

The Canadian Builder and Carpenter

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C. A. Bradshaw
183 Devonport Rd.
TORONTO, ONT.
v. 4, # 12

These residences are in Montreal, West. The plans of the one in the foreground will appear in the January issue.



IN PROSPECT

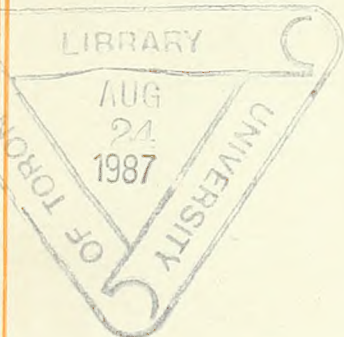
The Editors of *The Canadian Builder and Carpenter* are working on a number of valuable articles to appear in early issues of the paper.

These include such subjects as modern layouts and necessary equipment of each floor of the house including basement and attic; built-in furniture, house trim, doors, etc. Here are a few of the articles in this issue:

- Brick Veneer Dwelling Suited for Small Towns.
- Distinctive Houses in One of Montreal's Suburbs.
- Gambrel-Roofed, Cottage-Type House, with Costs.
- Bungalo Dwelling at Bowness, Calgary, Alberta.

- Specifications of Piping Systems for City Gas.
- Suggestions on What to Do During the Dull Winter Months.
- How Hardwood Floors Should Be Laid and Finished.

Plans of model brick house now being erected at the Pan-Pacific Exposition will appear in the January Issue



PAID

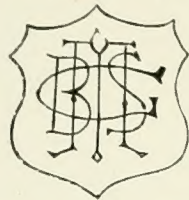
Midland Planing Mill Products

The Leading Stock Lines

9/16 Beech Hardwood Flooring

MIDLAND

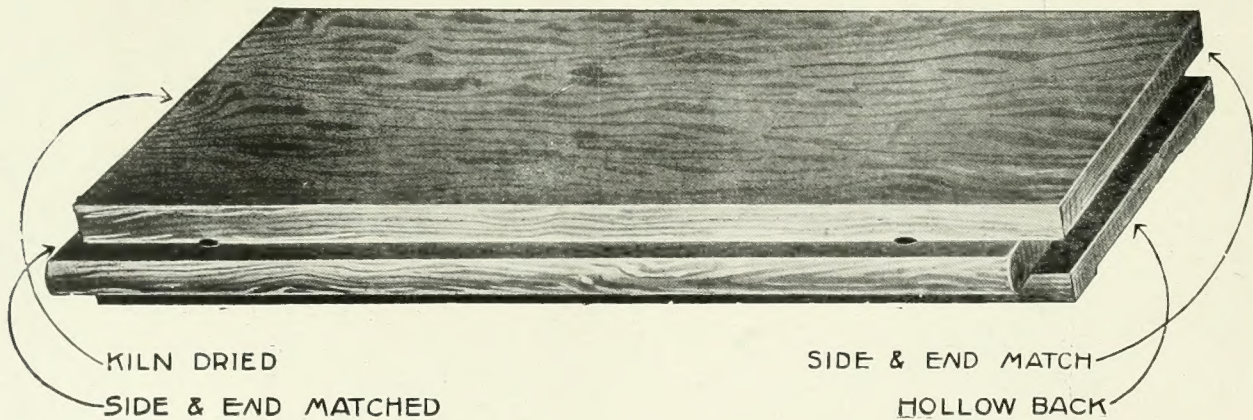
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1. Canadian lumber. From tree to floor strictly Canadian.
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10. The stock is from around Midland where the finest Beech and Maple in North America grow.
11. It is cheap only because it is so little known.
12. A Bargain Buy—especially suited for Apartment Houses and Private Dwellings.



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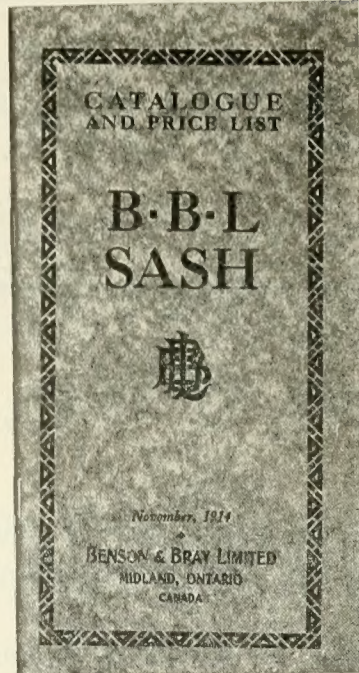
For the man who wants to build his own home, and for the speculative builder who has the proper financial backing, this is the Golden Hour of Opportunity.

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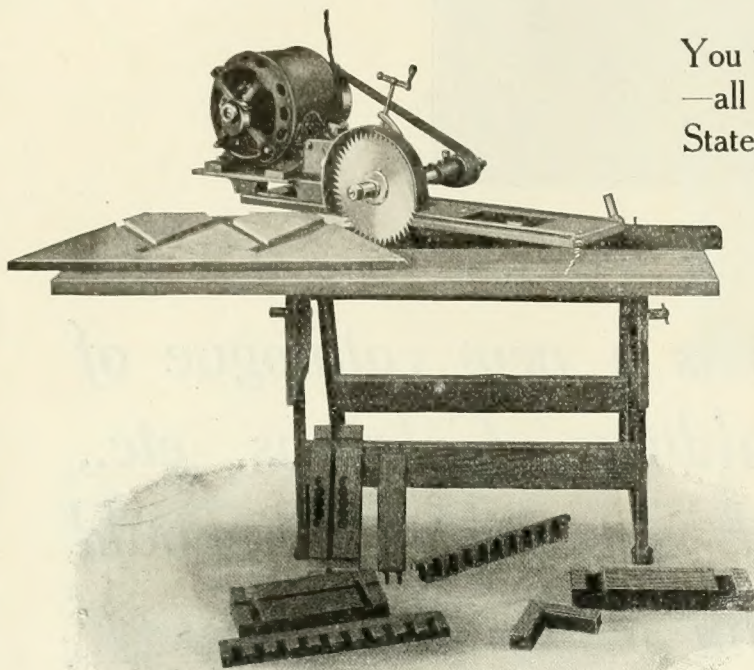
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The simplicity of construction is a feature of the Elliot Woodworker. Notice the absence of counter-shafts, long belts, etc., which use up power and get out of order. A boy can run this machine without danger as it is foolproof.

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Let us send you our special prices and easy terms. Address

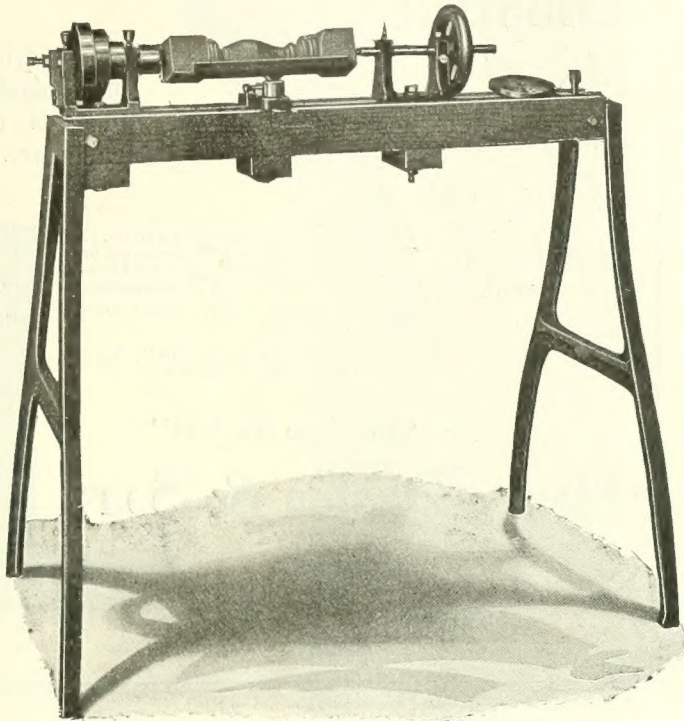
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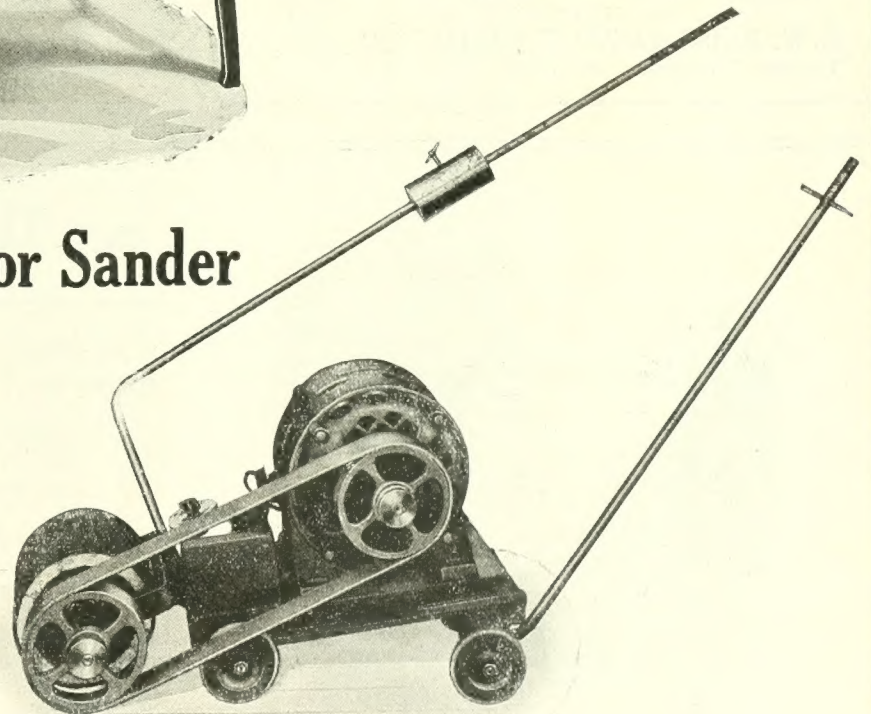
It is made specially to run from the Elliot Woodworker Motor or we will fit it with individual motor. For making 4" table legs, balusters and all small turning this lathe cannot be beaten. The equipment includes face plate, screw chuck, hollow chuck, 12" and 24" rest and 2 sockets.

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That is precisely what you do when you use J-M Asbestocel Pipe Covering for his steam, hot water and heating pipes. You save him one-fourth of his coal bills every year, and in four years you will have saved him enough to pay for one entire year's supply.

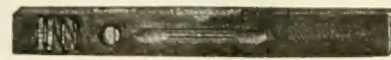
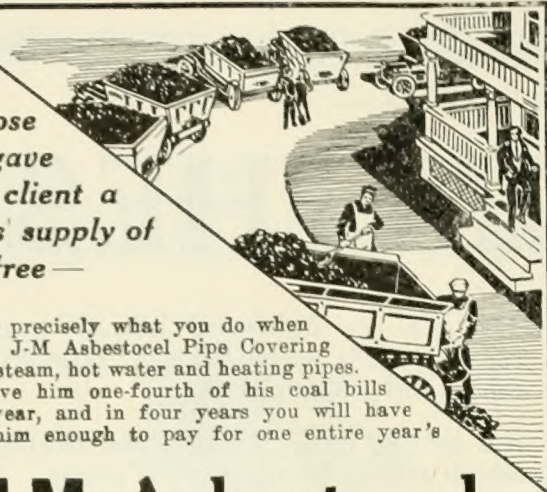
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because of its CIRCUMFERENTIAL instead of longitudinal construction, confines MORE MOTIONLESS AIR than any other low or medium pressure pipe covering.

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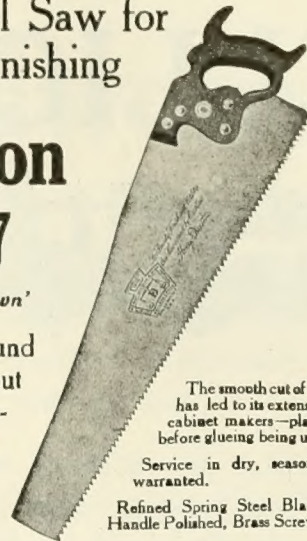


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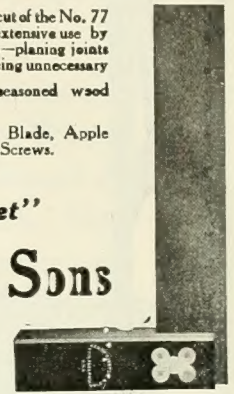
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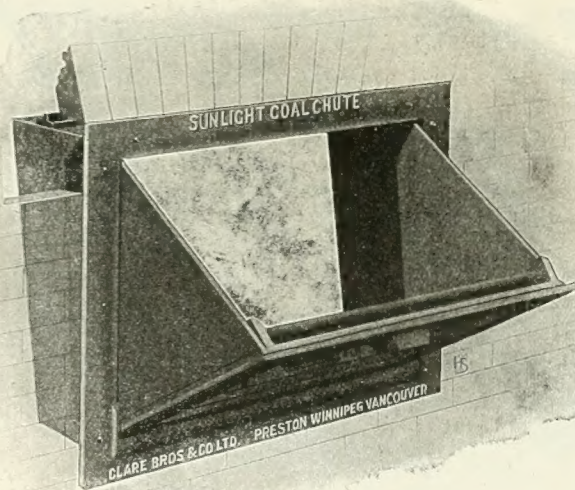
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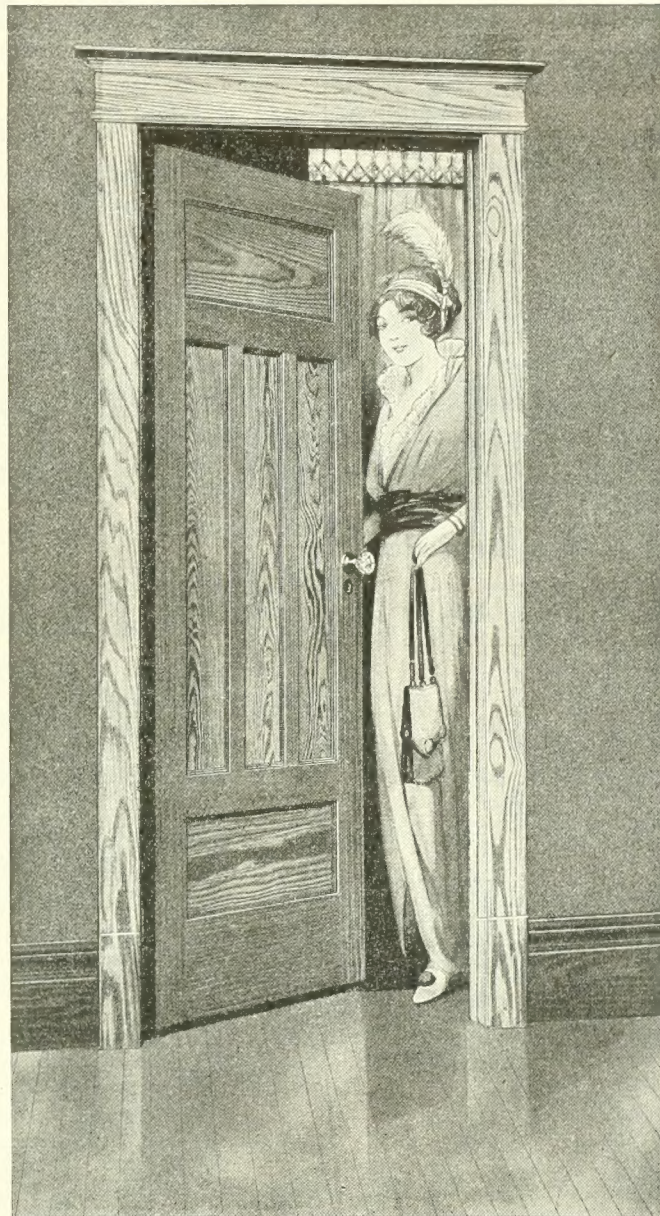
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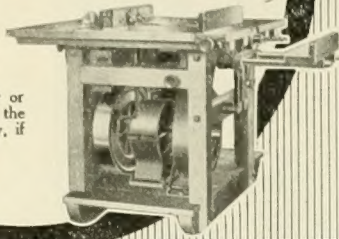
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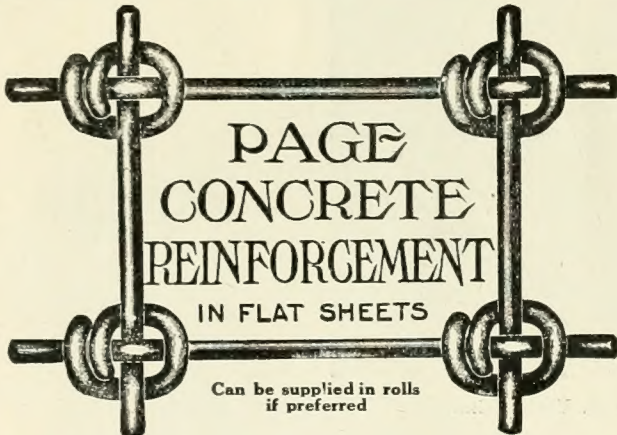
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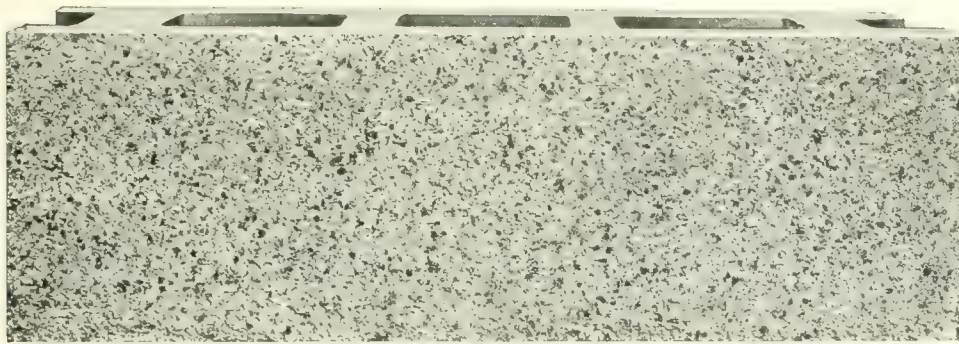
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The Canadian Builder and Carpenter
32 Colborne St. Toronto

MOLDS FOR CASTING

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With Granite Faces



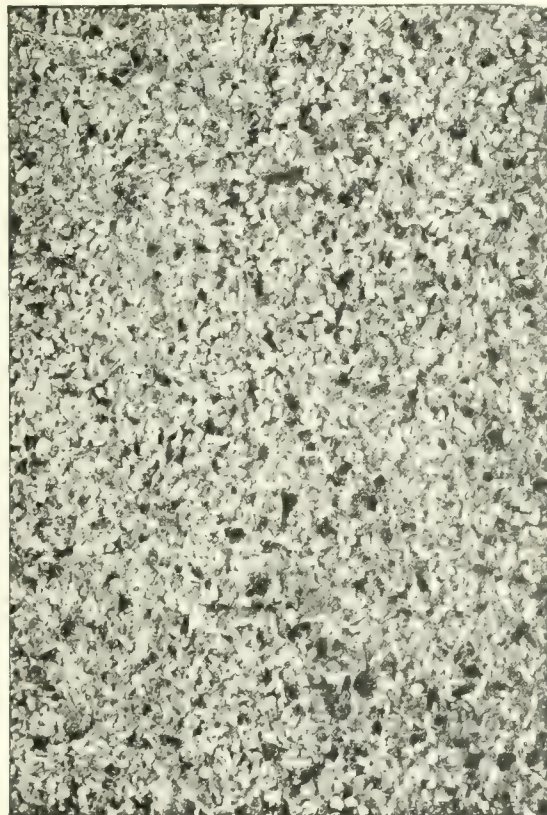
8 x 8 x 24 inch Granite Smooth Faced Block

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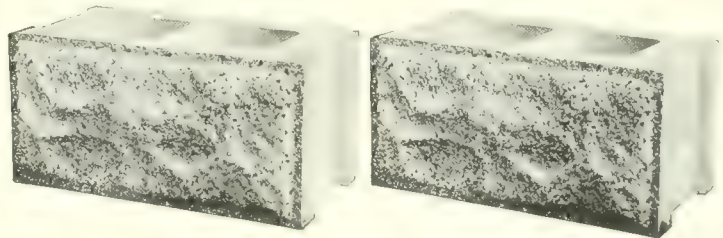
By a new process, which protects the facing, while the block is being cast, we eliminate all traces of cement from the face of block, and nothing but the GENUINE GRANITE SHOWS IN ALL ITS SPARKLING BEAUTY.



Enlarged View of Granite Smooth Facing

These cuts show blocks just as they came from the molds; they are not treated with acid or scrubbed with brush, or sprayed.

We challenge the whole world to show us a cement block made by any other system, at any cost, that equals these blocks for beauty, strength, quality or imperviousness to heat, cold, or moisture.



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Send for catalog fully describing our system and showing our multiple molds mounted on trucks, for casting hollow cement building blocks.

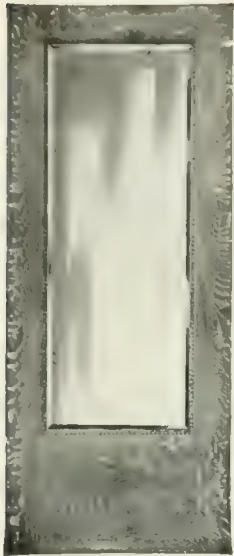
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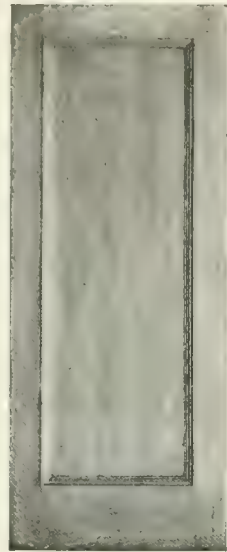
B.L. No. 306, 1/2-Cut Oak



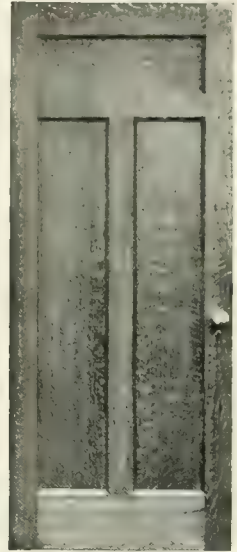
B.L. No. 312, 1/2-Cut Oak



B.L. No. 314, 1/2-Cut Oak



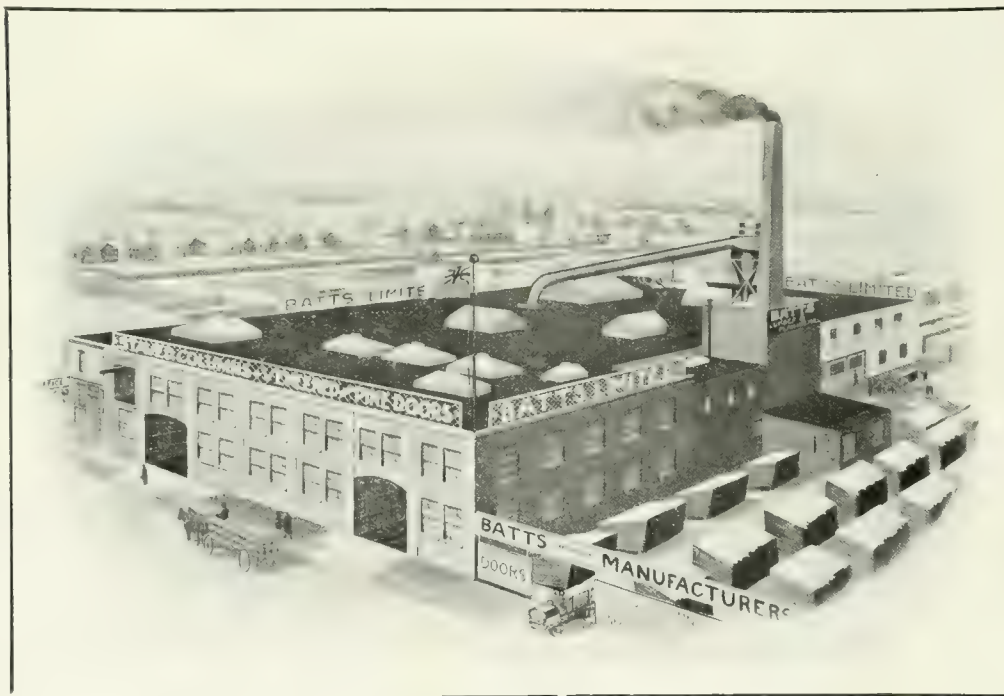
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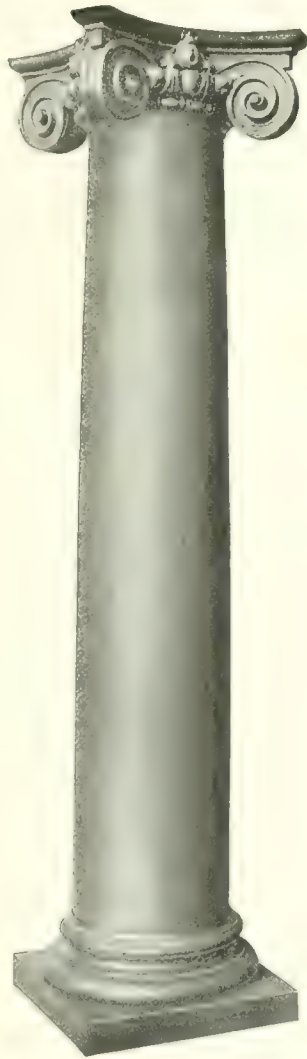
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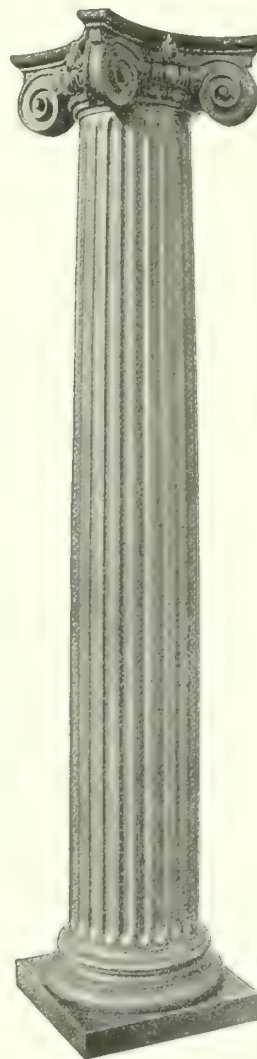
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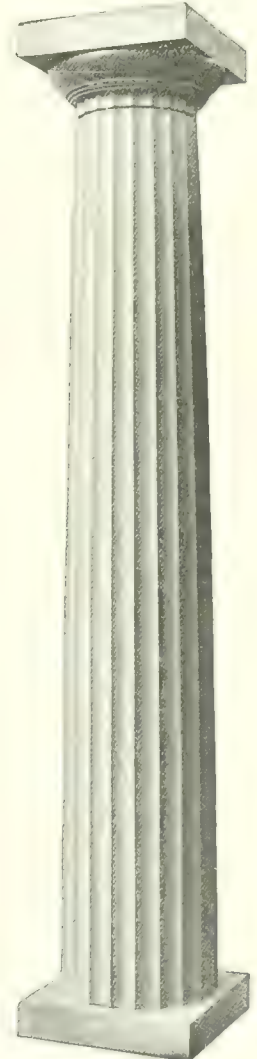
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8 ft. Price	3.10	4.20	6.75
9 ft. Price	3.50	4.75	7.50
10 ft. Price	3.75	5.00	8.00

Length	Diameter				
	5 in.	6 in.	8 in.	10 in.	12 in.
4 ft. Price	\$2.60	\$2.80	\$3.70	\$4.75	\$8.00
5 ft. Price	2.85	3.10	3.85	5.00	8.50
6 ft. Price	3.10	3.30	3.95	5.15	8.75
8 ft. Price	..	..	4.55	5.95	9.75
9 ft. Price	..	..	4.95	6.50	10.50
10 ft. Price	..	..	5.20	6.75	11.00

Length	Diameter				
	5 in.	6 in.	8 in.	10 in.	12 in.
4 ft. Price	\$3.10	\$3.35	\$4.20	\$6.10	\$9.00
5 ft. Price	3.40	3.70	4.40	6.00	9.55
6 ft. Price	3.70	3.95	4.55	7.20	9.85
8 ft. Price	5.30	9.10	10.95
9 ft. Price	5.75	9.65	11.75
10 ft. Price	6.10	10.00	12.30

Length	Diameter		
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9 ft. Price	9.25	10.75	12.90
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West
Toronto

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A Paper Which Gives Its Readers Service

The Canadian Builder and Carpenter is constantly in receipt of letters from satisfied readers. The following expressions of opinion were entirely voluntary and were merely the first ones on the top of a pile of several hundred similar letters. It will be noted they are from all parts of the Dominion and not confined to any city or town.

Each issue, in future, will contain a page of these letters as evidence that this paper is being read and is giving subscribers the class of material of most use to them.

I look forward for every edition and find it very useful and well worth the subscription price.—F. Biddle, St. Thomas.

Your paper, The Canadian Builder and Carpenter, is all right.—W. C. Barnes, Moncton, N.B.

Your paper is good. Has improved wonderfully during the last eighteen months. I am enclosing \$1 in payment of my subscription from Sept., 1913, to Sept., 1914. I shall do all I can to secure subscriptions.—C. H. Watson, Pincher Creek, Alta.

I think it is a very good paper, and it contains a good many hints for carpenters.—P. Harding, Rivers, Man.

I like your paper and have found same very useful to me on many matters in the building trade. Am using same for reference.—Jno. H. Booth, Winnipeg Beach, Man.

It was through neglect that I have not sent my renewal subscription before as I would not like to be without it.—A. Mapes, Walkerville, Ont.

I have derived a considerable amount of pleasure and profit from my Canadian Builder, but would like to see more labor-saving devices illustrated and described: also more articles on the uses of concrete, both plain and reinforced, as floors, beams, and roofs.—E. G. Jackson, Saskatoon, Sask.

I like the paper exceedingly and think it a great help to anyone in the building trade. There is not much in the paper that you can criticize, for everything published is good and useful. Anyone with any common sense can follow instructions given and ought to make a success of anything they try to do if they follow details you publish.—C. Benson, Hamilton, Ont.

I like your paper very much. It contains very sensible reading matter and also very practical in its notes. I clean forgot my subscription, as you remark, so am enclosing cheque right now. Will try and send you some photos of the "Lewis Bldg." here, which is a splendid example of true Gothic architecture, ten storeys high, and on which I was building inspector.—E. B. Palmer, Montreal, Que.

I like the paper all right. It is interesting and instructive.—Wm. Wilson, Winnipeg, Man.

I consider The Canadian Builder and Carpenter splendid value and enjoy each number very much.—Jno. W. Carl, St. Catharines, Ont.

I find it very handy and want to keep in touch with it.—Wm. McCall, Winnipeg, Man.

I feel sorry I have not forwarded my subscription before now, so you will find enclosed \$1.00 bill for same. I like all the articles published, for I am interested in general subjects on building construction. I may say your paper has much improved during the last twelve months, and I am always looking forward to it.—G. Edwards, Nutana, Sask.

I consider your paper a most valuable source of information; hope you'll stick to the simple, plain and practical, and not rake it for granted that everybody knows algebra and the like, as so many papers do.—W. Jameson, Winnipeg, Man.

We are well pleased with the paper and wish it every success. All Canadian carpenters and builders should subscribe to it and deal with its Canadian advertisers when possible. I would like to see a section in it on woodworking machines, so that subscribers could send articles on how they get the best out of their machines, and other little kinks in connection with machinery.—F. C. Nicholson, St. Catharines, Ont.

I am very much pleased with your paper and find it a great help to me. Wishing you every success in the future.—Alex. Higgins, South End, Ont.

Each issue is better than the last one, and is well worth the dollar.—B. Hammond, Winnipeg, Man.

Without doubt the Canadian Builder and Carpenter is a success and beneficial to all trades in building construction.—J. M. Stratton, Welland, Ont.

I find your Canadian Builder and Carpenter very good indeed, and have noticed with interest the steady growth of same. I am interested in all subjects relative to the building business.—E. T. Broad, Lethbridge, Alta.

If any subscriber desires a copy of the paper sent to one of his friends in the building trade, write us.

The Canadian Builder & Carpenter

32 Colborne St., Toronto

Hardwood Flooring and Hardwood Interior Finish

“WILSON BROS. LIMITED”
on flooring means a carefully kiln-
dried and well manufactured ar-
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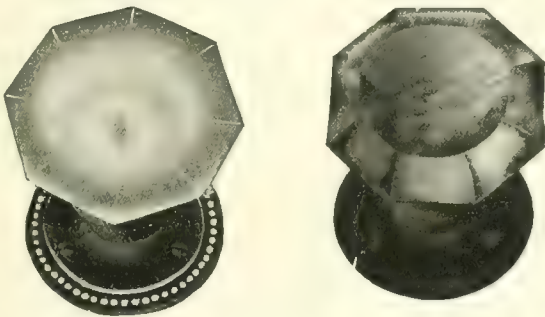
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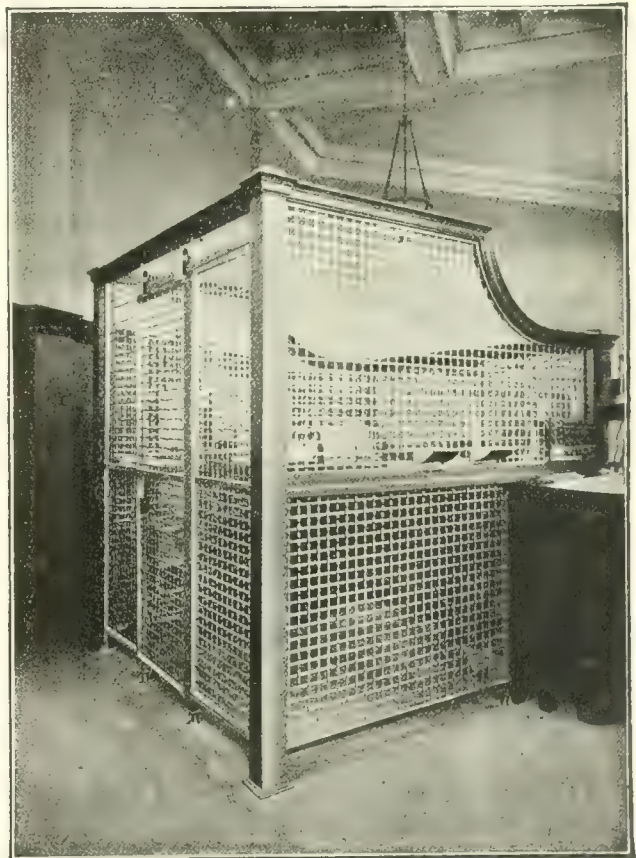
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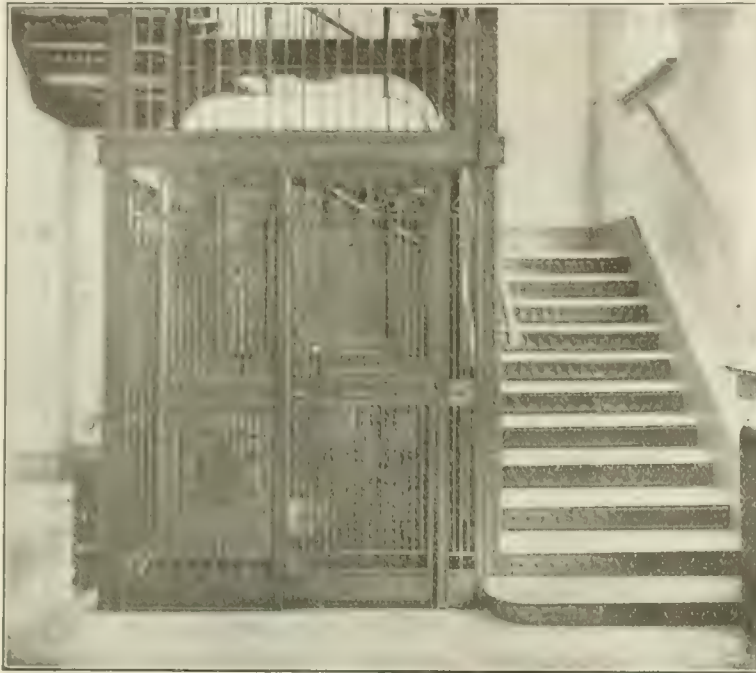
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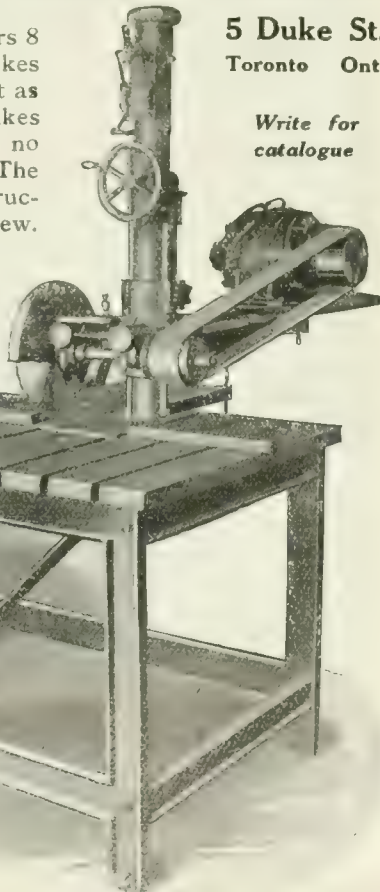
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The Canadian Builder and Carpenter

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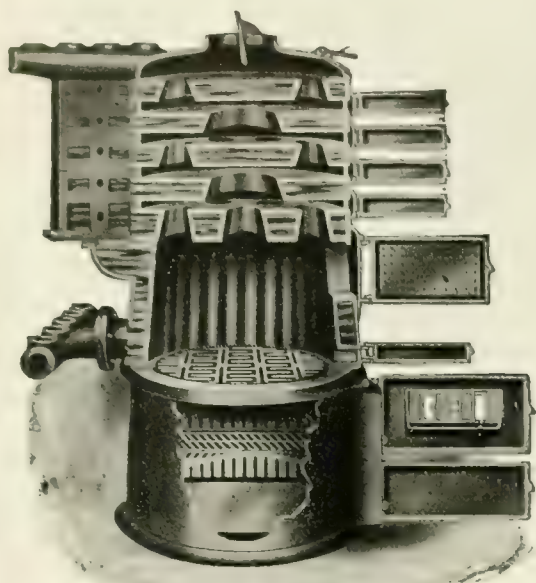
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A Brick Veneer Dwelling Well Suited for Small Towns

The house described in this article is located in St. Catharines, Ont. It is of the brick veneer type and well suited for towns or the suburbs of larger cities. The excellent lay-out, which permits of large rooms, is well worth consideration.

STAFF ARTICLE.

THE one outstanding feature of B. Honsberger's house on Queenston street, St. Catharines, is the size of the rooms. Plans of this house are reproduced on this and succeeding pages.

This house is brick veneer up to the belt course, with shingles, stained, above that. The appearance is excellent, and the type is well suited for the suburban district in which it is located.

Built on Square Plan.

As the plans show, the house is laid out on the square plan and this permits of the use of every available bit of space to the best advantage and without giving a cramped appearance.

On passing through the vestibule one enters into a long main hall. To the right is the den, finished in mission oak, and containing fireplace and built-in book-cases.

On the left is the living room, and sliding doors between give access to the dining room.

A short hall runs in front of the pantry and connects the kitchen and the dining room.

Both the kitchen and pantry are equipped with built-in cupboards and shelves and the sink is located in the pantry.

The First Floor and Attic.

The main stairway leading to the first floor is located in the centre of the large hall. These stairs are in hemlock, with hardwood treads.

A long hall runs through the centre of the first floor, and there are three bedrooms on one side and two on the other. The bathroom is located at the end of the hall and separates the two rear bedrooms.

The Basement.

The cellar is almost the full size of the house and may be reached from the outside at the rear and at the side, and from the kitchen on the inside.

The floor is of concrete. Stationary laundry tubs have been placed at the rear.

Interior Finish.

The interior finish has been well looked after. Everything has been finished in the most up-to-date manner. A clothes chute runs from the attic to the cellar. There is also a dumb waiter running from the basement to the first floor.

Some Construction Details.

The basement and verandah floors are of concrete, formed of 4 in. of gravel, 2 in. of concrete, and 1 in. top dressing of 1 part cement and 2 parts sand. The verandah floor is reinforced with chicken wire of 2 in. mesh. The concrete beams are formed between the piers of the verandah and reinforced with 5½ in. iron bars. The concrete sills and steps are formed in a similar manner.

Metal corners, extending 6 ft. up from the floor, are placed where most required.

Carpentry Work.

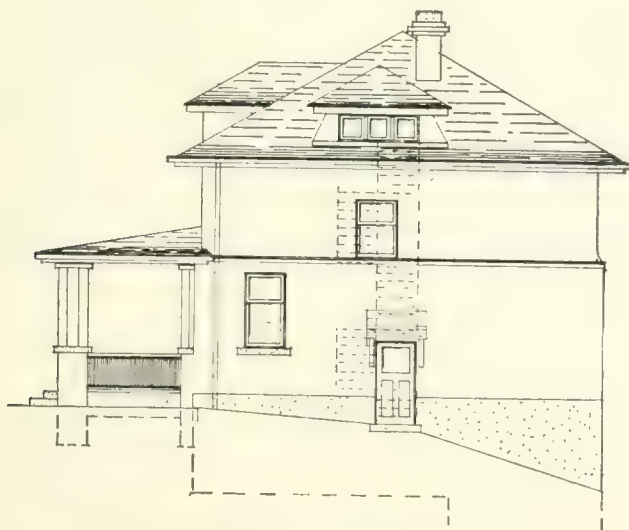
All wood used for framing and sheeting is sized hemlock.

Joists are laid 16 in. centres and bridged with a double row of 2 x 2 in. bridging.

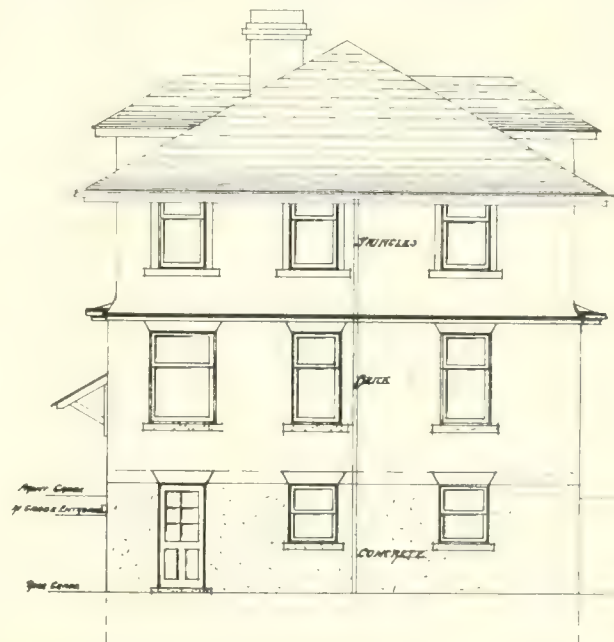
All studding is 2 x 4 in., 16 in. centres.

The main cornice is constructed with dressed rafter ends, ⅞-in. T. & G. beaded sheeting for roof and ⅞-in. frieze and bed mould. The cornice of dormer windows is constructed with extended ceiling joists, ⅞ in. fascia and soffit with bed mould.

The floors on the first floor, and in the kitchen, are ⅞-in. pine; balance on first floor of maple or oak.

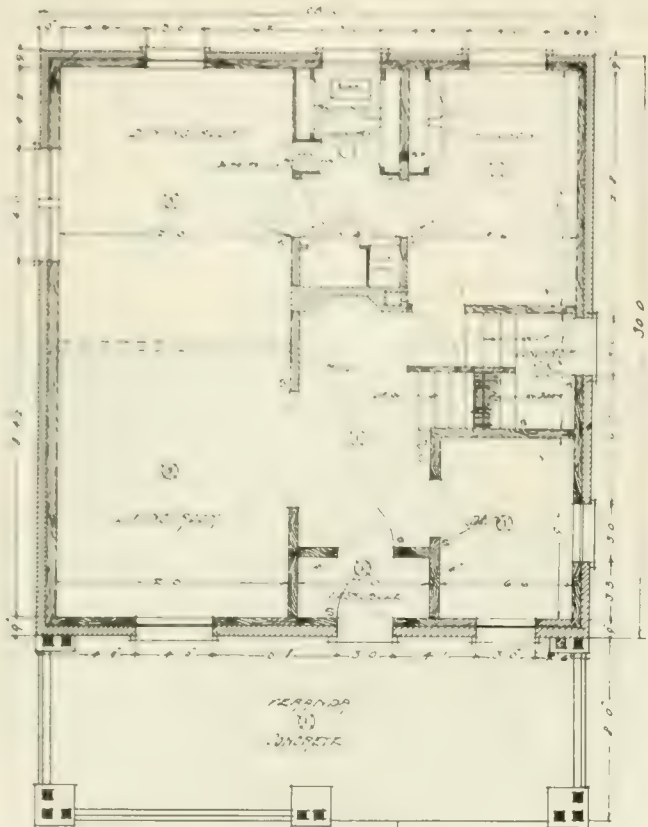


Side elevation of Mr. Honsberger's residence.



Rear elevation.

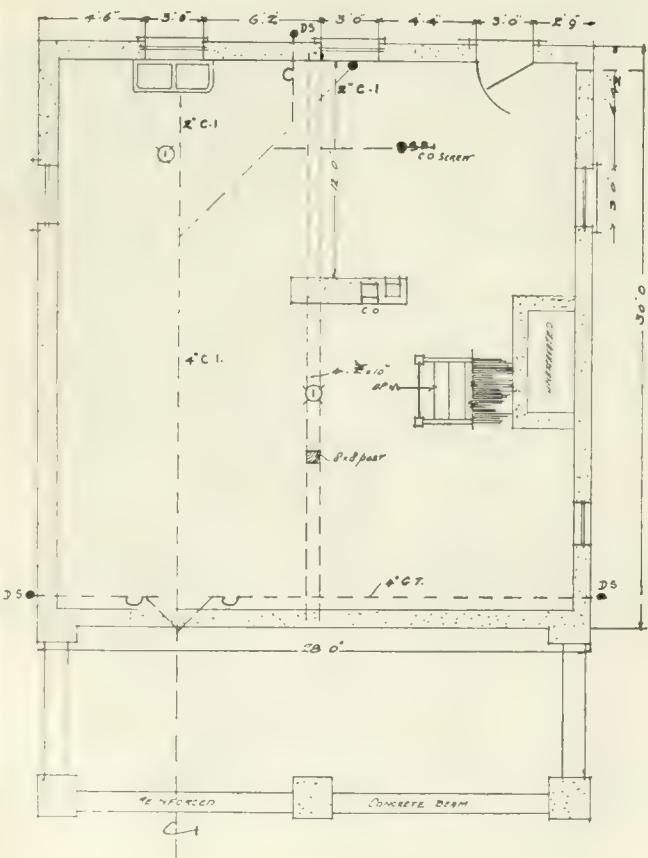
Brick Veneer Dwelling Suited for Small Towns



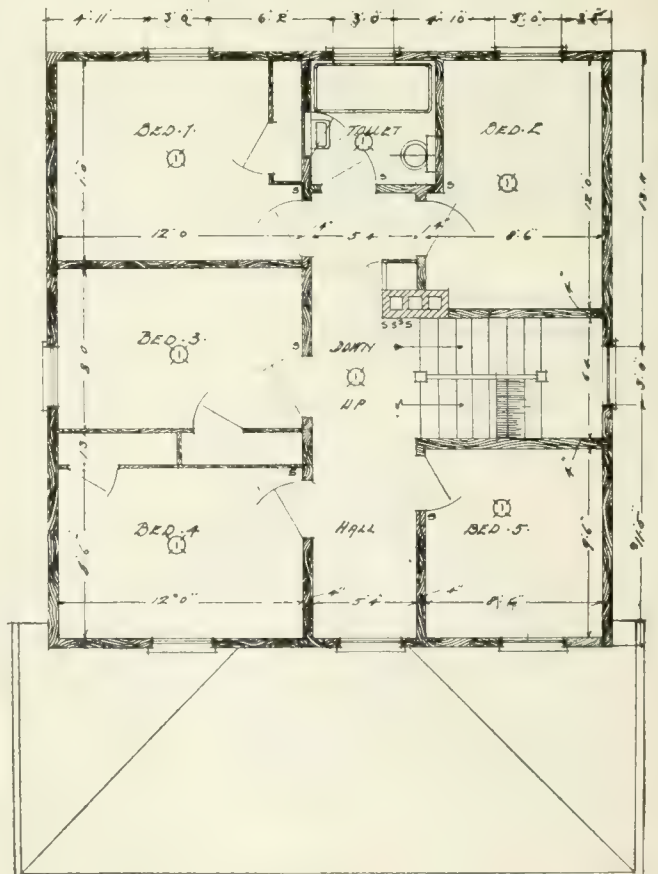
Ground floor plan.



Front elevation.



Basement plan.



First floor plan.

All windows are of the usual box frame description, with $1\frac{1}{8}$ in. heads, jambs and sills, outside casings with $\frac{7}{8}$ -in. blind stops, inside casings and backs, 4 in. sills, steel pulleys and iron weights. All sash are $1\frac{3}{8}$ in. Casement frames have 2 x 6 in. rebated jambs, iron water bar and maple drip strip.

The front door is 2 in. and all other outside doors are $1\frac{3}{4}$ in., panelled. Interior doors are $1\frac{3}{4}$ in., panelled, with O.G. moulds.

The Trim.

The trim in the dining room, hall, living room and den is in Georgia pine and the remainder of the house is in clear white pine. All openings have $\frac{7}{8}$ x 5 in. casings, doors have plinth blocks at floor, windows have $\frac{7}{8}$ x 5 in. aprons, stools and casings, with $1\frac{1}{4}$ in. bed mould under stool.

All walls on first and second floor have $\frac{7}{8}$ x 8 in. moulded base and $\frac{1}{4}$ -in. round and $1\frac{1}{2}$ in. picture mould.

In the closets there are $\frac{7}{8}$ x 4 in. hook strips and two $\frac{7}{8}$ x 12 in. shelves.

The cabinets in pantry and kitchen are formed with moveable shelves, $1\frac{1}{8}$ in. panelled doors and $\frac{7}{8}$ -in. standards for upper and lower parts. The lower portions have $1\frac{3}{8}$ in. counter shelves, drawers and shelves, and $1\frac{1}{8}$ in. panelled doors.

The medicine cabinet in bathroom is constructed of $\frac{3}{4}$ -in. material, with $\frac{7}{8}$ -in. door and $\frac{1}{4}$ -in. shelves.

The Stairs.

The basement stairs are of pine, with $1\frac{1}{4}$ in. treads, 2 in. strings, 4 x 4 in. newel, and 2 x 4 in. and 1 x 4 in.

Cement Finish for Woodwork

One of the problems which often confronts the painter of the present day is to finish the woodwork of a house in such a manner that it will correspond with the cement used in construction. The cornices, balconies and porches must be finished to look as if they were made of cement, and this is not at all difficult, the only question being if the owner will allow sufficient funds for the extra amount of labor involved in doing the work as it should be. A writer in a recent issue of the Modern Painter states that he has finished several houses in this way with entire success, and describes the process somewhat in its details as follows:

First, it is natural that the surface should have the granulated or the rough appearance of cement, and, therefore, it is best to sand the woodwork. The process is, of course, well known to the ancients, but to the young men growing up in this generation it is out of date and sometimes even unknown.

After the wood has been well primed, give it a second coat of oil and lead color; have the paint quite heavy, and use only oil for thinning—use no turpentine. Into this paint blow sand, with a sander, in the old-fashioned way; this gives the surface the desired stone-like appearance. Now, when this has been well dried, paint it over again with the so-called cold water paint. This cold water paint may need a word of explanation. Some have used it and had bad luck; others have not used it at all, and look upon it as a fake, but it has a place and a large usage. For coating cement walls, both smooth and pebble-dashed, it is ideal, and for painting sanded woodwork it is superb.

It has been a matter of surprise how long woodwork treated that way can stand. This paint is insoluble in water and, as it dries up, an absolute mat. A sanded surface painted with it looks exactly like stone or cement blocks.

The color, of course, must be carefully matched. Cold water paint comes in a white powder, cement gray, and several tints. It is most practical to buy the white in bulk, and a small quantity of the different shades, then mix together to obtain the right color. In mixing this paint, great mistakes are often made. It can be done in one way only, namely, this: First, put a certain quantity of the dry powder into the pail or keg, then add a small amount of water and stir it well; add water as more and more of the powder is worked up. Keep it a thick paste until it is thoroughly worked up and then thin it to the proper working consistency. Remember, it is paint, not whitewash, so do not thin it too much. It must be the consistency of heavy batter, and a good result is assured.

If, on the other hand, the powder is poured into a pail of water and stirred around, the substance will foam and lose its mordant power, and it can be brushed off after it has dried on the wall. The cold water paint is strong enough, so that for light tints the ordinary water-color pigments can be used. Yellow ochre, vermilion red, umber and black can be mixed up dry in powder before water is added, or stirred up in separate cups and added after. It is to be remembered that this is water color, and that it dries out lighter. It must dry before the exact shade can be known.

As for the prepared tints, it is to be said that the cement gray is too dark to suit the taste of most people. Mixed with equal parts of white, it becomes more acceptable, and often two parts of white and one part of gray will be pleasing. In using cold water paints, it is preferable not to mix too much of it at a time,

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rails. The main stairs are of 2 x 6 in. rough hemlock carriages at 1 ft. x 6 in. centres, $\frac{7}{8}$ in. moulded strings, 3 x 4 in. moulded hardware, $1\frac{1}{4}$ in. square balusters (3 to a step), 5 x 5 in. newels, with moulded cap and base, $\frac{7}{8}$ -in. risers and treads. The treads are of hardwood.

The clothes chute is constructed of $\frac{7}{8}$ -in. pine, hand smoothed and oiled.

The mantel in the hall is 3 in. Georgia pine, with $\frac{7}{8}$ -in. frieze and bed mould.

Verandah Construction.

The columns are formed of 6 x 6 in. posts, with 2 in. cap and bed mould. The cornice is formed with 2 x 10 in., faced with $\frac{7}{8}$ -in. material, $\frac{7}{8}$ -in. soffit frieze and bed mould inside and out, 2 x 4 in. joists, $\frac{3}{8}$ -in. Georgia pine ceiling, 2 x 6 in. rafters, $\frac{7}{8}$ -in. T. & G. sheathing, covered with a layer of building paper.

The trim in the dining room, hall, living room and den is finished in natural wood finish.

although it will not spoil by leaving over night.

In working on a large house, when the same color has to be made many times, it is best to set a pot of the color aside and match all the succeeding batches



Pair of semi-detached residences in Montreal West.

to it. In this way one cannot go far away from the original. For working on rough plaster or pebble dash, round brushes, especially those set in rubber, are to be preferred. The bristles should be of the best. When the surface is very rough, it is well to stipple the paint into the holes so as to make the coating substantial; a superficial washing over is worse than nothing.

Distinctive Homes in One of Montreal's Suburbs

In the suburbs of Montreal are many beautiful homes. This is particularly true of the west end. The pair of semi-detached houses shown in the accompanying illustration are located in that district—a district that is known as the "Town of Asbestoslate." This distinction was given to that particular part of the suburb in which those houses are located because of the fact that most of the houses in that part are roofed with "Asbestoslate" shingles.

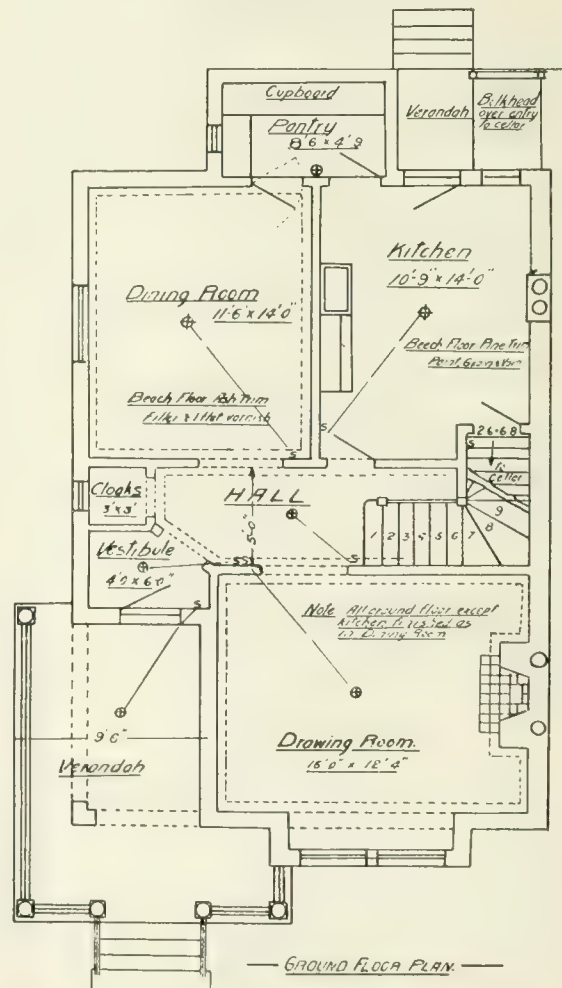
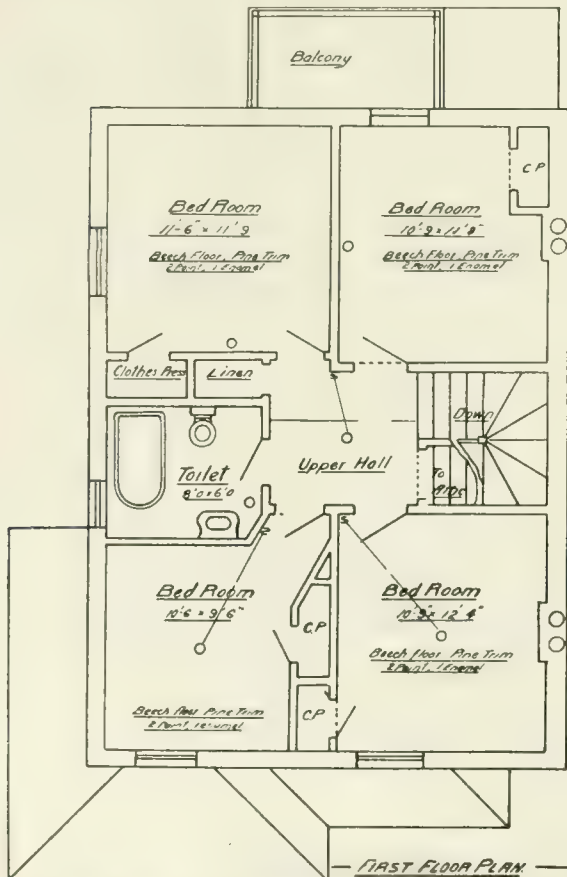
As will be seen, these houses are of solid red brick construction, on concrete foundation. The verandahs at the front and rear, the latter overlooking a wide expanse of lawn, set the houses off to good advantage.

Precautions Against Fire

In the particular district in which these houses are built there is a by-law against the erection of flat roof houses, hence the pitch roof. Then, too, the fire protection by-laws are strict, and every precaution is taken to make all structures as fire-resistant as possible.

Many fires are due to sparks falling from neighboring buildings, but with a roof such as this the chance of fire spreading from a cause of this nature is nil.

(Continued on page 24.)



Floor plans of pair of semi-detached brick residences in Montreal West, Quebec. A door was substituted for window in dining room, as shown in half-tone, and a window was put in the back wall.



Gambrel-Roofed, Cottage-Type House with Costs

Clyde Smith Adams, Architect

THIS is a very pretty gambrel-roofed cottage, of a type which was described in a recent issue of the Standard, St. John, N.B.

From the porch you enter a square reception hall with artistic staircase and beautiful spindled and balustraded entrances to the living and dining rooms. Living room is well lighted and cheerful with pretty open fireplace. Dining room has a bay, and is a pleasant, good-sized room, with plate rail around it. There is a convenient pantry and well-lighted kitchen with stairs to basement accessible both from kitchen and outside by a lobby.

Second Floor Features

On the second floor there are four bedrooms with good closets. Linen closet in bathroom. Two low rooms could be planned in attic, but in this case allowance would have to be made for staircase, which would take space from one of the second floor rooms.

The exterior is shingled, but this house would

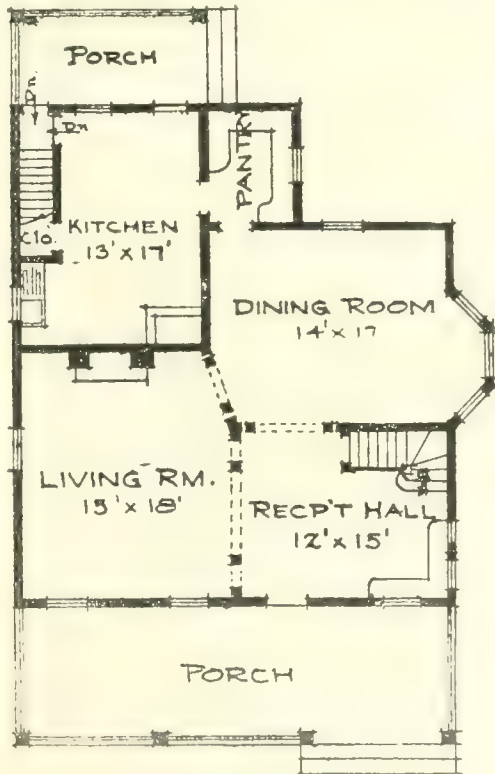
look well with cement, pebble-dashed walls, which would add somewhat to cost.

First storey, nine feet; second storey eight feet six inches; width thirty-three feet six inches; depth fifty-three feet six inches. Foundation stone or brick; cemented cellar. Shingle roof.

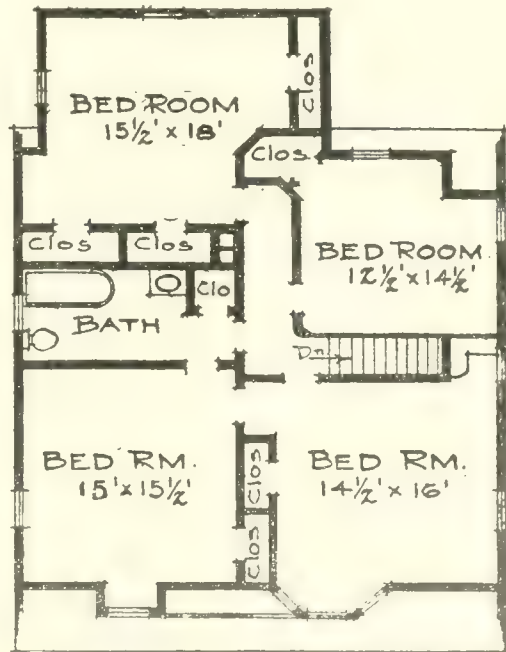
Cost of Construction

Following items show cost of constructing:

Excavation.....	\$175
Millwork	700
Stonework.....	250
Plumbing, etc.	230
Carpenter work	600
Painting and glazing	250
Hardware.....	95
Plastering.....	300
Lumber	800
Hot air heating	100
Total	\$3,500



First Floor



Second Floor

Well Laid Out Floor Plans.

The floor plans published herewith show many good features, such as the cloak room (with window) off the main hall, the fireplace in the drawing room and the bulkhead over the cellar entrance. The excellence of the whole may be seen from the plans.

Attic and Basement.

While the attic and cellar floor plans are not shown here, the former is divided into two large rooms, while the cellar has the usual coal compartments, furnace room, fruit and vegetable storerooms, laundry, etc.

The Trim and Finish.

On the ground floor, all the rooms, except the kitchen and pantry, have beech floors, and the trim is in ash. All floors upstairs are of beech, with pine trim.



The Abuse of Plumbing Fixtures

All too often the plumbing manufacturer is blamed and claims are made for defective material when conditions such as are set forth are responsible for the damage, says a writer in the Architect and Engineer. This letter is from a manufacturer's representative:

"The other day I was called in to look at a couple of tubs installed in a very fine apartment building. In this job were twenty-six (26) high grade tubs. I was surprised to see the condition of the fixtures generally, as the tubs were most all covered with lime and mortar left by the plasterers and tile setters. On at least three of the tubs it was almost impossible to see any enamel, and I am of the opinion that when this debris is removed the surface will be affected.

"The lavatories are also in very bad shape, as most of them show where the painters have cleaned their brushes on them. I took this subject up with the plumber and he stated that after he set each fixture he covered both tubs and wash stands with paper, but that the plasterers, carpenters, painters and other tradesmen on the job removed the covering. It is my opinion that a more substantial covering should have been used; one that would have required more effort to remove, such as a tarpaulin or canvas covering. Paper is not sufficiently strong and too easily removed to be of any real value for this use. I next took the matter up with the general contractor and pointed out to him the shame of abusing bathroom fixtures in this manner, and he stated that it was something beyond his control, and was up to the individual or sub-contractors.

"I have no doubt but what more care will be taken on future jobs by the people whom I talked to in this particular case, but to take up each individual contract and attempt to guard against this abuse is something out of the question.

"On the same job I was walking on a hardwood floor and was cautioned by the man laying it to walk on my toes and not with the heels of my shoes, yet apparently no care was thought to be taken about porcelain enameled lavatories and bath tubs."

This case was clearly one where the plumbing fixtures were installed before they should have been. The plastering and all similar work should have been completed before the fixtures were even taken to the job, and there would have been no possibility of such damage being done.

How to Drive Nails

Some rather humorous comments dealing with the above subject appeared in a recent issue of *Ideal Power*, and we give space to them herewith:

"Select a good healthy nail, straight, sharp, with a good head, and if possible one that has never been driven before. Grasp it firmly by the spinal column with the thumb and forefinger of the left hand; its point away from you, its head towards you.

"Next select a place to drive it. This should not be difficult, as there are many loose, scattering, wabby places in this world that need nails and into which no nail has ever been driven.

"Next find a hammer, or a stone, or a hair brush with which to drive it. A hammer is preferred, because most people know how to use one and it can frequently be found when required.

"Do not sneer, do not laugh.

"Many people drive nails in just this way and carry their fingers in slings most of the time. Some people, while fortunate in their selection of nails, can find no place to drive them, or when they do find a place, can find no hammer with which to make the drive. Others have good nails, have excellent places to drive them, have good hammers—but when they strike they do not hit the nail on the head. The results are the same in these cases—failure.

"Many a bright, shiny nail, shapely, pointed, straight and with a good head lies unnoticed in the workshop, or is lost in the crevices of the busy artisan's work bench. Many are the loose boards with gaping ends and creaky joints that might become useful and diverted to noble purposes could they be brought together with a good nail. Many are the hammers lying in convenient places, inviting willing hands to take them up and use them.

For the nail is the happy thought which, when driven home, becomes a deed worth while. The loose boards are the opportunities lying fallow until restored to usefulness by the nail, and the hammer is the vim, the persistent energy with which anything must be struck if it is to be driven home."



Painting a New House

To-day most lumber is kiln dried. This means that seasoning has been artificially forced. The pores of the wood are open and will soak up moisture. Besides it contains all the salts and acids of the wood in concentrated form, which, if not removed in some way, will prove detrimental to the durability of the paint. For this reason, it is generally thought advisable to allow a new building to stand for a month or two unpainted, so as to permit washing out of the surface cells, and allow for the closing of the pores which have been unnaturally opened. Then, after a dry spell, which will remove any moisture absorbed by the wood, is the ideal time to apply the priming coat.



There is satisfaction in knowing that you are doing splendid work, and the reward will generally come in time if you will persist in the good work.

There is a distinction between dovetail and wedge dovetail that some may not have fully realized yet, because the dovetail has a sort of wedge shape itself.



Home of R.H. Kennedy, Bowness, Calgary, Alta.

Bungalow Dwelling at Bowness, Calgary

Architects *Holman & Gotch, Calgary*

THE accompanying illustrations show a very convenient and well designed bungalow erected at Bowness, Calgary, for R. H. Kennedy. It has a frontage of 40 ft. and a depth of 34 ft. The rooms are spacious, as will be seen by a reference to the drawings.

The features include a 7 ft. 6 in. verandah around the front and side of the bungalow. In the living room are a fireplace and built-in cupboard for books.

Vegetable Storage a Good Feature

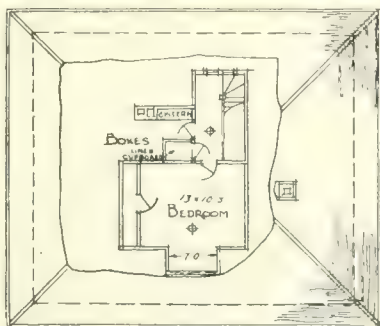
The provision made for vegetable storage is one which could be used to advantage in the design of similar dwellings.

The basement plan shows the installation of sewage tank with a sump of stones.

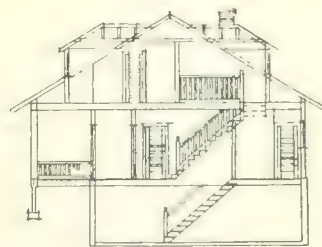
Layout of Attic

The basement has a height of 8 ft. 3 in., the ground floor 9 ft. 6 in., and the attic 7 ft. 6 in. In the attic is a large-sized bedroom with commodious closet, and a linen closet with door from the hall.

There is also room for storage of trunks, etc., but a feature is the location of the cistern in the attic. This, of course, is necessary where there is no water supply, and it is necessary to depend on rain or a supply forced up from a well.



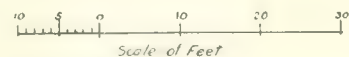
ATTIC PLAN



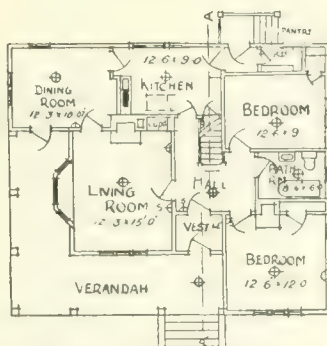
SECTION A A



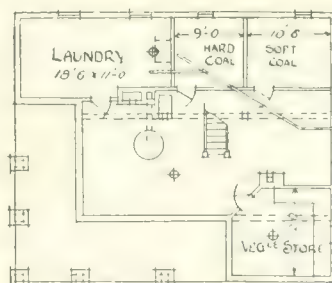
SOUTH ELEVATION



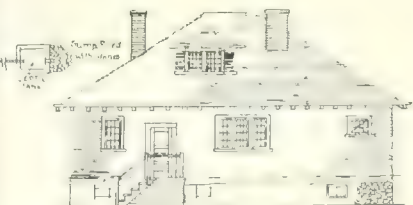
Scale of Feet



GROUND FLOOR PLAN



BASEMENT PLAN



NORTH ELEVATION

Floor plans and elevations of bungalow house erected at Bowness, Calgary.

Plain Statement of Facts about Metal Roofs

In your last issue you had an article on various types of roofing, from which I quote the following:

"Small metallic shingles of either copper, tin, galvanized steel plate, or specially pure iron are not recommended for general use."

I take exception to this, and let the following bear me out:

The first thing human nature considers in any purchase is what will it cost, and this is divided into first cost and ultimate cost. In most cases first cost is alone considered, and money is necessarily wasted.



High School at Stirling, Ont., covered with galvanized metal shingles.

In buying a roof—no matter what the material to be used—price should be considered from a cost per year of service point of view. First cost should hardly ever enter the transaction. A poor roof or a roof that will not stand the weather a reasonable length of time is a loss from the day it is erected.

The price of a metal-shingled roof—even in first cost—compares favorably with a good grade of wood

shingles. I have made a canvass of a number of builders in different parts of Canada, and find, considering cost of erection, nails, etc., the metal shingles are little, if any, higher in first cost.

Tests have proven beyond all doubt that a good grade of metal shingles will outlast all ordinary kinds of barn or house roofing and will give the best of satisfaction.

Metal Roofs With Long Life

In my travels I have seen and examined metal roofs that have been up for twenty-five years and found no rust or wear. They apparently were good for another twenty-five years. Absolutely not one cent for repairs was spent on these roofs. They were never touched since the day they were erected. I have seen roofs on houses right next to a stove foundry, which have been getting coal dust and gases for ten years, and the metal is still standing the racket and giving good service.

Farmers, as a class, are the best buyers of our country. They know the value of money and want full value for every cent. A trip through our rural districts will show what farmers think of metal roofs. There are thousands of them.

Years ago metal shingles were given a black eye on account of poor erection. If a man put on a metal roof and it leaked, he cursed the "tin" roof from eave to ridge and back, and then he kicked himself for being led to buy it. He didn't stop to think that the shingles might have been erected improperly. If it had been a wood roof he would have made his carpenter come and fix it, for one shingle might have been out of place.

To-day the metal companies' agents are usually trained men, and any of the advertised shingles properly erected will give the best satisfaction. Of course, there are still a few who will pay no attention to directions, or untrained men will try and do the erection, and the consequences are that the company who made the shingles gets all the blame.

A good metal shingle such as the popular brands



Serviceable new stables of Miss K. L. Wilks, at Orickston Park, Galb., Ont., designed by A. A. Gilmore. The main stable is over 130 feet long. The roof is covered with galvanized "Preston" safe lock shingles, and fitted with "Acorn" barn ventilators. The sides are "Acorn" corrugated galvanized iron, and the eaves are covered with cornice of same make. The lower half of the stable is of brick construction. The sheds and smaller stable are also covered with galvanized metal shingles and side covering.

here in Canada will give long life and the very best of satisfaction if properly erected.

Severe Test of Metal Roof

I know of one grade of metal shingles which was tested by turning the full pressure of a city hydrant against the roof from various angles for over two hours, and not a leak developed.

Everyone will admit that a metal shingle roof is fireproof, for metal cannot burn. The shingles, being locked tightly together, will admit no sparks. Sparks from other burning buildings or from threshing outfits die and do no damage on these roofs. Metal shingles are also a fire retardant. A few years ago, at Simcoe, Ont., a shop was covered with a standard make of shingles. One day the building was gutted by fire: all around it were other buildings, but the fire was confined to the shop by the metal roof.

Lightning-Proof Quality

As to the lightning-proof qualities of a metal roof, we can quote C. Dolph, of the Metal Shingle and Siding Co., Preston, Ont.: "We have been giving a lightning guarantee with our Safe Lock Shingles for fifteen years, and have yet to be called on to pay a claim."

Prof. Day, of the O.A.C., says that a metal roof, properly grounded, is one of the best forms of lightning protection.

Insurance companies give lower rates on metal-covered buildings.

Metal shingles are easily handled, easily erected, and make a beautifully appearing roof for any kind of a building. A glance at the two buildings shown here will bear out this claim.

Anyone buying a roof can make a thorough investigation of metal roofs. There are thousands of chances here in Canada, and all the metal companies welcome any questions about their products.—A. A. Gilmore.

Specifications for Installation of Piping Systems for City Gas

When a town or city has a gas supply available buildings should be piped with gas. The following specifications give all the necessary data for installing the piping system in house, store or factory, including the sizes of pipe for varying number of outlets.

By G. W. ALLEN, of The Consumers' Gas Co., Toronto.

THE following specifications give all necessary data covering gas piping installations for house, factory, store or office. Where gas is available it will be found the building has a higher saleable or rental value if piped for gas. Also, the convenience of gas for heating or lighting is recognized, and gas stoves and fireplaces are now considered necessities in house furnishing.

The following are the specifications:

Gas Pipe

To be of a good quality, preferably galvanized.

All pipes to be examined and blown into, before being used, to guard against obstructions.

Pipe Fittings

To be malleable iron, preferably beaded fittings; fittings to be selected and examined for sandholes; galvanized fittings to be preferred.

In making turns or bends use fittings in preference to bending pipe.

Joints

To be screw joints. Use red and white lead mixed with boiled linseed oil in joints, or approved pipe-joint graphite.

Use precaution not to get any lead on the inside of joints.

No gas-fitters' cement to be used on joints under any circumstances.

The practice of rusting up the pipes by filling them with water is bad, and should be prohibited.

Unions to be avoided in concealed piping.

Shut-Offs

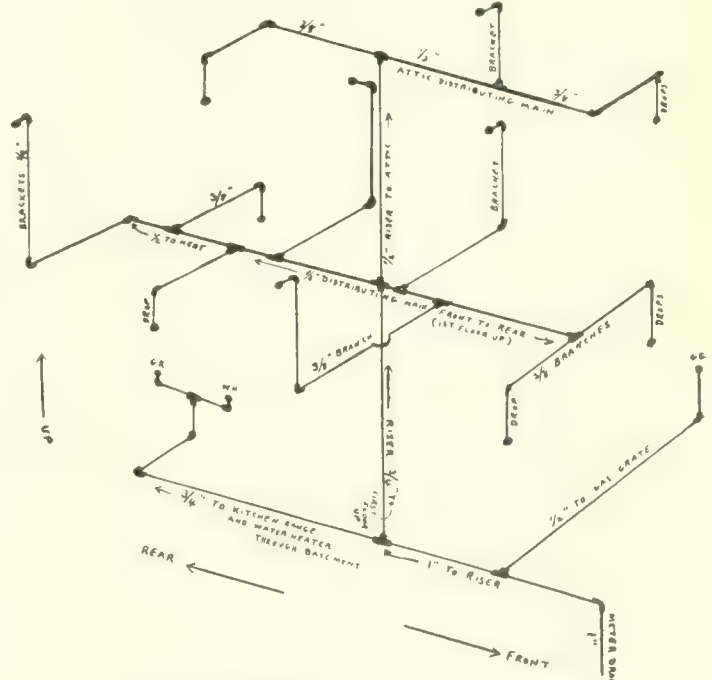
Use the best quality heavy brass work. Round-way, ground-key lever cocks are preferable to valves, as they indicate at once by position of lever whether the pipe is open or shut.

Valves, if used, should be soft-seat brass valves.

Iron valves to be prohibited, as they quickly corrode from the action of the gas.

Hooks, Straps and Clips

All pipes to be well fastened by hooks, straps or clips of wrought iron—not of cast iron.



Proper gas piping layout for general design of house.

Use screws for fastening pipe hold-fasts.

No bent nails nor common hooks should be used to hold gas pipes in position.

Cutting of Floor Joists

This should never be done by the gasfitter. A car-

penetrator should do all the cutting, and beams should not be notched, bored, or cut more than 25 p.c. of their depth, and never further away than two feet from the wall or bearing supporting the beams.

Sizes of House Pipes

No pipe to be less than three-eighths inch, for any purpose.

For gas grates in fireplaces, run pipes not less than 1/2 inch, one for each fireplace.

Provide a separate riser for gas cooking range in the kitchen.

Provide a separate riser for the gas water heater, also for the gas-using laundry appliances.

Run all branches for side or wall fixtures up from below, and do not drop them from above (except in the cellar, or where unavoidable).

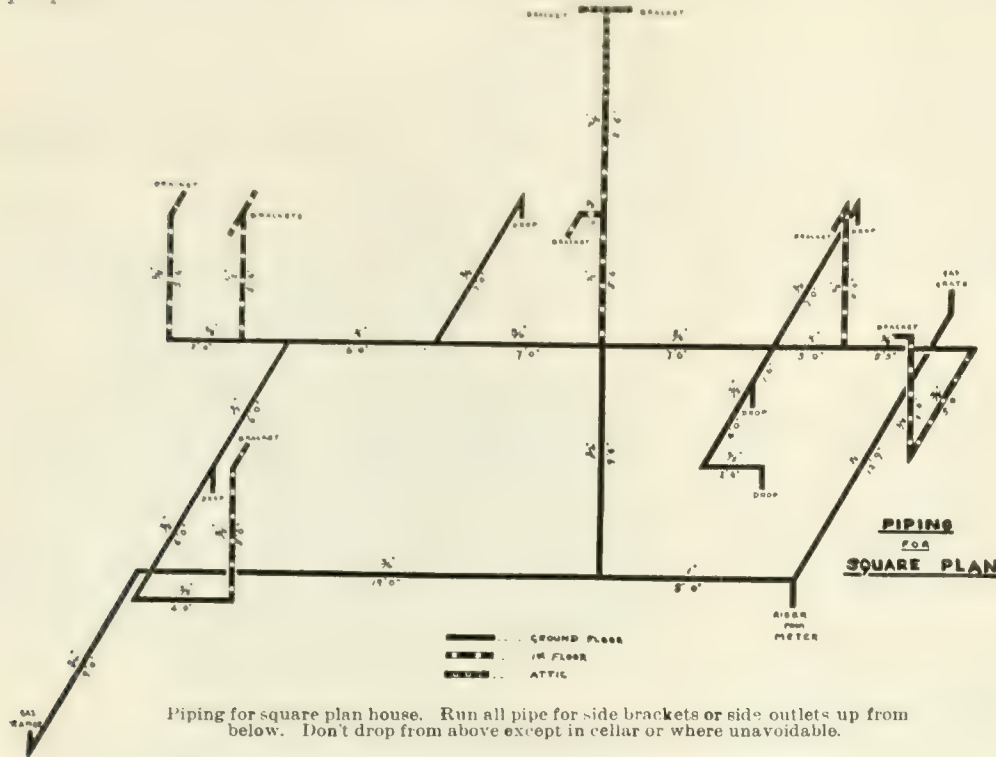
Run no gas pipes through flues.

All horizontal gas pipes to be run with sufficient fall back to the riser; the horizontal run at cellar ceilings to have a fall toward the gas meter.

All long horizontal runs between floor beams to be well supported to avoid sagging and traps.

Avoid all condensation of gas in pockets or depressions.

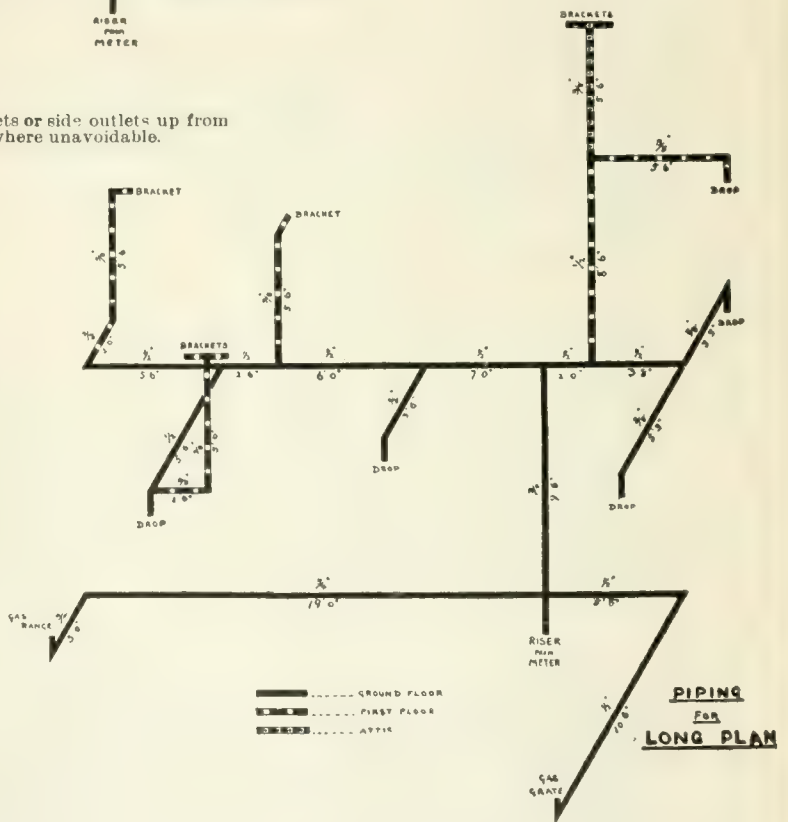
Keep gas pipes and risers away from pipes or flues of the heating apparatus.



Piping for square plan house. Run all pipe for side brackets or side outlets up from below. Don't drop from above except in cellar or where unavoidable.

In determining sizes of pipes, follow table for sizes of house pipes for gas lighting, and table for sizes of gas ranges, gas grates and tank heaters, etc.

Sizes of Gas Pipes, Maximum Lengths and Maximum Number of Burners			
For dwellings (at 5 cubic feet each)			
		Maximum number of lights	
Size of pipes	Maximum length	3/8 in. openings	
3/8	20 ft.	2	
1/2	30 ft.	4	
3/4	60 ft.	10	
1	70 ft.	15	
1 1/4	100 ft.	25	
1 1/2	150 ft.	50	
2	200 ft.	100	
2 1/2	250 ft.	200	
3	300 ft.	350	
Sizes of Gas Pipes, Maximum Lengths and Maximum Number of Burners			
For factories and stores			
		Greatest	
		number of lights	
Size of pipes	Greatest length allowed	3/8 in. openings	
3/8	15 ft.	1	
1/2	20 ft.	1	
3/4	60 ft.	8	
1	70 ft.	12	
1 1/4	100 ft.	20	
1 1/2	150 ft.	35	
2	200 ft.	50	
3	300 ft.	150	



Piping for long plan house.

Gas Outlets

Place no gas outlets behind the doors or too near window trims or curtains.

Place outlets for side-wall fixtures at proper height, 5 ft. 6 in., and centre fixtures in the exact centre of the room.

At completion of gas piping, check off all outlets from plans.

Make all piping ample in size.

Arrangement for Gas Piping

No risers to be placed in outside walls.

No riser to be less than 3/4 inch pipe to first floor.

Make all nipples and drops plumb and of proper length for the fixtures, not to project more than 1 inch from surface.

Test of Gas-Pipe System

The entire gas piping, when completed, and before plastering is begun, to be tested by a gasfitter with an air pump and a mercury gauge.

Test the pipe system under a pressure equivalent to a column of mercury in gauge, 8 inches high (4 pounds pressure).

The mercury in the gauge must stand without indicating any fall.

All leaks and defects, which the test reveals, to be searched for with either or by the application of soap-suds, the same to be made good by the gasfitter.

No split pipe or broken fitting, or fittings having sandholes, to be repaired with cement or solder, but

must be replaced at once by good pipe or fittings, and the defective piece taken away from the building.

In large buildings test gas-piping in sections.

After the test have a number of capped outlets opened slowly, on each of the jobs, to make sure by the falling of the mercury in the gauge that the entire piping has been under the test, and that no parts are accidentally or intentionally disconnected.

After the test leave all outlets capped tightly.

When alterations in the gas are made, or additional burners are put in, test the altered work in the same manner as in the first test.

Before the gas fixtures are hung or put up, the gasfitter is to repeat the test in the presence of the contractor for the gas fixtures, so as to demonstrate to him the tightness of the entire piping.

(This leaves the fixture man responsible for any leaks discovered when the gas is first turned on at fixture.)

Suggestions on What to Do During the Dull Winter Months

Winter has come and the usual slackness in work is being felt by carpenters and builders. In this article are suggestions that will help the energetic mechanic in getting employment. "The early bird catches the worm" and it is the man that hustles who gets the best jobs.

STAFF ARTICLE

WITH winter already upon us, and the consequent slackness in the building trades, it behooves carpenters to "get out and hustle." What to do, however, is a question. In other years men have gone out and taken work in lines entirely foreign to their trade, and taken it willingly, but this year it is different. The present great conflict in Europe has thrown the whole world into a turmoil and business in all lines is dull. Carpenters and builders naturally expect things to be a little quiet during the cold weather, but in former years many have been able to find some sort of employment that has tided them over the dull season. However, with so many men from all walks of life out of work at the present time, and with the prospects none too bright, this question is oft repeated: "What shall I do?"

Naturally, the carpenter prefers to do work about which he knows something, but, where this is not possible, it behooves him to get out and find something. The following suggestions may help in reinforcing the family exchequer:

Work in Furniture Factories.

As a rule, one of the first places the good carpenter usually makes for when thrown out of work is the furniture factory. Here he can be sure that he will know a little about the work, anyway, if he is successful in getting a job. The hours may be longer, the work more tedious, and the wages less, but "Half a loaf is better than none," so any kind of a job should be acceptable.

Laying of Hardwood Floors.

This is work that may be done by almost any carpenter, and it offers splendid opportunities for profit.

In most of the older houses, hardwood floors are unknown, and the owners of many of these would seriously consider having them put down if an estimate of the cost were given them. The writer knows of one case of a man who, when out of work one winter, went from

door to door soliciting work of this kind. He always was prepared to furnish an estimate of what the work would cost, and he worked to make a reasonable profit. He got several contracts and did his work so well that people for whom he had done jobs told their friends, they in turn told others, and orders came in in sufficient quantity to keep him busy right along. As time progressed, business increased and the result was that this man gave up carpentry altogether and is now known as a "professional floor layer." He does nothing else, and has enough work to keep him busy the year round.

Making Odd Pieces of Furniture.

The man who has a "shop" in his cellar or in a shed at the back of the house can use his spare time to good advantage in the making of odd pieces of furniture, such as bookcases, small tables, chairs, and, in fact, almost any article of furniture used in the home. How to sell such articles may, at first sight, appear a problem, but ways and means will crop up from time to time while calling from house to house.

Then, too, the stores are constantly requiring new display fixtures, such as pedestals for hats, shoes, etc. These are easily made, and the wood may be bought at the mill for a mere song, for the material used is that which is usually thrown away. Many novel and attractive designs may be thought out and, when stained in oak or mahogany, a neat fixture is the result.

Other Jobs in Stores.

In going about the stores, the carpenter will come across other odd jobs that will keep him busy, and bring in a profit. For instance, in a great many stores, the basement is a dark hole usually used as a store-room. At very little cost it could be fixed up with counters, wall shelves, etc., and made into an extra department. New showcases would be needed, and any good carpenter can make these.

Then there are numerous other small jobs, such as

putting in glass, putting up shelves, erecting partitions, etc. Such small details as these are apt to be overlooked by the store proprietor, and it only requires a suggestion from the carpenter in order to get an order to go ahead and do the work.

Before Christmas stores usually make more or less special displays of stocks. These require special shelving for store proper or window. Considerable jobs along this line might be secured by calling on the stores.

Selling Weather Strip a Profitable Game.

Just at this time of year, people begin to feel the wind that whistles in, under and around the windows and doors. The one remedy for this is weather strip. In many cases the man of the house is too busy, or has not the inclination, to do the work himself, and is just waiting for some man seeking odd jobs to come along and do it.

A house to house canvass for work of this kind will also bring other jobs, such as framing pictures, mending chairs, adjusting doors, etc.

Work About the Home.

If a man finds after hard effort that he cannot secure any odd jobs, there usually is a lot of work he can do around his own home. There are cupboards to be built, a bookcase could be added to the living room (if there is not one there already), woodwork needs painting, and there are a hundred and one other things that have been neglected during the busy season.

If it is the intention to erect any houses in the next season, the time may be profitably spent in working out plans, figuring details, constructing window frames, cutting out stair strings and other work that will save time when the building is under way.

Other work will suggest itself from time to time, and remember it is the man who gets out and hustles that is going to get the best jobs.



Value of Freehand Drawing

To be able to make a freehand sketch is a valuable asset to the builder or carpenter, especially if it becomes necessary to explain clearly and quickly the construction of any piece of work. The builder or carpenter who cannot make a sketch would find it very difficult to explain a dovetail joint, for instance.

With technical schools and evening classes being opened up in Canada, a course in the rudiments of drafting is within the reach of many. The course in freehand work is of special value to an artisan, while a builder will find the use of the T-square and drawing board also very valuable in working up details.

It should become a habit with the builder to jot down in a notebook kept for the purpose any special feature of construction, any pleasing piece of design, any ingenious means of overcoming a difficulty, in short, anything which interests him. Doing this will fix the ideas in his mind, and he will have a permanent record for future use.



Technical Education Through Technical Papers

The need of technical education among some carpenters and builders is a crying one, judging from an experience the writer had recently. I was soliciting

subscriptions to a paper specially adapted for carpenters and building contractors, and called on a man who was working on a job, and attempted to lay my proposition before him. The fellow did not seem much interested but kept on working, the while stating that he had been in the business for many years, had grown up with it, and that he had no use for technical papers --had not time to read them, and that he knew more about "the game" than any "arm chair" editor could tell him.

It's pretty hard to do anything with a man who thinks this way, but I talked to him for a little longer, in the meantime watching him at his work.

Before I left I had the opportunity of seeing "Mr. Knowitall's" knowledge of his trade. He wanted a piece of board about three feet long to complete his job. He picked up a piece about four feet in length, knotty at one end, and sawed off the required length.

But, here's the funny part of it. The piece that went into the discard was the clean end, while the piece he used in the work contained all the knots.

Now, I don't contend that a man should read a technical paper in order to know which part of a board to use; his common sense should tell him that. However, a man who talks as this fellow did, and who shows his ignorance in such a glaring manner, needs a technical paper.—C.J.B.



The World's Tallest Buildings

The completion of the sky-penetrating Woolworth Building renders more than usually interesting a statement of some of the other tall structures which are to be found in Canada, United States, and other countries. The twelve tallest structures include the following:

Pantheon, Rome	150 ft.
St. Isaac's, St. Petersburg	365 ft.
Statue of Liberty	305 ft.
Great Pyramid of Cheops	450 ft.
St. Peter's, Rome	400 ft.
Rouen Cathedral	490 ft.
Cologne Cathedral	516 ft.
Washington Monument	555 ft. 5 1/8 in.
Singer Building, New York	612 ft. 1 in.
Metropolitan Tower, New York	700 ft. 3 in.
Woolworth Building, New York	750 ft.
Eiffel Tower, Paris	984 ft.
Royal Bank Building, Toronto	250 ft.
C. P. R. Building, Toronto	238 ft.
Traders Bank Building, Toronto	200 ft.
Dominion Bank Building, Toronto	183 ft.

If the 100-storey skyscraper ever becomes an actuality the figures above noted will appear insignificant in comparison.



Illustrations in Reinforced Brickwork Article

In the November issue of The Canadian Builder and Carpenter was an article on "Use of Reinforcement of Brickwork," in which two illustrations appeared. Fig. 1 showed galvanized iron reinforcements and brick wall plugs, while Fig. 2 showed method of reinforcing brick wall to sheeting in the case of brick veneer dwelling. These cuts were used by courtesy of the Pedlar People, Limited, Oshawa, and illustrated lines manufactured by them. In error the cuts were credited to another company.

How Hardwood Floors Should be Laid and Finished

A good profit may be made by carpenters during the slack season by laying hardwood floors. Many owners of the better class of old dwellings are putting in oak floors and this paves the way for profitable work for the carpenter. In this article is given much useful information on laying and finishing the wood to be used, and how to order it, etc.

CARPENTERS and contractors find it very profitable during the slack periods, when outside work is dull, to solicit jobs in old homes for the laying of $\frac{3}{8}$ in. thickness by $1\frac{1}{2}$ in. or 2 in. face over old pine floors. Besides being profitable, the work is very agreeable.

Artistic designs can be made very easily with oak flooring strips that require but very little more time to lay, besides, it makes a vast difference in the appearance of the room.

The winter season is the best time for laying $\frac{3}{8}$ in. stock over old floors, because the wood is thoroughly dry and in good condition to receive it.

It is very important that the old floor be level before laying the oak flooring.

An old house laid with this thin oak flooring will enhance the renting and selling values fully 25 per cent.

Laying Oak Floors

The laying of oak flooring is not very difficult. Any first-class carpenter can make a good job. Some judgment and care is very necessary in order to produce the best results.

A sub-floor should be used under both the 13-16 in. and $\frac{3}{8}$ in. thicknesses. The sub-floor should be reasonably dry and laid diagonally. Boards of about 6 in. wide are preferred. These boards should not be put down too tight and should be thoroughly dried off and cleaned before the oak flooring is laid.

It is well to use a damp-proof paper between the oak flooring and the sub-floor. Where sound-proof results are desired, a heavy deadening felt is recommended.

Oak flooring should be laid at an angle to the sub-floor. After laying and nailing three or four pieces, use a short piece of hardwood 2x4, placed against the tongue, and drive it up.

The nailing of oak flooring is very important. All tongued and grooved oak flooring should be blind nailed. The best floor made can be spoiled by the use of improper nails. The steel cut variety is recommended for all blind nailing.

For 13-16 in. use 8-penny steel cut flooring nail; for $\frac{3}{8}$ in. flooring use 3-penny wire finishing nail.

The maximum distance between the nails should be: For 13-16 in. thickness, 16 in.; for $\frac{3}{8}$ in. thickness, 10 inches.

For even better results it is recommended that the nails be driven closer than indicated.

Handling Oak Flooring

Oak flooring is very often damaged after it leaves the factory by rough treatment. Handlers of oak flooring often treat it as ordinary lumber. This is a mistake, and results in serious damage to the flooring.

Oak flooring leaves the factory in perfect condition. The lumber has been air-dried, kiln-dried, cooled and milled accurately. Before shipping, it is stored in dry,

well-ventilated warehouses. Oak flooring is shipped in box cars and should therefore reach the dealer in good condition. It should not be unloaded in rainy weather, and if the atmosphere is damp the wagon should be covered with tarpaulin. It should never be piled in open sheds, even though protected by a roof, as any wood absorbs moisture from the air at the exposed ends. Stock then swells, impairing the accuracy of the mill work, and flooring thus carelessly handled often shrinks after having been laid, leaving unsightly cracks.

Oak flooring should never be laid in a new building while the walls and plaster are damp; it should be the last work done in the building. It is most important that the brick or stone work, concrete and fireproof filling be thoroughly dry before the flooring is laid. To secure the best results, the better plan is not to lay the oak flooring until the painting, wall papering and decorating have been done and are thoroughly dry.

The Use of Different Grades

The following notes, giving the varieties of flooring recommended for different uses, should be given consideration.

Clear, quarter-sawed, red or white, for high-class residences, hotels, apartment houses and club houses.

Sap clear, quartered, red or white, is an economical substitute for clear quartered where a dark finish is desired. These grades make a flooring equally as durable as the first grade.

Clear, plain sawed, red or white, for high-class residences, hotels, apartment houses, churches and club houses.

Select, plain sawed, red or white, for medium-priced residences, hotels and apartments; schools, office buildings and stores.

No. 1 common, for the cheaper dwellings, tenements, stores, high-class factories and manufacturers' buildings.

Factory, for warehouses, factories and cheap tenements.

Widths

The standard thicknesses and widths are as follows: 13-16 in. thickness; widths $1\frac{1}{2}$ in. face, 2 in. face, and $2\frac{1}{4}$ in. face; $\frac{3}{8}$ in. thickness; widths $1\frac{1}{2}$ in. face and 2 in. face.

The $1\frac{1}{2}$ in. face makes a better, more serviceable and handsomer floor than any other width. The shading of the figure of the wood may be blended more harmoniously than when the wider strips are used. The cost per thousand feet is less than in the wider widths, which offsets additional for labor in laying.

The 2 in. and $2\frac{1}{4}$ in. faces are the widths more generally used in 13-16 in. thickness, and in $\frac{3}{8}$ in. thickness, either $1\frac{1}{2}$ or 2 in. face, as conditions demand it.

How to Arrive at the Amount of Oak Flooring Required

To cover a certain space, figure the number of square

feet. Add to the square feet of surface to be covered, the following percentages:

	Inches
37 1/2 per cent. for	13 1/8 in. x 2 in.
33 1/2 per cent. for	13 1/8 in. x 2 1/4 in.
31 1/2 per cent. for	3 3/8 in. x 1 1/2 in.
25 per cent. for	3 3/8 in. x 2 in.

The above figures are based on laying flooring straight across the room. Where there are bay windows, hearths and other projections, allowance should be made for excessive cutting.

Standard Weights of Oak Flooring

13 1/8 in. x 2 1/4 in. face	2200 lbs. per 1000 feet
13 1/8 in. x 2 in. face	2100 lbs. per 1000 feet
13 1/8 in. x 1 1/2 in. face	2000 lbs. per 1000 feet
3 3/8 in. x 2 in. face	1200 lbs. per 1000 feet
3 3/8 in. x 1 1/2 in. face	1000 lbs. per 1000 feet

In ordering oak flooring be sure and state whether plain or quarter-sawed red or white is desired.

Scraping Oak Floors

After the oak flooring is laid and thoroughly swept, it is better to scrape it in order to get the best results for a nicely polished surface. This scraping process can be done by the ordinary scrapers, such as used by cabinet makers, or by one of the many types of power or hand scraping machines that are generally used by contractors and carpenters. Always scrape lengthwise of the wood and not across the grain. A floor properly scraped looks very smooth, but it should be thoroughly gone over with No. 1 1/2 sandpaper to obtain the best results in finishing. After this the floor should be swept clean, and the dust removed with a soft cloth. The floor is now ready for the finish.

Finishing Oak Floors

The finishing of an oak floor is a very important feature, upon which authorities fail to agree, but the question resolves into a matter of cost, as to the color or brilliancy of finish desired. Personal taste, artistic or decorative effects are the guide for the floor finisher.

The "clear" grade of oak flooring should have a natural oak filler—color of oak. For the "select" and "sap clear" grades a light golden oak filler should be used, and after the floor is filled, it should be gone over with a little burnt umber mixed with turpentine to darken light streaks. This will make the "select" and "sap clear" grades look like the "clear" grade except that it will be slightly darker in color. In filling the "No. 1 common" grade, a dark golden oak filler should be employed, and the light streaks should be darkened in the same manner as the "select" and "sap clear" grades. If a little care is used in laying this grade, splendid results can be obtained.

Treat the floor with a paste filler of desired tone, to fill up the pores and crevices. To thin the filler for application, one has a choice of using turpentine, benzine, wood alcohol or gasoline to get the right consistency. When the gloss has left the filler rub off with excelsior or cloth, rubbing against the grain of the wood. This will make a perfectly smooth and level surface. It keeps out dirt and forms a good foundation, which is the keynote for successful treatment of floors. Allow the filler twelve hours to set or dry before applying a wax or varnish finish. Never use a liquid filler on any floor.

A wax or varnish finish can be used. The wax finish is preferred by many, due to economy and ease of renewing places that show the wear. The renewing can be easily applied by housekeeper or servant.

Wax Finish

The best method for applying the wax is to take cheesecloth and double it to get a little more thickness; then make it into a sort of bag. Put a handful of wax inside of this and go over the floor thoroughly. You will find that you can work the wax through the meshes of the cheesecloth to give an even coating over the floor. This prevents too much wax in spots and wasting it. After the floor has been gone over with the wax and allowed to dry, say about twenty minutes, it is ready for polishing. Rub to a polish with a weighted floor brush, first across the grain of the wood, then with it. (A clean, soft cloth can be used in place of the brush if desired); then a piece of woolen felt or



The library at the new Central Y.M.C.A. on College St. Toronto. This room has a well-laid, attractive hardwood floor. All the columns and panelling used were supplied by Batts, Limited, West Toronto.

carpet should be placed under the brush to give the finishing gloss. After waiting an hour, a second coat of wax should be applied in the same way as the first and rubbed to a polish.

Varnish Finish

This is usually more expensive than the wax finish, but it gives a very hard surface, yet at the same time it is elastic. Two or three coats should be applied after the application of the paste filler. Each coat should be thoroughly rubbed with oil and pumice. Any of the standard hardwood flooring varnishes are recommended.

Floor Oil Finish

When a high class finish is not desired, a very economical finish can be had by the use of a light flooring oil that is made expressly for this purpose by many paint and varnish houses and oil makers; it serves as a filler as well as a finish and is strongly recommended for oak flooring in public institutions, office buildings and stores. This oil keeps the dust from rising and preserves the floor.

Care of Oak Floor

If one knows how, nothing is easier than the care of a well finished oak floor. Water should never be used on a waxed floor or varnished floor. The surface may safely be wiped with a cloth dampened in tepid water to remove dirt and dust, but the dampness should be immediately taken up with a dry cloth.

One of the best mixtures for keeping a floor in good condition is the use of equal parts of sweet oil, turpentine and vinegar well mixed, and rubbed on the floor with waste or a cotton or woolen rag. The vinegar will cut the dirt or grime worked into the finish from shoes; the sweet oil produces a lustre and the turpentine promptly dries the moisture.

The above mixture need not be applied oftener than once a month to insure a floor finish that will resemble the sheen of a piano.

Should wax finish become worn in spots from hard usage, a little of this mixture thoroughly rubbed will renew the finish quickly.

The occasional use of a weighted floor brush, alone or with a piece of Brussels carpet placed beneath it, will assist in keeping the finish of an oak floor in good condition.

Once a year it is well to use a good floor wax and rub it into the floor with the aid of a brush, with or without a piece of carpet attached. Before the finish is worn down to the wood, an additional coat of wax should be applied and thoroughly rubbed.

Grading Rules for Oak Flooring

Every man who is in the floor-laying business should study the following grading rules in order to make sure he gets what he orders.

Quarter-Sawed

Clear—Shall have one face practically free of defects, except 3/8 of an inch of bright sap; the question of color shall not be considered; lengths in this grade to be 2 feet and up, not to exceed 15 per cent. under 4 feet.

Sap Clear—Shall have one face practically free of

defects, but will admit unlimited bright sap. The question of color shall not be considered. Lengths in this grade to be 1 foot and up.

Select—May contain bright sap, and will admit pinworm holes, slight imperfections in dressing, or a small tight knot, not to exceed 1 to every 3 feet in length; lengths to be 1 foot and up.

Plain Sawed

Clear—Shall have one face practically free from defects, except 3/8 of an inch of bright sap; the question of color shall not be considered; lengths in this grade to be 2 feet and up, not to exceed 15 per cent. under 4 feet.

Select—May contain bright sap, and will admit pinworm holes, slight imperfections in dressing, or a small tight knot, not to exceed 1 to every 3 feet in length; lengths to be 1 foot and up.

No. 1 Common—Shall be of such nature as will make and lay a sound floor without cutting. Lengths 1 foot and up.

Factory—May contain every character of defects, but will lay a serviceable floor with some cutting. Lengths 1 foot and up.



Building Permits in October and 10 months

Eastern Cities				
	Oct. 1914	Oct. 1913	10 mos. 1914	10 mos. 1913
MARITIMES—				
St. John	\$ 32,550	\$ 835,200	\$ 477,450	\$ 2,370,000
Moncton	5,700	5,580	324,255	203,365
Halifax	65,760	163,500	752,885	756,250
Sydney	1,000	12,975	105,723	305,633
QUEBEC—				
Montreal	702,910	5,613,975	16,912,601	21,430,121
Maisonneuve	140,140	173,700	2,408,240	1,970,423
Westmount	4,290	205,590	691,125	1,647,274
Quebec	108,530	253,135	2,374,744	1,839,080
Three Rivers	206,150	20,200	577,355	453,450
ONTARIO—				
Berlin	8,550	60,125	711,440	519,519
Brantford	16,355	83,350	423,285	945,561
Guelph	14,105	9,050	494,819	330,809
Kingston	12,042	76,350	276,668	565,213
London	99,750	165,746	1,756,475	1,658,890
North Bay	2,800	32,825	301,440	477,130
Ottawa	106,600	311,000	4,246,025	3,656,180
Peterborough	6,580	29,985	447,005	411,431
Preston	4,570	75,500	90,410	384,140
Smiths Falls	5,500	6,150	114,950	213,355
St. Catharines	33,701	96,865	732,108	623,128
Toronto	814,468	1,987,027	19,120,370	24,247,631
Wetland	5,165	61,554	328,150	476,255
St. Thomas	6,610	13,800	355,991	149,991
Windsor	30,325	120,000	1,042,643	945,400
Woodstock	5,340	7,200		
Total (East)	\$2,439,491	\$10,420,382	\$55,066,187	\$66,580,229
Port Arthur	16,180			
Western Cities				
MANITOBA—				
Winnipeg	100,150	1,325,300	13,662,500	17,625,750
St. Boniface	10,788	59,350	789,934	965,610
SASKATCHEWAN—				
Regina	26,325	1,745,175	385,300	3,938,375
Moose Jaw	8,600	64,275	440,460	4,089,670
Weyburn	2,050	17,550	324,750	159,150
ALBERTA—				
Edmonton	323,200	546,925	4,871,327	8,808,100
Red Deer	3,850	5,525		
Medicine Hat	4,535	228,360	1,788,982	3,749,655
BRITISH COLUMBIA—				
Vancouver	55,747	174,200	2,860,236	9,948,238
Victoria	98,875	159,060	2,114,025	3,471,020
Kamloops	7,325	34,750	152,549	271,747
New Westminster	63,042	105,205	244,462	910,160
Oak Bay	2,200	22,700	282,716	758,683
Vernon	200	7,540	44,000	164,133
Total (West)	\$ 706,887	\$ 4,493,915	\$27,961,241	\$ 54,880,291
Grand Total				
(39 cities)	\$3,146,378	\$14,914,297	\$83,027,428	\$121,460,520

(Courtesy of Financial Post.)

Effect of the War on the Window Glass Trade

BY W. L. EDMONDS

ONE of the principal Belgian industries which the war has for the time being put out of business is that of glass manufacturing.

To Belgium, glass manufacturing is almost as important as chemical manufacturing is to Germany.

Her exports of glass and glassware total 100,553,545 francs, or \$19,406,834.

As Canada imports over \$1,200,000 worth of glass of all kinds from Belgium, of which a little over a million dollars' worth is common window and plate glass, she is naturally very much interested in the situation which the war has created.

Of course, it is in regard to common window glass that Canada's interest chiefly lies, nearly 41 per cent. of her total imports coming from the war-stricken little country.

The following table shows the quantity and value of common window glass imported by Canada during the fiscal year ended March last, and the countries which were her sources of supply.

Canada's Imports of Common Window Glass in 1914.

	Quantity in sq. ft.	Value.
United Kingdom	13,946,781	\$ 461,623
Belgium	23,495,425	613,773
France	67,400	1,901
Germany	82,491	2,708
United States	10,334,726	417,374
Total	47,926,823	\$1,497,379

Last year was an off year in our imports of common window glass, the total from all countries being nearly 8,000,000 square feet less than in 1913. But in spite of this the imports of 1914 were 106 per cent. larger than five years ago. The imports from Belgium increased nearly 51 per cent. in the five-year period.

With Belgium no longer a source of supply, it, of course, follows that Canada will be compelled to look elsewhere for the quantity of window glass that hitherto came from that country.

Benefit to Canada's One Factory.

There is only one factory in Canada at present manufacturing common window glass. That factory is located in Thorold, Ont., and was started about eighteen months ago. In the natural order of things we may expect some additional business to go to that concern, but how much time only and the ability to supply the demand will determine.

We cannot expect much or any increase in imports from Great Britain on account of the number of workmen who have left the factories to join the army. One company alone has lost two thousand of its employes in this way.

American Glass Factories Chief Beneficiaries.

Judging from the present situation, it naturally follows that the country which stands to gain the most as far as the Canadian market is concerned is the United States.

Even before the war broke out American glass was coming into Canada in increasing quantity. In 1909 our total imports of common window glass from the United States were only 430,141 square feet. During the last fiscal year they swelled to 10,334,726 square

feet, an increase of over 2,100 per cent. in the five-year period.

What has no doubt contributed to this increase is the change made in the rate of customs duty in 1910. Prior to that time the rate of duty on American glass was 2½ per cent. higher than the intermediate rate, under which Belgian glass came into Canada. Under the change made in 1910, the maximum was reduced to 12½ per cent., the same as the intermediate rate. The preferential rate remained unchanged at 7½ per cent.

Effect of the War on Prices.

Since the outbreak of war the price of window glass has advanced materially. Star brand, for example, is nearly 45 per cent. higher on the first break, the ruling net wholesale figure now being \$5.20.

This is probably a record price. At any rate, the records for a period of about twenty years do not show any such figure. Even during the great strike in Belgium the net figure for first break did not come within 95¢ of that which is now ruling.

The low point which prices touched last summer was due, on the one hand, to the heavy stocks held, and on the other to the decrease in the demand. The situation is now entirely different as far as stocks are concerned.

Glass and the Foot and Mouth Disease.

One thing that has tended to make stocks of window glass lower on the Canadian market than they otherwise would be is the foot and mouth disease among cattle in the United States.

It is a far cry from the foot and mouth disease to glass, but where the latter is affected by the former is that the Canadian Government has prohibited the importation from the United States of any articles packed in straw. The immediate effect of this order was the holding up of shipments of glass at the border. This, however, is now being overcome by packing the glass in "excelsior." But this has added slightly to the cost on account of the increased bulk and weight of the packages.

Situation in United States.

In the United States the glass industry has suffered considerably owing to the general adverse trade conditions. During the past few weeks, however, there has been some improvement, and several of the furnaces have again been put into operation.

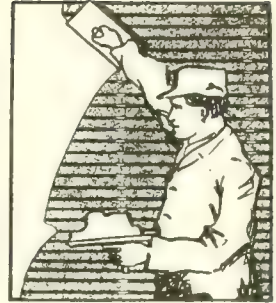
The situation in the United States is now fairly strong. Two or three factors have contributed to that. In the first place, foreign competition has been almost eliminated on account of the war. The recent destructive fire which visited one of the Pittsburg plants, coming at a time when stocks generally throughout the country were much reduced, is another factor. An advance of 5 per cent. in wages is still another.

While the demand for glass in the United States is much curtailed on account of the slackness in the building trade, the manufacturers over there are looking for a larger output. First on account of the elimination of foreign competition, particularly at seaport towns, and secondly, on account of the anticipated increase in the export demand.

It is a long time since the glass industry was as interesting as it is to-day.



Brick Work *and* Plastering



Figuring Brickwork in Building Construction

The cost of brickwork must, of course, vary considerably in different parts of the country, owing to the wage scale and the cost of bricks, sand, lime and labor. The rather arbitrary rules figured by masons to ascertain the cost may serve as a general guide in figuring out estimates, but they are frequently far off the actual cost. The only sure way for taking up the problem intelligently is to study all the various items carefully, and then make estimates for the particular job based on this data. If one is considering a job of any size great care should be exercised in verifying these figures.

In making such estimates the cost should be made first on the materials and then on the labor, including all incidental expenses. A rule that is adopted by engineers, for brickwork, is to figure on 14 bricks per square foot of 9 in. wall, and 21 bricks per square foot of 13½ in. wall, making deductions for all openings. This means an allowance of 7 bricks per square foot for each half-brick thickness of wall.

If we accept this method of figuring we have 48 sq. ft. of 12½ in. wall for each thousand bricks, or practically 2 cu. yd. This is frequently taken as the standard unit of measurement. Masons, however, usually figure on 22½ bricks per square foot of 12-in. wall, which includes all openings and corners.

In former years manufacturers of bricks had a few standard sizes, and it was much simpler to apply the arbitrary rules for estimating by the thousand; but today the size and thickness of bricks vary considerably, and the tendency is to increase the number. The unit measurement must, therefore, show wide variation in different localities. The average size of bricks is generally placed at 8¼ to 8½ in. long, 4 in. wide and 2¼ to 2⅜ in. thick. But there are plenty of bricks both larger and smaller than this size. Some in New York are used as small as 7½ x 3½ x 2 in., and as large as 9 x 4¼ x 2½ in. The larger size with joints will lay up 800 to the thousand in a wall of standard measurement, and the small size 1,100 and more to the thousand-brick measurement.

Variation in Sizes of Brick

Bricks vary in price as in size, and while \$6.50 to \$7 per thousand may be the average price at the yard they may in some instances cost \$8 to \$10 per thousand or seconds as low as \$6 per thousand. The quality of the bricks must be clearly specified before any figuring can be undertaken. The cost of getting the bricks delivered varies greatly, depending upon conditions. Usually in cities, where brickyards are near, the manufacturers charge a uniform price for delivery. If shipped by train from the brickyards, the cost of freight, unloading and hauling must all be added to

the cost of materials. These charges may amount to several dollars per thousand in some localities. The condition of the streets and roads makes an important factor in the situation. For instance, while a team may haul 1,500 bricks as a load across good city streets, the same team could barely haul more than 500 bricks over rough dirt roads of the country. All these factors must be considered before the contractor can place an estimate to yield a profit.

The cost of mortar and scaffolding required should next be taken up. Of course, the amount of mortar used depends upon the thickness of the joints, and the joints vary a good deal in different classes of work. Taking the standard joints as a guide the amount of mortar required per thousand bricks will be as follows:

TABLE 1.

With ¾ in. joints	1.2 cubic yards of mortar
With ½ in. joints	2.3 cubic yards of mortar
With ¼ in. joints	4.5 cubic yards of mortar

The amount of mortar needed being ascertained, it is next wise to proportion the ingredients so that orders can be placed accordingly. Lime mortar is used to-day only in the cheaper class of structures, and it should never be used in any heavy work, neither should it be used when exposed to great dampness. In engineering structures and in underground work all cement mortar is frequently specified and used. But for the majority of jobs sand and Portland cement in the proportion of 1 to 3, 4 or 5 are used for the mortar. To make up a cubic yard of 1 to 3 mortar there will be required .85 cu. yd. of sand and 2 bbl. of Portland cement or lime. Usually both lime and cement are used with the sand, but these vary considerably in proportion. One part lime, one part cement to six parts sand is a common specification.

For a cubic yard of mortar then, with sand at 50 cents per cubic yard, lime at 50 cents per barrel, and cement at \$1.75, we would have about the following cost with a proportion of 1 to 3 lime mortar:

TABLE 2

0.85 cu. yd. sand at 50 cents	\$0.43
2 bbl. lime at 50 cents	1.00
Total	\$1.43

A richer and better formula of lime, cement and sand in the proportion of 1 to 1 to 2, would have the following cost:

TABLE 3

0.85 cu. yd. sand at 50 cents	\$0.43
1 bbl. lime at 50 cents	.50
1 bbl. cement at \$1.75	1.75
Total	\$2.68

For a strong cement mortar commonly used for engi-

ingering and underground work with a proportion of 1 to 3, we would have this

TABLE 4

1 cu. yd. of sand at 30 cents	\$0.43
2 lbs. cement at \$1.75	3.50
Total	\$3.93

The cost of sand is purely arbitrary, and cannot be fixed. It can often be obtained for the cost of carting, but it rarely costs as much as \$1 per cubic yard. However, this must be considered for each locality, and prices obtained before any estimates are put in.

If 1,000 bricks of $8\frac{1}{4} \times 4 \times 2\frac{1}{4}$ in. were piled up solid without mortar they would occupy 1.65 cu. yd. of space. If the bricks cost \$6.50 per thousand a cubic yard of them would then cost approximately \$3.96. This comparison will enable one to see at a glance the relative cost of bricks and mortar. In the case of the cement mortar the cost of bricks would be practically the same as the mortar, but for lime, cement and sand mortar the cost for the latter would be about one-third less than the bricks, and for plain lime mortar the difference in the cost is more striking.

Having analyzed the cost of materials, so that the estimator can get clearly in mind the relative amount and cost of the various ingredients of his trade, the labor cost should next be taken up. Labor is the one item that makes bricklaying so expensive in some parts of the country. The cost of materials is fairly constant throughout the country, but labor is not. This varies as greatly as the efficiency of the men themselves. High wages do not always mean high-grade, efficient workmen.

Bricklayers are paid all the way from 50 to 75 cents and more per hour. Probably 60 cents is as near the average paid throughout the country as can be made. Hod carriers and masons' helpers, who keep the bricklayers supplied with mortar and building scaffolds, receive from 30 to 45 cents and more per hour. These rates vary so materially that one can never figure on a job in another town or state without knowing exactly beforehand the union scale of wages prevailing there.*

It is never safe to assume that the same wages are paid in any two places. Many a contractor has lost heavily on contracts simply through failure to ascertain in advance the exact scale of wages prevailing in certain towns both for masons, laborers, hod carriers and carpenters. Figured on wage scale basis, one might ask how much does labor cost per thousand bricks.

Cost of Labor Per M Bricks

The answer to this depends upon the ability and efficiency of the men and the amount of work the contractor can get from them in a day. While working on narrow piers and projections, the laying of 500 bricks by a man may be considered a good day's work, the average on a 9 in. wall may be at the rate of 1,100 to 1,400 in a nine-hour day. On 13 in. walls the average should run as high as 1,300 to 1,600 bricks, and on an 18 in. to 22 in. wall from 1,500 to 2,200 bricks in nine hours per man. On heavy foundations, where the work is the simplest, it is not uncommon for bricklayers to average 3,000 bricks a day, and even 5,000 bricks have been laid by bricklayers when rushed.

On buildings equipped with an elevator and distrib-

* A scale of the wages paid in the principal towns and cities of Ontario was published in the November issue of Canadian Builder and Carpenter. See List of Prices in this issue for Canadian prices of brick.

uting arrangements, the labor of laying bricks may be as low as \$1 per thousand, but on high buildings and narrow walls the labor may run all the way from \$2 to \$4 per thousand. The cost of scaffolding must be considered in all such contracts, for this takes labor and material. A carpenter must be employed for scaffold erection at rates ranging from 20 to 40 cents per hour. The carpenters may be withdrawn from some other part of the building to erect the scaffolds, but the charges for their time should be placed in the cost of bricklaying. It hardly pays to get masons or masons' helpers to erect the scaffolds. They do the work clumsily, and oftentimes in such a way that the scaffolds are dangerous. Besides this, it takes them much longer to do the work than a skilled carpenter. Hod carriers and mortar men are better at their particular jobs, and it rarely pays to attempt to turn them to another skilled trade even in emergencies.

The cost for laying a cubic yard of bricks in a wall may then be figured out as follows:

TABLE 5
MATERIALS

459 bricks at \$7.00 per M.	\$2.84
Freight on bricks	.56
1/4 cubic yard of sand	.11
Freight on sand	.06
0.22 bbl. of cement at \$2 per bbl.	.44
1 bu. lime at 20 cents	.20
Total	\$4.21

LABOR FOR CUBIC YARD OF WALL

Bricklayers	\$2.62
Laborers	.93
Carpenters	.39
Unloading materials	.58
Total labor	\$4.52
Total materials	4.21
Labor and materials	\$8.73

As 1,000 bricks of the average size, when piled up solid without mortar, make practically 1.65 cubic yards, and the amount of mortar used for good joints increases this pile so that the thousand bricks when laid up in a wall equal about two cubic yards, it will be seen that by doubling the above estimate for each cubic yard of wall we have the cost per thousand bricks at \$17.46, which includes all materials and labor.

The work figured by the ordinary rules for a snap estimate will be a few dollars under this estimate. But a snap estimate is never intended to be more than a guide. Masons generally employ the ordinary rule and then add a dollar or two to make sure of coming out even. There are many things which interfere with the proper working out of rules. The character of the wall, time lost through the non-delivery of materials, interruptions of one thing and another, and faulty work of some bricklayers which necessitates tearing down a part of the work, all tend to increase the cost. On the other hand, some contractors can stimulate their men to such efforts that they can get one third more work out of them. This, however, is something that is very uncertain and can hardly be placed in the calculations. Good work is essential to the success of a mason contractor, and he cannot afford to drive his men to the point that details are overlooked. Masonry must be sound, plumb in line and well set throughout to pass inspection, and a fault here and there in the walls may be sufficient to condemn the whole wall or building.—
Building Age.



Carpentry and Woodworking



Builders' Experiences With Power Woodworker

"I always build a shed in the rear of the job and place my 1 h.p. machine in it to do all my frame stuff, housing out of stair strings, and many other duties. I figure that on the time and material saved on a contract of 10 houses, I made the price of the machine. The machine is indispensable to me. To do without one now would be like riding a bicycle after owning a motor car."—G. H. Webb, Toronto.



Well-built pergola of neat design. This and the other photos illustrating this article are published by courtesy of Batts, Limited, West Toronto.

"I have just bought a new machine and, as yet, have not had a chance to give it a fair trial. One thing I did, though, was to cut holes for window pulleys in 44 pieces, eight holes in each, in less than two hours. I have been using a quarter h.p. machine, and it gave good satisfaction, except in a few instances when the power was not sufficient. I used to have the little machine right on the workbench and did all my frame work, stair work, ripping, etc. One of the beauties of a machine is that you seldom have to put a square on your frames. They are all cut square and all you have to do is nail them together.—Chas. Hills, foreman for J. J. Downey.

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Decorative Value of Lattice in Architectural Design

Anyone who is at all observant of houses cannot but remark on the increasing use of trellis and lattice work on the exteriors of modern design. It is a very charming revival of an old decoration. Not that all the early uses of lattice were beautiful or desirable, too often the only use made of the lattice was a high fence dividing the front from the back yard, and more ugly than the ugliness it was meant to hide. Generally this fence was painted a dark green, which intensified its ugliness.

Of late there is quite a return to the fashion of fences and lattice screen.

A modern trellis is an ornament and a decoration to grounds, while serving many utilitarian ends. Not only is it useful for shutting off some unlovely feature, but it may serve as one wall of a lovely retired garden, and a blackberry vine trained upon its southern side affords luscious fruit, as well as beauty of foliage.

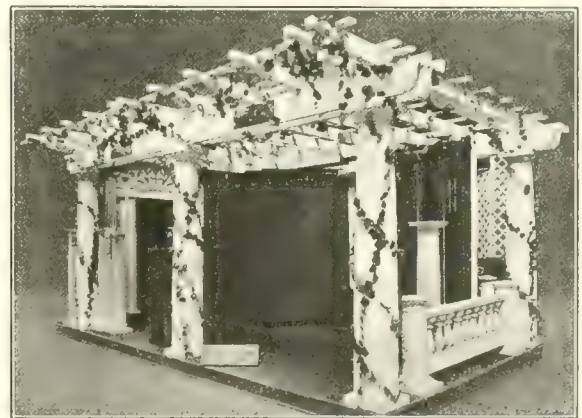
Trellis Must Have a Purpose

Restraint is an excellent thing to keep in mind in the employment of decorative features. Like too much trimming on a handsome gown, overdone ornamentation destroys its own intention and mars rather than adorns. More emphatically than most things, the lattice demands the "raison d'être." If it is just tacked on somewhere with no logical purpose to serve, it offends one of the principles of design.

When, for instance, one sees trellis work on the second storey of a dwelling without any ground connection it is meaningless and valueless. Since the underlying idea of the lattice is to serve as a support for vines, it must bear out that assumption, and at least appear to fulfil its proper functions.

Lattice Combined With Stucco

Lattice work is never more potent in its charm than when used in conjunction with stucco or cement plaster,



Attractive pergola for city or suburban home.

and to be at its best the lattice must be white against plaster of soft fleecy grey. We sometimes see brown lattice applied to tan colored plaster, but the effect is sad and unhappy.

The builder should look forward in his mind's eye to the greatly added charm, when the vines, just starting at the base, shall trail their slender branches up the lattice, running across from window to window, and swinging over to catch the arched hood of the entrance and hang from it in long, drooping sprays. Such ef-

feet, the real artist always takes into consideration, but he also aims at lines which are beautiful in themselves, even before the grace of the green foliage is added.

Lattice at House Entrance

Two houses with lattice recently observed by the writer—a white trim combined with grey stained shades in the one and brown shingle in the other. The clever use of lattice between the posts or pillars supporting the partition roof gave a feeling of being enclosed without losing the light and airy effect which belonged to the house. Even the stand pipe from the roof gutter is made an integral part of the design and has real decorative value.

Nor is the even simpler treatment of the square portico less charming. Every detail had been carefully planned. In one there was a break in the overhead



This view was on view at the Canadian National Exhibition.

lattice to receive the porch light, and provision made each side of the steps for the planting of the vines.

In a third house entrance there was the charm of lattice combined with plaster in a more elaborate, but not too ornate style. It was the garden entrance on the side of the house and delightfully related to the garden walks and bloom upon which it opened. The return of the lattice arch gave a real, though shallow, enclosure to the door.

Porch Latticework

The very well designed lattice treatment of terrace and porch makes a beautiful picture. At one house visited by the writer provision was made for planting in the large opening of the cement tile floor—a clever way of getting the true spirit of the lattice and the practical benefit of the floor.

Another installation showed pleasant glimpses of the white lattice and grey plaster through the delicate verdure of the rose vines, while the nodding clusters of rich crimson gave the lovely color contrast so satisfying to the eye. Lattice work is so simple, that when its principles are studied and its limitations observed, it can be easily applied by the house builder. The great point is to avoid anything freakish or outre in design.

Builders and Carpenters Could "Drum" up Business in Trellis Work

Not only is lattice work a fertile source of decoration for new dwellings, but it has many possibilities in the remodeling or rejuvenating of old ones. We have seen a very dismal old-timer, indeed, made into an up-to-date, modern looking house by the simple device of tearing off the old porch, covering the walls with metal lath and a coat of stucco and running lattice work around the front windows. Of course the exterior lines happened to be simple and well proportioned, a sine qua non for such a transformation. Equally of course a new entrance design had to be substituted

for the old porch. The thing to remember in any such experiment is the "spirit" of lattice work—which is simple, delicate and refined.—Henry K. Pearson in *Kenn's Magazine*.

Finishing Birch to Resemble Mahogany

The occasion not infrequently arises where it is desirable to finish birch in a way to resemble mahogany, and the following method, given in a recent issue of *The Painters' Magazine*, in reply to a correspondent of that journal who raised the question, may not be without interest to some of our readers: Birch, especially the black variety, will, when properly stained, make a very fine imitation of black walnut or mahogany, being of fine grain. By manipulation of several stains feathered mahogany can be closely imitated on birch. It is first stained and may be filled with mahogany-colored paste filler afterward, which will bring out the details with better effect. On top of this filler two coats of shellac varnish, when sandpapered, will give an excellent surface for polishing.

As birch has almost the color of cherry wood, a very strong stain is hardly necessary, but for work that is to be filled and shellac varnished and afterward polished, we would suggest the use of a rather fast-drying oil stain, made from burnt sienna and rose pink, both ground fine in oil.

Twelve ounces burnt sienna in oil and eight ounces rose pink or maroon lake in oil, beaten up with one quart liquid drier or japan, to which is added one pint of good inside varnish and one-half gallon of turpentine, will make one gallon of mahogany stain that will dry reasonably quick and should serve an excellent purpose.

Laying Ready Roofing

After a little experience there is practically no skill required in laying ready roofing. There is usually some difficulty experienced at first, however, as some advise laying it lengthwise, that is up and down, while others advise laying it crosswise, and most advise starting at the bottom. A correspondent in *Successful Farming* gives his experience as follows:

"Where one begins to lay roofing from the bottom, or eaves, he does not dare to nail on anything by which to hold himself steady while he applies the next strip above, as it would cause leaks in the roof.

"By beginning to lay the roofing at the top of the roof, one can arrange a good footing on the sheathing below each strip as it is applied, thus doing the work with much more safety and rapidity. Again, nails are dropped when one is laying roofing, and if the strips already laid were below where one was at work, they would be more than apt to step on these loose nails, cutting holes in the roofing.

"Roofing must not be laid while it is cool, as it not only will crack and break during application, but after it warms up it will crimp and 'buckle,' leaving an uneven, wavy surface. In other words, it expands, and often bursts out the nails, causing leaky spots where the heads pulled through.

"It pays to use an abundance of cement on each lap, and even after the roofing is laid I go over every seam, fairly flooding it with cement, hammering down the nails a little better, and painting their heads with this cement. All this further insures a waterproof roof and adds materially to the life of it.

"In laying roofing it is essential that the sheathing

be close—almost tight—to give a firm, unbroken surface.

“Sheathing always must be absolutely dry before roofing is laid on it, and where metal roofing is employed in covering sheds or other outbuildings, the poles frequently used as rafters must be thoroughly seasoned and dry, else they will rot out, and greatly damage the roofing.

“Last, but far from being the least, remember that it takes just as much time, labor and nails to apply a poor grade of roofing as it does the very best, and the latter will last almost indefinitely, while the former is apt to give away and spring a leak when least expected. This is another case where the costliest article is the cheapest in the end.—Family Herald and Weekly Star.



New Benson & Bray Catalogues

Now is the time for builders to collect information and catalogues of various kinds to be prepared for the resumption of building operations in the spring. Two useful catalogues recently received are from Benson & Bray, Limited, Midland, Ont. These are as follows:

Mouldings and Columns.—This is a loose-leaf catalogue of 26 pages, 14 x 8½ ins. This catalogue is a very important one, since it shows full sized cuts of all stock pattern moulding manufactured by them. Cutters are also kept on hand for special mouldings. Price lists are included.

Sash.—This catalogue and price list is 4 x 8 ins. Lists are given of various sizes of sash for different number of lights. Two pages are devoted to extras and special windows.



Quarter-Circle Stairs

The sketches herewith show quarter-circle stairs with five winders. Fig. 1 shows a ground plan, the rail on the left going upstairs. The tangents form the right angle ABC. Fig. 2 shows tangents, winders, and square steps unfolded. The under side of level rail, on the landing, is raised to suit long baluster on square step.

The wreaths over winders have equal pitches, the upper part being TN, the lower TL, and the height RL.

To find a direction for ordinate, extend LT, cutting at P, which gives PR. Transfer this to extended side of square, Fig. 3, where corresponding letters are shown. Let square equal that on plan. Draw ordinate and make seat square with it. Let height equal that on right, at Fig. 2. Then draw pitch and construct mould. Tangents LTN, to be correct, must equal corresponding letters on pitch, Fig. 2. I have recently constructed stairs of this design, and can say with certainty that this method is correct.—Geo. T. Hare, in Wood-Worker.



Cypress and Where it is Found

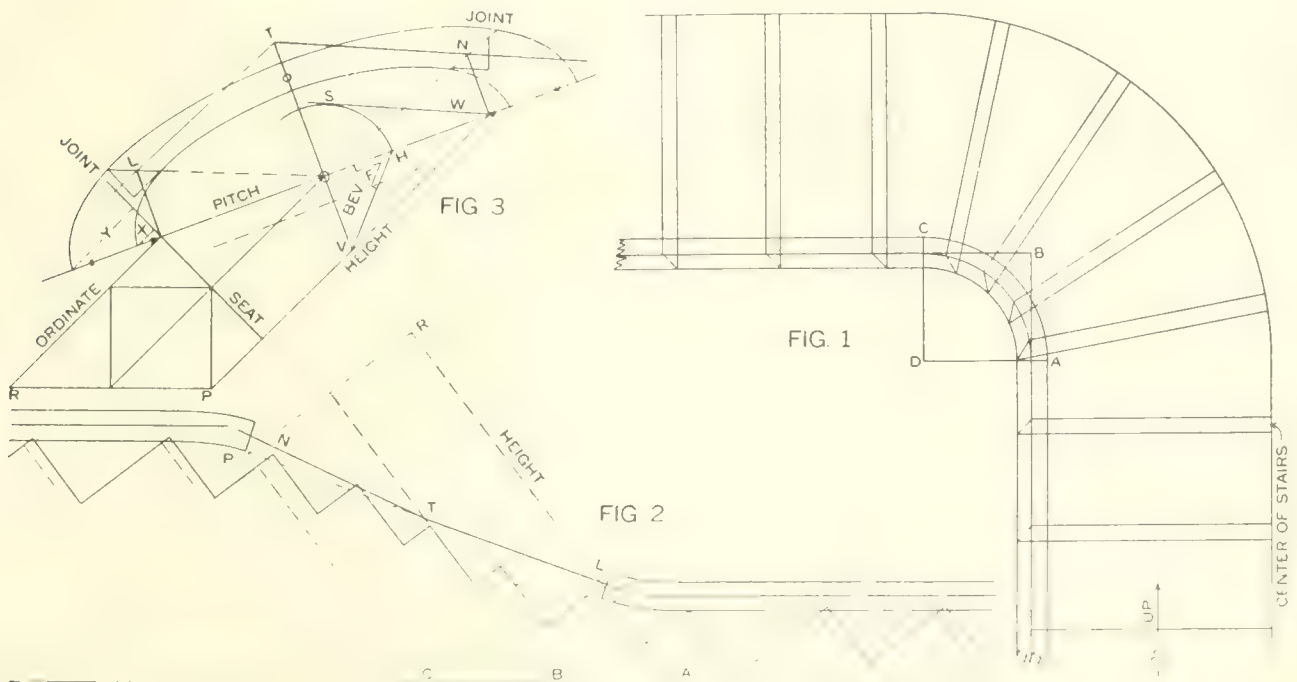
Cypress is noted as the most durable of the woods of America, especially in moist situations. It grows on lands which are usually submerged during most of the year, and grows very slowly. Most of the commercial lumber is cut from trees at least two hundred years old, so, when the present supply is exhausted, it is doubtful if the wood will ever be reproduced commercially. The tree inhabits the Southern States, and is not found north of Southern Delaware.

The wood is soft and light, with a fine grain and texture. The grain is usually straight, but often wavy or curly. The wood has a greasy feel, but is not excessively resinous. The lumber is rather difficult to season, but holds its shape once it is seasoned, tools easily, and lasts indefinitely. The greatest quantity of this wood goes into building construction for outside work, foundation timbers, and interior trim.

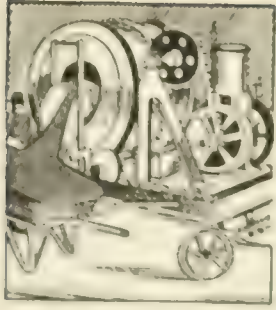


New Building Inspectors at Hamiton, Ont.

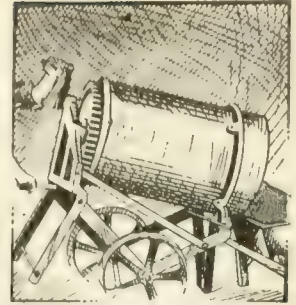
At a recent meeting of the board of control of Hamilton, Ont., J. C. Wardrope, Cannon Street East, Hamilton, was appointed chief building inspector for Hamilton, at a salary of \$1,400 a year, and William White-lock, 126 Emerald Street North, was appointed assistant inspector at a salary of \$1,300 a year.



Sketch showing quarter-circle stairs, with five winders.



Concrete Department



How to Erect Small Concrete Buildings

The present insistent demand for the substitution of durable, sanitary and fire-resisting materials for those not possessed of these properties has been a pronounced factor in hastening the adoption of concrete.

Small buildings for one purpose or another are always required upon the farm. These structures include poultry houses, hog pens, smoke houses, wagon houses, garages and buildings designed for storage purposes. The purpose here is to describe briefly a method of constructing such small concrete buildings. Dimensions may be increased or reduced as occasion requires. Where enlarged upon and supplied with proper conveniences, a building of this character would answer admirably for a small residence. If the natural color of the concrete is objectionable, it may be coated with a wash in any color desired, thus making these small

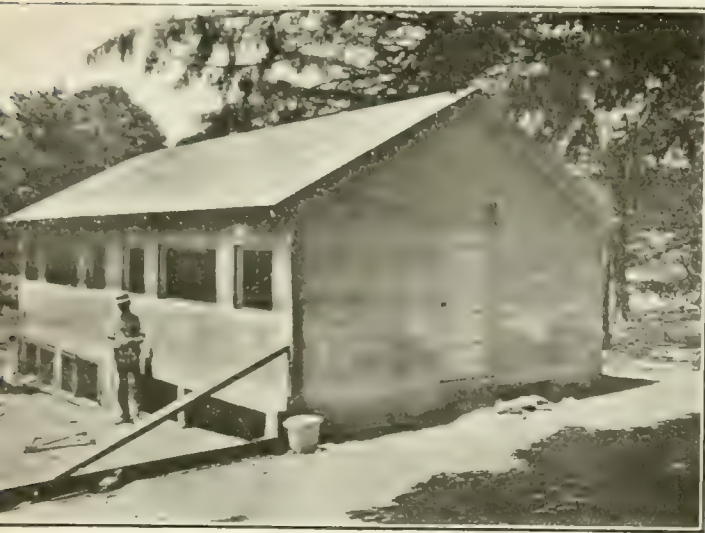


Fig. 1. A concrete poultry house. This building rests on concrete piers and has a concrete floor, partition and walls. The walls are only 4 inches thick.

structures a picturesque as well as useful appurtenance to the main buildings of the farm.

The Foundation

Let it be assumed that the building is to be 8 feet wide by 12 feet long with a height to the eaves of 7 feet, inside dimensions. A building of this size might be suitable for several of the purposes mentioned above. The foundation should be 12 inches wide and 3 feet deep, which will carry it below frost line. Mark on the ground a rectangle $7\frac{1}{2}$ feet wide by $11\frac{1}{2}$ feet long. Outside of this rectangle mark a larger rectangle $9\frac{1}{2}$ feet wide by $13\frac{1}{2}$ feet long. This will leave a space of one foot between the lines all round. Dig between

these lines to a depth of 3 feet. This forms the foundation trench. The concrete for the foundation should be mixed in the proportion of 1 part Portland cement, $2\frac{1}{2}$ parts sand, and 5 parts stone or gravel. Fill in the foundation trench with concrete to ground level, being careful to prevent earth from the trench walls from falling into the concrete. The top of the foundation should be brought to the surface of the ground and made perfectly level. To insure this test it with a carpenter's spirit level.

The Walls, Windows and Doors

The walls of a building of this size will need to be only 6 inches thick and they should be erected on the centre of the foundation, leaving 3 inches of foundation on both sides. The forms can be made complete, and, if more convenient, can be assembled flat on the ground and then raised into position. The wall forms should be made of 2 x 4-inch studding placed upright and spaced about 2 feet apart. Upon this studding should be nailed, horizontally, 1-inch boards. These boards will be next to the concrete and must be fitted together, so as to insure a tight joint, and if it is desired to give a very smooth surface to the finished wall, the joints should be carefully matched. The forms, to prevent them from spreading, are tied by means of twisted wire passing between the 1-inch boards and around the upright studding, as shown in Fig. 3.

To provide for the window openings a rough frame made of 1-inch boards, 6 inches wide, should be set in the forms at the proper location. Sometimes, after the forms have been filled with concrete to the height of the window, the window frame itself is placed in the form and the concrete cast around it. The openings for doorways should be made in the same manner. As soon as the forms for the walls—both the inside and outside forms—are in place and made plumb, the concrete can be deposited between them. The top surface of the concrete previously placed in the foundation should be rough but thoroughly clean and very wet in order that a good bond between the concrete in the foundation and the concrete in the wall will result.

To prevent the development of cracks in the walls it is a very good practice to reinforce them with fence wire or light rods, running in both directions. This is not absolutely necessary, however, for a very small structure, but in any case it would be well to place in the corners where the walls join, light rods bent in the shape of an "L." These rods should be 2 or 3 feet long and placed about every 12 inches of height. The frame for the doorway should be placed in position before the concreting is started. It is sometimes the custom to tack lightly to the door frame a strip of wood tapered so that its larger side is in the concrete. When the rough door frame is removed the strip remains in the side of the door and can be used for fastening the

door hinges. Some prefer to dispense with this strip of wood. They drill directly into the concrete wall in providing for hinges.

Mixing and Placing the Concrete

The concrete for the walls should be mixed mushy wet and in the proportion of 1 part Portland cement, 2 parts sand, and 4 parts stone or gravel. In placing the concrete spade it thoroughly with a thin board paddle, thrusting the latter between the forms and the

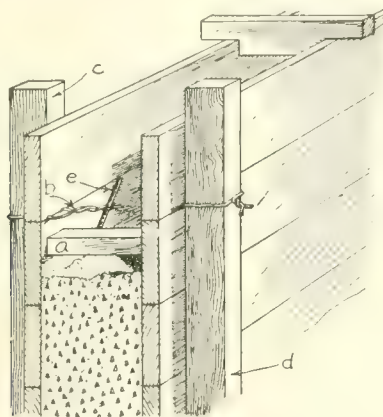


Fig. 3.—Method of tying forms with wire to prevent them from spreading.

concrete in order that the stone or gravel may be forced away from the forms, which will leave a smoother surface than would otherwise result. This not only allows the rich mortar to flow against the forms, but prevents the formation of air pockets and projecting stones at the surface of the wall. It will be found convenient to place the concrete until it reaches the height of the window-sill. The window frames are then placed and the concreting continued until the height is about 2 inches above the top of the windows. Then, in order to strengthen the concrete over the window openings, lay two $\frac{1}{2}$ -inch steel rods over each window. These rods should be long enough to extend about a foot on each side of the window space. In a similar manner rods should be laid over door openings, these rods to prevent any cracking of the concrete over the openings. The balance of the concrete is then deposited until the height of the eaves is reached.

Roof Construction

On the top surface of the wall there should be imbedded vertically in the fresh concrete $\frac{1}{2}$ -inch bolts with the heads down. These bolts extend about 12 inches into the concrete and about 6 inches above. They can afterwards be used in fastening down the wooden sill, to which the rafters are attached, if the roof is to be constructed of wood. Either a flat or a peaked roof can be used. If a flat roof, it is sometimes the practice to arrange for rectangular pockets in the top of the walls, into which the roof beams can be set. When a flat roof is to be constructed make one side of the building lower to provide sufficient pitch for drainage. The forms for the walls should be left in place about one week and no weight should be placed on the walls for three weeks or one month.

If a concrete floor is desired, proceed as in the case of sidewalk construction, that is to say, put down a layer of cinders or gravel and place over this the concrete pavement. Make this of a $1:2\frac{1}{2}:5$ mixture of

Portland cement, sand and stone. To prevent the concrete pavement from cracking divide it into sections or slabs, say 3 or 4 feet square, being sure that the joints extend entirely through the concrete.

If a wooden floor is preferred, the beams or stringers may rest upon the 3-inch projection of the foundation walls.



Economy of Concreting in Cold Weather

To keep money tied up in unfinished work because of cold weather is not good economy. An unoccupied building returns no dividends. Custom decrees a cessation of concreting during the winter, but this precedent should be upset. Work should go on, and with reasonable precautions is safe and efficient.

Each year sees more big work in reinforced concrete prosecuted throughout cold weather, and since contractors are generally less busy at that season, attractive bids often may be obtained. One case in point shows the situation clearly. A warehouse was built during the winter with added profit to both owner and builder; to the former, because his money was tied up for the least possible period; and to the latter because his plant was kept busy and his overhead expense in the otherwise quiet season was made productive.

The methods pursued were not costly, consisting only in heating water and aggregates, and in protecting freshly placed concrete by means of canvas enclosures and salamanders sufficient for a complete floor.

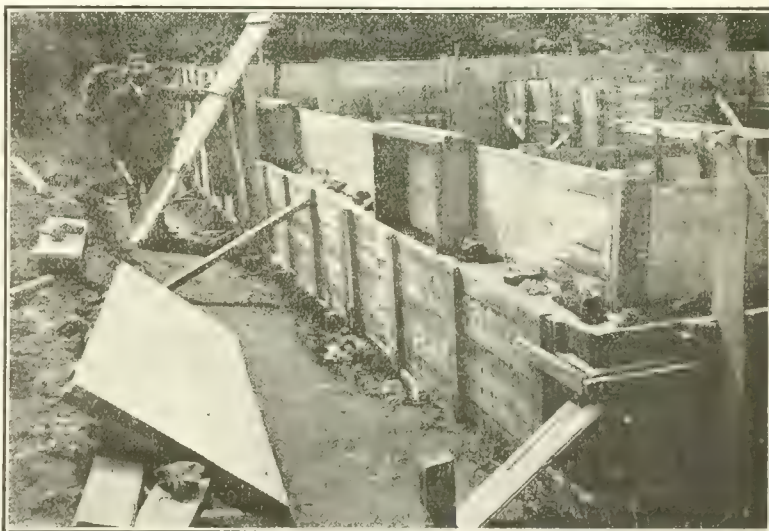


Fig. 2. Sectional form for concrete wall construction.

On account of the soft sub-soil, in this particular case, it was necessary to drive piles to support the concrete footings. Columns vary from 20 to 28 inches in diameter and are set on 17-foot centres except on the curve along the tracks. Beams between columns at each floor level support the curtain walls. Turner Mushroom reinforcement is used in the 7 to 8 inch slabs forming the floor. The slabs covering the extra elevator shaft are so built as to be easily removed when an additional elevator becomes necessary.

A 1:2:4 mix was used for all concrete work except columns where the mix was $1:1\frac{1}{2}:3$. A fixed mixer, tower and hoist served for distributing the concrete to all parts of the building.

The structure presents nothing out of the ordinary

except the one fact that it was built during the otherwise unproductive winter season. Contractors of good standing would not long continue to build irrespective of low temperatures if the added profits from all year operation did not more than offset the additional cost of protection. Their continued operation is sufficient proof of the safety and economy of cold weather concreting.

News of Builders' Exchanges

New Laws Re Tendering

At the meeting of the Board of Education of the city of Toronto, held recently, the following motions were carried and are now in force:

1st—That each and every tender for work or supply must have a marked cheque or cash attached thereto.

This means that no more reference to "cheques in the hands of the board" will be accepted and that any tenders without a cheque or cash attached will be thrown out.

2nd—That all cheques of unsuccessful tenderers (except that of the next to the lowest) must be returned to the contractors by mail the morning after the property committee meeting at which they are opened.

These two matters are ones that the Toronto Builders' Exchange have been asking the school board to enforce for some time.

Another motion was put forward to the effect that for all contracts requiring sureties, such sureties should be furnished by a surety company.

The board, while agreeing to this, referred it to the finance committee to put into the best form possible, to lessen the hardship, if any, to the contractor.



Notes on Montreal Exchange

The question of establishing a system of quantity surveying for the use of contractors has become a live issue in Montreal. It has been advocated and explained in trade journals all over the United States and Canada for a considerable time, especially in the last two or three years; and a few quantity surveying associations or bureaux have been organized in the United States. A committee of the Architects' Association of the Province of Quebec has been studying the question for some months, and after receiving a favorable response to a canvass of their members the chairman of the committee, Mr. D. Norman MacVicar, invited a committee of the Montreal Builders' Exchange to meet the committee of architects for conference on the subject. The conference took place in the offices of the P.Q.A.A., in Beaver Hall Square. The architects were represented by Messrs. MacVicar (convener), P. J. Turner, R. H. McDonald and S. Warwick. The Exchange was represented by Messrs. Sayer, vice-president of the Exchange (convener); John Quinlan, E. G. M. Cape, W. E. Potter, R. J. McCauley and the secretary.

The proceedings opened with remarks by Mr. MacVicar, the chairman, on the objects of the quantity surveying system and its advantages as practised in England and Scotland. Extracts from papers and lectures by Mr. G. Alexander Wright, one of the vet-

eran advocates of quantity surveying in the United States, were read and discussion of the subject followed. The majority of those present appeared to be strongly of the opinion that there was much room for improvement in the matter of taking off quantities and would welcome any practical arrangement that would bring about an improvement with regard to accuracy and economy and at the same time would facilitate or expedite the work. The amount of duplication in time, energy and expense involved in the existing practice of every contractor taking off his own quantities; and the amount of guesswork and error due to haste or incompetency in the same connection were the principal objections urged against the system or lack of system at present tolerated. At the same time there were questions raised regarding the guaranteeing of quantities, the competency of surveyors, the cost of operating a surveying bureau and the system of raising the necessary revenue, that could not be answered at once and were left over for future consideration. Both committees will report to the parent bodies and another joint meeting will be held in a month's time. In the meantime members of both organizations are requested to study the question in the light of constructive criticism.



St. Lambert and District Building Co., Limited

A charter has recently been granted the St. Lambert & District Building Co., Limited, 135 Victoria Avenue, St. Lambert, Que., and stock is now being offered for sale.

The board of directors of the company consists of the following: T. Percy Webster (Mayor of St. Lambert), president; Edmond Desaulniers, (notary public and member of town council), vice-president; and George M. Wight (managing director Monarch Electric Co., Limited), Robert J. Ward, and H. E. Markham.



Organizing Big Plan to Reduce Building Costs in Ottawa

A movement has been set afoot in Ottawa to reduce the cost of building by twenty to thirty per cent. At a meeting of the Builders' Exchange, recently, the matter was talked over and the organization of the movement planned. Those behind the move believe that it can be accomplished, thereby providing much work in the city this winter.

"One scheme is just similar to that of the merchant who finds he has a lot of overcoats on hand," one of the organizers states. "He marks them down, puts the price tags in his window, advertises his price reductions and keeps his stock moving. We are going to try to do the same thing. We are going to offer cheaper building, materials and all else the same, but costing less. We are going to try to keep things moving."

Brick Men Showed the Way.

At the meeting committees were appointed from each trade to investigate the cost of material with a view to obtaining substantial reductions in the cost of every article which enters into building.

Already the brick manufacturers have made a remarkable reduction in the price of bricks. The boiler

and radiator manufacturers have reduced the cost of their product 10 per cent. With a proper canvass it is felt that there will be no difficulty in taking care of this end.

The head of a plumbing firm has stated that many of the materials used in his business had been reduced in price of late. For a while lead had increased owing to the demand from abroad, but even now lead was very little higher in price than formerly.

The Wages Problem.

While the price of material presents no great difficulty, think those behind the movement, the greatest problem is in making arrangements with the labor unions regarding a new scale of wages. It is thought that a lower scale for six months will be proposed, the reduction to be asked in some cases may go as high as ten per cent. The various business agents of the unions are being approached in the matter, and it has been stated that an agreement can be reached.

"The members of the exchange are pledging themselves to reduce their margin on building contracts to a fair working basis."

Architects Included.

Even the architects will not be exempt in the new plan. They will be asked to reduce their fees by ten per cent. At present there is little or nothing for the architects to do, and the builders feel that the architects' association will agree to the reduction in fees when the circumstances are explained.

Saving on Loans.

The builders, too, are facing the tight money problem, but think they see the way out. In this connection a statement handed out by an official of the Builders' Exchange says:

"The Builders' Exchange will also make a strong effort to effect an organization whereby the prospective builder can be put in touch direct with those who have money to loan on property, to eliminate the money broker, whose exorbitant demands at the present time for commissions on loans make it almost impossible for a client to enter on a building proposition, and to interest local capital, now lying idle in the banks, in loans on Ottawa real estate, than which there is no safer investment. The result will be duly advertised in the local papers when all the data is prepared and the man with a building proposition now laid away on the shelf will get facts and figures which should start him building at once."



Toronto Exchange Discusses Workmen's Compensation Act

On Tuesday, November 10, the members of the Toronto Builders' Exchange held a special meeting, at which the Workmen's Compensation Act was discussed. There was a large attendance.

President Oakley was in the chair and Mr. Hinsdale, of the commission, outlined the working of the Act as it affects building contractors. Much valuable information was brought out, which, for various reasons, may not be published.

Need of a Central Federal Labor Bureau

Builders' Exchanges and similar organizations have been asked to support a deputation to the premier in favor of the establishment and maintenance of a central federal labor bureau and free local bureaux. The question has been before the Government on several occasions, and the cabinet is pledged to introduce a bill next session.



Asbestos Building Materials

Asbestos, which is used in fireproof building, is found to a limited extent in Russia, Italy, Egypt, India, South Africa, and, in fact, in all parts of the world. But that which is mined in Canada is about all that is of much commercial value, as other varieties are either too brittle to utilize or too hard to mine. It runs in veins usually nearly parallel to the ground, in various thicknesses from a mere line to three or four inches thick. Some of these veins, however, reach a depth of 200 feet. In mining asbestos, after removing the surface of the earth, it is drilled and blasted the same as granite or any other stone.

This asbestos rock, when properly worked, produces long silk fibres, which are manufactured into fireproof goods of various kinds, one of the most familiar of which, no doubt, is the asbestos theatre curtain.

These asbestos, or rock fibres, are made into felt, much along the line that the felt for hats is manufactured. This felt is then saturated with Trinidad Lake asphalt, after which several of these sheets are cemented together with this material and thus made into ready roofings.

For shingles, these same rock fibres are mixed with Portland cement and other ingredients, put into moulds of various sizes and shapes, and subjected to intense hydraulic pressure. The various colors are mixed with these ingredients, producing shingles of a number of handsome shades.

Asbestos wood or lumber is also made in very much the same manner as the shingles. This is furnished in slabs of varying sizes so that it can be easily used for making fireproof partitions, fire doors, booths for moving-picture machines, etc.

Another use that is made of this material is in stucco, also wall plaster. Here the asbestos fibres take the place of hair ordinarily used, and the asbestos rock takes the place of sand.

Then there are pipe coverings and a number of other things used in building construction made of this peculiar material.

Another material which is fast gaining favor, chiefly because of its fire retarding qualities, is Mastie, for floors.

The importance of fireproof construction cannot be over-estimated, and that architects and builders are fast realizing this is shown by the big increase in the substitution of fireproof building materials for those of an inflammable nature.

This information was supplied by the Canadian H. W. Johns-Manville Co., Limited, Toronto.



In the new Dominion Bank Building, Toronto, every window unlocks out of its frame by a simple device, so it can be cleaned without the cleaner endangering his life.

New Equipment

New Wood Turning Lathe

The wood lathe shown in the accompanying illustration is a new one on the market and has features that make it of particular interest to carpenters and builders, cabinet makers, and, in fact, to anyone who has some wood turning to do, and who does not care to purchase a more expensive heavy lathe. It may be



New wood turning lathe placed on the market by W. A. Elliot, Toronto

installed in a cellar or workshop and run by any independent current.

With this machine may be turned out such articles as table and chair legs, balusters, fancy spindles, rosette work, and pattern work. It takes three feet between centres, and will turn up to five inches in diameter.

The lathe is equipped with one 12-in. rest and a 24-in. rest, with double socket, face plate, and screw and hollow chuck.

This lathe is a product of the factory of W. A. Elliot, Toronto, and may be run in connection with the Elliot woodworker, or, as stated above, from any line or countershaft. It can also be run in connection with the Elliot Woodworker, a machine that is attracting the attention of manual training teachers at the present time. The saws on the woodworker are protected by a hood, thus precluding any chance of accident to pupils not familiar with the handling of such tools.

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A New Ash Hoist

To builders erecting apartments, office buildings and, in general, any structures where there are gates, a grating or any opening on the sidewalk, the ash hoist shown

in the accompanying illustration will prove of interest. This hoist is a new one being turned out by the Herbert Morris Crane & Hoist Co., Toronto.

The hoist is usually fixed to the wall of the area-way of a building, and it is so arranged that when not in use the upper portion may be lowered down, so that no part projects above the sidewalk. The post of the hoist is telescopic, that is to say it slides up and down between steel guides, and the weight of the post and the jib is balanced by a counterweight.

The lifting gear generally consists of a Morris 90 per cent. efficiency spur-gear chain-block, or of a Morris triple-gear chain-block, if preferred, so that only a very small part of the effort of the operator is wasted in overcoming the internal friction of the gearing.

When it is desired to lift a can of ashes on to the sidewalk, the doors are first opened, then one pull on the balance weight serves to raise the hoist into its working position, where it is firmly held by a fixed stop.

The equipment includes a bale with hooks to attach the can to the hoist.

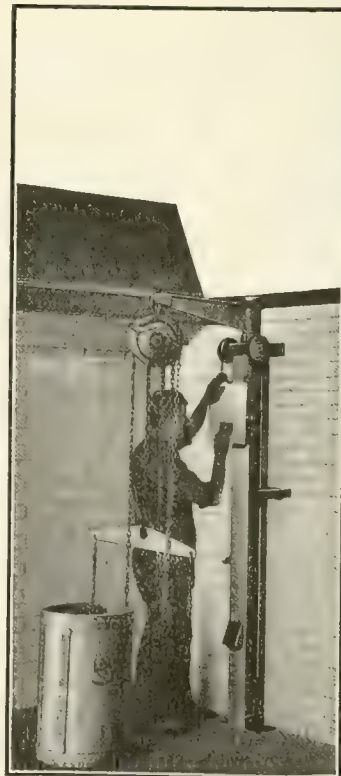
Five or six pulls on the hand-chain usually suffice to raise the can to the required height, and the jib is then swung around and the can deposited on the sidewalk. The hoist can be detached from the post when required and used for many other purposes around the building.

It is important to remember that the hoist can be operated either from the sidewalk or from the basement floor at will.

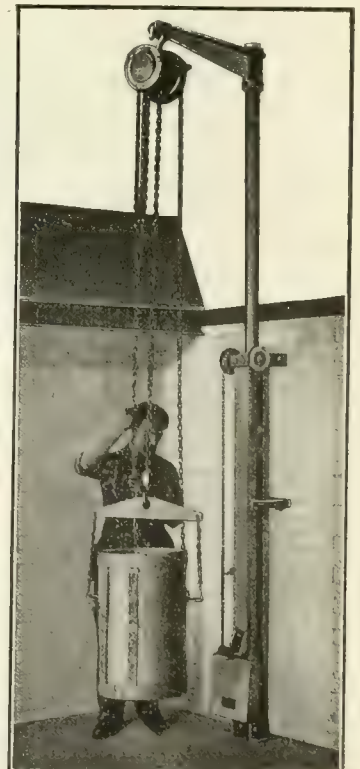
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Some discretion should be shown in the manner of piling forms when being removed, so that those needed first may be easily accessible.

The workman who only asks for the things he needs, when he needs them, is not likely to do much complaining about the difficulty of getting things.



Raising the hoist.



Lifting the ash can

Manufactured by Herbert Morris Crane & Hoist Co., Toronto

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

In some cases a range of prices appears. This is given to cover the variation in quotations given by different dealers, and also to cover slight variations in conditions of measurement or purchases, which space will not permit us to specify in detail.

We will be glad to give readers prices on materials not appearing here (hardwood flooring and hardware trim for instance), and also the names of dealers from whom such materials can be obtained. Such information will be supplied promptly if you write us specifying in detail what is desired.

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in. ...	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
7/8 x 8 and 10 in. pine shelving	36.00 to 45.00
7/8 x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	40.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft. ...	2.75

Shingles, Lath Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	\$2.30 base keg
Nails, cut, common	2.50 " "
Sash weights, cast iron	1.50 per 100 lbs.
Tarred felt paper .....	.43 roll
Building paper .....	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	17.00
No. 1 dry pressed buff bricks	21.00
Red stock bricks	11.50
Grey stock bricks	12.00
Wire cut brick for foundation work...	10.00
Fire brick	25.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	15c. foot

Price at Montreal—Continued

Cement, Plaster, Stone, Etc.

Cement (bags extra)	1.90 bbl.
Sand, for cement or brick work .....	.95 ton
Lime .....	.38 per 100 lbs
Hydrated lime	10.00
Mortar color	5.00 bbl.
Plaster of paris	2.35
Crushed stone, 2 in.	1.10
Crushed stone, 1 in.	1.00
Crushed stone, 3/4 in.	1.75
Hardwall plaster	\$9.50 to 12.00 neat 6.50 sanded ton
Gravel	1.35 yard
Hair (plaster) .....	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$23.00 to 29.00
2 x 4 in. to 2 to 12 in., 16 ft.	23.00 to 29.00
2 x 4 in. to 2 x 12 in., 18 ft.	25.00 to 30.00
1 in. hemlock No. 1	24.00 to 28.00
No. 1 hemlock decking	26.00 to 29.00
No. 2 hemlock dimensions and 1 in. ...	20.00 to 24.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$28.00 to 35.00
2 in. white pine, mill stock	29.00 to 34.00
7/8 x 8 and 10 in. pine shelving	33.00 to 40.00
7/8 x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	34.00 to 37.00
No. 1 spruce flooring	27.00 to 32.00
No. 1 pine decking, D2S	27.00 to 33.00
Spruce decking	27.00 to 32.00
No. 1 pine V. or beaded sheeting	35.00 to 39.00
No. 2 pine V. or beaded sheeting	30.00 to 33.00

No. 1 Common Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	\$24.00 to 36.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	29.00 to 38.00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	31.00 to 40.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke finish	\$41.00
5/4 x " " " " " " " "	45.00
6/4 x " " " " " " " "	45.00
8/4 x " " " " " " " "	45.00
4 4 x " " " " " " " " steam finish	45.00 to 50.00
5/4 x " " " " " " " "	48.00 to 50.00
6/4 x " " " " " " " "	48.00 to 50.00
8/4 x " " " " " " " "	50.00 to 55.00

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

Price List of Building Materials—Continued.

Price at Toronto—Continued

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.80 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	4.00 to 4.50
4 in. pine window stool, per 100 ft.	3.00

Hardwood Trim, Flooring, Etc.

Quotations will be given on request.
See editor's note above.

Shingles, Lath Roofing Etc.

XXX B. C. cedar shingles	\$3.60 per M
N. B. extras	4.00
No. 1 pine lath	5.00 to 5.50 per M
No. 2 pine lath	4.75 to 5.00
No. 1 spruce lath	4.25
Roofing	1 ply—\$1.60 per sq.
	2 ply— 2.00 "
	3 ply— 2.40 "

Cedar Posts—Fence

5 in. at small end .....	.25 each
7 in. at small end .....	.50 each

Hardware

Nails, wire, common	\$2.35 cwt.
Nails, cut, common	2.95
Sash weights, cast iron	2.00
Tarred paper .....	.65 roll
Building paper, plain .....	.50

Glass

United inches	Star	D.D.
Up 25	\$4.25	6.25
26-40	4.65	6.75
41-50	5.10	7.50
51-60	5.35	8.50
61-70	5.75	9.75
71-80	6.25	11.00
81-85	7.00	12.50
86-90	7.75	15.00
91-95		17.50
96-100		20.50
101-105		24.00
106-110		27.50

Less 5 per cent. on D. D. f.o.b. Toronto.

Wired glass	18c. to 20c. per sq. ft.
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Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$15.00 to 18.00 pr M
No. 1 dry pressed buff bricks	14.50 to 18.00
Red stock bricks	10.00 to 12.50
Sand lime brick	8.50
Grey stock bricks	10.50 to 12.50
Sewer brick	9.00 to 10.00
Wire cut brick for foundation work ..	8.00 to 9.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Tapestry brick	13.50 to 34.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	16c. foot
Verandah post caps, 16 in.	1.45 each
20 in.	1.75 "
Chimney caps, 1 flue in 1 piece	2.00 "
2 flues in 2 pieces	3.50 "
3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$1.85 bbl.
	(1.55 in car lots)
nd, for cement or brick work	1.20 a yard

Price at Toronto—Continued

Lime .....	.38 cwt.
Hydrated lime (Canadian)	10.00 ton
Hydrated lime (American)	11.00 "
Mortar color	black, 3; red, 1½
Plaster of paris	\$1.50 to 2.50
Crushed stone, 2 in.	1.20
Crushed stone, 1 in.	1.25
Crushed stone, ¾ in.	1.25
Hardwall plaster	8.60
	4.50 sanded
Gravel	1.50
Hair (plaster) .....	.07 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	\$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath .....	.16 to .20
Roofing felt (2-ply)	2.50 per roll

Hardware

Nails, wire, common	\$3.70 per keg
Nails, cut, common	3.70
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper .....	.75
Insulating paper	1.25

Glass

United inches	Single	Double
Up 25	\$5.50	7.25
26-40	\$6.00	\$8.00
41-50	6.50	9.00
51-60	7.00	10.00
61-70	7.50	11.00
71-80	8.00	12.00
81-85		13.50
86-90		15.25
91-95		17.75
96-100		20.25
101-105		22.75
106-110		26.25

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$25.00 to 50.00
No. 1 dry pressed buff bricks	30.00 to 40.00
Red stock bricks	25.00
Sand lime brick	12.00
Porous terra cotta bricks	18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	52.50
Oriental brick	35.00
Sewer pipe, 4-inch .....	.11 per ft.
Sewer pipe, 6-inch .....	.18½ per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$2.60 per bbl.
Sand, for cement or brick work	1.85 a yard
Lime .....	.34 per bu.
Hydrated lime	12.00 per ton
Mortar color .....	.05 per lb.
Plaster of paris .....	.75 per bag
Crushed stone, 2 in.	2.65 per yard
Crushed stone, 1 in.	2.90

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

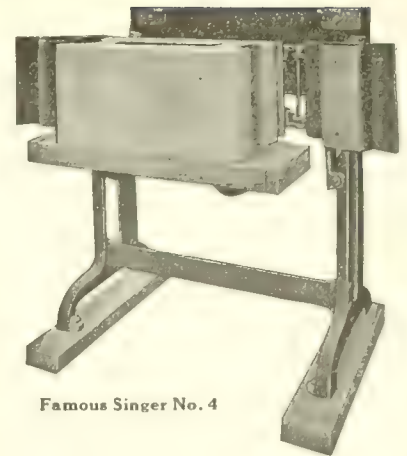
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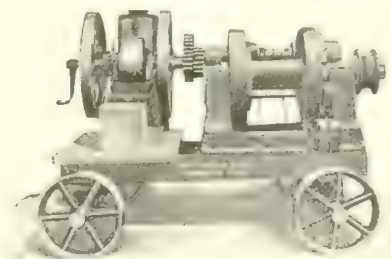
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Price List of Building Materials—Continued.

Price at Winnipeg—Continued

Crushed stone, 3/4 in.	2.90
Hardwall plaster	13.00 per ton
Gravel	1.85 per yard
Hair (plaster)	1.25 per bale

PRICE AT VANCOUVER

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	\$2.20 & 2.10 per M
No. 1 pine lath	2.25 per M

Hardware

Nails, wire, common	\$3.25 per keg
Nails, cut, common	4.25
Tarred felt paper .....	.90 per roll
Building paper .....	.70

Price at Vancouver—Continued

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$42.00 per M
No. 1 dry pressed buff bricks	42.00
Red stock bricks	13.00
Fire Brick	45.00
Sewer pipe, 4-inch .....	.25 per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$3.00 per bbl.
Lime	1.35 per bbl.
Hydrated Lime	4.25 per bbl.
Plaster of paris	4.50 per bbl.
Hardwall plaster	14.50 per ton
Hair (plaster)	14.50 per ton

RED
S

BRAND
WINDOW
GLASS



GLASS
BENDERS
TO
THE
TRADE

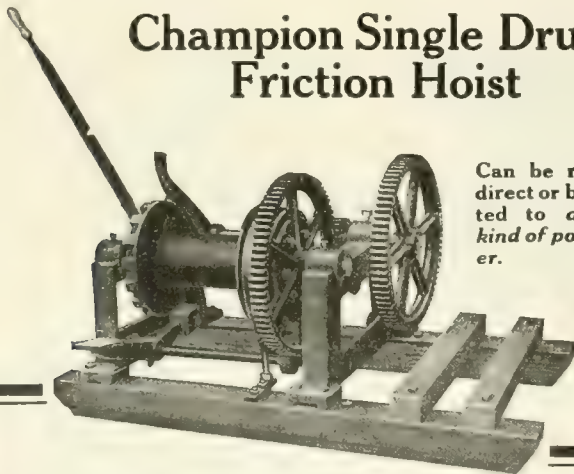
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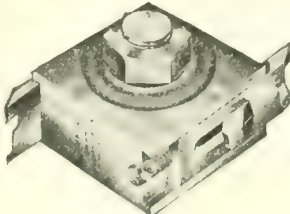
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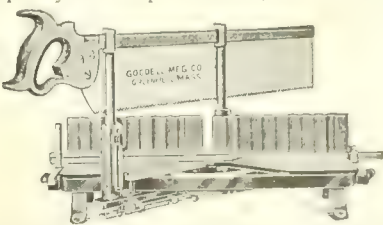
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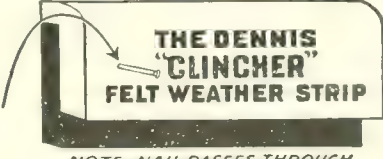
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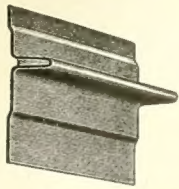
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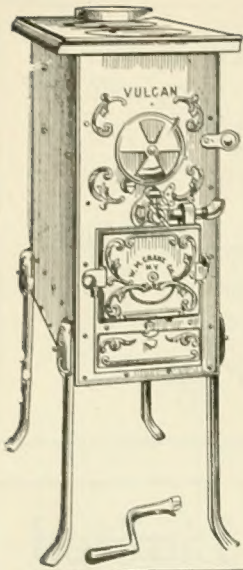
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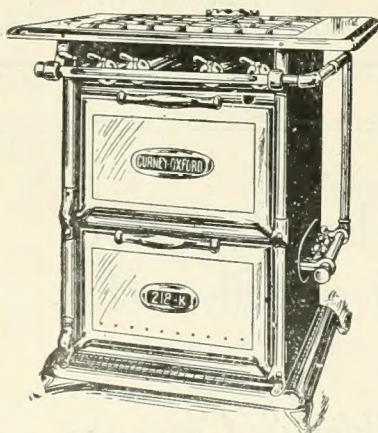
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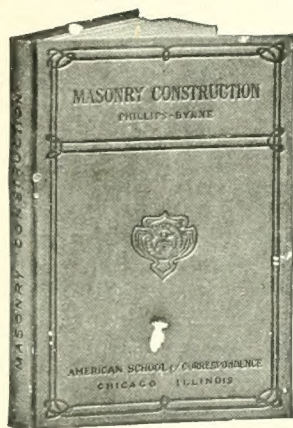
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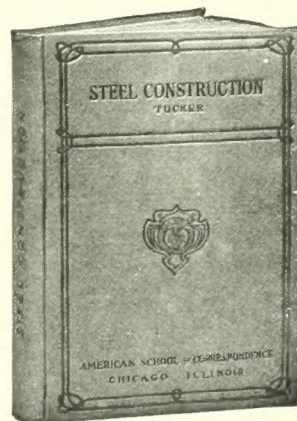
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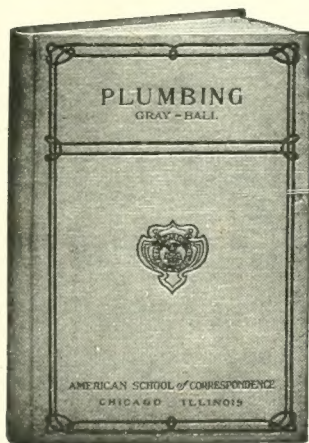
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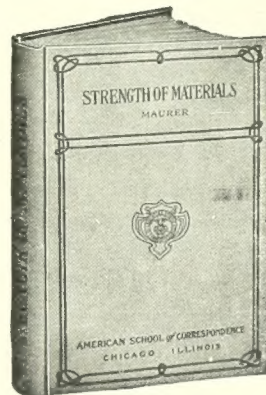
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