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BUILDING AGE
AND
THE BUILDERS' JOURNAL

NOVEMBER, 1922
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Contents

The Washington Memorial at Valley Forge .............................. 21
Variety in House Design .................................................. 24
Slight Changes in Details Prevent Sameness .............................. 25
New Departure in Building Construction: The Glass Front Factory .... 26
Comfortable Home with Attractive Porches ............................. 28
Quantity Survey of Comfortable Home ................................ 29
Let Us Think That We Build Forever, or the Present Magnitude of the Building Industry .................. 33
Colonial Architecture Lends Character to Modern Bank .............. 34
Attractive Bungalow of Seven Rooms .................................... 36
Reducing the Cost of Building by Year Round Construction ........ 37
What Are Building Costs? ............................................... 38
Methods of Placing Concrete in Cold Weather ......................... 39
Railroad Sets Example in Beautifying Homes ......................... 43
Making Convenient New Homes from Old .............................. 44
How to Protect Work and Workers During the Winter Season ....... 47
Painting in the Winter Time ............................................ 49
Profitable Work for Winter Time ....................................... 50
Some Points on the Use of Metal Lath. ................................ 52

Useful Catalogs .......................................................... 53
Four-Family Flat ......................................................... 54
What the Editor Thinks: Winter Building .............................. 55
Elimination of the Cellar ................................................. 55
How Long Can a Workman Labor Efficiently? ......................... 55
Our Cover Design .......................................................... 55
Quantity Surveys .......................................................... 55
Give the Boy a Chance .................................................. 55
Correspondence: Roadside Markets ..................................... 56
Locking Several Drawers with One Padlock ......................... 56
Successful Rust Remover ............................................... 56
What One Builder Did with Cobblestones ............................. 57
Ornamental Lattice Easily Produced ................................. 57
Storm Platforms and Steps ............................................. 57
Legal Department: Rights of Employers to Join in Restraining Unlawful Strike Measures ......................... 58
Liability Insurance Premium as Part of Contract Cost ............. 58
Performing Stone Cleaning Contracts ............................... 60
Right of a Student Architect to Compensation for Services ....... 60
Designing and Estimating Roof Work ................................. 62
News, Notes and Comments ............................................. 66
Review of the Building Situation ...................................... 68
Trend of Material Prices ............................................... 70

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Alphabetical Index to Advertisers ........................................ 120
Selected List of Manufacturers' Literature ................................ 74, 76, 78, 80, 82, 84
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Write for "Detail Manual, E-11."

THE STANLEY WORKS
NEW BRITAIN, CONNECTICUT

Manufacturers of Wrought Hardware and Carpenters' Tools
The Washington Memorial at Valley Forge

Winter work is the theme of this issue of BUILDING AGE AND THE BUILDERS' JOURNAL. We who are enjoying the prosperity of a wonderful country should pause and consider that all this would not be possible had it not been for the work done that one winter at Valley Forge by Washington and his army of patriots.

Were it not for the stout hearts and courage of the Continental Army to do Winter Work, very few of us, perhaps, would today be enjoying the comforts of a home in the United States. It is only fitting that we should perpetuate the record of their sacrifices in a suitable memorial at Valley Forge, Pa.

The words of Mr. Brady given here sum up the greatness of this beloved and historic spot, dear to thousands of patriotic Americans, and conceded to be the one shrine of American Patriotism to which every citizen should journey at one time or another and give it due reverence. The building work now being done there is of national importance and rightly deserves every possible bit of publicity given it.

The Washington Memorial, when completed, will be one of the greatest memorials in the world. It contains...
much of an educational value, holding in its mass many different kinds of workmanship that have been wrought through careful study and the benefit of education of a vast nature. Its conception has won the admiration of patriots, and its completion will give to the American people a group of buildings of rare beauty and unequalled significance.

The Washington Memorial stands upon a commanding site at Valley Forge, in full view of almost the entire encampment and facing the great National Arch, erected by the United States in memory of the officers and men who made these hills sacred ground.

The memorial will include the following structures: The Patriots Hall, Washington Memorial Chapel, Washington Memorial Library, Cloister of the Colonies, Porch of the Allies, Thanksgiving Tower, and the Woodlawn Cathedral. These will form the administration group of the memorial.

In addition there will also be eight Halls of History, wherein the entire nation’s history will be in review, affording a truly great and wonderful education for anyone. The different halls are named: (1) The Aborigines, Pocahontas Hall. (2) The European Background, Raleigh Hall. (3) The Colonial Period, Franklin Hall. (4) The War of the Revolution, Washington Hall. (5) The Period of National Development, Jefferson Hall. (6) The Civil War, Lincoln Hall. (7) The Period of National Expansion. (8) The World War, Victory Hall.

The Halls of History of the Valley Forge Museum of American History will culminate in Victory Hall. This will represent not only the last period to date, but will be the greatest of the eight buildings. It will represent man’s last and supreme battle for freedom, for the larger life of man. It will be a great national memorial to the men and women whose devotion and sacrifice won the victory. It will honor all the allies, but it will be pre-eminent as America’s tribute to her heroic sons and daughters.

All that art and building craft can do will be employed to give expression to the meaning of the conflict between brute force and the spiritual life of man. It will be carved in the stone tracery, leaded in the windows and painted on the walls.
Such a conception realized anywhere in the land would become at once the mecca of today, tomorrow and for all time. Such a Victory Hall will have a hundred fold more value when built upon the hills of Valley Forge, where it stands surrounded by the unmarked graves of those who nearly a century and a half ago heard the call of duty, rose to fight for freedom, and gave their all for the American ideal of democracy.

The Rev. W. Herbert Burke, D.D., who is president of the Valley Forge Historical Society, has been and is an untiring worker in this great memorial idea. Recognizing the historical importance of Valley Forge and appreciating the importance of its ideals and spirit in the life of the nation, Dr. Burke suggested in 1903 the erection of the Washington Memorial at Valley Forge as a national shrine and as a school of patriotism.

The Washington Memorial Chapel, an American Westminster, the shrine of the American people, has been completed, and in the past two years attracted over 90,000 visitors. Its beauty and historic significance are unexcelled.

Into its sacred fabric and furnishings has been woven the history of the nation, and its many memorials commemorate not only Washington, but all who labored with him in the building of the nation. In it are memorials of the men and women who made our great Republic.

The screens in memory of Washington and the Major and Brigadier Generals at Valley Forge, and the choir stalls in memory of the brigades, make a collection of memorials unequalled in importance and patriotic inspiration anywhere.

The extent and scope of a great work should interest every loyal American. All who make the trip to Valley Forge will be well repaid and will go away with a deeper and finer sense of patriotism than ever before. Valley Forge is today THE really great and true shrine of American patriotism. Valley Forge, being near Philadelphia, is easily reached from many points. All should see it.

C. H. Thomas.
Variety in House Design

First Floor Plan

Designed by
MURPHY & DANA
Architects
for a development at
New Britain, Conn.
Slight Changes in Details Prevent Sameness

Described by C. E. SCHERMERHORN, Architect

In building a number of small houses it is more economical that they be made all alike in interior arrangements and exterior design. Perhaps only a few exterior details are changed to lend a little variety, sometimes the only change is the difference in painting.

To show that a considerable change in appearance may be made and still have the same design, we give a picture of two houses that are identically the same in room arrangement and exterior. The houses are 24 feet by 24 feet in size. On the one, the gable is towards the front, and on the other it is towards the side. Likewise, the one has the front entrance on the side and the other in the front. This simple change results in both houses having a distinctiveness of its own.

A further change could be made if there are a number of such houses in a row is to have some set back further than others, that is, to give some thought to a proper grouping. Another variation would be to have the porch in the center on some houses.

The room arrangement in this small house is worthy of special study. There are seven fair sized rooms in the small space of 24 feet by 24 feet. Each room has been so planned that there is ample space for all necessary furniture. There is no waste space, each bedroom is provided with a closet and there is a linen closet in the upper hall.

For anyone requiring a small home that can be built at a moderate price and still have a pleasing design, a house of this kind is to be recommended.

The exterior of these houses can either be shingled or have wide Colonial clapboards with mitered corners. To lend variety in a group some houses could have a stucco exterior and some others be built of brick or in combination.

The design shown on the opposite page is another interesting example of how small changes may be made to secure a variety in design. Here also the one house has the gable to the front while on the other it is to the side, with the porch extending half way across the front and floor plans reversed.
New Departure in Building Construction
The Glass Front Factory

By WILLIAM R. FOGG

One of the prime requisites for the production of first quality work under economical conditions is that the rooms in which work is performed shall be provided with ample daylight. The older forms of factory construction consisted of more blank wall space than windows, while the modern tendency has been to make the windows as large as possible.

The majority of recently built factories consists of a series of large steel sash windows with columns between, which for architectural effect have been treated as pilasters, and many an artistic factory building has been the result. In these the pilasters and intermediate rails below the windows are frequently of ornamental brick work, concrete with tile inserts, terra cotta, etc.

The latest step in securing the maximum amount of daylight in the interior of a factory itself is insured by the new features in industrial building construction which have been evolved by the Ballinger Company, architects and engineers of Philadelphia, and embodied in the construction of a new worsted mill now being erected at Bridgeport, Pa., for James Lees and Sons Company.

This new building is an addition to the present plant operated by this company, and it will be five stories and basement in height. The total length from the front and rear is 250 feet with a depth of 121 feet; this is exclusive of the stair towers. These six floors will give a total area of about 180,000 square feet and will be used for the housing of machinery, etc., used in the manufacture of worsted yarns.

This interesting industrial building is of reinforced concrete, flat slab construction. On account of the delicate nature of the machinery employed in the manufacture of the worsted yarn, danger from dust had to be guarded against, and for this reason a maple floor was used as a top wearing surface.

The unique feature in the construction of this factory consists of the entire omission of exterior wall columns permitting if desired an unbroken line of light around the entire building, except at spaces where the wall surface is necessarily broken by stairways or other features.

This arrangement results in permitting an unusual amount of light to flood the interior of the building, adapting it admirably to the purposes of manufacturing. In this particular case a building 120 feet wide has been erected without requiring an excessive story height to obtain the proper daylight illumination that has been found so necessary to a proper working by the operators at the looms.

This unbroken extent of window space has been made possible by making use of the well-known principle of the cantilever. The first row of interior columns is placed five feet back from the outer
wall and the concrete floor slabs extend as a cantilever beyond the columns to the wall line. The structural walls under the windows are built directly upon the projecting cantilever floor slabs, they have to bear the weight of the steel windows and in addition a certain floor load.

This ingenious method of construction gives not only a maximum amount of daylight but by the elimination of wall columns or pilasters, the concrete work itself is simplified so that economy in the construction work is obtained by making use of this cantilever principle. A rather considerable saving in the cost of erecting such a building results by this method.

Another advantage resulting from the omission of the exterior wall columns and their corresponding projections on the inside of the building is that the installation of work benches, machinery and other equipment as well as placing the radiators for the heating system is greatly facilitated as all the various jogs are eliminated.

It is certainly a new departure in industrial construction. This building is now under construction and rapidly nearing completion. It is expected that it will be ready for occupancy by February 1st, 1923. The floor plan shows the location of the different columns, in the length of the structure they are placed 24 feet on centers and in the width 22 feet on centers.

It will be noted that all the stairways are placed on the exterior of the building proper. Three separate stairways are provided so that there is ample safeguard for rapid escape in case of an emergency. Toilet rooms are placed on each floor in the rear extension.
Comfortable Home With Attractive Porches

This house has been designed for comfortable living. The architects have so arranged the plans that the housework can be done with ease. Note the arrangement of the kitchen with relation to the rear entry, cellarway, pantry and dining room; all can be reached with but a very few steps, this also applies to the front door, a call at this point does not require one working in the kitchen to pass a long distance through main rooms.

The dining room has a large bay window on the front that gives a pleasant outlook. The living room has a generous open fireplace with bookcases on either side under the windows.

The striking feature of the plans is the porches. The architects have solved the problem of the living porch and the sleeping porch in an admirable manner, so they are not only livable, but add to the exterior appearance of the house as well.

The porches are placed in a wing at the end of the main house, this gives three sides exposed for the porches—plenty of air and sunshine—and the roof of this extension has been designed to harmonize with the main roof.
Too often sleeping porches are simply "stuck" on the houses, giving the appearance of a sanatorium; which has been the reason why so many people have given up the idea of a sleeping porch. The living porch is completely enclosed with sash and screens, so it becomes an all year around room.

The second floor provides three nice bedrooms, a bath room and ample closets, all conveniently arranged about the center hall. The hall has a large window that gives light directly on the stairs, just where it is most needed.

Specially Designed for BUILDING AGE and THE BUILDERS' JOURNAL Together with Constructive Details by R. C. HUNTER & BRO. Architects New York

The quantities given are for estimating. All measurements are NET unless otherwise noted; areas given for such items as sheathing, flooring, etc., are net areas to be covered, with no allowance for matching, waste, etc. Minor cuts have been disregarded.

Such items as clearing site, temporary work and protection, scaffolding and general equipment and supplies have not been included.

Such items as are marked "Unit," are to be estimated in a lump sum, following requirements of plans and specifications.

**Excavation**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation for cellar</td>
<td>240 cu. yds.</td>
</tr>
<tr>
<td>Excavation for footings</td>
<td>13 cu. yds.</td>
</tr>
<tr>
<td>Excavation for areas</td>
<td>4 cu. yds.</td>
</tr>
<tr>
<td>Excavation for trench walls</td>
<td>9 cu. yds.</td>
</tr>
<tr>
<td>Excavation for leader drains and dry wells</td>
<td>12 cu. yds.</td>
</tr>
<tr>
<td>Backfilling around walls, etc.</td>
<td>35 cu. yds.</td>
</tr>
</tbody>
</table>

**Masonry**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete for cellar walls</td>
<td>770 cu. ft.</td>
</tr>
<tr>
<td>Concrete for footings</td>
<td>178 cu. ft.</td>
</tr>
<tr>
<td>Concrete for trench walls</td>
<td>126 cu. ft.</td>
</tr>
<tr>
<td>Concrete for area walls</td>
<td>84 cu. ft.</td>
</tr>
<tr>
<td>Cellar floor (3 in. concrete and 1 in. cement finish)</td>
<td>595 sq. ft.</td>
</tr>
<tr>
<td>Area bottoms (brick and sand)</td>
<td>32 sq. ft.</td>
</tr>
<tr>
<td>Porch floors (12 in. cinders, 3 in. concrete and brick finish)</td>
<td>40 sq. ft.</td>
</tr>
<tr>
<td>(concrete without cement ft.)</td>
<td>123 sq. ft.</td>
</tr>
<tr>
<td>Concrete forms</td>
<td>2100 sq. ft.</td>
</tr>
<tr>
<td>Pointing cellar window sills</td>
<td>14 lin. ft.</td>
</tr>
<tr>
<td>Common brickwork for chimney</td>
<td>93 cu. ft.</td>
</tr>
<tr>
<td>(for 19 M.)</td>
<td>15 sq. ft.</td>
</tr>
<tr>
<td>Fire brick for fireplace hearth and jams (or 72 brick)</td>
<td>15 sq. ft.</td>
</tr>
<tr>
<td>(or 105 brick)</td>
<td>54 lin. ft.</td>
</tr>
<tr>
<td>8 in. x 12 in. T. C. flue lining</td>
<td>1</td>
</tr>
<tr>
<td>5 in. bluestone chimney cap (1 ft. 10 in. x 2 ft. 8 in.)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Sheet Metal Work**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper flashing for roofs, sleeping porch floor</td>
<td>222 lin. ft.</td>
</tr>
<tr>
<td>Copper flashing and counterflashing for chimney</td>
<td>9 lin. ft.</td>
</tr>
<tr>
<td>Copper chimney cricket</td>
<td>5 sq. ft.</td>
</tr>
<tr>
<td>Canvas floor for sleeping porch</td>
<td>98 sq. ft.</td>
</tr>
<tr>
<td>4 in. half round, hanging gutter</td>
<td>168 lin. ft.</td>
</tr>
<tr>
<td>3 in. x 4 in. leaders</td>
<td>90 lin. ft.</td>
</tr>
<tr>
<td>Bends for leaders</td>
<td>24</td>
</tr>
<tr>
<td>Gutter thimbles</td>
<td>12</td>
</tr>
<tr>
<td>3 in. x 4 in. G. I. gas range vent</td>
<td>21 lin. ft.</td>
</tr>
<tr>
<td>Cap and thimble for same</td>
<td>1</td>
</tr>
</tbody>
</table>

**Carpentry**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMBER</td>
<td>210 F. B. M.</td>
</tr>
<tr>
<td>All No. 1 common stock, hemlock, rough unless noted.</td>
<td></td>
</tr>
<tr>
<td>Cellar girders—</td>
<td>6 in. x 10 in. spec.—2/12, 1/10, 1/8...</td>
</tr>
</tbody>
</table>

**Plastering**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three coat Patent plaster on metal lath, gross</td>
<td>640 sq. yds.</td>
</tr>
<tr>
<td>G. I. corner beads</td>
<td>100 lin. ft.</td>
</tr>
</tbody>
</table>

**Tile Work**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor (1 in. hex. white)</td>
<td>47 sq. ft.</td>
</tr>
<tr>
<td>Wainscot (3 in. x 6 in. white wall tile)</td>
<td>100 sq. ft.</td>
</tr>
<tr>
<td>6 in. sanitary base</td>
<td>25 lin. ft.</td>
</tr>
<tr>
<td>Moulded cap</td>
<td>25 lin. ft.</td>
</tr>
<tr>
<td>Living Porch floor—</td>
<td>123 sq. ft.</td>
</tr>
<tr>
<td>6 in. x 6 in. quarry tile</td>
<td></td>
</tr>
</tbody>
</table>

**Carpenter**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mason's Iron Work</td>
<td>1</td>
</tr>
<tr>
<td>Fireplace damper (2 ft. 8 in. opening, with throat, etc.)</td>
<td>1</td>
</tr>
<tr>
<td>C. I. ash dump</td>
<td>1</td>
</tr>
<tr>
<td>C. I. cleanout door for ash pit (16 in. x 12 in.)</td>
<td>1</td>
</tr>
<tr>
<td>C. I. cleanout door for boiler flue (8 in. 8 in.)</td>
<td>1</td>
</tr>
<tr>
<td>Thimble for boiler flue</td>
<td>1</td>
</tr>
</tbody>
</table>

The estimated cost of the construction is about $8,000.
Cellar girder—Continued
3 in. x 10 in. spec—2/8
2 in. x 3 in. nailer—94 lin. ft.
4 in. x 6 in.—4/18, 1/16, 2/12, 4/10.
Posts—
4 in. x 6 in.—10/10, 1/8
Studs, girts and plates, first floor—
2 in. x 4 in.—210/8
2 in. x 4 in.—240/8
First floor joists—
2 in. x 10 in.—24/14, 7/12, 14/8...
Second floor joists—
2 in. x 10 in.—31/14, 4/12, 23/10...
Second floor ceiling beams—
2 in. x 6 in.—32/14
2 in. x 4 in.—10/10...
Rafter—
2 in. x 6 in.—52/12, 6/10, 10/8...
Ridge—
2 in. x 8 in.—3/12, 1/10
2 in. x 6 in. rafters (cut to rad.)—50/4
Floor bridging—
2 in. x 2 in.—350 lin. ft.
Cornice lookouters—
2 in. x 4 in.—200 lin. ft.
Cellar partition studs—
2 in. x 4 in.—8/18 of wall...
Sheathing (7/8 in. x 8 in. shiplap), no outs—
Walls—to cover
Sleeping porch floor, etc.
Sheathing paper (waterproof)
Shingle lath—7/8 in. x 2 in.
Grounds—
3/4 in. x 2 in. surfaced one side
Sheathing for cellar partitions—
7/8 in. x 8 in. shiplap—to cover
Rough flooring—
7/8 in. x 8 in. shiplap (1st floor)—
to cover
Furring—7/8 in. x 2 in.
Shingle roofs (18 in. stained shingles) 14 squares
Shingle sides (24 in. stained shingles) 18 squares
Exterior Finish
Water table (7/8 in. x 2 in. strip)
Main cornice—
7/8 in. x 3 in. fascia
1 in. cove
3/8 in. x 3 in. M. & B. ceiling (to cover)
Raking cornice—1 in. x 1 1/2 in. cove.
Entrance porch—
Seat, 3 ft. 1 in. long x 4 ft. high, with back, etc.
Lattice panel, 1 ft. 6 in. x 7 ft. 10 in.
Sleeping porch—
5/8 in. x 4 in. M. & B. ceiling—to cover
7/8 in. cove
Flower boxes—
(1 1/8 in. stock, zinc lining, etc.)
12 in. x 12 in. x 7 ft. 6 in.
12 in. x 12 in. x 4 ft. 8 in.
Sawed wood brackets
Lattice panel—4 ft. x 4 ft. 8 in.
Louvers—
11/8 in. fixed slats, frames, outside trim, etc.
8 in. wide x 1 ft. 6 in. high
Windows—
Frames complete with sash, outside trim, etc.
Sash, 1 1/2 in. thick, glazed D. T...
Cellar windows—Trim both sides.
Single top hung casem, sash, 3 ft. x 2 ft.—4 light.
First floor windows—
Single D. H. sash, 3 ft. 6 in. x 4 ft. 10 in.—20 light 1.
Mull. D. H. sash, ea. 2 ft. 10 in. x 4 ft. 10 in.—12 light 2.
Group of 4 D. H. sash, ea. 2 ft. 10 in. x 4 ft. 10 in.—16 light 1.
Triple D. H. sash, ea. 2 ft. 6 in. x 3 ft. 2 in.—12 light 1.
Single D. H. sash, 2 ft. 10 in. x 2 ft. 6 in.—16 light 1.
Mull. D. H. sash, ea. 2 ft. x 4 ft. 10 in.—12 light 1.
Single D. H. sash, 1 ft. 8 in. x 4 ft. 10 in.—12 light 1.
Single D. H. sash, 3 ft. x 3 ft. 2 in.—16 light 1.

Second floor windows—
Single D. H. sash, 2 ft. 6 in. x 3 ft. 2 in.—12 light 1.
Mull. D. H. sash, 2 ft. 10 in. x 4 ft. 8 in.—16 light 5.
Mull. D. H. sash, ea. 1 ft. 8 in. x 3 ft.—12 light 1.

Attic windows—
Single casm. sash, 3 ft. 2 in. x 1 ft. 7 in., half circ. 1.

Shutters—
1 1/8 in. thick, solid paneled. 1 pr.
3 ft. 6 in. x 4 ft. 11 in. pr. 1 pr.
3 ft. 6 in. x 3 ft. 3 in. pr. 2 pr.
3 ft. 0 in. x 3 ft. 3 in. pr. 2 pr.

Blinds—
1 1/8 in. thick, fixed louvres, etc. 1 pr.
2 ft. 6 in. x 3 ft. 3 in. pr. 1 pr.

Exterior door frames—
1 3/4 in. thick, rabbeted, complete with outside trim. 5 pr.
Front ent. door, frame, 3 ft. x 7 ft. 1 pr.
Frame for doors to sleeping porch—2 ft. 6 in. x 6 ft. 8 in. 2 pr.
Frame for rear ent. door, 2 ft. 8 in. x 7 ft. 1 pr.

Exterior doors (all to detail).
Front ent. door, 3 ft. x 7 ft. x 1 3/4 in. glazed D. T. and paneled 1.
Doors to sleeping porch, 2 ft. 6 in. x 6 ft. 8 in. x 1 3/4 in. glazed D. T. 2.
Rear ent. door, 2 ft. 8 in. x 7 ft. x 1 3/4 in. glazed D. T. and paneled 1.

Finished flooring—
First and second stories, 7/8 in. x 2 1/4 comb. grain Y. P.—to cover 1160 sq. ft.
Lining paper under floors 570 sq. ft.
Slat floor under laundry tubs, 3 ft. x 4 ft. 1.
Cement filled pipe cols. in cellar, 4 in. dia. x 7 ft. 6 in. long, with cap and base 6.
Joist hangers (1/4 in. x 2 in. W. L.)—For 2 in. x 10 in. beams 6.
For 4 in. x 10 in. beams 6.

Interior Finish
Door trim
7/8 in. jambs, 1/2 in. stops, 7/8 in. x 4 1/4 in. moulded and mitered trim. Trim both sides.
For doors, 2 ft. 6 in. x 6 ft. 10 in. 4 sets.

31
### Interior Finish—Continued

**Door trim**—
- For doors, 2 ft. 4 in. x 6 ft. 10 in.
- For doors, 2 ft. 6 in. x 6 ft. 8 in.
- For doors, 2 ft. 4 in. x 6 ft. 8 in.
- For doors, pr. ea., 2 ft. 4 in. x 6 ft. 10 in.

**Trim for inside of exterior doors**—
- Front entrance, 3 ft. 7 ft.
- Rear entrance, 2 ft. 8 in. x 7 ft.
- Doors to sleeping porch, 2 ft. 6 in. x 6 ft. 8 in.

**Trimmed openings finished same as for doors**—
- Opg. 4 ft. x 6 ft. 10 in.
- Arch openings—
  - Opg. 2 ft. 4 in. x 7 ft.

**Window trim**—
- 7/8 in. x 4 1/4 in. moulded and mitered trim.
- 1/2 in. stops, 1 1/8 in. moulded stool, 7/8 in. moulded apron, 5/8 in. x 7/8 in. cove under stool.
- For windows, single, 3 ft. 6 in. x 4 ft. 10 in.
- For windows, single, 1 ft. 8 in. x 4 ft. 10 in.
- For windows, group of 4, ea. 2 ft. 10 in. x 4 ft. 10 in.
- For windows, triplet, ea. 2 ft. 6 in. x 3 ft. 2 in.
- For windows, single, 2 ft. 6 in. x 3 ft. 2 in.
- For windows, single, 2 ft. 10 in. x 4 ft. 10 in.
- For windows, single, 1 ft. 8 in. x 4 ft. 10 in.
- For windows, single, 3 ft. x 3 ft. 2 in.
- For windows, single, 2 ft. 10 in. x 4 ft. 8 in.
- For windows, single, 1 ft. 8 in. x 3 ft.
  - Base—
  - 7/8 in. x 6 1/2 in. moulded
  - 7/8 in. x 4 in. plain (closets)
  - 2 in. base mould
  - 1/2 in. quarter round floor moulding.
  - Picture moulding (7/8 in. x 2 1/4 in.)
  - Mantel for living room, with panelled breast
  - Bookcase for living room, 3 ft. 8 in. x 4 ft. 6 in.
  - Seat for dining room, 2 ft. x 9 ft., fixed top

**Interior doors**—
- Two-cross panel, birch veneer.
- Door, 2 ft. 6 in. x 6 ft. 10 in. x 1 1/2 in.
- Door, 2 ft. 4 in. x 6 ft. 10 in. x 1 1/2 in.
- Door, 2 ft. 4 in. x 6 ft. 8 in. x 1 1/2 in.
- Door, 2 ft. 6 in. x 6 ft. 8 in. x 1 1/2 in.
- Glazed D. T.
  - Pr., ea. 2 ft. 4 in. x 6 ft. 10 in.

**Scuttle to attic**—
- 2 ft. 6 in. x 3 ft., with trim, etc.

**Closet finish**—
- Closet shelving (7/8 in. x 12 in. pine)
- Hook strip (7/8 in. x 4 in.)
- Rabbeited shelf cleat
- 1 in. dia. pipe clothes rod

**Pantry cupboard**—
- Frost, 7 ft. x 8 ft., counter-shelf, drawers, doors, etc.
- Main stairs, first to second story, 14 risers, 3 ft. wide, box pattern, balustrade at second floor, etc.
- Cellar stairs, 12 risers, 3 ft. wide, box pattern, wall handrail, etc.
Let Us Think that We Build Forever,
or the Present Magnitude of
the Building Industry

By H. A. BRICE

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

The Memorial Arch at Valley Forge in Honor of the Patriots Whose Efforts and Sacrifices Made Possible Our United States. Let Us Be Grateful This Coming Thanksgiving Day That "They Did Build Forever"

been conservatively estimated that it would require approximately ten years to catch up this shortage.

For the period including from about the first of the year 1915 until the beginning of the present year, if one were to plot a curve representing the average change in construction costs, he would find that the line would rise gradually, though with periods of fluctuation, until about the middle of 1920, when it would reach a peak at approximately 250 per cent. above the level at which it began. From that date a more rapid descent takes place until the fall of 1921, when general business conditions began to improve. From that time up until the present, the line maintains practically a level.

In the face of the fact that at the present time many of the larger cities are announcing building programs for the coming months that are staggering to contemplate, it would seem hardly possible for one to expect further decline in construction costs within the near future.

The activities of our company are devoted mainly to building construction. We have our problems from day to day in common with every other business enterprise. But it has been our earnest effort at all times to give to every obligation, whether it be a contract for a store front, alteration involving a few hundred dollars or a monumental building costing hundreds of thousands, the last ounce of effort toward the single aim—a duty well performed.

There is one thing about the Kiwanis Club which has always impressed me very much; that is the slogan, "We Build." The spirit back of this slogan is the spirit which we endeavor to instill into our work in such a manner that we may be able to quote the words of John Ruskin.

Approximately 90 per cent. of all iron ore, copper, zinc ore and 95 per cent. of lead production are consumed by construction. About eleven million persons, either as workers or as members of workers families, derive their living from construction. The support given to agriculture and trade by the annual expenditure of this great number of persons is too apparent to require discussion.

The value of new capital issues during 1920, so far as data have been reported, reaches the high figure of four and one-half billion dollars, consisting of State, municipal, railroad and industrial securities; and of this total approximately 60 per cent. were issued for construction in some form or another.

While it is true that the builders who handle the final assembling of materials represent only a limited part of this industry, they may be likened to the keystone of the arch. On them depends the great responsibility for safeguarding the industry and the nation.

Looking into the future of construction we seem to be faced with a situation unparalleled in its history. Aside from the development
WELL designed bank buildings are in demand in even our small cities. A bank building in every detail must typify the strength, dignity and stability of the institution it houses. In a way, its quarters must be more or less in keeping with the surrounding traditions and customs.

Quite often the architecture adopted for the bank building follows the style for which the district is more or less famed. What could be more appropriate for a Pennsylvania bank than to follow out the lines of its old buildings known to us as the Dutch Colonial style?

The interesting bank design shown here is that of the Chestnut Hill Title and Trust Company building in Philadelphia and in its construction stone was used from a nearby quarry. The architect has faithfully carried out the exterior details along the lines of some of the older buildings that have made Pennsylvania famous for its dignified architecture.

The interior planning of this bank deserves special mention. When one enters from the vestibule,
practically the entire bank interior is in view, disclosing a large open space, well lighted by windows on three sides. Directly opposite the front entrance is the entrance to the safe deposit vault. This is located in sort of an extension built in the rear of the main structure. The different office space is railed off into smaller compartments by marble counters.

The area devoted to use of paying and receiving teller, etc., has an additional bronze and glass screen on top of the marble counter. A special section has been railed off especially for women depositors and off this is a small toilet room.

All of the public space is floored with terrazzo laid on a concrete base. The balance of the concrete floors are covered with linoleum cemented down so that it is an integral part of the floor just the same as though it were wood. Here the bookkeepers, etc., are assured of plenty of daylight while at work. In the rear, on one side of the vault, is located a good sized room for board meetings and on the opposite side a room of the corresponding size is specially devoted to the use of the safe deposit customers.

The entrance itself is interesting in detail but very dignified and artistic. A hanging lantern overhead illuminates the steps at night. A well designed cornice with brackets supporting the overhang surrounds the main portion of the building. The roof on the main portion of the structure is of slate and the flat surface over the vault extension is of tin.

This building was erected from plans prepared by Mr. Arthur H. Brockie, architect, of Philadelphia, and was erected by J. C. Cornell & Son, building contractors of Philadelphia. The different views that we show of this building were taken by Mr. Philip B. Wallace, photographer, of Philadelphia.

The above floor plan shows the convenient arrangement of the interior of the Chestnut Hill Title and Trust Company, Philadelphia. A good size central space makes it convenient for the public to transact business with either the officers or tellers. Good, light working space is also provided as well as Board Room, etc.
Attractive Bungalow of Seven Rooms

By CHARLES ALMA BYERS

The steeped-roofed little house illustrated here commends itself to the interest of prospective builders in a number of ways. In the first place, it is uncommonly attractive in outward appearance, and it is, moreover, of a style architecturally to be practical for any climate.

Having seven rooms, it is a much roomier house than its dimensions of thirty-six by fifty-three feet lead one to expect, which means that the floor space is handled most economically. The interior is further arranged very conveniently, and there are many excellent closets and built-in features to win the especial delight of the housewife.

The steep roof with its ornamented peaks, the chimney prominently situated on the front, the octagon-like entrance extension and various other well-handled details, together with a very effective color scheme, all combine to make the street view of the little house particularly attractive.

In studying the accompanying floor plan, it should be especially noticed that but very little space is required for providing hallway connections, and yet all parts of the house are conveniently accessible. A possible change or two in the use of rooms also deserves to be brought to attention. The front bedroom, for instance, might be utilized as a den, and the little breakfast room would make either a very delightful sewing room or a play room for children.

The house has neither basement nor furnace. However, had either been desired, a stairway might have been substituted for the little toilet room on the rear-entry porch.

The heat is furnished by several built-in gas radiators, and every modern convenience is provided. The house is located in Los Angeles, California, and was designed by E B. Rust, architect, of that city.
Reducing the Cost of Building by Year Round Construction

WINTER work in the various departments of the building industry keeps the mechanics busy the year round and reduces the contractors overhead as it enables it to be distributed over more jobs.

A rather interesting work was recently undertaken by the New York Building Congress tending to initiate a program to reduce the cost of building by adding more seasons to the industry, thereby eliminating both the rush periods when bonuses are frequently paid and the periods of unemployment. A survey has just been completed analyzing the building situation. The findings are such that it is believed with the co-operation of all the elements contributing to the building industry a workable program can be put in operation that will be a material benefit to every phase of society from the laborer to the investor.

The congress conducted its investigation over a period of four months and the findings cover twenty-nine distinct occupations as affected by the average employment variation of upward of 150,000 workmen annually during the past ten years.

Recognizing that the basic factors in the seasonal demand are winter and weather conditions, opportunity for investment, general business tendencies and emergency needs, attention is being focused on new construction subject to control.

In summarizing its investigation the congress finds that custom is really the biggest influence in causing the peak loads on the demand for labor, especially during the renting seasons. Careful business foresight is what is needed more than anything else to effect lower costs, with less waste, higher quality of workmanship and greater production, according to the reports.

It is pointed out that investment and speculative construction on new buildings classifies itself in general into three main divisions: Apartment houses, commercial buildings and loft buildings. The periods for renting these types of construction are based largely on custom and tradition, and have an important bearing on labor demand. Large apartments are commenced so as to allow twelve or fourteen months for completion, the finished buildings to be ready for occupancy by October 1, which custom has decreed is the moving season for residents of New York City.

The general recommendation is for the Owner, Investor, or Representative to place Building Trades work to include the heretofore dull periods of employment. This will reduce non-productive expense and waste, and increase production, as a result of having skilled help available instead of relying on incompetent workmen. It will eliminate excessive labor expense, lower the cost of materials, and decrease the contractor's margin of profits as he prefers to keep his organization in employment as steadily as possible.

The advantages are many and the benefits go to the community generally, being incidental in their value to labor, employer, and owner.

Commercial buildings usually call for commencing work on May 1 and completion on or before the following May. Loft buildings are often built in six, eight or nine months, and have a strong demand for occupancy on February 1.

Thus one of the vital factors in the new construction is the established rental period. It is also important to remember that the volume of building in the three types of new construction above mentioned varies from year to year, due to the opportunity for investment and the supply and demand, so that one year of large development in any one division may be followed by a decline in volume the next, and vice versa.

The new construction most subject to control aside from construction for investment and speculative purposes is the large amount of building done for the Government, State and city. This can be open to regulation by the governing boards in control of their development. Religious and educational structures are also a factor and new buildings and additions that are erected for the owners’ prearranged occupancy without regard for investment or speculative returns are important.

In prefacing a detailed statement of recommendations for adding more seasons to the building trade, the New York Building Congress Bulletin states:

"While the congress feels fully aware of the fact that an entire cure for seasonal employment is impossible on account of weather conditions, opportunity for investment, emergency and the will of the owner and speculator, still the opinion is general that much can be done to adjust elements that affect peak demands and as a result decrease much of the unnecessary cost and loss to which the building industry is now subjected.

"With this understanding the following recommendations are made in hope that they will be suggesting to owners, investors, real estate brokers, architects, engineers, material manufacturers, contractors, labor and others who may be interested in reducing costs and eliminating unemployment periods:

"1. Establish a wider range of rental period dates.

"2. Regulate Government, State, city, religious and educational building construction so that it will come during the low period of employment wherever possible."
“3. Regulate the construction of new buildings and additions that are erected for owners’ pre-arranged occupancy without regard for investment returns so that it will come during the low period of employment.

“4. Encourage beginning work on new construction March 1 instead of the customary date of May 1, thereby bringing its labor demand two months ahead of the demand peak, with a greater supply available.

“5. Plan maintenance and repair work so that it will come during the season for which there is a low demand for the labor involved, subject to emergency conditions that must be considered.

“6. Whatever possible, adapt the demand for ‘inside’ and ‘outside’ work to labor available.”

The committee framing the above resolutions, which have been unanimously adopted by the New York Building Congress, includes Charles E. Mack, of Mack; Jenny & Tyler; Walter Roberts, chairman, William Bradley & Son; Fitz-Henry Faye Tucker, of Renwick, Aspinwall & Tucker; Roswell D. Tompkins, New York Building Trades Council; H. H. Watters, Otis Elevator Company, and Frank L. Glynn, managing director, Apprenticeship Commission of the New York Building Congress, Grand Central Terminal, New York.

What Are Building Costs?

The Contractor as a Manufacturer

By A. P. GREENSFELDER

Fruin-Colnon Contracting Co., St. Louis, Mo.

PEOPLE frequently discuss building costs as if bricks and bricklayers, materials and labor were the only items worthy of consideration. Broadly speaking, men and materials do comprise the total expense in construction work, just as they do in any other article produced for civilized man.

What we wish to emphasize, however, is that most people really think that the walls and floors of a building, the visible completed objects, are the only costs that enter into the expense of erection. They think differently, however, when they find it necessary to buy a stick of wood at the lumber-yard or a pair of hinges at a hardware store, which may be needed for an extra partition after they have moved into the new building.

From their own books business men know just the sort of expense items they must add to the cost for fixed charges, operating expense and legitimate profits. They understand that their selling prices must include rent, taxes and insurance, contingency charges, interest and profits.

The builder is a merchant. He is also a manufacturer, differing from the usual producer in that the builder’s factory is portable and frequently without a roof, at least until nearly the end of the job. The builder has a fixed office, a warehouse and yards for storage of machinery and materials. The annual upkeep of these adjuncts must be sustained by field construction executed during the year.

The builder also has selling expense. He must advertise and call upon architects, engineers and owners before he secures a customer. He must pay his estimator to make a quantity survey of the plans, because the owner does not tell him what he tells everybody else he buys from—the quantity of materials he wants to purchase. The builder’s purchasing agent then locates the materials at market prices; and, after careful estimates are made, conferences held and a financier consulted, a contract is made with a future owner and the builder assumes the title and agency of a contract.

As agent, the contractor arranges to incur the following expenses: surety bonds, liability, fire and tornado insurance, building permits, water license, city inspection fee, temporary public utilities service, transportation of materials and drayage of equipment. Not a single item would be visible to a visitor to the building site, and yet they may constitute 10 per cent. to 15 per cent. of the cost. Then there is bank interest, because the owner does not advance money for payrolls and materials bills. There is also ice and coal, oil, stationery, carfare, post-age, rope, perishable tools, scaffolding, demurrage, war taxes and other miscellaneous items which are consumed.

On a job of any size at all, the contractor must provide labor-saving equipment, such as concrete mixers, steam shovels, derricks, hoisting machines, power saws and similar machinery. While they are truly labor-saving and produce economy, they cost about 4 per cent. of their value each month. Then, there is the greatest of intangibles, brains, which, mingled with experience, knowledge, good judgment, aptitude and industry, produce that supervision which makes for good results. Brains insure satisfactory service. This is represented in the contractor’s organization in many ways. The ablest superintendent, for instance, makes the fewest mistakes, has initiative, plans his work ahead, keeps his men working cheerfully together and gets a quality job done ahead of time within the estimated cost. Such men earn good wages and are worth it. Every merchant and manufacturer knows how scarce leaders are.

Then appear such contingency items as frost, rain, labor strikes, railroad delays and accidents, many of which are common to most industries, but all of which frequently confront the contractor. The law of averages applies the proper charge on such items to the work. Finally, to the actual outlay for materials and labor must be added a remuneration for the contractor sufficient to induce him to remain in business, subject to hardships and risks, and yet keep his financial credit good enough to start the next job.

Do you still think men and materials embrace all building costs?

(Paper prepared for the Associated General Contractors of America.)
ONE of the radical departures in building operations during the last few years carries greater economic possibilities than that of carrying on these operations continuously or nearly continuously throughout the year. Frequently, closing down for the winter means the loss of valuable time in the fall as well, because of the fear that work started in moderate weather may continue after cold weather sets in.

Most building materials are easier to procure in the winter and sometimes at lower cost. Labor is usually more plentiful and labor turnover is less. Winter interruption to his business often means that the contractor has to rebuild almost an entire trained organization—frequently including technical and superintending forces and fifteen or more different trades—every spring.

Winter construction costs are usually somewhat higher, but nearly always worth more than they cost to the owner, because his income or benefits from the structure start months sooner and to the contractor because he can complete the work, take out his payments and look ahead to the next job. The construction season is thus profitably lengthened for both owner and contractor.

About the only important obstacle to winter construction has been the lack of an understanding and application of the relatively simple precautions necessary to successful winter concrete work. Much winter concreting has been done successfully during the past ten years and some of the largest and finest construction work of the war period was completed with the thermometer around the zero point.
Gravel pits cannot operate in the winter and they are usually compelled to close down with the first hard freeze. Materials wet in transit and frozen in the car are difficult and expensive to thaw out and unload. These facts are stated to emphasize the importance of arranging early and carefully following up deliveries of concreting materials.

Principal preparations for cold weather concreting consist of providing or conserving heat in the presence of sufficient moisture so that the concrete can harden uniformly and with reasonable rapidity. If concrete freezes, the hardening action stops, for the water, which must be depended upon to react with cement, has changed to ice and, as is well known, cement and ice do not react nor does concrete harden while frozen; but the formation of ice is accompanied by expansion which may spall or disfigure the surface of the work or interfere considerably with the strength.

For a period during the fall, the temperature at night may go down to freezing, although quite moderate or even warm during the day. It is usually possible under these and similar weather conditions to take care of concrete work satisfactorily by covering the work carefully in order to trap the heat present, when the concrete was placed, keeping out cold winds, rain and sleet. Even where the temperature does not go below freezing, covering the work is beneficial in hastening the hardening.

Protective Coverings

The nature and duration of this protection depends upon the character of the work to be protected and prevailing temperature conditions. Every covering should be tight, to resist and keep out wind and water. Beware of holes, tears or openings of any kind and be particularly careful to amply protect exposed protruding portions of the work.

Contractors generally prefer tarpaulins as the most adaptable covering for concrete work of various kinds, large and small. Tarpaulins may also be effectively
used to cover exposed piles of aggregates. Wooden housing makes the most substantial covering for whole buildings, floors of buildings, small and moderate size bridges and similar work, and where the expense can be justified or compensated by re-use of the lumber, it is commonly preferred.

Straw or manure is commonly used around low forms and for which is adaptable wherever live steam is available;

(2) By running the water through a coil of pipe supported over a fire, perhaps the easiest arrangement where there is running water but no live steam, and

(3) By the use of kettles or tanks supported over a fire—suitable where neither live steam or running water can be obtained.

Heating the Mixing Water

When it becomes necessary to impart heat to the concrete in order to have it come through the first 48 hours at a temperature of 50 degrees or more which is recommended, heating of the mixing water is usually resorted to as the cheapest and easiest method. An effort is often made to deposit the concrete at a temperature of 80 or 90 degrees. To do this the water may be used at the boiling point. It may be well to observe that since it is only the water in concrete that freezes, a reduction of the mixing water somewhat from the quantities ordinarily used will be found beneficial.

The three most common methods of heating mixing water for concrete are as follows:

(1) By exhausting live steam in the water tank or barrel, a method
Walks and floors and other low work are frequently protected by covering with heavy paper covered with straw. Heavy planks are used to weight the covering. Experience now shows that where steam is available, it is more efficient and convenient to supply the heat through a grid of steam pipes, laid upon the floor where the aggregates are piled. In this case the pipes do not exhaust the steam into the pile, but simply supply heat in the same manner as an ordinary steam coil. Tarpaulins are frequently used to cover the pile and retain the heat.

Cement forms a relatively small portion of the bulk of a concrete mixture and, therefore, need not be heated. It should be stored where well protected from moisture and extreme cold. Never depend upon the heat generated by the action between cement and water. It is inconsiderable.

Large tarpaulins are very commonly used to cover the forms as soon as concrete has been deposited, or frequently to enclose entire floors or sections of buildings. Deposit the concrete at 90 degrees or as near thereto as possible.

Fireboxes, made of sections of discarded smokestack, iron pipe or boilers, serve as efficient heaters, the materials being banked around them and turned occasionally to insure reasonable uniformity of heating. Some concrete contractors prefer to construct their heaters of steel plates laid on concrete blocks or similar supports, the materials being heaped on the flat plates from which it is easier to remove them.

Steam jets are occasionally used being long perforated pipes which are thrust into the piles and used as a means of exhausting steam into the materials. This apparatus is not used as frequently as formerly, experience appearing to show that where steam is available it is more efficient and convenient to supply the heat through a grid of steam pipes, laid upon the floor where the aggregates are piled. In this case the pipes do not exhaust the steam into the pile, but simply supply heat in the same manner as an ordinary steam coil. Tarpaulins are frequently used to cover the pile and retain the heat.

In extremely cold weather heat is frequently supplied at the mixer. This has been done by exhausting steam in the mixer drum and providing the latter with "flaps" if necessary to retain the heat. Recently very efficient kerosene torches have been introduced for the same purpose. Location of the mixer and other details should be arranged so that concrete will be carried in the quickest possible time to the forms, and with the least exposure.

Immediately before filling each small portion of the form, the ice is removed if any be present. A steam hose is a great help in melting ice and warming form surfaces. In the absence of steam an ordinary blow torch may be used to heat the surface of steel forms.

Salamanders (coke stoves) and steam coils are the more commonly used pieces of apparatus for heating enclosures. A recently invented salamander having a water pan to provide moisture as well as heat in the enclosure is considered particularly efficient. Oil stoves and large lamps are quite frequently used on smaller work in rural districts where they are more easily accessible.
Railroad Sets Example in Beautifying Homes

TWO ideas have animated the Grand Trunk Railway in beautifying the stations along its right of way in Canada and the United States. One is to make the station an ornament to the town in which it is located. The other is to furnish an example in landscape gardening and attractive building to rural owners of homes.

By carrying out these ideas, the railway has become recognized as a civic benefactor. For several years the road has had a few show stations in the larger towns. Here its stations were built with striking architectural effects and surrounded by patches of fairyland gorgeous with flowers, shrubbery and fountains. But in the last year the road has adopted a comprehensive plan for the beautifying of all its stations—a plan that makes the small towns and the cities alike sharers in beauty.

Distinct progress has been made in carrying out this plan. Waste land and cinder beds on which the stations stand have been transformed into green lawns and flower beds.

The amount of ground available around the stations was, as a rule, not extensive and nothing of an elaborate nature was attempted, the main object being to have some simple arrangement of lawn, shrubs and annual flowers in keeping with the general surroundings. In order to obtain results with the minimum of expense, the general land contour was not changed.

Considerable care was given to the collection of the shrubs and flowers as they were required to grow under conditions not conducive to the best of plant health. The work has been carried out entirely by the track forces and station staffs of the railway, and the fact that a large portion of the upkeep has been done by the men on their own time shows how they have supported the plan.

The men in charge of the various stations were supplied with the plants, and in the majority of cases they did their own arranging. The ultimate results of their work, as seen from the passing trains, were in every way satisfactory, and reflected great credit on the men, who, previous to the company's taking up the subject, had done little or no horticultural work. As there has been a marked awakening of interest in the improving of home surroundings, the work accomplished by the Grand Trunk employees in beautifying the railway premises will serve as an inspiration to the citizens of many towns in what can be done in a simple and inexpensive way in improving their own home grounds.

Besides neat and artistic grouping of shrubbery one can use lattice screens, pergolas, fences of wood, stone, brick or concrete, with neatly designed gates. All help to make the "home beautiful."

Usually the chicken house, woodshed, dog house, garage, etc., are eyesores. A few dollars spent for architectural advice will be well invited to obtain an artistic result.

Wash poles are usually no ornament to a lawn or landscape scheme, yet they can be made so—one pole can have a piece of lattice work with vine; another a bird house on top; another a part of a pergola, etc. It only costs a small amount to do these things, and they surely pay.

Even a Tool Shanty Can Be Attractive by Giving a Little Thought to the Design
Making Convenient New Homes from Old

A Woman's Idea of a Properly Electrically Equipped Home

A Profitable Line of Winter Work for Builders

By LILLIAN CASSELS

of the Society for Electrical Development

INTER gives builders an opportune time of putting old houses through a process of revamping, and promises large returns in both profit to builder and pleasure to owners, and no one thing has such a bearing to comfort as a proper electrical equipment.

The profit accrues in transforming squalid buildings, melancholy and untenable in their present shabbiness, into property whose selling or renting values increase tremendously by reason of the small investment.

This has been done in many places. But not by any means to its fullest possibilities. Scarcely a city in the country does not contain street after street filled with houses which while sound at heart have been permitted to shed paint and paper and to grow generally disreputable for want of repairs.

The vagaries of a growing city have in most instances made these neighborhoods unfashionable—and they have been turned over to that sad poverty-bitten element of society known as The Poor, who live in some sort of hand-to-mouth fashion in the crumbling homes which once sheltered substantial citizens.

The Poor we may have always with us—but it is decidedly questionable whether these would not be more self-respecting, consequently more ambitious, and less of a reproach to society, if there were no opportunities offered them to congregate in houses whose condition emphasizes their own misery.

Is a Civic Improvement

It is undeniable that the making over of old houses into clean, comfortable dwellings is a possible and a promising public improvement. Building is still far in arrears of demands the country over. Consequently the revamping of old houses so as to meet a part of the constant demand for decent habitations should make a strong appeal to builders possessing public spirit.

In this process of making new homes from old ones New York City has long ago shown the way. Thousands of old "brownstone fronts," each soaked with traditions and memories, are being made over yearly into clean, trim, comfortable apartments of one, two, or three rooms with baths and kitchenettes. As fast as carpenters and painters and electricians can function, parquet floors

The Living Room

Davenport Piano

The Living Room should have Plentiful illumination with Several Convenience Outlets.

The Dining Room

Serving Table Buffet

The Dining Room should have Convenience Outlets for Attaching Different Cooking Appliances Besides Adequate Illumination.

DINING ROOM

The Dining Room

2-36" High Cart 53W

where once belles and beaus stepped daintily to the strains of the Blue Danube Waltz are finding their still substantial surfaces broken and divided by partitions which may cut a ballroom of noble proportions into a cozy suite—living room, bedroom, and vestibule. Closets where once hung lacy petticoats and sealskin sacques have become tiny tiled baths; butlers' pantries, their shelves and sinks perhaps still intact, are convenient little kitchenettes.

While other cities may not be so crowded as to necessitate making one old home into six or eight apartments, as is being done in New York's cross streets from Washington Square northward to Central Park, yet it is true that the fashion of the day is for smaller dwellings than those which flourished when the substan-
tial old houses which are candidates for rebuilding were erected. These are now in many instances being divided into two-family houses or apartments, and the comforts and conveniences made possible to them by the ingenuity of architects of to­day may be added to turn them into homes nearly, if not quite, as attrac­tive as those being built outright.

Wiring Is Most Important

Most important among the changes made to bring old homes up to new standards is the system of electric wiring which will be installed. Strik­ing differences between housekeeping of today and that of yesterday has grown out of the evolution of elec­tricity. Housekeeping is not alone in this — business, commerce, and in­dustry have been “sped up” by the same magical power. But builders are slow in sensing the change as re­gards housekeeping; they have failed to keep up with progress in this, a most important development in home­building; they are prone to relegate wiring and electrical fixturing to an obscure place in the budget of build­ing costs, instead of putting it where it belongs among the essentials.

Yet if homes are to be up to date there must be wiring installations which will provide ample current and ample connections for the fast-in­creasing tribe of electric servants which women are using and demand­ing.

That builder who is first to get the habit of incorporating a generous electrical installation in his other plans will certainly reap pleasing returns in the popularity of the homes he builds or remolds. This fact has had ample proof in the sales of homes throughout the country which have been fitted up with elaborate electrical installations as showplaces. Without exception, it has been demonstrated that sales have been quick on these homes; and that prices because of the electric equipment were consider­ably in advance of the differences in cost incurred by the inclusion of that equipment.

In the accompanying illustrations are embodied suggestions for electrical installations which may be made a basis of plans to be used in remodel­ing homes and bringing them level with present-day requirements.

These diagrams designate the average number of outlets for elec­tricity, lighting outlets or convenience outlets, switches, etc., required in each room of a home. They must be read flexibly, and their designs adapted to the size and the floor and wall plans of the home being re­modeled; but they should not be cut down if a truly modern wiring plan is wanted.

Rooms in Detail

The living room plans provide for plentiful illumination. There is a ceiling fixture, also wall brackets; in addition to this the prevailing popu­larity of portable lamps is recognized in the numerous convenience outlets where these may be attached for providing light in individualized areas. These outlets will also be wanted for fan, talking machine, electric cleaner, portable heater, electrified teawagon, and many other appliances. There can scarcely be too many; it must be remembered that furniture is occa­sionally moved and rearranged, and that abundant convenience outlets make this easy.

The dining room plans call for an adequate table lighting fixture. Con­siderable discussion has taken place of late concerning the type of light­ing suitable for this purpose. While the old-time dome was, if planned and hung just right, satisfactory in that it lighted the table brilliantly and left the rest of the room in shadow, there were so many times it was anything but just right in this placing that it grew to be regarded with suspicion. Lights frequently were so low diners were annoyed by glare in their eyes. Or the dome interfered with vision across the table. In many instances the dome was a clumsy, ugly affair, taking up so much room that it was an eyesore when the table was under it and a nuisance when the table was removed.

Yet the theory of directing light on the table is a pleasing one. Today there are made many efficient fixtures which will accomplish this hemming in of those at the table without the objections of the old-time dome.

In the dining room, as elsewhere plentiful convenience outlets should be installed to care for the table ap­pliances, and the other labor-saving electrical equipment which will be used there. Especially obnoxious is the practice of hooking electrical table cooking appliances to lamp sockets. Convenience outlets, ade­quately wired, preferably on a separate circuit from that devoted to lighting, make appliances decidedly more practical and convenient than when they are unprovided with these connections.

This plan of placing power and heating equipment on a separate cir­cuit from lighting is promising to be popular, and is certainly efficient. Wiring in this instance may be suffi­ciently heavy on the power circuit to permit the use of all the devices a woman’s heart can desire without the chance of overloading the lighting cir­cuit, with consequent annoyances.

Let’s Have Abundant Light

Bedroom comfort will demand an equally generous allotment of outlets. In addition to the places where heater, sweeper, heating pad, curling iron, or any of the other electrical comforts will call for connections, there must be ample and plentiful lights in the bedrooms so that each mirror and each bed shall have its individual illumination. Other lights than this should be considered for sewing, or for general use. There may be a desk where a portable lamp is needed. Lights in closets, etc.
Good lighting in the woman's workroom is as essential as is good lighting in factory workrooms; yet it is frequently omitted in kitchens and laundries. There should be central lighting in the kitchen which really illuminates the room. Supplementary brackets should be added if necessary over stove, sink and kitchen cabinet. Convenience outlets should be provided for iron, fan, dishwasher, motor, plate warmer, fireless cooker. Every labor-saving device which may be adopted to give kitchen ease. There should also be wiring for an electric range; though this be not installed at the time the house is first occupied, yet it is very likely to be purchased later, and wiring will then be more difficult. And don't forget outlet for an electric exhaust fan in the kitchen.

In the laundry lights must be as conscientiously chosen as in the kitchen. There should be an overhead fixture with a carefully devised shade so as to flood the room with brilliant, pure white light. This is better for the searching vision required in laundering clothes than the yellower light popular in other parts of the home. Supplementary brackets may also be needed here. Convenience outlets for connecting washing machine, ironer, and iron and fan are requisite. For attaching the washing machine, an outlet high in the wall is preferable to one near the floor, as this keeps the cord protected from dampness.

In the fall of the year, when there is a rush to get a job done, work can be carried on at night by having electric lights around on the job. For outside work large nitrogen lamps with reflectors are the thing. In the majority of cases, however, a great amount of work that is to be done during the winter is done under cover, and, of course, here electric light can be used to advantage. In fact, the entire twenty-four hours is really available working time. This is quite important when there is a rush to get a building completed. This temporary lighting is very easily accomplished; while portable lamps produce adequate illumination at any particular point of the work desired.

Type of Temporary Building Recommended to Protect Winter Work Described on Opposite Page
MORE than usual considera-
tion is being given lately to
the protection of work in
cold weather. Perhaps a little more
on the subject will do no harm. We
still put off too many jobs until warm
weather that could, with a little pro-
tection, be done in cold weather.

Naturally it costs something to pro-
tect a job from cold and storm, but
often the extra cost is small, and our
only real reason for not going on
with the job is lack of gumption. I
ought to know, I have been the same
myself.

Frequently the owner is willing to
pay extra to have his work pushed
along. Perhaps the loss of rent or
use of the building will cost more
than the added cost of winter work.
Lots depends on the character of the
work. On some jobs it would hardly
pay to go ahead in cold weather,
while on other jobs the building may
be urgently needed or perhaps the
job is of such a character that con-
siderable hours of labor will be re-
quired in a small space. Such jobs
as waiting stations, auto service sta-
tions, comfort stations, new fronts,
etc., are examples. Many small
structures are easily protected by
erecting temporary frame buildings
to enclose the entire job.

Sure, it costs something. Perhaps
a bigger price can be asked for doing
the work in winter. Even if not,
small protecting buildings do not take

long to erect and the materials used
can be made use of again on some
later job. Some small jobs have
considerable labor attached to them,
what with excavating, foundations,
plumbing and the building proper,
and a "half loaf is better than none"
you. There is also an advantage
when spring comes if you and your
cash are free for new jobs. Also
you have added a little of your repu-
tation, and that is worth something.

YOU may even take advantage of
chances for some good advertis-
ing by use of a proper sign on the
premises, giving the builder's name
and address and calling attention to
the fact that Jack Frost can't phase
you. Where small jobs are entirely
closed in houses of the general type
shown by the drawings are usually
used. The lower four or five feet
of the structure and also the gable
ends are boarded solid. This gives
stiffness and adds protection.

These buildings are generally
heated with open salamanders, and
it is well to provide some sort of
shutter or door in the gable ends of
the building to provide ventilation.

Often it happens that it would hardly
pay to go on with a building during
severe weather, but it would be a big
advantage to have the foundations all
ready the first thing in the spring and
not be obliged to wait until frost goes
out of the ground to get started.

If trenches are dug wide enough
so that forms can be carried down to
the bottom, the forms can be filled
with concrete and then covered with
tar paper, canvas or litter. Warm
concrete when protected in this way
is not harmed by cold (Fig. 1).

CANVAS hung over the sides of
the forms or paper lining on out-
side of them adds considerably to the
protection of the concrete (Fig. 2).

Forms may be lined both inside
and outside. This gives slightly more
protection from frost and prevents
the forms sticking or freezing to the
concrete. Where one side of a wall
is against a bank and the other side
exposed a canvas can be hung over
the wall, and at some convenient point
held away from the wall, by use of
some sort of frame work, far enough
to allow a salamander or even one or
more oil stoves to be placed beneath
it safely (Fig. 3).

Another way is to hold the canvas
away from the wall a few inches by
using brackets, the same brackets supporting a steam pipe as shown in Fig. 4.

Where a foundation wall runs only two or three feet above ground, a simple wind break on the north side of the wall will make it possible to take advantage of many sunny days that would otherwise be lost. Even when using warm concrete in protected forms it is sometimes desirable to erect wind breaks to protect the workmen. A couple of portable windbreaks covered with canvas or boards or roofing paper are sometimes handy to have (Fig. 5).

A few slats tacked across the scaffold poles and a canvas hung over them is a worth-while protection to a man engaged on some tedious exposed work (Fig. 6).

Plastering can usually be done in winter, especially if there are chimneys in the house. Where there are no chimneys, salamanders can be used, and if the sash are not in place the window openings can be covered with muslin.

Where attic floors are not boarded over tight a lot of warmth escapes. Building paper laid between the attic joists will help to prevent the escape of heat and also help protect the fresh plaster on the bedroom ceilings from frost. Paper laid in loosely will not interfere with plastering. The same idea can be used inside the studs on sections of outside wall where for some reason the siding or other outside covering has not been put on (Fig. 7).

Where the stair well extends to the attic, a lot of heat will be conserved by covering the well with canvas or other covering. If the house can be best kept warm by heating only one portion at a time, the building can be divided into sections by using canvas or paper over the studs or lath and the heated part of the house plastered first, etc.

There are endless jobs that can be done in winter by a little added planning and protection. Only a few suggestions have been made.

Unbleached muslin or sheeting may be had in the following widths: 36", 54", 72", 81", 90". Canvas covers are usually made to order and can be had in several weights and any shape or size desired, and in either white or khaki. It pays to buy good ones.

In the words of H. Colin Campbell, of the Portland Cement Association, "Let's Keep Building Going All Winter." There is no excuse for anything less than a twelve-months' construction season—except the excuse of bad habit. There is no reason why the winter months should not take some of the burden of keeping things going. It can be done and is being done every year by builders and contractors who know the profit of keeping their efficient organizations together and working. Let's all do it!
WHICH is the best season of our year for doing exterior painting? This question has been discussed for many years, and still without having been decided one way or the other. This because each season has its advantages and disadvantages for this kind of work. The Spring has its showers, catching wet paint and hindering the work. Summer has dust and flies, which spoil the paint. Autumn comes nearest to scoring perfect. Winter has its frost, snow and freezing, all bad for painting, though I cannot say positively bad for paint.

Some wise man has said that the best time for outside painting is when you are ready to have it done. And that is not very far from the truth.

Now, as to winter painting. Winter is at or around the corner as I write. There will be plenty of painting to do, inside and out. So I will discuss this matter of winter painting here.

There are two main difficulties that we painters have to meet with when doing outside work in cold weather. The oil becomes stiff, making it difficult to spread, and taking more time than in warm weather. Also the paint does not get rubbed out enough.

It is very important that a coat of exterior paint be brushed out thin and even; if too heavy a coat, or uneven in its brushing out, it is liable to crack or peel in the future. The only way to do, is to warm the paint once in a while, to keep it in a working condition, and this takes time, too. But it will pay in the time saved in its application and in the better coating it will give.

By having the paint mixed in quantity in a warm place, one can run in and get a fresh pot of paint whenever the paint we are using becomes too stiff. Some painters make the mistake of thinning the paint, sometimes with oil, sometimes with a little turpentine. This is a mistake, as it makes the paint thinner than it should be.

Turpentine is often added to the paint in mixing for cold weather, for that makes it easier to spread, but for a last coat I never want turpentine added. A little might do in previous coats. It tends to harden the paint a little, and also assists the drying.

I have mentioned the difficulty of spreading oil paint in cold weather. In addition to that there is the discomfort of working in cold weather, for the painter does not have the exercise that other mechanics have in working, hence feels the cold more. The situation may be greatly improved for him by working in the least exposed parts, as on the sunny side when the sun happens to be in evidence.

That used to be my practice, though most employers insist on taking the building right around regardless of weather conditions. Now as to the character of painting done in cold weather. Is it as durable, and will it make as nice a job? Yes, quite as durable provided the paint has been properly rubbed out, as I have already pointed out. There are two important points here to be taken into consideration, namely, the character of the wood that is to be painted; is it as dry as it would be in warm weather? Usually it is not, and therefore the paint does not do as well as in dry, warm weather.

On the other hand, the sun bites the life of paint, which is the oil, so that it may not be as durable as winter-applied paint. Also, if the paint that has been applied in the winter afternoon is fanned by a raw, damp breeze at night it is sure to affect the fresh or un-dry paint and give its surface a rubber-looking appearance, which, while no harm is done to the integrity of the paint, spoils the finish. When such a case occurs all you can do is to either remove it, or rub it well with raw linseed oil, which may restore its luster. To prevent is, in this case, the best policy. Try to avoid painting that part in late afternoon that may be exposed to a possible damp night air.

I have painted in winter on the north side of a house, when the breeze was in that quarter, and the cold so intense that I have had to run to shelter every little while, to knock my frozen fingers to get the blood to going in them.
ONE can often find good money in an almost virgin field during the slack months of the contractor-builder's season. In other words, when no large jobs appear on the horizon and the wallet grows thin, go out and create a market for some useful thing, and then push it. It will provide enough to live on, if nothing else.

When the contractor or carpenter has finished the house he usually thinks that his presence there is no longer needed and sets out for new ventures. When work is scarce it behooves the man with an eye to his income to seek additional work about the place which will bring in money.

** Beautifying the Home Surroundings **

Almost every new building site presents a good field for such effort, if the financial status of the owner is such as to warrant it. In the photo is shown a corner of a western home site. The bungalow, recently erected, shows in one corner. This lot upon which the house has been built was low and below the roadway. For this reason the owner was able to buy it cheap. After it was graded up to the proper level its value was almost doubled.

But at the back of the lot there was an abrupt drop of several feet to the old level. The builder, noting this, brought the matter to the attention of the owner, who, after hearing a suggestion or two, turned over the matter to the contractor with the result shown.

The attractive lattice fence of one inch white pine strips runs the full length of the lot, and on the front side a few feet from the drive to the garage the pergola was built. Though the material costs practically nothing, the contractor was able to realize handsomely on the job because the work required was nominal compared to the result thus obtained, which was what the owner wanted.

** Cedar Chests to Conform to Room Colors **

One seldom sees a cedar chest finished in anything but the natural colors, yet often a chest of this wood is built of such a light or inferior material that the effect is anything but pleasing. A chest built of the red cedar should be made from pieces carefully selected to give the variegated finish found on the best pieces of work. When this is not possible and only second quality lumber available the chest can be made to fit in with the color scheme in any room by giving it the proper treatment and the desired finish.
Simple Ice Box That Can Be Made in Dull Times and Sold to Campers, etc.

Also, where the chest is wanted of cedar only for its peculiar properties, namely, to keep away insects and pests, considerable of the purchase price may be saved by a chest made of the cheaper wood and then painting it the proper color.

The cedar chest shown in the accompanying cut has been finished a soft cream color to harmonize with the color of the woodwork in the room for which it was intended. It was first given two coats of shellac to keep the rosin and oils in. After this had dried thoroughly a coat of the flat color was applied. Two days later the first coat of the interior cream finish was put on, and ten hours later, the second coat.

Combined Kitchen Seat and Refrigerator

Briefly, the ice box, which is shown in the accompanying drawings, consists of a wood box made in the shape of an ordinary window seat. Within are three compartments, the center one containing the ice, and the two on the outside being used for food and other things in need of ice. The wood box forms the outer wall, then comes two inches of sawdust, with a galvanized iron box partitioned off into the three spaces mentioned above. The front side is cut away as shown in figure one for the drip pan, and the hinged top which extends over the edge on three sides one inch is cut into three sections, so that one compartment may be opened without disturbing the others. Cleats which may be nailed on the under sides of the doors will prevent them from splitting and will further add to the strength of the box.

The outside dimensions of the box are: Height, twenty-one inches; length, four feet; width, eighteen inches.

The outer walls should be made first. The floor is supported above the floor of the kitchen by 2"x6" pieces running from front to back. Upon these are laid matched lumber for the floor. Suitable hardwood to take an interior finish should be used for the outside.

Measurements for the iron box may be taken to the hardware store and there made. See that all joints are tight and a short length of pipe fitted into the center of the floor of the ice compartment to drain away the water.

This is then set into the box, after the bottom has been covered with two inches of sawdust well packed, and then the sides filled. When full, strips of linoleum should be tacked over the top of the sawdust filling to prevent occasional working out.

The metal partitions between the ice and the two adjacent compartments readily permit the passing of the cold and save space. Moreover, it makes a tight inner lining and keeps the sawdust dry.

By altering the size and construction of the box it can be made to suit...
a number of individual conditions. The drip pan may be done away with by attaching a short length of hose to the end of the drain pipe and running it to some convenient place outside. And if a hole is cut through the side of the house to open into the ice compartment, filling may proceed without having the kitchen floor tracked.

This box can be used in the spring and fall as a simple cooler, by leaving this door from the outside open, if it has been provided. The outside air will circulate freely within, keeping the whole box at an even, low temperature.

**Waste Receptacles Are Easily Made from Waste Lumber**

One Sunday while spending the afternoon in a city park a carpenter noted that the campers and picnickers were often forced to carry their waste paper and empty pie plates a long distance to throw them in the discard. They did it, of course, most of them, but the receptacles should have been more frequent and not so far apart.

The next day he sought an interview with the park commissioner. He argued the wisdom in providing these containers at frequent intervals over the parking area, and in less than thirty minutes he had an order for twenty-four such as are shown in the photo. These sold at a nominal figure, and yet represented a neat profit, for they were all made from scrap lumber.

While he was at it, the carpenter built a dozen more and disposed of them readily. The investment was labor alone, and he realized on an otherwise waste product.

**Individual Hog House Proves Good Sideline**

The cut shows a small individual or colony hog house of the portable type. It has been designed by the University of Nebraska and is proving good success on the farm. An idea of the way it is proving up in the field can also be obtained by the large number of orders which come in from out in the state for blueprints of the house.

Some Points on the Use of Metal Lath

**The use of metal lath as a plastering base for suspended and vaulted ceiling is resulting in an ever increasing use of this form of construction. It is being quite extensively used for decorative purposes in the better class of residences, theatres, schools, institutions, public and office buildings, etc.**

Its economy and ease of erection compared with other methods of obtaining equal effects has resulted in greatly extending its use throughout the country. In places where this material is not used to any great extent, it has been probably due to a lack of realization of the advantages of its use by local lathers and plaster contractors who sometimes fight shy of a suspended ceiling job that is out of the ordinary.

After much research in connection with the common practice in different localities throughout the United States a form of specification has been approved by the Associated Metal Lath Manufacturers for the safe erection of suspended ceilings.

In a great many cases, suspended ceilings were erected in a manner that violated some rules of good construction and several failures have occurred. Now, this was not due to any fault of the metal lath or hanging equipment, but rather to faulty knowledge of the proper way of erecting the work. Following are specifications that if followed will result in a good job:

**Hanger**—The vertical member which carries the steel framework.

The minimum size for hangers shall be No. 8 galvanized wire 1 3/16 in. flats or 7/32-in. round mild steel rods. The wire is to be attached by twisting three times,—flats attached by bolting with 3/4-in. bolts,—rods by twisting twice, or by right angle bends and wiring. They shall be spaced not to exceed 4-ft. in either direction.

**Runner Channel**—The heaviest horizontal member.

Runner channels are to be not less than 1/2-in. channels with a minimum of .442 lbs. per lineal foot. They shall be spaced not to exceed 4-ft. on centers.

**Furring Channel**—The smallest horizontal member, to which the lath is attached.

Furring channels shall be not less than 3/4-in. channels with a minimum weight of .276 lbs. per lineal foot, attached to runner channels by at least three loops of No. 16 galvanized wire at each crossing. They shall be set on various centers, depending upon the lath to be used. A maximum of 1 3/4-in. centers shall be used for 3 lb. flat lath, 1 3/4-in. centers maximum for 3.4 lb. flat lath, 19-in. centers maximum for 3 lb. Rib Lath.

**Metal Lath**—The plastering base and reinforcement.

Metal Lath shall weigh not less than 3 lbs. per square yard. Metal Lath shall be attached to the furring channels by No. 18 gauge annealed galvanized lather's wire, every 6-in. along the furring channels.
ON this page we give short descriptions of some very interesting catalogs, etc., that have just been issued by different manufacturers. They will be sent free on application to any of our readers who are interested, but should you prefer to write us, give the date of this issue and title of the catalog desired, and we will have them sent to you.

Plumbing Supplies

A FALL building bulletin has just been issued by the Hardin-Lavin-Company, 4533-39 Cottage Grove Avenue, Chicago, Ill., which contains descriptions of several different styles of plumbing equipment for modern and cost homes and it is well worth sending for as it contains a number of new ideas.

Copper Roofs

EXCEEDingly interesting is the 22-page booklet on the use of copper for roofs that has just been issued by the Copper and Brass Research Association, 25 Broadway, New York City.

Some very valuable information is given, amongst which, we may mention, is a handy table on the weights of different roof materials. This booklet is worth while having by anyone interested in the subject of proper roofing.

Casement Windows

THE attractiveness of many homes can be enhanced by having several casement windows. Even in houses that are already built when a room is to be remodelled, casement windows can be substituted with an artistic result. Builders would do well to keep themselves posted regarding what can be done and for this purpose the catalog of Henry Hope & Sons 103 Park Avenue, New York City, will be of considerable interest and value.

Surveying for Builders

BUILDERS on every job have use for a transit and level, therefore, they will be interested in the description of the Sterling transit and levels as described in the new catalog just issued by Warren-Knight Company, 136 N. 12th St., Philadelphia, Pa. This interesting book of thirty-six pages will be sent to any of our interested readers.

House Moving

FROM LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa, comes a very interesting catalog of thirty-four pages devoted to the special trucks, rollers, jacks, capstans, etc., for the moving of houses. With such equipment on hand a builder will find the moving of a building far simpler than when old fashioned methods are employed. Besides containing the description of the different equipment the catalog contains a number of illustrations and descriptions of different house moving jobs and it certainly will make most interesting reading matter for any builder.

Electrical Equipment

BUILDERS are keen about installing proper electrical wiring with adequate convenience outlets so that different forms of electrical equipment can be easily installed. This is always an attractive point in selling the house, as people now-a-days look for and demand these convenient things. To select proper switches and outlets will be easier if one has the catalog of the General Electric Company which may be obtained by builders, by writing them at Bridgeport, Conn.

Spring Hinges

DOUBLE swinging doors are being used in practically every modern home for some particular place. They have many decided advantages but to take the proper advantage of their convenience, one must have the proper hardware. Builders will be interested in the forty-four page catalog describing spring hinges made by the Chicago Spring Butt Company, 1500 Carroll Avenue, Chicago, Ill. A copy of this catalog, No. 39, will be sent to any of our readers.

Portable Woodworker

WELL illustrated is the large folder describing the Master Woodworker, a copy of which will be sent to any of our readers by writing to the Woodworker Mfg. Co., Inc., 612 Brush Street, Detroit, Mich. Such a machine on the job will prove a well paying investment in the time it saves, to say nothing about the grade of work done.

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Keeping Out the Cold

FOR overhanging sections of rooms, that project as bays or built over an open porch, there is considerable difficulty in keeping that portion of the room warm in the winter time unless some good insulating material is used. A sample of sheathing quilt for this purpose together with descriptive catalog may be obtained by the makers, Samuel Cabot, Inc., 141 Milk Street, Boston, Mass. This material when properly used certainly is an excellent insulator against the cold. It is made of eel grass, does not burn and is low in cost.

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Four-Family House

Each Apartment Has Separate Outside Entry

HERE is a design for a four-family apartment which consists practically of four separate homes as each apartment has its own separate outside entrance. The construction of this apartment building is of frame covered with stucco, but it could be of hollow tile or brick, if preferred.

The room arrangement has been well planned and each kitchen has a sink with drainboard on each side with cupboard below; this occupying the entire side of the kitchen and gives a good working space under the double mullion window. The gas range is located on the opposite side of the kitchen. The laundry tubs are located on the rear entrance porch which is a more convenient place than having them either in the cellar or in the kitchen. There is also sufficient space on this porch for washing machine, ironing board, etc., besides a refrigerator. This attractive apartment was recently erected in Los Angeles, California, by the De Luxe Building Company of that city.

In this day of handsome, modern, comfortable apartments and dwelling houses it is interesting to reflect that the earliest human dwellings were probably natural shelter places such as caves, overhanging rocks and densely interwoven foliage. But a form of human architecture had been developed by the time the progress of man reached the Neolithic period and these most primitive dwellings had much in common with the homes of burrowing animals, says a writer in S. W. Straus & Co.'s Investors' Magazine.

The primitive man went into the earth and sought warmth and protection from the elements in pit dwellings, but the habit of living in pits must have been developed after the disappearance of those huge animals which in earlier times would have broken through the roof of such a place.

It does not require much reflection to discover how things have improved since those ancient days. Today, if he can afford it, the master has a comfortable six-room apartment and can seclude himself for weeks from his servants if he is lucky enough to keep them for that length of time.
What the Editor Thinks

Winter Building

November in our Northern States will bring to completion many building projects, and there will be but comparatively few new jobs started until next spring, but this is no reason why builders should let up and not do any work. There are many things that can be done to keep one profitably occupied during the next few months even though the winter should be very cold.

In several articles in this issue different suggestions are made on how construction work can be carried out during cold weather—profitable side lines, and other work that will tend to eliminate this seasonal difficulty in the building industry.

Elimination of the Cellar

Many changes are occurring in the building of homes. The tendency of late years has been the making of smaller and more compact homes, so that work will be reduced to a minimum. In the old days when “servants” were plentiful at small wages, large houses were the rule. Today when “maids” are an expensive luxury, house work duties are cut to a minimum. This has brought into being the kitchenettes and dining-ettes, door beds, etc.

Another step in eliminating work will be the omission of the cellar. The constant going up and down stairs takes time. Nowadays heating plants, etc., can be arranged on the floor level. Another point that is of considerable importance is the saving in expense of excavation and foundation work. To take the place of cellar a storage room can be added to the floor plan.

How Long Can Workers Labor Efficiently?

Labor efficiency is higher with three shifts of eight hours each than with two shifts of twelve hours each. This was indicated in a careful survey and report made by a committee of the American Engineering Council.

Continuous operations, according to the committee, were found to constitute a great industrial problem about which almost nothing is known either by labor, the employee or the public. In the building industry, continuous labor is but seldom resorted to, but in the case of large buildings work is frequently carried on day and night, artificial illumination being provided.

It is a curious fact that a great percentage of the accidents occur on Monday or the day following a holiday. The day of rest seems to make men a trifle less careful.

Our Cover Design

Rick work lends itself to make the very interesting home shown on our front cover. This was designed by S. Edson Gage, architect, and was built at Rye, New York, for Mr. E. Brophy. In the chill days of November, there is something very comfortable looking about a house of this sort with its glass enclosed living porch.

Quantity Surveys

Rather interesting was the experiment of the Master Carpenter Association of Milwaukee, in clubbing together to hire special estimators to take off a quantity survey from plans submitted by architects to different members of their organization. Sometimes as many as ten members were asked to figure on the carpentry work of some particular building and this would mean that each would have to figure out the quantity separately.

The subject of the quantity survey is an interesting one. Why should builders make this up? It is really part of the architect’s work as well as plans and specifications. We may as well expect the builder to furnish plans, specifications and everything, and, of course, that is frequently done on most small jobs but for larger operations a quantity survey should be an essential part of the data given the builder when asking for his bid.

The fault, however, is largely due to the owner. He wants to get plans and specifications as cheaply as possible and should an architect suggest to have a quantity survey, in most cases he will be over-ruled on account of expense. Little does he think that the builder must, in all fairness to himself, charge in his time for taking off this quantity survey and not only that, but he must also charge in his time spent for making estimates on jobs that he does not get.

The owner actually pays for all this, and if he was required to give a quantity survey with plans and specifications, the architect would be more than willing to give it as part of his service. It would result in an actual saving to the owner, better satisfaction to the architect and a better and more definite bid from the contractor, as he would not have to add a safe percentage for items that may be called for.

The construction industry as a whole should try to educate the public to know what constitutes the proper preliminaries for a building. In very few other occupations or industries is anyone asked to do a whole lot of hard work for nothing. Why should it be in the building industry?

Give the Boy a Chance

Watch the boy that hangs around a building operation. Give him an encouraging word once in a while instead of chasing him away. He is usually a bright youngster that looks with awe on the workmen doing their appointed tasks. He is interested in building. A word or two of encouragement will instill in him a desire to join the building craft when his school days are over.

If this kindly interest had been taken universally in this country, we perhaps would not be feeling the present lack of skilled labor to such an extent. The boy is the hope of the building industry.

It is absolutely nonsensical for Americans to deplore the fact that skilled mechanics are not coming from Europe. We have the best material here—give the boy a chance.
Seeing an article in a recent issue of Building Age and The Builders' Journal about the desirability of roadside markets, I think it will be of interest to your readers to see a picture of one.

At Avondale, Penna., on Route 131, Charles H. Sweigart, a man who has made a success of farming and chicken raising, has built for himself a farm products booth along the highway, in which he sells the things that are raised on his farm. This building is all his own idea, and while not pretentious to any great extent, still, is very well executed and answers the purpose most admirably, being both near and serviceable.

The roof is of asphalt shingles and the building is well planned and put together. It is not an eyesore and the neat signs help to carry out the idea of a service station for the selling of farm produce.

This little building was erected for a modest sum and as you suggested in your editorial similar structures could be used along many roadways by other people with changes to suit, obtaining perhaps a more artistic design, but this venture is a pioneer one and is certainly a step in the right direction.—C. H. Thomas.

A set of drawers were built between two studding, each large enough to take the small things which are the most easily lost about the place, and then instead of leaving them without a lock of any kind, or providing every one with a separate lock, he hinged a strip at the top, cut a hole near the lower end, and drove a hasp staple into the center strip between the two rows of drawers so that the hole in the wood strip would fit over the staple. In this way one padlock kept all of the drawers locked.

The plan seemed to work very well, a point was made with the hired help to do most of the repair work, and it was always necessary to get the key before the contents of any of the drawers could be touched. Later a list of the articles to be kept in each drawer was pasted on the front of each.—Dale R. Van Horn.

Successful Rust Remover

The most thoroughly rust-covered metal may be restored to its original bright color and condition by rubbing with a red eraser, or better yet, a sand eraser. A too coarse sand eraser should not be used if scratching the metal's surface is to be avoided. This method of removing rust is effective on any metal and will restore rust-covered carpenter's and builder's tools and draftsmen's instruments, to their original appearance. To those trying it for the first time, the result is surprisingly satisfactory.—C. Nye.
What One Builder Did With Cobblestones

The attractive bungalow shown here is thirty-four feet by sixty feet. It was designed by Mr. Durbin Swartzell, of Cincinnati, as a suburban home at Brookville, Indiana.

The house has a wide veranda along both its front and side. Two doors open from each of these porches. The one gives access to parlor and sitting-room, the other dining-room and kitchen.

The house has been built, as far as possible, of cobblestones brought from the bed of Whitewater River nearby.

—Felix J. Koch.

Ornamental Lattice Easily Produced

In building fences where certain portions are to have ornamental pieces of lattice work, it sometimes puzzles the carpenter how to get the desired effects shown, except at an immense amount of labor.

I follow quite an easy method. For instance, the design shown in Fig. 1 does look a little bit complicated, but it can be very easily finished. I simply nail my lattice strips in the frame as shown in Fig. 2. This is just plain cross pieces. At every junction point, I put in a small nail and clinch it. Of course where a large quantity of this work is being done and especially when it is being erected in position, it is necessary to have a helper on the other side to help in this clinching. Sometimes there are thousands of these clinches to be made. In all cases it is not necessary to nail every crossing, but every other one will give the required amount of rigidity.

When the different crossings are firmly fastened together by this clinching process, then proceed to cut away with a small saw the different pieces marked XX as shown in Fig. 3. When these cut portions fall away, the result will be the ornamental design shown in Fig. 1.—Albert Fair.

Storm Platforms and Steps

The attached sketches show how simple platforms and steps across and on either stone, brick or concrete sidewalks, stoops, piazza, etc., may be cheaply and quickly constructed.

The covering or footway from the curb line to the bottom of the first step is 8-0 feet in length made up of 1x4 yellow pine flooring strips on which is placed 2x8 good spruce planed planks nailed from the under side and spaced 3/8" to permit rain or snow to percolate through and keep the top surfaces dry. The width is 3 feet to permit two persons to pass each other conveniently. The steps are made up of 2" x 6" spruce planks nailed as before to the flooring strips underneath. A hand rail 2" x 3" and 2" x 4" scantlings is placed on the right-hand side of the steps and entrance platform.

By reason of the frost and snow rendering concrete and stone surfaces slippery and dangerous to life and limb these platforms and steps which are portable should be provided for Winter weather for houses, flats, apartments, offices and public buildings.

They can be removed in the spring, stored away carefully in cellars and basements for use the following Winter. Any janitor who can use a hammer and screwdriver can put them up and take them down in a short time.—Owen B. Maginnis.

— BUILDING AGE and BUILDERS' JOURNAL, November 1922.
ALL readers are invited to ask any questions that will help them solve any legal difficulty that they may be in. Our legal adviser will answer direct by mail and give his opinion as to the correct procedure. Questions and answers of general interest to the trade will be published in these columns. All inquiries must be accompanied by the name and address of the correspondent so that he may be answered directly or that he may be requested for further information if necessary to the intelligent answering of his question. No names will be published, only initials or a nom de plume. Remember that this service is free to subscribers. Address Legal Department, Building Age and The Builders' Journal, 920 Broadway, New York City.

In the absence of more particulars, and especially as to what the claimed defects in the insurance effected were, we are unable to give a definite opinion which we should be willing to have followed without regard to the undisclosed points. However, it may be found that the case will fit within one of the general rules of law stated below.

If no binding insurance was effected, and if the builder did not reasonably pay premiums to effect such insurance, the owners' non-liability appears to be clearly established by a decision of the highest court of the land. In the case of Tillson et al. vs. United States, 9 Supreme Court Reporter, 255, the United States Supreme Court decided against the right of petitioners to recover for premiums for insurance covering granite sold and shipped to the Federal Government. The court said:

"The first claim is based upon the clause in this contract by which the United States agreed to pay for the petitioner's 'the full cost of the said labor, tools, and materials, and insurance on the same.' The petitioners contend that the insurance thus agreed to be paid for is insurance on the cost of labor, tools, and materials used; that is to say, on that part of the value of the cut granite which was represented by the cost of the labor, tools, and material used in cutting and boxing it. We have not found it necessary to consider whether the words 'insurance on the same' mean insurance on the granite, or insurance on the cost of the labor, tools and materials used in cutting and boxing it, or only on the materials so used; because, it being found as a fact that the petitioners never did effect or pay for any insurance whatever, we are clearly of opinion that they are not entitled to recover anything for insurance. The United States have not agreed to obtain insurance, or to become insurers themselves, but only to pay to the petitioners the 'cost of insurance,' which is as much as to say, 'reasonable premiums of insurance paid by the petitioners.' By the terms of the contract the United States are no more bound to pay for insurance which has not been effected, than for tools or materials which have not been used, or for labor which has not been performed."
You Need
the NATIONAL
"Big 4" Flexible Door Hanger
and "Braced Rail"

That barn—or similar job—that you are handling, calls for a heavy-duty Hanger and Rail; for an easily sliding door gives the stamp of right construction to the whole building.

The Big-4 Flexible Door Hanger has as its keynotes Simplicity and Strength. Note its sturdy appearance in the illustration. Thousands of pairs in use for years in all sections of this country and Canada prove its Service-ability under varying conditions. Made entirely of steel and supplied with anti-friction-steel roller bearings, giving a perfectly free motion to the door.

Braced Rail: Millions of feet of this rail are in use and giving uniform satisfaction for these reasons: brackets only 12 inches apart and double riveted—giving extreme rigidity. The brace below the screws trebles the holding power of the screws. Brackets are same width and thickness as the rail itself, and holes are staggered so the screws will not go into the same grain of wood. A fitting companion for the Big-4 Hanger.

Send for Booklet "F" and give dealer's name

NATIONAL MANUFACTURING CO.
STERLING, ILLINOIS
BUlLDING AGE and
The Builder's Journal

The higher court says that if the written contract failed to express the true agreement, defendant should have sought a reformulation of the instrument by court proceedings.

A SHORT time before I graduated from a school of architecture," writes a young New Yorker, "I was employed by a man to prepare a set of plans to build a five-room house. After Right of a
Student Architect to Compensation
I got bids from the contractors and informed the owner of the total cost of the house, he refused to pay me for my services; claiming that the building will cost more than he intended to pay. I expect my architect's license soon. Can I recover in this case?"

If you represented yourself to be an "architect," without disclosing that you were merely an ungraduated student in architecture, we are of the opinion that you have no right to recover.

Section 77 of the General Business Law of New York, as amended in 1921, declares that one who did not practice architecture in the state before the act took effect (1915), "shall before being styled and known as an architect, secure a certificate of his qualification," etc. As amended, the law provides that it shall not "prevent persons other than architects from filing applications for building permits or obtaining such permits."

It seems, under this law, that if you held yourself out as an architect your violation of the law would preclude your recovering compensation for your services. However, if the owner understood that you were still a student we do not believe that he could invoke your lack of certificate as an architect to defeat your compensation.

On establishing a right to compensation, the amount would be controlled in the first instance by any agreement upon the subject. If no rate or amount was agreed on, you would be entitled to reasonable pay, which might be held to be less than a registered architect would be entitled to under the same circumstances.

Assuming that your lack of registration is no bar to your recovery, your letter still fails to show a right to recover anything, because you do not state the nature of the agreement you had with the owner. However, the mere fact that it may cost more to construct the house than the owner expected will not defeat your right to pay. If he did not disclose to you a cost limitation beyond which he was unwilling to go, and if you prepared plans in accordance with the ideas he gave you as a basis for doing your work, no reason is perceived why you should not recover.

As a practical matter, your proper course is to place your claim in the hands of a local attorney if the owner refuses to make a satisfactory adjustment.
Where Moisture Lodges Use Rot-Resisting Redwood

For siding and porch work on which climbing vines retain moisture and foster the development of mould and decay, for shingle roofs shaded by trees so that they dry out very slowly—wherever moisture lodges—Redwood can be specified with perfect assurance that decay producing fungus will not make early replacement of these parts necessary.

The same natural, odorless preservative that protects growing Redwood against wood destroying agencies during centuries of growth protects Redwood lumber and lumber products.

Redwood is not expensive. While it will add greatly to the permanent soundness and appearance of any frame structure, it can be bought at prices little in excess of those paid for lumber that cannot compare with it in rot-resistance, percentage of clear lumber, uniformity, or freedom from shrinking, warping and swelling.

For the convenience of architects and builders we have recently issued our "Construction Digest" and our "Engineering Digest," which either our Chicago or New York office will gladly forward upon request. Write for them.

Redwood should be specified for

Exterior Construction
- Including Colonial siding, clapboards, shutters, door and window frames, guitars, awnings, scupper troughs and moldings; porch rail, balusters and mouldings; window sills and lath;
- Plays and fencing; pergolas and greenhouses.

Interior Finish
- Natural, stained or painted; Wood block floors.

Industrial Use
- Tanks and vats for water, chemicals and oil; Factory roofs and gutters; Wood block flooring.

Wood Specialties
- Such as Caskets and burial boxes; Incubators and ice cream cabinets; Cigar and candy boxes; furniture manufacturing, etc.

Railroad Uses
- Such as Railroad ties and tunnel timbers; Car siding and roofing.

Farm and Dairy Uses
- Such as Silos, tanks and troughs; Hog feeders and implement sheds; Wood block floors, etc.
Designing and Estimating Roof Work

By I. P. HICKS

The styles of roof, methods and cost of construction, and easy ways of estimating the material and labor for the same is a matter of considerable importance and interest to the carpenter and contractor.

First we want to say a little about the styles of roofs. The styles of roofs and the proportions of their shapes and sizes to fit the house have just about as much to do with the appearance of the house as selecting an appropriate hat for a lady.

Figures 1, 2, 3, and 4 represent four styles of roof in general use. These, when used singly or in combination and with variations to meet the different requirements of different buildings, constitute the larger part of the roofing of the average building.

Figure 1 represents a plain gable roof, which is one of the most common and easily constructed roofs. As to the style of this roof, it is almost always of the plainest type. Yet to choose a proper pitch for the roof and a proper width for the cornice, according to the width and height of the building, will have much to do with its general appearance.

If it is a building with 12 to 18 feet studding, 18 to 26 feet wide, with a plain box cornice, the horizontal projection of the cornice should be from 18 to 24 inches and the pitch of the roof from 7 inches to 12 inches rise to the foot run of the common rafter, using the wider cornice and steeper roofs on the higher and wider buildings.

Where buildings are finished with a bungalow cornice, the projection of the cornice is often 2 feet to 2 feet 8 inches, and in some cases as much as 3 feet, even 4 feet in some of the so-called "prairie designs" of houses.

We will not attempt to lay down any definite rule for determining all these variations in dimensions, as it is a matter mostly of good judgment with the designer, but it is a sure thing that good proportions in designing the cornices and roof add very much to the general appearance of the completed building, and it is well worth while for the carpenter and contractor who has more or less of this to do to study up some on the art of designing and proportioning of his work so that it will produce the most pleasing results.

In our opinion a plumb cut on the ends of the rafters, so that the fascia stands plumb, always looks best, although it is not always the easiest of construction.

Estimating the Roof

Now, something about estimating the material and labor for the roof. This can quite readily be estimated by the square. Sometimes in making an estimate the length of the rafter is not quite exactly known and it may be that the contractor has no way at hand to determine the length of rafter, or does not want to take the time to figure it out just at the moment.

It is easy to figure the cost of this work without stopping to figure the length of rafter required. Add the horizontal projection of the cornice to the size of the building, on each side and each end of the building and proceed as follows:

Multiply the length of the building by the width, and for the different pitches add the following per cents, which will make the amount of space to be covered for the different pitches:

- For a 6 x 12 pitch add 12%
- For a 7 x 12 pitch add 16%
- For an 8 x 12 pitch add 20%
- For a 9 x 12 pitch add 25%
- For a 10 x 12 pitch add 30%
- For a 12 x 12 pitch add 42%
- For a 15 x 12 pitch add 60%
- For an 18 x 12 pitch add 80%

The above figures will give the exact amount of roof surface, and it is applicable to either gable, shed or hip roofs of any shape or size, or where there are both hips and gables on the same roofs of about the same pitch. We do not use it on gambrel roofs because there is too much difference in the pitch of the two roof sections.

In the case of dormers on roofs it is necessary to add the number of feet included in the dormer cornice because the dormer cornice projects over the main roof. The dormers cut out a portion out of the main roof where they are placed, and the roofing of the dormer just about equals this space plus the amount necessary to cover the dormer cornice.
FREE—This Book on Wood Finishing

This book is full of practical information on finishing new floors and trim and refinishing old work of this kind. Written by experts—profusely illustrated—contains color charts—gives covering capacities, etc. We will gladly send it free and postpaid to contractors and builders.

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ARTISTIC INTERIOR FINISHES
This makes easy figuring when it is thoroughly understood. It is also advisable to put in some for good measure, for there is liable to be more or less waste cutting in and finishing around dormers.

Having obtained the number of feet roof surface, divided by 100, which will give the number of squares of roofing, the roof sheathing can be figured from the number of feet at the local price of lumber per M.

Where the roof sheathing is put on about 2 inches apart, as for shingle roofs, it is not necessary to figure any for waste, for the spreading of the boards will fully make up for the waste. If the roof is to be sheathed tight, then add to the above amount 6 per cent to cover the waste in cutting.

The feet board measure per square required for rafters in ordinary roof framing is about:

<table>
<thead>
<tr>
<th>Size of timber</th>
<th>2x8</th>
<th>2x6</th>
<th>2x4</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-inch centres</td>
<td>128</td>
<td>96</td>
<td>64</td>
</tr>
<tr>
<td>20-inch centres</td>
<td>112</td>
<td>84</td>
<td>56</td>
</tr>
<tr>
<td>24-inch centres</td>
<td>96</td>
<td>72</td>
<td>48</td>
</tr>
</tbody>
</table>

On the framing the labor can be figured at from $16 to $20 per 1,000 feet of timber, figuring the higher rate for roofs that are complicated and require more cutting and framing. By this method the feet of sheathing can be readily found, the number of squares of roof, the feet board measure of rafters, and then the cost of labor on any part, or the entire roof can be determined.

The number of shingles required per square for rafters is simply two rectangles.

<table>
<thead>
<tr>
<th>Size of timber</th>
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<td>48</td>
</tr>
</tbody>
</table>

Other Common Roof Types

**FIGURE 2 represents a shed roof**, which is one of the simplest forms of roofs. It is used principally on additions to the main roof and in the construction of dormer roofs, particularly on roofs of the bungalow type. Shed roofs as a rule do not have a very pleasing appearance, yet by taking care to proportion the cornice so that it does not look out of place or botchy in construction, they can be made to look fairly well and sometimes very good for the places where they are used. As a rule, they are cheap in construction as regards material and labor and can be figured on the same basis as the plain gable roof. The shed roof is one rectangle, while the gable end roof is simply two rectangles.

**G| GOOD roofing tin is considered one of the standard roofing materials for buildings of the better type. It has qualities which peculiarly fit it for roofing purposes.**

A good tin roof is light in weight and requires light roof construction. Tin is easily put on and is adaptable to any surface, whether it be a flat deck or a vertical wall.

If it should become damaged, it can be quickly and cheaply repaired, a leak being permanently fixed in a few minutes. It is impervious to moisture, as it covers the surface of the roof with a continuous, unbroken sheet of metal, no seams serving to admit rain.

In case of fire from within, the tin roof acts as a blanket for the flames, smothering them and preventing the upward draft which often carries burning embers to a distance.

Before laying, a tin roof should be painted with one coat on the under side, and the upper surface should be carefully cleaned and immediately painted, all coats to be applied with a hand brush and well rubbed on.

Inasmuch as gutters are the natural receptacle for dirt, leaves, etc., they should be swept and painted every two or three years. The roof itself will not need painting more than at five or six-year intervals. Each painting restores a roof of good tin to its original condition.

The gambrel roof has no real pleasing effect, so far as appearances go, but it makes a fairly strong roof, and in house building it makes nearly a two story house out of a one story building, because the first section of the roof is so steep it makes the second floor space nearly all available for use in the rooms. In house building, the first roof section is seldom sloped in more than two feet at the top.

**Building Age and the Builder's Journal**

**Fig. 1—Gable End Roof.**

**Fig. 2—Shed Roof.**

**Fig. 3—Hip Roof.**

**Fig. 4—Gambrel Roof.**
SEVERE Service Conditions

demand better material. The metal which goes into the roofing, sid­
ing, and structures of great steel mills and industrial plants, must resist
rust to the highest possible degree. Keystone Copper Steel Sheets and Roof­
ing Tin Plates give maximum service and rust-resistance not only for in­
dustrial uses, but for residences, public buildings, and all forms of construc­
tion work to which sheet metal is adapted.

The high reputation of our products is recognized wherever sheet metal is used. Each brand of our manufac­ture has behind it a service—the scope of which has a tangible value to every architect, contract­
or and builder. This service begins with the planned care and skill in the making, which is carried through to the thorough system of distribution which keeps these products obtainable in every part of the country.

For roofing, siding, gutters, spouting, eaves trough, sheet metal and tin work, use Keystone Copper Steel Galvanized Sheets and Roofing Tin Plates—best for both builder and property owner. Sold by leading metal merchants, and used by the leading contractors.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: United States Steel Products Company, New York City.

Fire Protection for the Small Houses

Figures published by the National Board of Fire Underwriters indicate that the loss to buildings for a five-year period from 1916 to 1920 amounted to a total of $1,672,722,677. This is equivalent to 334,000 dwellings costing $5,000 each. Of this sum, figures show that a $223,000,000 loss was sustained through roof fires, that is, from sparks and flying embers carried by high winds to the roofs of nearby buildings.

As there are a very large number of buildings with wood shingle roofs in our country, a simple plan to make them safe from this danger has been suggested and this is to run a perforated pipe along the ridge of such buildings and have this connected with the water supply. By opening a valve a spray of water will fall on the roof and form a water curtain, which would effectively stop any small flying embers from igniting the roof.

The water could be controlled by a valve at a convenient location either inside or easily reached from the outside.

The perforated pipe should preferably be made of brass or lead as they would stand the exposure to the weather.

This little scheme does not cost much to install and it would give some desired protection from such fires.

Planning for the Future of New York

Cities have a habit of growing in directions not exactly looked for by their original planners; still proper planning has accomplished wonders. Many people who have visited Washington have wondered why the Capitol has its back to the principal part of the city. When Washington was originally laid out, it was intended that the city should grow eastward, and therefore the Capitol was faced that way.

The Russell Sage Foundation has undertaken the work of planning for the future of New York and its environs. The committee in charge will propose no abnormal expansion of public expenditure. With a wisely conceived plan public funds which will be expended in any event can be directed into projects of permanent constructive value; without a plan millions are likely to be wasted in desultory or ill-considered public works.

City planning requires imagination, it requires vision; it requires a long continuing study of facts, and it costs a substantial sum of money. There is no public treasury which can be drawn upon to create such a plan, for no one governmental agency has jurisdiction over an area which includes portions of three states and many municipalities.

After these inquiries have laid solid foundations upon which to base sound planning, the man, or the group of men, will be found to plan for New York and its environs as George Washington and Pierre l’Enfant planned for Washington, or Burnham and Bennett and their committees of business men planned for Chicago; to create a plan which, with wide public participation and approval, shall embody and record the best thought of our engineers, our artists and architects, our public servants, our social workers and economists, and far-seeing business men.

Why Lumber Is Steam Dried During Kiln Drying

From the questions asked by numerous students taking the short courses in kiln drying at the Forest Products Laboratory, Madison, Wis., it is evident that many who operate kilns and handle lumber do not understand the object of steaming lumber in a kiln. There seems to be a common impression that the purpose of steaming lumber is to “remove the sap.” This is far from being the fact, for when lumber is steamed it takes on moisture, as a rule, instead of giving off anything.

The reason for steaming lumber during drying depends on when it is done, but nearly always the treatment is given for one of the following purposes—(1) to heat lumber through quickly at the start; (2) to relieve stresses which otherwise would produce checking, casehardening and honeycombing; (3) to equalize the moisture content and condition the lumber ready for the use at the end of the run; (4) to kill fungi and insects in the wood.
Permanence, Safety and Beauty—
With Economy

The walls of this attractive and modern school hospital assure lasting fire-safety, protection and comfort for generations to come. Built of beautiful Natco Tex-Tile with its blended rich, dark brown shades, it is a worthy addition to the group of buildings of which it is a part.

Each year more architects, builders and building supply dealers realize the merit, popularity and profit of Natco Tex-Tile. The hollow spaces of the tile form a blanket of protecting air that insures interior comfort through summer heat and winter cold. By the use of Natco Hollow Tile, through-the-wall mortar joints are eliminated, so that there is no chance for the penetration of moisture. Last, but not least, Natco Tex-Tile is decidedly economical, because its units are large and easily laid.

"The Home Beautiful," a small circular describing Natco Tex-Tile in detail and showing Tex-Tile wall sections in color will be sent free on request. This piece of advertising literature is worth while for showing building prospects.

Write for it today

NATIONAL FIRE PROOFING COMPANY
1429 Fulton Building, Pittsburgh, Penna.
Review of Building Situation

BUILDING statistics for September, just published by F. W. Dodge & Company, show that the volume of contracts awarded for the past nine months of this year is greater than any total recorded and is 51% greater than the figure for the first nine months of 1921.

The total of contracts awarded for September, 1922, is the highest September total on record, being 11% greater than the figure for the corresponding month of 1921. This, despite the fact that September, 1921, total was a 16% decline from August. Of course, a seasonal decline is to be expected at this time of the year, but the fact that the total is higher than last year indicates continued healthy prosperity.

Business and industrial buildings show a very active condition in all districts. This is especially true of the Middlewest District which has been rather behind in the building program. Residential construction in this district also shows signs of a healthy increase.

Residential construction in practically all districts still leads and a surprising fact is that although this is the time for a seasonal decline, the total is a little greater than that of the August record. Residential construction in the Pittsburgh, Middlewest and Northwest districts shows a decline from the August figures, but the New England, New York and Middle Atlantic districts show increase, the largest being nearly $5,000,000 in the New York district.

The total amount contracted for residences during September, amounts to $101,428,000, this representing 9,269 separate buildings, bringing the average cost of a structure to a little over $10,900.

It is rather interesting to compare the amount of residence construction in the different districts, especially the figures for contemplated construction.

Of the $134,093,600 worth of residential construction contemplated the sum of $81,319,300 will be expended in the Eastern states. This amounts to a little more than 60% of the entire total which shows that the demand for residence construction has still to be met very decisively in the East and it is one of the best signs for builders of this class of structures as a forecast for next year's business.

This amount of money is contemplated to be spent on 12,089 separate buildings, 2,889 are to be built in the Middle and North West Districts with 1,753 in the Pittsburgh district, while in the Northwestern states, the number is 7,447, or 60% of the total.

Record of September, 1922, Building Contracts Awarded

<table>
<thead>
<tr>
<th>Classifications of Buildings</th>
<th>New England District</th>
<th>New York District</th>
<th>Mid Atlantic District</th>
<th>Pittsburgh District</th>
<th>Middle West District</th>
<th>North West District</th>
<th>Totals</th>
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<tbody>
<tr>
<td>Business</td>
<td>$9,100,000</td>
<td>$10,873,000</td>
<td>$5,355,500</td>
<td>$6,425,800</td>
<td>$12,378,000</td>
<td>$1,274,700</td>
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<td>3,749,600</td>
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<td>653,000</td>
<td>640,200</td>
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<td>934,000</td>
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<td>5,330,500</td>
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<tr>
<td>Public Buildings</td>
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<td>Social and Recreational</td>
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<td><strong>Total</strong></td>
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<td><strong>$48,141,000</strong></td>
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<td><strong>$271,492,800</strong></td>
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Building Projects Contemplated, September, 1922

<table>
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<tr>
<th>Classifications of Buildings</th>
<th>New England District</th>
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<td>Business</td>
<td>$4,586,400</td>
<td>$13,800,500</td>
<td>$5,322,900</td>
<td>$4,024,200</td>
<td>$12,173,500</td>
<td>$1,504,700</td>
<td>$42,412,200</td>
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<tr>
<td>Educational</td>
<td>2,560,500</td>
<td>3,621,200</td>
<td>2,095,200</td>
<td>5,126,000</td>
<td>7,013,000</td>
<td>1,290,500</td>
<td>21,706,400</td>
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<tr>
<td>Hospitals and Institutions</td>
<td>625,800</td>
<td>4,842,000</td>
<td>1,386,000</td>
<td>885,000</td>
<td>1,631,000</td>
<td>13,500</td>
<td>9,383,300</td>
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<tr>
<td>Industrial</td>
<td>2,687,300</td>
<td>6,550,000</td>
<td>4,090,800</td>
<td>13,451,200</td>
<td>8,200,000</td>
<td>2,310,000</td>
<td>38,079,100</td>
</tr>
<tr>
<td>Military and Naval</td>
<td>15,000</td>
<td>10,000</td>
<td>60,000</td>
<td>30,000</td>
<td>100,000</td>
<td></td>
<td>320,000</td>
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<tr>
<td>Public Buildings</td>
<td>99,500</td>
<td>544,500</td>
<td>37,000</td>
<td>684,500</td>
<td>4,082,100</td>
<td>146,600</td>
<td>5,594,200</td>
</tr>
<tr>
<td>Public Works and Utilities</td>
<td>2,379,400</td>
<td>9,960,300</td>
<td>5,959,700</td>
<td>7,841,700</td>
<td>40,906,100</td>
<td>1,962,500</td>
<td>69,009,700</td>
</tr>
<tr>
<td>Religious and Memorial</td>
<td>1,387,000</td>
<td>1,394,300</td>
<td>659,300</td>
<td>315,000</td>
<td>2,290,500</td>
<td>43,500</td>
<td>6,098,700</td>
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<tr>
<td>Residential</td>
<td>14,611,100</td>
<td>40,362,400</td>
<td>26,345,800</td>
<td>15,261,800</td>
<td>33,302,500</td>
<td>4,210,000</td>
<td>134,093,600</td>
</tr>
<tr>
<td>Social and Recreational</td>
<td>938,100</td>
<td>2,083,500</td>
<td>2,043,000</td>
<td>2,661,200</td>
<td>5,333,000</td>
<td>1,150,000</td>
<td>14,208,800</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$29,890,100</strong></td>
<td><strong>$83,169,400</strong></td>
<td><strong>$48,007,900</strong></td>
<td><strong>$51,180,600</strong></td>
<td><strong>$115,821,700</strong></td>
<td><strong>$12,731,300</strong></td>
<td><strong>$340,801,000</strong></td>
</tr>
</tbody>
</table>
DO YOU WANT A
NARROW POINT SAW?

Narrow point saws have become very popular among carpenters who like a light saw. To meet this demand we are making ship point saws in all our popular numbers.

Notice the last saw in the illustration—this is a ship point saw, fitted with our Perfection Handle.

We can furnish Atkins Saws—wide or narrow point—straight or skew back—fitted with either the old style straight across handle or the new Perfection handle.

Take no substitute, demand genuine Atkins Silver Steel Saws.

Send twenty-five cents for carpenter apron, pencil and "Saw Sense" booklet.

E.C. ATKINS & CO.
ESTABLISHED 1857 THE SILVER STEEL SAW PEOPLE
Home Office and Factory, INDIANAPOLIS, INDIANA
Canadian Factory, Hamilton, Ontario
Machine Knife Factory, Lancaster N.Y.

Branches Carrying Complete Stocks In The Following Cities:
Atlanta New Orleans Seattle
Memphis New York City Paris, France
Chicago Portland, Ore. Sydney, N. S. W.
Minneapolis San Francisco Vancouver, B. C.
## Trend of Material Prices

The following are wholesale prices of basic building materials in the three markets which set prices for the rest of the country. These prices are presented to show the trend of the wholesale market, which forecasts prices in the retail market. They are not prices which the average contractor can buy at, but are quoted to show him the movement of materials so that he can buy to better advantage. Followed in conjunction with the Review of Building Conditions, these prices will prove invaluable. All prices are for carload lots, F. O. B. market quoted, unless otherwise noted.

### NEW YORK PRICES

<table>
<thead>
<tr>
<th>Material</th>
<th>Price Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG LEAF YELLOW PINE—</td>
<td></td>
</tr>
<tr>
<td>B. and Better Edge</td>
<td>Per 100 lb., delivered.</td>
</tr>
<tr>
<td>EAST CEDAR</td>
<td></td>
</tr>
<tr>
<td>No. 1 Select, 1x4</td>
<td>$34.00 $35.00</td>
</tr>
<tr>
<td>No. 2 Select and Better, V.G.</td>
<td>1x2</td>
</tr>
<tr>
<td>WESTERN RED CEDAR—</td>
<td></td>
</tr>
<tr>
<td>B. Perfect Shingles, per M.</td>
<td>$4.70 $4.80</td>
</tr>
<tr>
<td>Clear B. Siding, 1x6</td>
<td>7.42 7.42</td>
</tr>
<tr>
<td>No. 1 Lath, 1/2 in.</td>
<td>9.25 9.30</td>
</tr>
<tr>
<td>LIME (Hydrate)</td>
<td></td>
</tr>
<tr>
<td>Per 100 lb. at warehouse</td>
<td>$3.25 $3.29</td>
</tr>
<tr>
<td>HARDWOODS</td>
<td></td>
</tr>
<tr>
<td>dimension. 2x4 in.</td>
<td>37.00 37.50</td>
</tr>
<tr>
<td>Oak Flooring. 1/2 x 2</td>
<td>50.00 50.50</td>
</tr>
<tr>
<td>No. 1 Clear and Better, V.G.</td>
<td>1x2</td>
</tr>
<tr>
<td>MASONRY CLAY</td>
<td></td>
</tr>
<tr>
<td>No. 1 Lath, 1/2 in.</td>
<td>9.25 9.30</td>
</tr>
<tr>
<td>No. 2 Lath, 3/4 in.</td>
<td>13.00 13.50</td>
</tr>
<tr>
<td>CANADIAN SPRUCE</td>
<td></td>
</tr>
<tr>
<td>No. 1 Lath, 1/2 in.</td>
<td>9.25 9.30</td>
</tr>
<tr>
<td>WALL TIES (Galvanized)</td>
<td></td>
</tr>
<tr>
<td>3.4 lb.—24 gauge heavy</td>
<td>$22.00 $23.00</td>
</tr>
<tr>
<td>SHINGLES</td>
<td></td>
</tr>
<tr>
<td>No. 2 Clear and Better, V.G.</td>
<td>2x12</td>
</tr>
<tr>
<td>PORTLAND CEMENT</td>
<td></td>
</tr>
<tr>
<td>Bbls. in car lots to contractors, delivered</td>
<td>$2.90 $2.90</td>
</tr>
<tr>
<td>WALL BOARD</td>
<td>Per 1,000 sq. ft. in lots under $45.00 $45.00</td>
</tr>
<tr>
<td>SAND AND GRAVEL</td>
<td></td>
</tr>
<tr>
<td>6 in. Gravel (per cubic yard)</td>
<td>$1.50 $1.30</td>
</tr>
<tr>
<td>LIME (Hydrate)</td>
<td></td>
</tr>
<tr>
<td>ST. LOUIS PRICES</td>
<td></td>
</tr>
<tr>
<td>YELLOW PINE—</td>
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</tr>
<tr>
<td>B. and Better Edge</td>
<td>Per 100 lb., delivered.</td>
</tr>
<tr>
<td>EAST CEDAR</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Bbls. in car lots to contractors, delivered</td>
<td>$2.90 $2.90</td>
</tr>
</tbody>
</table>
“I AM DELIGHTED with Arkansas Soft Pine woodwork—it is the ideal wood for white enamel. We have lived in this home over twenty years and there is not a single sign of discoloration or raised grain in any of the woodwork. Moreover, it cost us just about half the price of other materials often considered as indispensable to a successful white finish.”

Arkansas Soft Pine
SATIN-LIKE INTERIOR TRIM

makes a permanent friend of every owner, builder and architect who installs it. It is the one moderate priced woodwork of such physical character as assures lasting satisfaction.

Arkansas Soft Pine is the logical woodwork for homes of every size, apartments, offices, and semi-public buildings. See Sweets Catalog and American Architect Manual for specifications, etc.

LITERATURE AND SAMPLES ON REQUEST
Arkansas Soft Pine is trade marked and sold by dealers East of the Rockies

ARKANSAS SOFT PINE BUREAU
1117 Boyle Building • Little Rock, Arkansas
ARCHITECTS’ SPECIFICATION HAND BOOK
Truscon Company, Detroit, Mich.

ASBESTOS PRODUCTS
Asbestos Shingle, Slate & Shauthing Co., Amberly, Pa.
1. Amber Asbestos Shingles. Catalog 5% x 8% in. 40 pp. Illustrated.
3. Amber Asbestos Corrugated Roofing and Siding. Catalog, 8% x 11 in. 36 pp. 40 Illustrated.
4. Amber Asbestos Building Lumber. Catalog, 8% x 11 in. 32 pp.
5. Engineer Data Sheets. Catalog, 8% x 11 in. 46 pp. Illustrated.
Specifications and working sheets for Amber Asbestos Corrugated Roofing and Siding.

ASBESTOS ROOFING—See also Roofing
ASH HOISTS—See also Hoists
ASBESTOS ROOFING—See also Roofing
ASH HOISTS—See also Hoists
ASH RECVIEVERS
7. Catalog E. Booklet describing the Sharp Rotary Ash Receiver with plans showing how the furnaces, pipes, etc., are equipped with this device. 24 pp. Illus. 6 x 9% in.

BALANCES, SASH
16 pp. Illustrates and gives full-sized information for the purpose of writing specifications for Caldwell Sash Balances.
Pullman Mfg. Co., Rochester, N. Y.
10. Catalog describes new forms of sash balance that can be removed and inserted without removing sash from window.

BAND SAWS
American Saw Mill Machinery Co., Haslettstown, N. J.
11. Catalog No. 24. Describes general line of band saws of various sizes.
12. Technical Data. Four-page folder 8% x 11 in. containing specifications, description, prices and approximate cost of installation. Everything the architect or contractor requires.
241. Descriptive four-page catalog.

BAR BENDERS AND CUTTERS
Koehring Company, Milwaukee, Wis.
12. Four-page folder giving illustrations and sizes of Koehring Bar Benders and Cutters.

BATHROOM FIXTURES
Kenney-Cutting Products Corp., 97 Fifth Avenue, New York.
13. “Send for Special Folder, A Bath a Day Keeps You Fit Every Day.”

BEDS
Murphy Door Bed Company, Majestic Bldg., Chicago, Ill.
402. Eight-page illustrated catalog, “How to Use the Murphy Bed.”

BOILERS—See Heating Equipment

BOOKS
Architectural House Planning Service Co., 30 Sth 18th Street.
Arrow Book Company, 30 Fifth Avenue, New York City,
U. P. C. Book Co., 203 West 80th Street, New York City.

BLUE PRINTS
Poeblue Blue Print Co., 94 Fifth Avenue, New York City.
403. Splendid Drawing Board Outfits are manufactured in conjunction with the making of blue prints.

BRICK
American Face Brick Association, 110 South Dearborn Street, Chicago, Ill.
15. The Story of Brick. Contains the history of, and basic requirements of building brick, artistic, sanitary and economic reasons, comparative costs, and fire safety with photographs and graphics, and illustrates ancient and modern architectural uses of note in brick. Sent free.
16. A Manual of Brick Construction. The history of brick making, types of face brick, showing details of construction for walls, chimneys, etc., and different standard types of wall construction. Approximated are the tables of the quantities of cement used in a load of brick. Cost $1.00, net.

BUILDING AGE and The Builders’ Journal

Selected List of Manufacturers’ Literature
FOR THE SERVICE OF BUILDERS, CONTRACTORS, ARCHITECTS AND ENGINEERS
The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to BUILDING AGE & THE BUILDERS’ JOURNAL, 920 Broadway, New York, or the manufacturer direct, in which case kindly mention this publication. Either the titles or the numbers may be used in ordering.
Listings in this Department are available to any manufacturer at the rate of $5 per listing per month.

BUILDING CONSTRUCTION—See also Garage Construction
406. A series of booklets illustrated with various kinds of Garage Hardware.

Truscon Standard Steel Buildings, Youngstown, Ohio.
22. Truscon Standard Steel Buildings, with diagrams, illustrations of installations, descriptive matter and 48 illus. 8% x 11 in.
23. Truscon Standard Steel Buildings, with diagrams, illustrations of installations, descriptive matter and 64 illus. 11 in.

BUILDING HARDWARE—See Hardware

BUILDING STONE—See Stone, Building

BUILT-IN CLOTHES HANGERS
Knap & Vogt, Grand Rapids, Mich.
405. 16-page illustrated catalog, describing the "Garment Care System.”

BUILT-IN KITCHENS
Blak Corporation, Brockton, Mass.
406. 16-page illustrated catalog, giving the pictures and plans at the installation of the Built-In Kitchens. It describes in detail the various types and sizes.

BUNGALOW AND SMALL HOUSE PLANS
American Face Brick Association, 110 South Dearborn Street, Chicago, Ill.
22. Four booklets of small houses from 3 to 8 rooms, containing 88 reversible designs. Complete plans, (1) 1-4 rooms, (2) 5-8 rooms, (3) 8-10 rooms, (4) 7-8 rooms; size 8% x 11 in. Each booklet 25 cents: set, $1.00.

CANYAS—See Roofing Materials

CASEMENTS—See Doors and Windows

CAULKING AND GLAZING COMPOUND
Allmetal Weatherstrip Co., 130 West Kinzie Street, Chicago, Ill.
50. Illustrated catalog of metal ceilings and wall-scouting. Well illustrated, with list prices and rules for estimating.

CEILINGS, METAL
The Edwards Manufacturing Company, Cincinnati, O.

CEMENT
37. The Atlas Book on Concrete Construction. A text book written for the average builder in concrete and from the practical standpoint. Traces on plain both plaster and reinforced concrete. 244 pp. 42x 7 x 7 in.
38. Set of Blue Prints. Drawings showing how to apply Portland Cement stucco to the different standard types of wall construction. 44 pp. Illus. 6 x 9 in. 120 blue prints. Complete of any manufacturer at the rate of $5 per listing per month.

Cement
37. The Atlas Book on Concrete Construction. A text book written for the average builder in concrete and from the practical standpoint. Traces on plain both plaster and reinforced concrete. 244 pp. 42x 7 x 7 in.
85 Beautiful and Well Planned Brick Houses Available to Every Contractor

An unusually wide range of carefully selected designs—modest bungalows to five and six-room homes and pretentious dwellings. Every plan a masterpiece—drawn by a competent architect.

Beautiful and distinctive, thoroughly practical—every house has been actually built and lived in.

You Can Quickly Sell Homes Built From These Plans

These homes are so attractive in design and so practical in arrangement that once built they are in demand. They sell quickly, profitably.

They emphasize the value of good design for even with all their advantages over ordinary houses these fine brick homes are simple and economical to build. They offer a wonderful opportunity to every builder.

Plans, specifications and complete information are now available at nominal price. Send for "Brick for the Average Man's Home" (1.00) containing supplements which illustrate these 85 valuable plans.

The Common Brick Industry of America
2133 CLEVELAND DISCOUNT BUILDING
Cleveland, Ohio

The Ideal Brick Hollow Wall is made of standard brick obtainable everywhere
32. Other Publications, The Atlas Portland Cement Company has numerous other publications, covering nearly every phase of concrete construction. Their Service Department will give sound advice on any phase of concrete construction to anyone applying for it.

Coehring Company, Milwaukee, Wis.

Portland Cement Assn., Washington Street, Chicago, Ill. 311. The Concrete Builder," No. 6, devoted to the use of Concrete for Farm and Home. This booklet gives the definite specifications for concrete block bungalows.

CHAINS
Bridgeport Chain Co., Bridgeport, Conn.
29. Catalog No. 14. Contains 64 pp. Illustrated, of different chains that can be used in all parts of building construction.

CLAMPS
408. Descriptive catalog of the various Clamps.

COAL CHUTES
The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.
409. An interesting folder, describing the advantages of the Donley Coal Chute.

COLUMN BASIS
Chenery & Son, Manlius, New York.

COLUMN AND BEAM COVERING
United States Gypsum Co., 165 W. Monroe St., Chicago, Ill.
39. 32-page booklet, 8½ x 11. Pyrofab Tile.

COLUMNS

CONCRETE APPLIANCES
Universal Cement Mold Co., No. Milwaukee, Wis.
41. Illustrated Folder, describing mold for building hollow concrete blocks, garage walls, sheds, silos, etc.

Van Guilder Double Wall Co., 77 South Avenue, Rochester, N. Y.
42. A Catalog describing the Van Guilder system of portable forms for the building of hollow concrete walls on the thermos bottle idea for the erection of houses, ice houses, barns, silos. Walls are dry, as there is continuous air space around entire building.

CONCRETE MACHINERY
S. A. Aloe Company, 315 Oliver Street, St. Louis, Mo.
43. Descriptive Illustrated Circular of Modern Concrete Mixer.

The American Concrete Machinery Co., Inc, Krockau, Ind.
44. An interesting 6-page illustrated catalog, describing the "Rogos" Portable Concrete Mixing System.

Concrete Equipment Co., 535 Ottawa Street, Holland, Mich.
411. Catalog No. 22 describes in detail the various products manufactured by this company.

Concrete Block Machine & Mold Co, 114 S. 2nd St., St. Louis, Mo.
233. Catalog No. 28. Describes Building Block Machines. It is a 48-page book, 6 x 10 in.


Koehring Co., Milwaukee, Wis.
413. Bulletin No. 2 describes the Power Driven Pumps, Centrifugal, Flotators, Diaphragm, Triplex.

Koehring Co., 216 Dublin Avenue, Columbus, Ohio.

Koehring Co., 216 Dublin Avenue, Columbus, Ohio.
415. Bulletin No. 4 describes the Tractor.

Ideal Concrete Machinery Co., 1334 Mounds Street, Cincinnati, Ohio.
416. A 100-page illustrated catalog, describing the Ideal Machine and also data for manufacturing and curing Ideal Concrete Blocks.

Koehring Co., Milwaukee, Wis.

Koehring Co., Milwaukee, Wis.
418. A 40-page catalog, well illustrated, describing the special features of Koehring Mixers.

Koehring Co., Milwaukee, Wis.
419. 16-page folder, illustrating a Jaeger for every mixer need.

Koehring Co., Milwaukee, Wis.

Koehring Co., Milwaukee, Wis.

Koehring Co., Milwaukee, Wis.
265. "Built to Endure." A beautifully bound booklet of 26 pages, 7½ x 10 in, describing Comparative Examples of Notable Anchor and Modern Construction Embodied the Element of Permanency.

Little Whirlwind Mix Co., 438 Gould Street, La Crosse, Wis.
420. An eight-page illustrated folder, describing the efficiency of the Master Mixer.

422. 28-page illustrated catalog, describing quick, efficient and money-saving concrete mixers.

CONCRETE MARBLE
Art Stone Co., Waynesboro, Pa.
45. Descriptive Circulars with illustrations of different marbles in colors, sizes and shapes.

CONSTRUCTION, FIREPROOF
Central Steel Co., Massillon, Ohio.
233. In the "National Steel Lumberman" Handbook is embodied complete information and authentic data pertaining to the use of Steel in construction, in fire resistance and in miscellaneous uses.

National Fire Protection Association, Quincy, Mass.
234. "National" Bulletin No. 198 describes the National Shelter.

National Fire Protection Association, Quincy, Mass.

United States Gypsum Co., 300 W. Monroe St., Chicago, Ill.

Bulletin, 8½ x 11 in. Containing full specifications for Pyrofab voids for use with reinforced concrete joint floor construction; Pyrofab roof tile; and monolithic gypsum floors and roofs.

CONTRACT AND ESTIMATE BLANKS
L. Fink & Sons Printing Co., Laurel Spring, N. J.
166. Descriptive catalog for various types of blank contracts, tickets, time sheets, wage receipts, etc., with prices.

CRAYSTALS, MICA SPAR
Crow Point Spar Co., 203 Park Avenue, New York.
276. 30-page descriptive catalog, describing the advantages and uses of the Sparkling Mica spar Crystals.

DAMPERS AND ASH DUMPS (Fireplace)
The Donley Bros. Co., 3700 East 74th Street, Cleveland, Ohio.

DAMP-PROOFING
Amalgamated Roofing Co., 421 So. Dearborn Street, Chicago, Ill.
424. A descriptive folder, describing the Advantage of Amalgamated Roofing.

426. An eight-page folder, describing the roof that is always new. National Sheet Metal Roofing Assn., 339 N. St. Jay St., Jersey City, N. J.
431. A 1-page brochure, illustrating the "Most Enduring and the Most Attractive Roof at the Most Reasonable Cost."

DOOR CHECKS
50. Catalog contains description of six models of the new improved Worcester-Bloom door Check.

DOORS AND WINDOWS
The Beprest & Carlingh Co., 30 Peach St., Paterson, N. J.
247. BOCA steel sash. (E-22.) A catalogue containing designing information, complete and detailed plans and illustrations of standard installations of sidewall sash, monitor sash, mechanical operators, and standard sash & sash frames. 24 pages. Illustrated, 8½ x 11 in.

427. Trucon Steel Sash, Wood Frame. A catalogue describing steel sash and frames for all purposes. Illustrated catalog, 50 pages, descriptive of Trucon Steel Sash. 6 pp. ill.
BUILDERS everywhere are finding that the quality imparted to a house by Copper and Brass gives it attractiveness and value that bring big returns on the small additional outlay. It’s good business. The home buyer now looks for Copper and Brass. He knows that—

Copper and Brass are cheaper because you pay for them only ONCE

Once Upon a Time

is a little tale of few words. The story is told mainly in pictures. It is a good-humored little folder which will help you sell your clients better materials. May we send you a quantity of "Once Upon a Time?" Ask for any number you can use. Your name imprinted. There is no charge.
SELECTED LIST OF MANUFACTURERS' LITERATURE—Continued from page 74

Plate Glass Mfgs. of America, 1st Nat'l Bank Bldg., Pittsburgh, Pa.

442. Several folders, describing the necessity of Plate Glass.

GYPSUM
United States Gypsum Company, 205 W. Monroe St., Chicago, Ill.

HARDWARE
Bridgeport Chain Co., Bridgeport, Conn.

Caldwell Mfg. Co., 5 Jones Street, Rochester, N. Y.

446. Illustrated folder and price list of "Casement Window Specialties.


Hess Warming & Ventilating Co., 1034 Tacoma Blvd., Chicago, Ill.

240. Page illustrated Catalog. Describing the different makes of window and door specialties.


227. Garment Hangers. Send for illustrated booklet.


450. Catalog, describing the No. 1 Garage Door Hanger.


61. An interesting illustrated catalog on "Garage Hardware.


73. Modern Hardware for Your Home. Catalog of hangers for vanishing French doors; "Air-Way" multifold hardware for sun parlors and sleeping porches; "Cap" garage door hardware. 24 pp., Illustrated. 8½ x 11 in.

Sargent & Company, New Haven, Conn.

454. Six-page illustrated catalog on "Planes.

337. Thirty-two-page illustrated booklet on "Standard Steel Squares.

The Stanley Works, New Britain, Conn.

464. Catalog of garage hardware, and garages and their hardware. 676 pp. Illustrated. 6¾ x 9½ in.

78. Eight Garages and Their Stanley Hardware. Booklet, plans, drawings and complete hardware specifications. Size 5 x 7 in.

79. The Stanley Works Ball Bearing Breez. Booklet, illustrated. Describes, with full illustrations, of many types butts and their parts, dimensions and finish. Size 5 x 7½ in.

HEATING EQUIPMENT

433. Write for the permanent catalog, one of the finest illustrated reference books.

Cooperative Foundry Co., Rochester, N. Y.

455. Sixteen-page illustrated booklet, describing the "Red Cross Finish Range." An excellent catalog.

Economy Heater Co., 108 S. La Salle St., Chicago, Ill.

467. Catalog, describing furnace and chimney design and capacity, hot air heating and ventilation. 12 pp.,Illustrated. 6¼ x 9½ in.

80. Healthful Helpful Hints. A discussion of furnace and chimney design and capacity. Hot air heating and ventilation. 12 pp., Illustrated. 6¼ x 9½ in.

81. A Plain Presentation to Dealers. A book of selling talk for dealers in Farrahour Furnaces. Four model heating and layout outfits are shown and there is a page of useful "Do and Don't" advice. 24 pp., Illustrated. 8½ x 11 in.

82. Modern Furnace Heating. Catalog. 6 x 9 in. 48 pp., Illustrated. Complete information on hot air furnace heating useful to the architect and contractor regardless of what make of furnace he uses.

B. Karol & Sons, Co., 802 So. Kedzie Avenue, Chicago, Ill.

83. Booklet No. 5. 4 x 9 in. 32 pp., Illustrated. A dealers' booklet showing the Kelmar Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended, and shows the mechanical and gravitation advantages of the Kelmar.

84. Monroe Tumbler Heater. Booklet. 4½ x 8 in. 20 pp., Illustrated.

85. Monroe Tubular Heater. Booklet. 4½ x 8 in. 20 pp., Illustrated. Describes the different makes of capacities, dimensions, weights, etc.

86. Syracuse Pipeless Boiler. 4½ x 8 in. 20 pp., Illustrated.

87. Monroe Tubular Boiler. 4½ x 8 in. 20 pp., Illustrated. Describes the different makes of capacities, dimensions, weights, etc.

88. Hardy-Max Book, or Plumbing and Heating Encyclopaedia. Price 50c.

Hess Warming & Ventilating Co., 1307, Tacoma Building, Chicago, Ill.

89. Modern Furnace Heating. Catalog. 6 x 9 in. 48 pp. Illustrated. Complete information on hot air furnace heating useful to the architect and contractor regardless of what make of furnace he uses.


90. The Forbear Furnace Company. 1204 Tacoma Bldg., Chicago, Ill.

91. Booklet No. 5. 4 x 9 in. 32 pp. Illustrated. A dealers' booklet showing the Kelmar Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended, and shows the mechanical and gravitation advantages of the Kelmar.

92. Monroe Tumbler Heater. Booklet. 4½ x 8 in. 20 pp., Illustrated.

93. Monroe Tubular Heater. Booklet. 4½ x 8 in. 20 pp., Illustrated. Describes the different makes of capacities, dimensions, weights, etc.

94. Syracuse Pipeless Boiler. 4½ x 8 in. 20 pp., Illustrated.

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Mages Furnace Co., Boston, Mass.

97. Write for our latest catalog and instructions on our latest line of furnaces and gas engines.

Schmitt & Richards, Inc., Newark, N. J.

48. Catalog describing fireplaces, electric and gas logs, heaters, etc.
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American Saw Mill Machinery Co., Hackettstown, N. J.

B. B. S. Oates Anodizing & Finishing Co. of California, Los Angeles, Calif.


Bulletin No. 3, Hoists and Mortar Mixers

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Flake & Company, Boston, Mass.

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Hollow Building Tile Association, Chicago, Ill.

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U. S. Mineral Wool Co., 280 Madison Avenue, New York, N. Y.

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Spicer's Catalog of Insulating Materials.

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63. Several interesting booklets, describing the various types of "Built-In-Kitchens." These are illustrated by actual blue prints in it.

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330. Проект Платиновой стены. Каталог 8% x 11 in. 32 pp. Illustrated. Concise, technical information regarding grades, methods of laying, etc.

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Arkansas Soft Pine Bureau, 1002 Boyle Building, Little Rock, Ark.


Metal Mathematics

Martin Mathews, 167th Street and 10th Avenue, New York, N. Y.

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251. A catalog containing description of the Frink Lighting System for Stores; the Synthetic System of Windows; and a number of applications to produce the most effective lighting of displayed objects. 20 pp. Illustrated.

252. Frink Lighting Service for Banks and Insurance Companies. Reflectors. Catalog No. 425. A very interesting treatise on the lighting of offices; with examples of illustrations and description of lamps and reflectors. Contains a list covering several pages of housing using Frink Desk and Screen Fixtures. 50 pp. Illustrated. Size 8% x 11 in.

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The motor rides on ball bearings, insuring ease of operation. The motor is connected direct to mandrels—no power lost in complicated transmissions—the cost of electric current is infinitesimal. No matter what you are doing the lumber always runs in the same direction. Machine can be used in a hallway, when necessary, and two men work at the same time.

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Equipped with 2 H.P. Continuous Duty Motor, developing 3½ H.P. Cross-Cutting Capacity, 4 in.; Ripping Capacity, 4 in. Will cut 24" wide by 2¾" thick, with a 10" saw, 4" with a 14" saw. It will rip 10" wide and 3" thick with 14" saw.

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Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of August 24, 1912.

Of Building Age and The Builders’ Journal, published monthly at New York, N. Y., for October 1, 1922.

STATE OF NEW YORK

COUNTY OF NEW YORK

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared C. G. Peker, who, having been duly sworn according to law, deposes and says that he is the editor of the BUILDING AGE AND THE BUILDERS’ JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (or the circulation), etc., of the aforesaid publication, for the date shown in the above statement:

Year of Publication: 1922

Affiant deposes and says that the stockholders and security holders of the company for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant’s full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a fiduciary capacity that of a bona fide owner; and such affidavit has no reason to believe that any other person or corporation has any interest direct or indirect in said stock, bonds, or other securities than as so stated by him.

CHANDLES G. PEKER, Editor.

Sworn to and subscribed before me this 13th day of October, 1922.

HERMAN KINSLER, Notary Public.

BUILDING AGE and The Builders’ Journal

SELECTED LIST OF MANUFACTURERS’ PUBLICATIONS—Continued from page 82

Beaver Board Products Co., Inc., Buffalo, N. Y.

196. Illustrated folder, describing various uses and the methods of installing Beaver Board to the best advantage. Samples with descriptive literature sent on application.

Compo-Board Co., 3778 Lyndale Avenue, North, Minneapolis, Minn.

199. Catalog sent on request with sample. Describes many uses of Compo-Board.

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201. Walls of Worth. Booklet, 8½ x 11 in. 24 pp. Illustrated. Describes Sheetrock, the fireproof wall board, its advantages and uses.

Upson Company, Lockport, N. Y.

WALL FURRING

United States Gypsum Company, 265 West Monroe Street, Chicago, Ill.


WATER HEATER

Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.

WATERPROOFING—See also Dampproofing


207. Technical Note No. 8. Booklet. 4 x 7 in. 28 pp. A discussion of why concrete requires waterproofing and the properties at integral waterproofing must be used to operate effectively with the natural properties of concrete.

WATER SUPPLY SYSTEM

Hardin-Lavin Co., 4538 Cottage Grove Avenue, Chicago, Ill.

WEATHER STRIPS

Allmetal Weatherstrip Co., 125 West Kinzie Street, Chicago, Ill.

239. Six-page illustrated circular describing the product as used in Florida. Prices and Instructions.

Diamond Metal Weatherstrip Co., Columbus, Ohio.

242. 34-page illustrated catalog. 8½ x 11 in. Containing blue prints of hardware and sizes of Weatherstrip.

Monarch Metal Products Co., 5202-26 Penrose Street, St. Louis, Mo.

210. Cover and Effect. A series of samples describing Mon­arch Metal Weather Strips, which are made of bronze, brass and zinc. They differ from all other strips in that they are applied in spaces around doors and windows as elastic fillers and not over the space as covers. Each 4 pp.

WEATHER VANES

Dunmor Metal Products, Hagerstown, Md.

E. G. Washburne & Co., 227 Fulton Street, New York, N. Y.

211. Descriptive Catalog in Colors. Showing various designs of weather vanes, lightning rods, windicators, etc.

WINDOES—See also Doors and Windows

The Robert & Carlough Company, 30 Peach Street, Paterson, N. J.

280. BOCA steel sash. (E-22). A catalog containing design

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The Trailer is a wonderful little machine. You can trail along as though you had nothing attached to your automobile. There is no rattling, no vibration. I can't say enough for this outfit. I wouldn't buy one with iron wheels now.

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4 and 7 cubic feet mixed concrete. Steam and Gasoline. Power charging skip or low charging platform — automatic water-measuring tank. Discharge control from both sides. May be equipped with light duty hoist. Mixes mortar as well as uniform concrete.

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Koehring safety-margin construction puts trouble-free, dependable, profitable service in the light DANDIE; fortifies you against costly delays and repairs. Big production and standardization of every part keeps the price down.

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We can surfice more floors with our "American Universal" machine than six men can scrape by hand, considering the quality of the work.—H. Schmid & Helt, Nebr.

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The "American Universal" has replaced five men at least on my payroll, does better work than before, and my customers are so well pleased, I have found my business increasing; right along.—A. G. Thompson, Ark.

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I want to tell you that the "American Universal" is not only a labor saver—It replaces at least five men on my payroll, and the quality of work. It forms part of all the advertisement I used for my business.—Hugh A. Doe, Fla.

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Saves Nine Men

The "American Universal" replaces six men on my payroll and I find it to be a great labor saver.—E. S. Bilborg, Pa.

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In the first place the "American Universal" machine is light and easy to handle and does more work than the best hand scraper I ever saw, which I have.—M. A. Brandt and Frank, Mont.

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BUILDING AGE AND THE BUILDERS JOURNAL
920 BROADWAY, NEW YORK
Know More—Earn More
Plain Facts for Men in the Building Trades

Never in the history of this country have men in the building trades had the opportunities for money making that are offered today. Building is on the boom. Able men are needed on work already started and on work for which the plans are ready.

There is big money ready for men who can read plans, make estimates and superintend construction—and this is where the ambitious man who will train as an expert will find his chance.

As a workman, a man draws pay for what he can do with his hands. As a foreman or superintendent he gets paid for what he knows. And the contractor taking small jobs who gets posted on the higher branches of building can take on the big propositions which pay the largest profits.

Some men have reached the big money class only after years spent in picking up information as they went along. This is the slow way to success and comparatively few men get very far by depending upon their experience and hard work alone. The man who trains under experts and gets the benefit of their knowledge saves years of waiting—he gets quickly to the front. There—for instance—is a man in Oklahoma. His name is Woodside. He worked for years just as thousands of other carpenters are working, taking a job here and a job there, making a journeyman's wages and no more. He did the sawing and nailing and joining while other men did the planning and directing and made the real money.

Fortunately for Woodside, he saw an advertisement of the Chicago Technical College which offered to train him by mail in his spare time to do the very things which these successful men were doing. He wrote for the catalog, got information about the Builder's Course, and enrolled. Read what he says:

"I was working as a carpenter receiving $6.00 per day when I took up the course. In less than 3 months I got a job as foreman on a big apartment building at $8.00 a day. Five months later I was supervising a reinforced concrete job covering nearly half a block. I am now in business for myself, specializing in theatre construction. And there is A. C. McEvo, of Chicago, who says: "I have been greatly benefitted by taking your Builder's Course. I have received 5 times as much money as I paid to take the course, to say nothing of the material good that I derived from it. My advancement has been from an ordinary bricklayer on the wall to foreman in-charge, where a knowledge of plan reading is very essential. Another man with Chicago "Tech" training is S. J. Dickerson of Rhode Island, who says: "When I started your Builder's Course I was making $50 a month on the average. Now making $150 a week. These are only three examples of what this training has done for ambitious men who saw that "the big pay goes to the man who knows" and who put in some of their spare time to get the instruction of the Chicago "Tech" experts.

Let America's Oldest and Largest School for Builders Give You the Training That Means Greater Success and More Money

Hundreds of men in the building trades attend our Chicago school. For 20 years we have been training ambitious men who are now foremen, superintendents and independent contractors, making big money while other men who started with just as good chances as they had are still at the bench. You can get this same training at home in your spare time, for we teach the same courses by mail and you get the supervision of the same experts. No special previous education required to take up this course. Send the coupon below and get the catalog with full information about our courses and about our small fees and easy terms of payments.

Get This Training in Your Spare Time

The hours that you have outside of your work time can be used to make you a building expert—the man who can "boss" a job and draw a real salary or handle money-making contracts.

Learn to read blue prints as easily as you read these words. Learn to make estimates on time and material for all classes of construction—brick, frame, concrete. Get posted from the ground up on the direction of work—uses and preparation of materials, handling help, getting the work done.

Have every branch of building at your fingers' ends. Then you can step ahead—get the pay your ability is worth.

FREE 2 BOOKS AND BLUE PRINTS

Your request brings our 2 Books, one on "How to Read Blue Prints," containing a lesson in Plan Reading, with which we send blue prints, drawings, etc. With this lesson you can test yourself and see how easily you can learn by our method before you decide about enrolling. The other book explains the Chicago "Tech" Method of training by mail.

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Get these free Books and Blue Prints and see for yourself how Chicago "Tech" training will put you ahead. Just sign your name on the coupon and mail it today to Chicago Technical College, 1138 Chicago Technical Bldg., Chicago.

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Many home-builders consider the Kernerator as essential to comfort and convenience as first-class plumbing or an efficient heating plant. They appreciate how this modern system for disposing of household waste saves steps, how it eliminates the health menace of the insanitary garbage can, how it reduces the fire hazard by making unnecessary the accumulation of refuse.

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Send for name of Desco Distributor nearest you.

Desco Store Fronts

Your ATTENTION!!

is called to the hinges on the door. To some people door hinges may seem rather small and unimportant—nevertheless, their mission in helping to make or mar the appearance of the rooms in a modern home is worthy of serious thought.

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"The Door Butt of America"

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Level and Plumb With Your Own Instrument

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Effect of Season
Lack of Materials
Checking the Estimate
Value of Records of Cost
Table of Percentage of Cost
Sectionalizing the Estimate
Putting the "Extras" in Price
Putting the Workmen Pitfalls of Labor Estimates
Proper Equipment

Lesson II
Reading Architectural Plans for Estimating
Visualizing the Building
Perspective Drawings as Sales Helps
Quick Methods of Approximate Estimating
Amateurs of Keeping Cost Data
Estimating from Working Drawings
Importance of the Symbolism of Plans
What is a Set of Plans
Importance of Miscellaneous Data
How to Change a Blue Print
Interpretation of Plans
Construction Criticism
Giving the Plans the "Once Over"
Loose Leaf System in Estimating
Eliminate the "Flawed" Items

Lesson III
Building Regulation
Building Service with Reputation
Public Confidence in Your Integrity
Meeting Appointments
Building Functions
Lenders, Economists, Friends
Notes as Practice Advertising
Practical Suggestions
Confidence with Other Contractors
Innovations Made by Employees
Accuracy in Time Charges
Dissimilar Employees
Supervising Employees
Satisfied Clients

Lesson IV
Advertising
The Potential Value of Advertising
Some Advertising Done
Foundation for Advertising
The Double for Building
Methods for Building
Branding for Advertising
Your Field of Possibilities
A definite Plan
Newspaper Advertising
Mapping Lists
Your Advertising Appropriation
Examples of Advertising Copy

Lesson V
Accurate Estimating
Time Schedule
Inception Plans and Specifications

Lesson VI
Considering the Building
Visit the Site
Effect of Season
Lack of Materials
Checking the Estimate
Value of Records of Cost
Table of Percentage of Cost
Sectionalizing the Estimate
Putting the "Extras" in Price
Putting the Workmen Pitfalls of Labor Estimates
Proper Equipment

Lesson VII
Keeping Costs Within the Estimate
Eliminating the Flawed Items
"Rule of Thumb" Fallacies
Experience vs. Knowledge
Think
Trek and Inspect
Get What You Buy
Labor Hours Better Than Labor Cost
Waste Is a Crime
Scheduling Progress in Advance
Waste Is a Crime
Get What You Buy
Defeat the Weather
Factors in Buying
The Will to See

Lesson VIII
Labor Saving Equipment
Higher Prize Levels
Exigency of the Public
Lower Cost Only
Lumber Production
Motor Trucks and Tractors
Material Handling Equipment
Metal Cutting
Joist Making by Shop Made
Portable Machinery
Finishing Flows
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