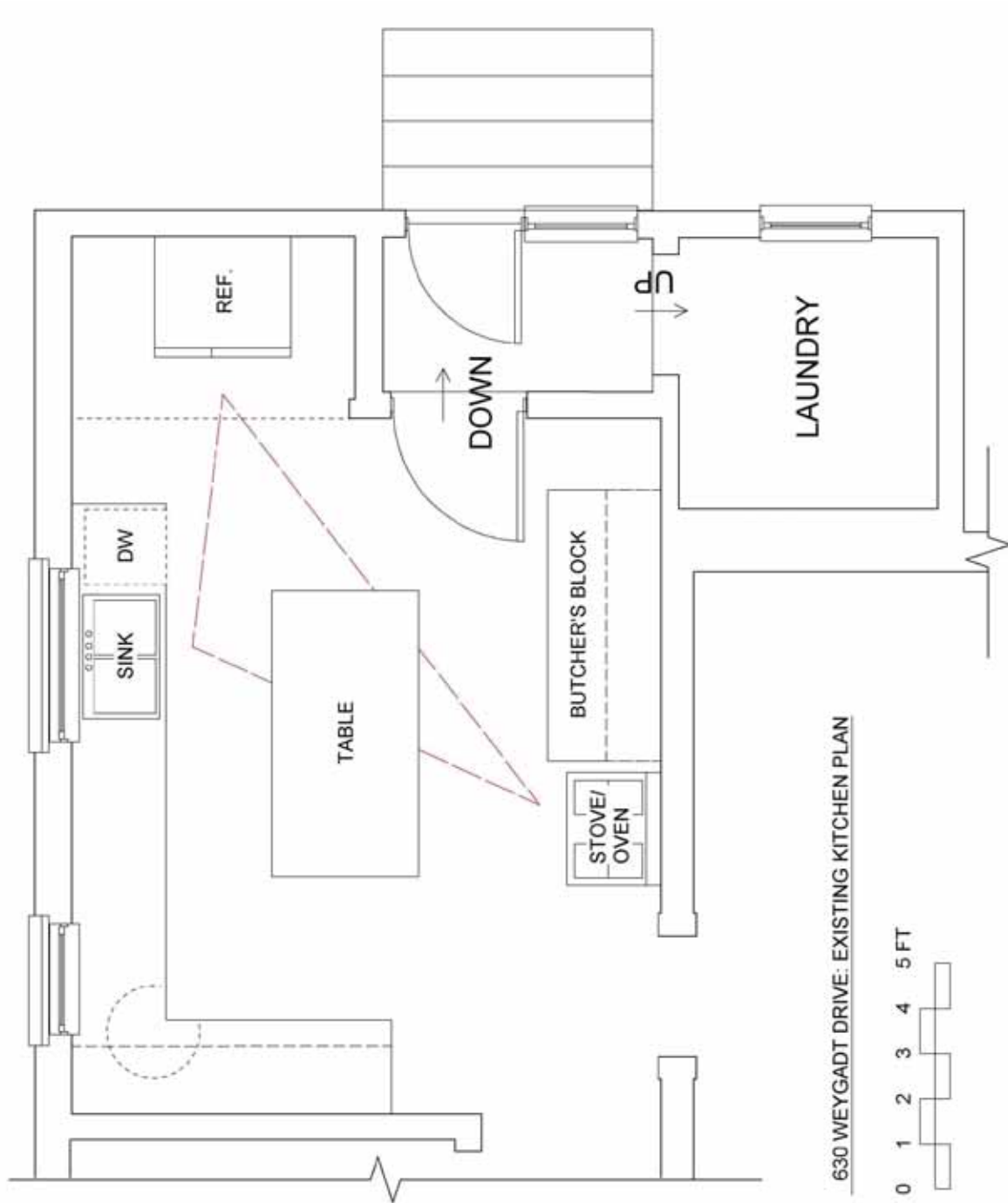


Illustration 3: Existing Kitchen Elevations- North and East Walls (Author's drawing)



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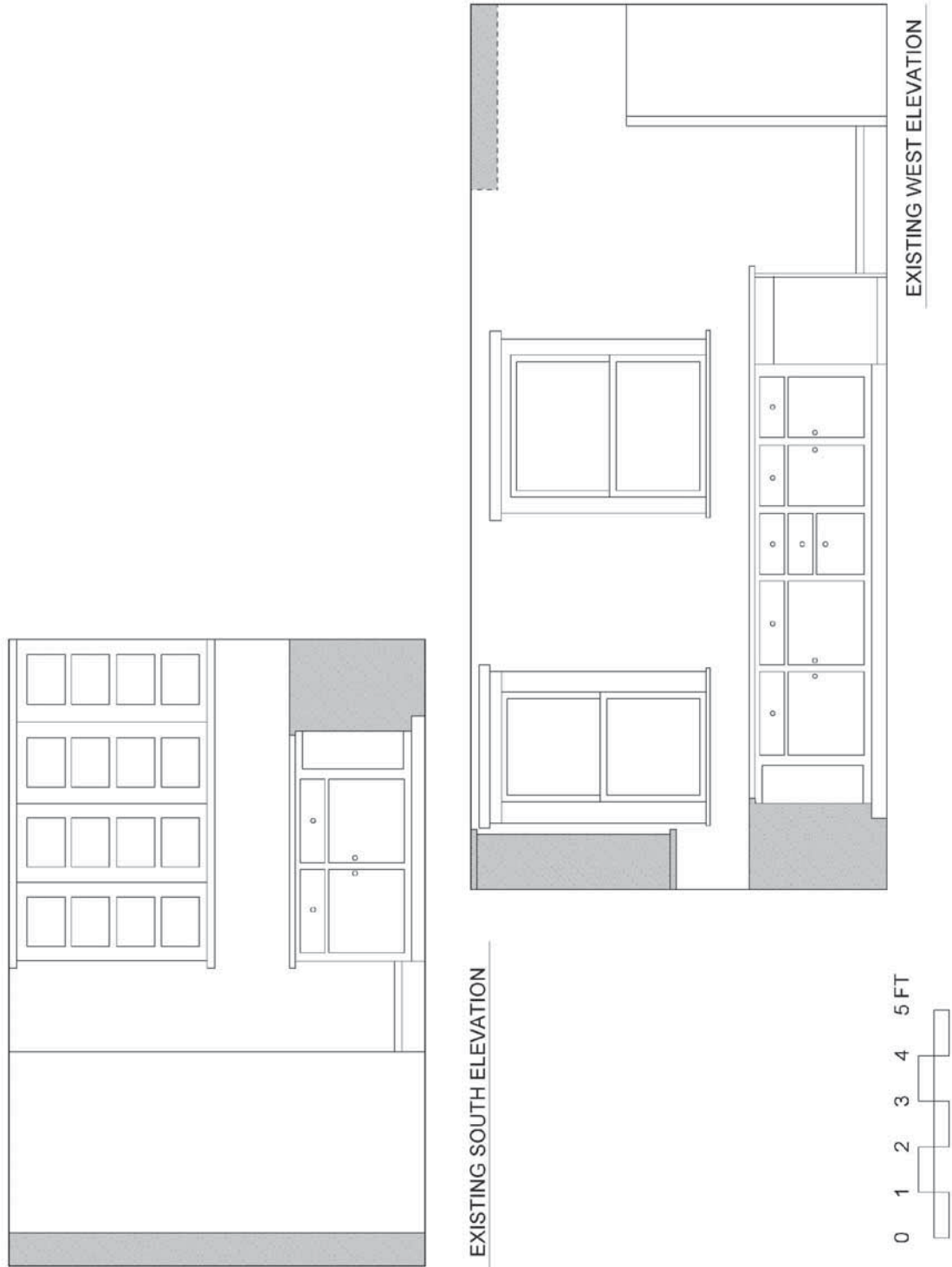


Illustration 5: Proposed Kitchen Floor Plan (Author's drawing)

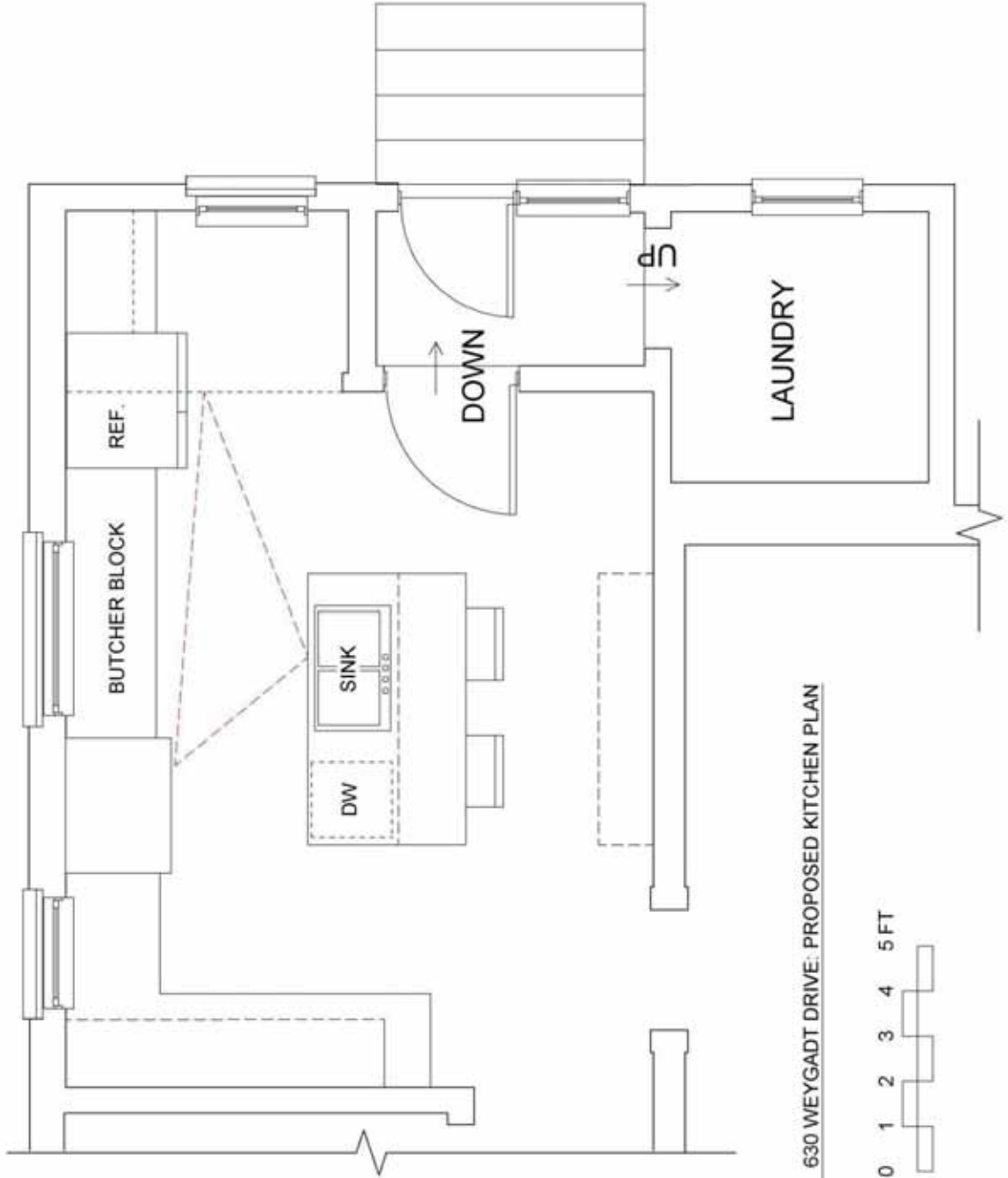


Illustration 6: Proposed Kitchen Elevations- North and East Walls (Author's drawing)

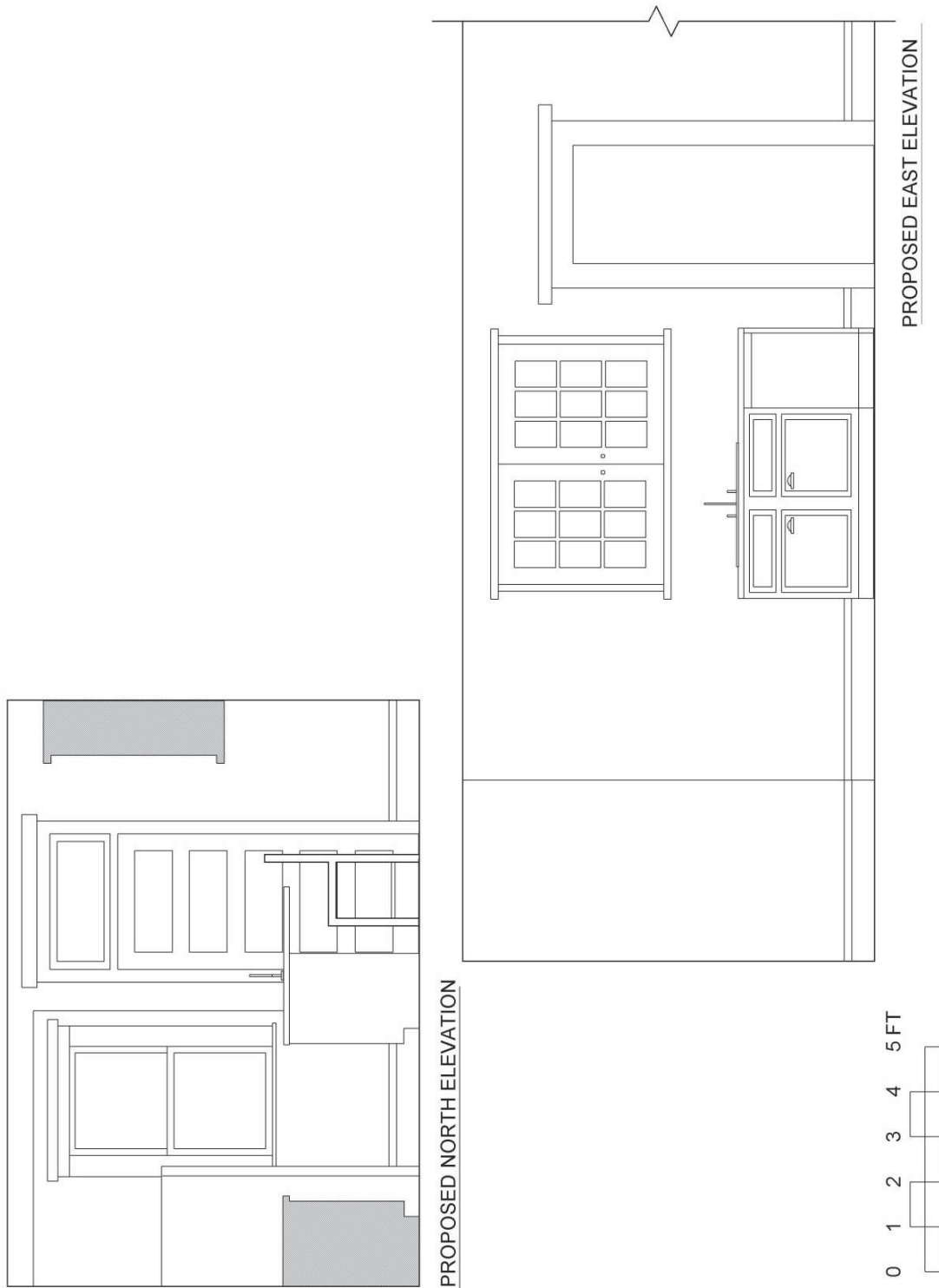
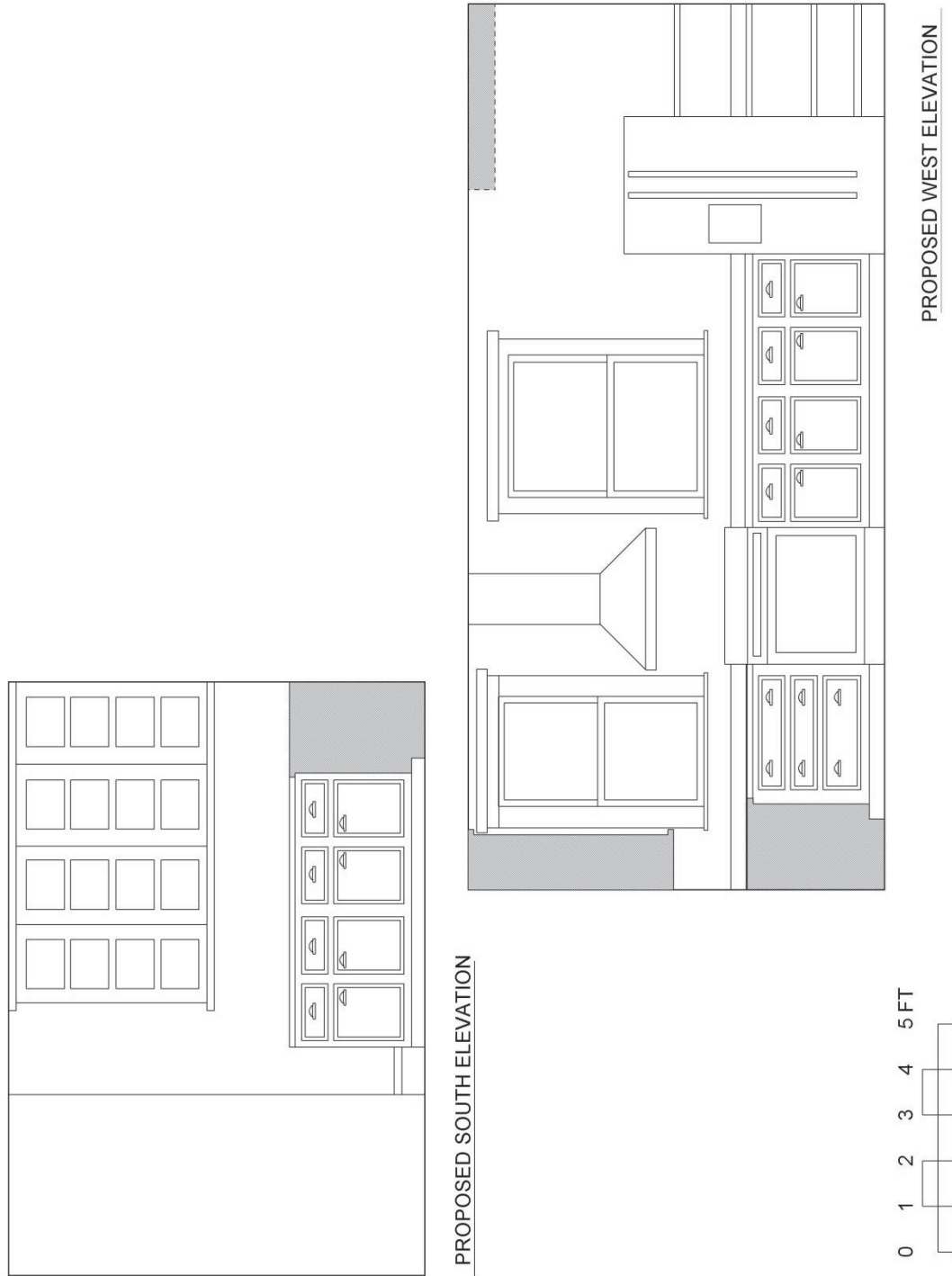


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