

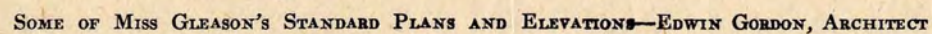
RVF2 Biography - Gleason, Kate

How a Woman Builds Houses to Sell at a Profit for \$4,000

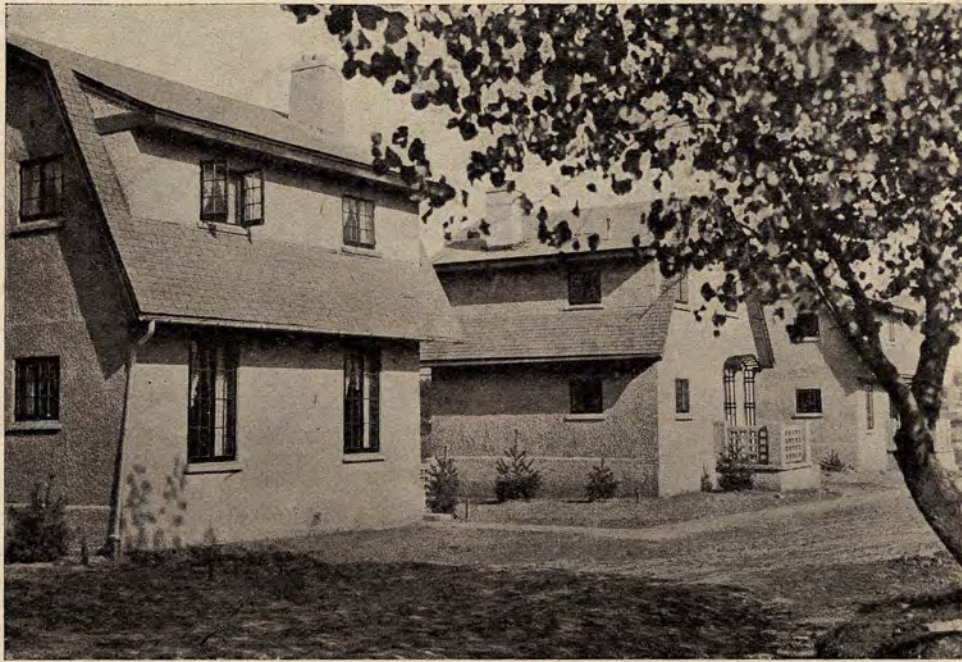
*The Story of Miss Kate Gleason's Housing Enterprise at
East Rochester, N. Y., Where a Hundred Fireproof
Dwellings Are Being "Manufactured"*



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CONCRETE



KATE GLEASON'S CONCRETE HOUSES LOSE NOTHING IN DESIGN BY BEING SMALL

How a Woman Builds Houses to Sell at a Profit for \$4,000

The Story of Miss Kate Gleason's Housing Enterprise at East Rochester, N. Y., Where a Hundred Fireproof Dwellings Are Being "Manufactured"—As Told

BY KATE GLEASON

ENGINEER

With an Introduction

BY THE EDITOR

Mr. Builder, you will not hasten over these pages just because this job of housebuilding at East Rochester, N. Y., is being done by a woman, or because most of the story is told by herself. She is building a hundred monolithic concrete houses. Fifty-seven of them have been started, twenty-nine of them are finished, fifty-seven are sold, none rented, and all of the material bought for the entire number. The pictures will stop you—the whole scheme will interest you.

Miss Gleason is wealthy, extremely energetic and uncommonly capable. She has attacked the housebuilding problem, seeing the main ideas very clearly. She was unbewildered by man-made precedents in building houses. She thought of houses as places for average-size human beings to live in, along with a certain moderate weight of worldly possessions, and not as many building customs and regulations would make us think of houses in terms appropriate for warehouses. She saw the tide going to three and four-room apartments at high rents. She regarded that as a tide that might better be turned in a different direction. She is not a philanthropist—doesn't like the word. She is building houses to

make a profit. She believes housebuilding, to be done economically and well, must be done as a business, to make money. But she had the idea she could find a way to give people more for their money in living comfort than they have been getting.

Miss Kate Gleason is the only woman graduate in mechanical engineering from Cornell University, and is very well up in her profession. She took it up because her father, an eminent mechanical engineer, had built up to large proportions the Gleason works—one of Rochester's very big enterprises, producing automatic machines. She was active in the work of that enterprise for several years. Later she relinquished to others active work in that institution, and turned recently to housebuilding, choosing concrete because she found good supplies of raw materials for it close at hand.

The development is on a side hill, each of the circling streets a stage higher up. Upon one side the houses are two stories above ground, upon another side three stories, giving grade entrance to a basement garage in each dwelling.

"Apartments with gardens," Miss Gleason calls them.

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A KATE GLEASON HOUSE
LIVING ROOM



As one thinks of houses, they are very small. Compared with the apartments which they are built to displace in public favor, they are spacious, cozy, complete, homey. They are detached, except for a few semi-detached dwellings on the first street. All the other row-type houses shown on the plan are cancelled and single dwellings only will complete the project.

Several standard plans are being used over and over again, here the plan reversed, there the house given a quarter turn either way toward the street and the entrance changed.

The plan is 20 x 20—height 7 ft. 6 in. floor to floor, so the stair has a short run and space is economized.

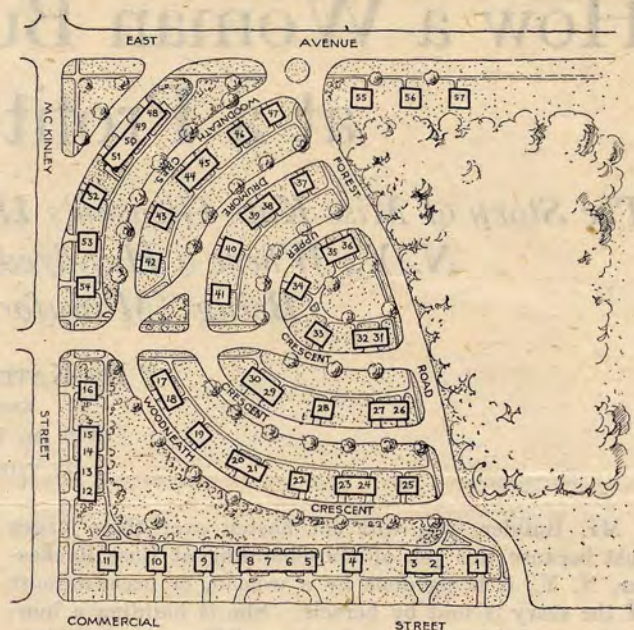
Walls and floors are of reinforced concrete—basement walls 8 in. thick, first story 6 in., second story 4 in., gable ends stuccoed on Hy-rib over wood studs and back plastered; floors 3½ in. thick, reinforced with No. 24 Hy-rib and rods, designed for a live load of 35 lbs. per sq. ft.; smoothly finished, stained and waxed to a rich luster. Exterior walls are furred, covered with Niagara wall board and given a thin coat of plaster, which is attractively tinted.

The trim is of simple line and narrow, not merely for economy of material, but to be in effective proportion with the general dimensions of the house. In fact, every feature has been thoughtfully worked out with that idea—upon a new dimensional scale—the fireplace, the stair, the kitchen with all its appurtenances.

A model house is furnished complete (one of the sleeping rooms has a double-decked bed, like the college dormitory), and to this model house prospective buyers go for inspiration in housekeeping on a scale to fit.

A house with lot is sold for \$4,000 on very easy terms—a small down payment and \$40 a month. Miss Gleason says this assures a satisfactory profit. The first buyers moved out of a 4-room apartment, for which they paid \$65.00 a month rent, into one of these attractive detached dwellings, where half of their \$40 a

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GENERAL PLAN OF MISS GLEASON'S HUNDRED HOUSE DEVELOPMENT

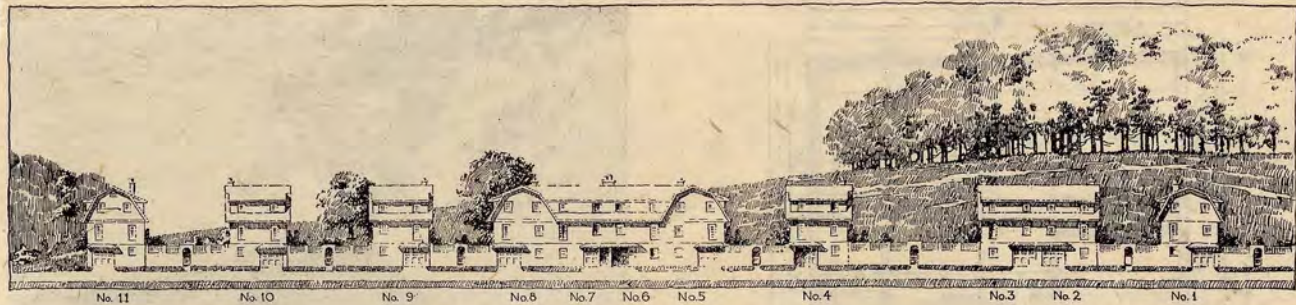
month payment was a capital investment in a permanent fireproof home, built for beauty, comfort, and good taste.

The houses are being built a story at a pouring, with wood forms made up in panels of 7/8 in. matched lumber, on 2 x 4's, about 3 ft. 6 in. by 10 ft.—of such a size that four panels make one side wall, requiring 32 panels to a story height. Four by four liners and bolts through the wall, with spacers, keep them in place. The bolt holes provide a hold for scaffold brackets.

Gravel concrete, 1:4 mix, is used from a Jaeger mixer, discharging into the skip of a special angle-iron framed, telescoping tower which Miss Gleason designed to meet a need for light-weight, easily and quickly moved, plac-

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TYPICAL PERSPECTIVE AND PLANS

AT TOP OF PAGE IS A REAR VIEW ELEVATION ON COMMERCIAL STREET—SEE GENERAL PLAN ON PREVIOUS PAGE

THE ILLUSTRATION FROM PHOTOGRAPH SHOWS FORMS, MIXER AND PLACING EQUIPMENT

ing equipment. The tower is mounted on wide tired wheels, and the skip discharges to hopper and chute.

Now let Miss Gleason tell some of the details. It is only fair to her, to say she wrote them into a letter to serve only as notes to supplement the writer's observations on the work at East Rochester. But they have a distinctly fresh and interesting viewpoint on important practical details that will serve the reader best just as they are.

Be sure to understand that Miss Gleason is not building these houses merely in a paper way—with a check book. She is on the job more than any man on the payroll; she knows every workman by his first name, and uses it, and every detail of every part of the work, and personally looks after it.

BY MISS GLEASON

These are merely notes on what seems to me most important in building five and six-room houses.

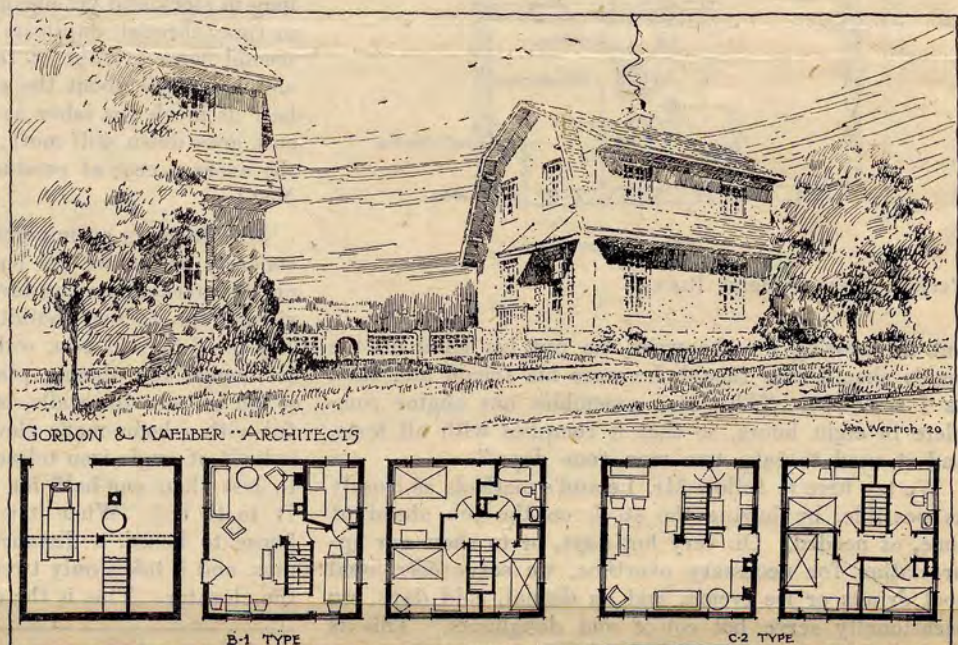
First I would rank—Method.

Second—Design.

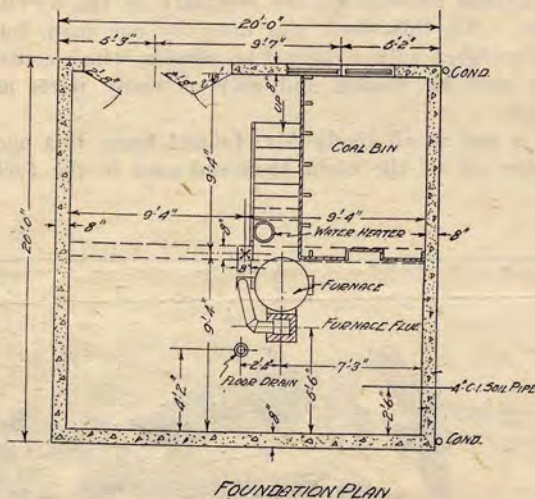
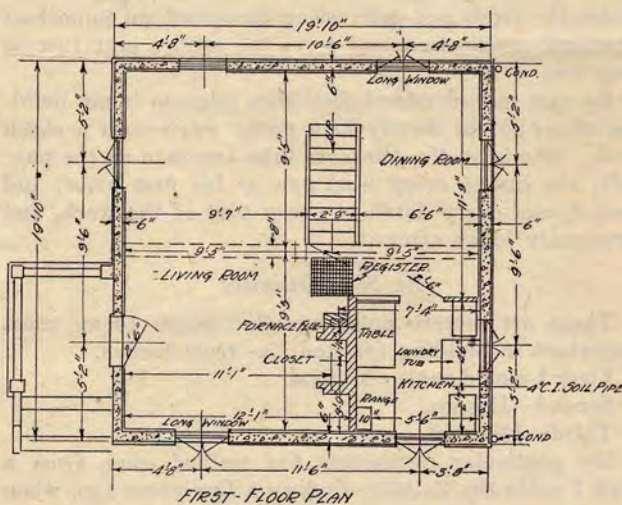
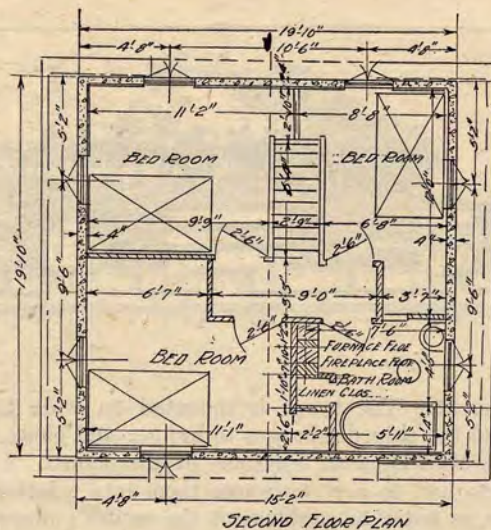
Third—Material.

My particular inspiration for method came from a visit I made the Cadillac factory a few years ago, when Mr. Leland showed me the assembly of the 8-cylinder engine. All this work was done by one man, but he was furnished with a cabinet on wheels, which contained every part he needed and only as many parts as he needed.

It is not at all likely Mr. Leland knew this one assembler out of the eight thousand men in the factory,



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TYPICAL GLEASON HOUSE PLANS

but in showing me the work, he put his hand on the man's shoulder as though he were his friend and said, as I remember, "This man assembles our engine complete in eight hours, so that it complies with all tests, and it used to take two men four days."

We try here to follow Mr. Leland's methods as closely as possible, by having the stock on the job ahead of time, as needed. On very hot days, or to show our appreciation for necessary overtime, we serve occasional cool drinks or ice cream, and on dismal, cold days, we occasionally serve hot coffee and doughnuts. This is done without any idea of being benevolent.



A COMPLETE HOUSE, DESIGNED TO TURN THE TIDE AWAY FROM CLIFF DWELLING IN APARTMENTS

Any manufacturing job which requires assembly, such as automobile work, shoe shops, machine tool factories, ought to furnish foremen qualified to manufacture houses. Such men would plan to keep the organization steadily employed—inside work for the outside workers in bad weather. Good gang bosses are essential and for the concrete work, my experience favors Italians from North Italy.

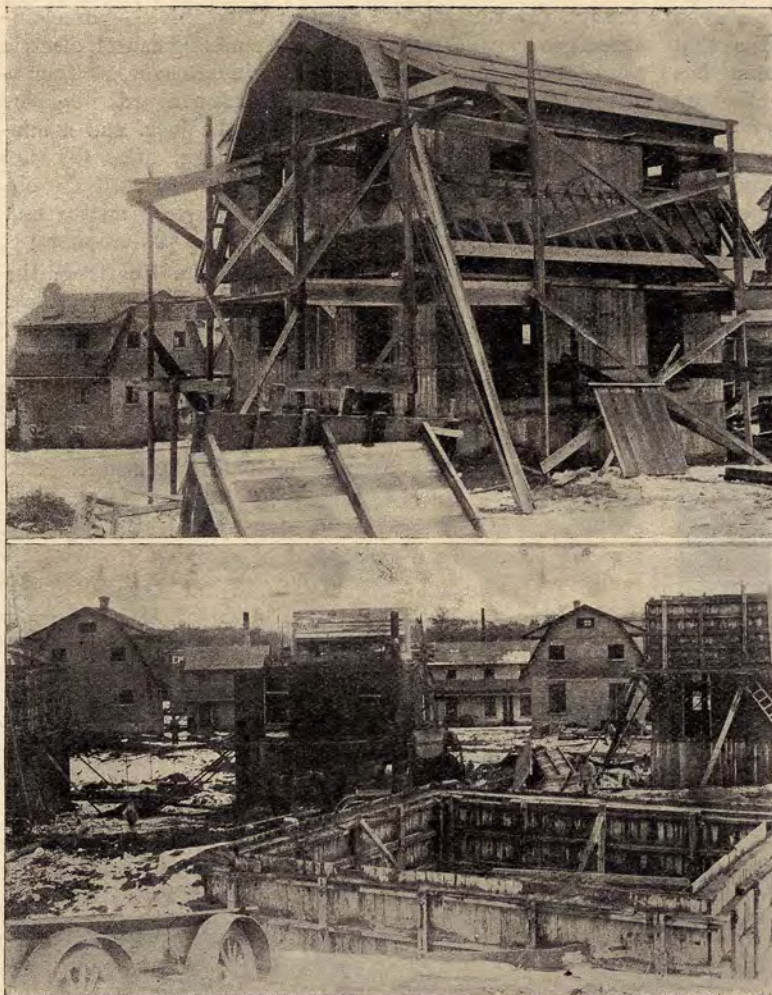
After the first house is up and meets with public approval, there is a great reduction in time and economy in the use of materials, due to the pride the men take in the job. We have made a success of contracts with the men on some of the operations. If the weather interferes with the men on some of the operations, with form setting, for instance, those men can do indoor work by the hour until it is possible to get outdoors again.

Good buying in quantity is very important, and the ideal number of houses for each job is about twenty-five. The reason for that is that it does not tie up money too long in stock and yet one gets the benefit of improvement in time, through duplicate work. The labor cost on the second house is 75% of the first. The reduction is less and less until about the eighth house, which costs only half as much for labor as the first one. After that the cost goes down still more, so that on twenty-five houses the average cost of production should be about 45% of No. 1.

Machinery is an important detail in method. For the concrete houses we are building, I found the machinery on the market was considerably too heavy, evidently designed for factory buildings and other massive work. For the 6-in. and 4-in. walls we use, it took much longer to change the placing plant from house to house than it did to pour the walls, but we have been very successful with a home-made elevator.¹ (See illustration.) It is built of angle iron telescoped so that it can be lowered to less than one-half its full height (extends from 19 ft. to 46 ft.). When it is lowered we can move it from house to house, a distance of 50 feet, in twenty minutes, and it takes only twenty minutes to raise and lower the elevator. This is the only patent we have taken out.

¹East Rochester Brass & Machine Co., East Rochester, N. Y.

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GLEASON HOUSES UNDER CONSTRUCTION

every sash contract. As we furnish the stain, the manufacturers are very glad to apply it free of charge, and it is only then necessary for us to put on a coat of spar varnish over the putty, after the windows are in place.

For the fireplace we put an ordinary stovepipe damper in the tile of the chimney instead of the damper usually placed in the throat of the chimney.

To make a hard, dustless, finish for the concrete floors, we swab them with wax mixed with gasoline. It is a form of wax that costs nine or ten cents a pound at the present time.

For stucco, the ideal way when the surface is large enough is to use a Hodges stucco machine, but for broken surfaces, like our small Dutch Colonial houses, the necessary moving takes up so much time that we had to go back to hand finish.

We have been able, though, to get away from the old-fashioned whisk broom or bundle of twigs, and use in its place one of the good-sized milk bottle washers with wire supports—sold in the ten-cent store.

Another kink I am sure is far from the original is to patronize the 5 and 10c store, for hardware and electrical fittings.

We found it hard to make the plaster stick to the wire mesh used on the roof overhang, so we now leave loose a few roof boards and let one of the laborers pour in a few pails of concrete on top of the mesh so that it comes through to form a bond for the plaster.

We find a good way to take care of the cement for each wall pouring is to send it up from storage in a 1-ton Hy-speed trailer.² We use it directly from the trailer to the mixer. Then it is always one and a half feet above the ground, so it is easy to protect against rain any that may be unused at night or when a storm comes up.

On design, which seems to me the next important element; we allow for an air space by nailing a thin studding to the concrete walls while they are yet soft, as soon as they are stripped. Later on when the house is ready to finish, we nail plasterboard to this studding and give a skim coat of plaster over all.

²Northway Trailercar Co., Rochester.

Our experience is that we save a great deal of time by pouring a story at a time, rather than three at once. To pour the foundation we do not have to elevate the material at all, simply dump it in from the mixer. It is easy for us to see that if we lifted the material for the first story wall high enough to pour it down through the third and second walls that we would have about 30 ft. of lost motion on every bucketful, taking the material into the air and letting it fall to the bottom. When we pour a floor, we pour the stairs and chimney at the same time. We try to make the forms light enough to handle without machinery. We find that sections about 10 ft. wide and 4 ft. high will weigh in the neighborhood of 150 lbs., and the four men who make up the form gang can handle this weight.

One of the many wastes in the building job is the loss of small parts, and we try as much as we can to collect all bolts and wedges in a locked box every time we strip a form. There are so many wastes that we have not yet begun to correct, that we do not wish to give the impression that we consider ourselves ready for admiration on our thrift. You can see from a photograph that we are as far behind as the rest of the United States on scaffolds, but we expect soon to have this corrected. We are cutting down somewhat the waste of nails and other materials by attempting to furnish for each house only what is needed.

There are a few kinks that we try that are perhaps well known, but on the chance they may be new to someone, I mention them here:

We have the sash manufacturers give the windows a creosote stain of the color which we wish them to have, rather than the ordinary oil treatment that is put on with



LATTICES AND ENTRANCES ARE VARIED

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We have been very fortunate on our job in a good landscape engineer, Frederick Trautmann, and a first rate architect, Edwin Gordon. Mr. Trautmann has saved us a great deal of money in grading, by climbing our hill with a three-story back and a two-story front. One of Mr. Gordon's many strong points is the use of economical trim to give an expensive effect. The trim is 2 in. wide and it makes a better effect, for the size of the house than wide trim, and costs a whole lot less money.

They tell me that the main attraction which sells our houses is the kitchen. It is copied from the best prac-



REAR VIEW, SHOWING BASEMENT GARAGE ENTRANCE

tice we could find in large apartment houses, and it is way smaller than is found in the average single house. In order that there would be no question that it is large

enough for the job, we furnish it complete—porcelain-lined gas range, kitchen sink, with mixing faucet, electric ventilator, laundry tray with aluminum cover, refrigerator, kitchen cabinet, cook book, ironing board, plug for electric iron, three rubber mats for the floor, and a mirror (and previously in this connection, Miss Gleason included a powder puff in the equipment, with the observation that "every kitchen should have a mirror and a powder puff." Miss Gleason is also a philosopher.)

The fireplace is ornamented with the tile from the Pewabic potteries, and has a facing of tapestry brick. It has a clean-out for the ashes, as well as the damper. Next the fireplace is a built-in bookcase and a brass-trimmed woodbox on wheels. With each house go window shades, stair rods, screens and laundry basket. The basement has a garage in one side and laundry equipment on the other, with a pipeless heater in the center.

The ceilings are low, 7 ft. 6 in., floor to floor. This enables us to get away with stairs of eleven steps, so that we economize a great deal of room.

We feel especial appreciation of the Cement Association and the Atlas Portland Cement Co. for good shipments in this year of scarcity. Much valuable information has been furnished us. If the lumber dealers and brick manufacturers were as up-to-date in giving information as the cement manufacturers, there would probably be more improvements in the use of those materials. One of the prizes on this job is my secretary, Mrs. Mabelle Keller. She is also purchasing agent and stockkeeper, and paymaster, with a pleasant smile, no matter how many times a day the plumber calls for a different kind of fitting. She wouldn't write this, so I do it for her.

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