A. SMALL HOUSES
CENTRAL PARK ZOO
WINE SHOP AND BARS
FINLAND
ERNST KAHN

SEPTMBER, 1935
THE COPING

The inherent characteristics of Alcoa Aluminum point the way to eliminate maintenance on copings. The metal itself defies the corrosive attack of the atmosphere and its burden of smoke and fume. The manner of construction forever eliminates the cost of pointing. Requirements of individual design may be attained either in castings or extruded shapes that are light in weight. The amazing versatility of this metal gives the designer full scope at a cost that is entirely comparable with that of the more traditional materials. Aluminum Company of America, 1866 Gulf Building, Pittsburgh, Pennsylvania.

ALUMINUM
NEW CENTRAL PARK ZOO 155
The same old animals in better, cleaner, more attractive surroundings. Technical data of zoo requirements

TVA HOUSES 162
Photographs and text presenting 12 TVA single-family houses, built at costs ranging from $3,025 to $3,150, each completely electrified. Unique construction, termite protection, varied materials, scientific planning

FINLAND 171
Eleventh in THE FORUM’S series of International Portfolios. Sixteen pages in color showing selected contemporary work of Finland’s architects

WINE SHOP 187
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PORTFOLIO OF BARS 195
Five drinking places from home and abroad illustrating developments in furnishings, decoration, murals, and lighting

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REMODELING 208
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To help solve your Electrical Problems

Cottage or skyscraper... factory or great public project. Any building... any electrical item. No matter what the job, you can turn to Graybar for experienced assistance in solving electrical problems. Consult us! . . . Furthermore, Graybar's nationwide service of supply can bring distribution economies, conveniences to your job. And Graybar's 66 year reputation stands behind every product.

Graybar

OFFICES IN 76 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BLDG., N. Y.
THE MONTH IN BUILDING

VOLUME. Regardless of the index used, the first six months of 1935 were the best months since '31. The big difference between the '35 figures and the '31 figures that this year's are on their way up, and 1931 they were on their way down. Residential building, weakest of all the visions, continued its steady recovery, owing a gain of 58 per cent over the first months of last year. Figures for July are equally encouraging, more for their assurance that a seasonal slump had not set than for the slight advance over June. The detailed total construction figures January through July as reported by edge are:

<table>
<thead>
<tr>
<th>Month</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>999,774,000</td>
</tr>
<tr>
<td>February</td>
<td>75,047,000</td>
</tr>
<tr>
<td>March</td>
<td>124,946,500</td>
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<tr>
<td>April</td>
<td>124,098,000</td>
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<tr>
<td>May</td>
<td>126,718,600</td>
</tr>
<tr>
<td>June</td>
<td>148,003,200</td>
</tr>
<tr>
<td>July</td>
<td>159,249,000</td>
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</tbody>
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Leaving out public buildings, which called the figures in 1933 and 1934, each monthly total from March on has been later than any previous monthly total since mid-1931, chiefly as a result of the rate spending reflected in the residence figures (see chart, p. 223). However, should be remembered that the latter on a fairly good-sized backlog of figs from U.S. housing projects, which are getting well enough along to report.

OCKS. Wall Street is spending its moments picking out a good building stock. The research divisions of all the kenge and investment advisory houses have been eager to the six months period into men-Marville, Crane, American Radiator, Ishsgh Plate Glass, and dozens of smaller companies, trying to find one best bet for the boom or boomlet which they are convinced is on its slow but inevitable way.

No less than a dozen heavily charted stocks have recently appeared, each the issue of when the $2,000,000,000 home year was to arrive, but none of these is higher. It is too early to tell how effective the provision will be in giving liquidity to mortgages because the terms of rediscount are still in Eccles' head. One thing is certain: the FHA-insured mortgage is going to be highly favored.

Significant provisions in the bill:
1. The lending area for a commercial bank was expanded from a 50-mile radius to an unlimited one.
2. Exclusive of FHA loans, banks were permitted to make a 60 per cent loan for ten years, provided 40 per cent of the loan is amortized during the period.
3. The amount of money to be invested in mortgages was boosted to the full amount of paid-in capital stock plus the unimpaired surplus or 60 per cent of its time and savings deposits, depending upon which figure is higher.

With these encouragements to commercial bankers to become mortgage lenders, other institutions were beginning to drive actively for business. Insurance company mortgage loans jumped phenomenally during June and July (see chart, p. 229). Savings banks and building and loans were advertising for mortgages. And operators with good risks were finding it easier to make terms than to accept them.

FRESH FUNDS. The problem of finding mortgage funds cheap enough for low cost housing will be over in ten years. For by that time the annuity funds which will come into being as a result of the social security legislation just signed by the President will be large enough for investment over a wide field which will undoubtedly include mortgages.

European experience is that such funds are ideal for long term financing, because the drains on pension funds are not erratic. Reaching the age of 65 is something that cannot be speeded or slowed by Depression. The funds are about the same as life insurance funds, with this one advantage that they are subject to policy loans, or can be cashed in before maturity.

In the opinion of mortgage finance experts, there is no reason why social security funds cannot be lent out at between 2 and 3 per cent.

Of worrying by established lenders there was no little. Indeed alert ones among them had pencil close to paper last month. So big was the difference between the rated lending terms might be reacast to take advantage of the forthcoming advantages. Undoubtedly the assurance of annuities will go far to make the 20-year loan a more attractive proposition.

Victor Eccles

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Victor Eccles

r"rs, this was taken to prove that the increase in private construction had resulted in a greater spread of business for the material manufacturers, and an all-around healthier condition.

MORTGAGE LIQUIDITY. The Banking Act of 1935, as finally passed by Congress last month, was still pretty much Eccles as far as real estate and building were concerned. The Federal Reserve Governor, who was brought to Washington first as Morgenthau's assistant because he knew all about mortgages, wanted to "do something" for mortgages just as his Utah Congressional colleagues want to do something for silver. And in the Banking Bill he did it.

After being pushed in and out of the bill a dozen times, the conference committee finally approved the Eccles fundamental that any sound asset of a commercial bank should be eligible for rediscounting with Reserve Banks. "Any sound asset" may mean a lot of things to a lot of people, but to real estate and building it means only one thing: mortgages.
PRIVATE ENTERPRISE. Though Ickes is still just as sure today as he ever was that private enterprise, aided or unaided, cannot produce low cost housing, there are many equally respected men in Washington who disagree with him. One of them is Secretary Morgenthau. Another is Director of the Budget Bell. A third is Miles Colean of the FHA.

And from one to another, what Ickes may think will be less and less important in U. S. housing policies. The signs point definitely to aid for private enterprise, largely dictated by Messrs. Morgenthau, Bell and Colean.

Direct subsidies to approved builders, probably in the form of interest grants, is the approach being given the most consideration. Following the appearance of the Kahn "Interest Subsidy Plan" in the August issue of THE ARCHITECTURAL FORUM, Mr. Kahn was called to Washington by the Secretary to tell all he knew. And what Mr. Kahn knows about the costs of housing and the reasons for their costs is based not on desk thinking but on actual experience with Frankfurt, Germany's mammoth and successful projects.

NEW TECHNIQUES. Two big names stepped further into the housing business last month—and neither one was a prefabricator. R. S. Reynolds gave out the details of his "House with the Silver Lining" (see p. 216) and Copper Houses, Inc., a Kennecott subsidiary, revealed the hopes they had for houses covered with copper, the first of which, a Dutch Colonial, has been completed in Washington, D. C.

And General Electric gave a new twist to its Houses, Inc., which was at first intended to be a "holding company" sponsor for prefabricated houses. Its work, it seems now, will be the whole broad field of selling G-E equipment for homes, whether in prefabricated houses, "New American" houses, or just plain houses.

In the meanwhile, American Radiator and Johns-Manville sit silent but not inactive. The latter is particularly interested in developing use of its "Transite" wallboard for exteriors. Under somewhat mysterious circumstances three "Transite" houses were going up in Boston last month. Not sponsored by the Houses, Inc., affiliated American Houses, which also uses "Transite," and which also is building three houses in Boston, they gave observers cause to wonder whether J-M might not be doing some laboratory work on its own.

FALSE ALARM. In Manhattan, newspapers headlined: "BANK LOWERS INTEREST RATE HELD AT 4 PER CENT. SENDS 8800,000 AT 3 1/2 PER CENT: LOWEST LEVEL IN YEARS." That morning saucers under New York bankers' breakfast coffee cups proved handy.

"In well-informed circles it is reported that this is a forerunner of a movement to release substantial funds at the 3 1/2 per cent rate," read one article. But a prompt investigation by the Mortgage Conference proved the papers wrong. Not one, but two large loans, the Conference reported, had been granted in Manhattan at less than 4 per cent. Subject of the newspaper report was a commercial bank loan which the Conference found was made upon a shipshape, producing property conservatively valued at $8,000,000. A loan-to-value ratio of 13 per cent on such a property apparently demanded some concessions.

A loan made several weeks earlier, which caused talk but failed to get in the papers, was a $8,000,000 one by Chemical Bank & Trust on Madison Square Garden at 3 1/2 per cent. But the bank had received the Garden's 

HOUSING MARKET. To aid manufacturers in promoting sales, the Federal Housing Administration has issued an analysis of the housing market which provides a ready way of determining the geographic inferences of a national program. The study, to which a number of publishing companies, national advertising agencies, a telephone company, and a number of Government statisticians contributed, culminated in a map of the U. S. showing which States were the richest potential housing markets (see below).

Five factors were enlisted to determine the size and location of the housing market needed for modernization and new building. These were: (1) population; (2) number of existing one- and two-family dwellings; (3) the value of these dwellings; (4) purchasing power, an index which was arrived at by combining a number of income tax returns, the number of resident telephones and number of automobile registrations; and (5) the number of existing sales outlets in the building group.

Combined into one, these indices provide a factor which may be applied to any dollar quota for the U. S. which present or future legislation may set. The actual figuring done for two States follows:

with allowances for purely local conditions of community growth and the fact that much of the data came from the 1930 Census, manufacturers, nation-wide lenders and suppliers of the housing problem had in FHA a study a valuable aid in judging where the spending would be done.

The U. S. Housing Market by Percentage factors

In the black States, 6.0 per cent or over of the spending will be done. States are shaded where the factor is between 3.0 and 6.0 per cent, dotted where between 1.5 and 3.0, and white where the quota is less than 1.5.
It is not a matter to be taken lightly, the confining of children in artificial surroundings during the most active time of their lives.

HERMAN NELSON System of Air Conditioning for Schools

© The Herman Nelson Corporation, Moline, Illinois
All the Navy’s money is not spent on dreadnaughts and destroyers . . . The beautiful, modernly equipped new Naval Hospital at Philadelphia is the latest proof of Uncle Sam’s concern for the health of the officers and men of his fleets. Walter T. Karcher and Livingston Smith were the architects of this magnificent new addition to the modern hospitals of America. In the illuminating system Macbeth “Florentine” Monax Globes were used for the major lighting units and smaller units of Monax were selected for corridor lighting and other purposes. The “Florentine” Monax Globe is a very efficient and attractive unit, rating an overall efficiency of 82.5% by I.E.S. specifications. It is approved for use in accordance with specifications of the Supervising Architect’s Office, U.S. Treasury Department. Detailed analysis will be sent upon request.

MACBETH-EVANS GLASS COMPANY, Illuminating Division, Charleroi, Pennsylvania.
FORUM OF EVENTS

PHOENIX BUILDINGS

Hartford, Conn. is a financially minded city. To most of its citizens the intricacies of insurance are as simple as the telling of the alphabet. But the wit that Hartford brought to insurance policies is by no means limited in this field. Hartford can figure figures to advantage when it comes to saving. But nowhere has that ability been better demonstrated than by the city's Department of Parks, George H. Hollister, superintendent.

Mr. Hollister and his Department of Parks had several buildings they wanted to erect. They wanted a new golf clubhouse in Keney Park and a new swimming pool and workshop at Colt Park. As much as a new lawn bowling clubhouse they wanted a large storehouse and shed in Papal Park. Pope Park needed a recreation center. The pump house at Bushnell Park needed an addition.

Of which was very well. But Mr. Hollister realized he did not have all the money in the world to spend. It was then that invention came to him. Why not, he wondered, raze some of Hartford's old unused public buildings and see what he could salvage? Hartford's new buildings would be the phoenix-like from the debris of the old. Having once found his idea, Mr. Hollister put it into execution.

Down came the old orphan asylum on Remm Street. Down came a mattress factory. Razed was an old post office and a dance hall. And the Park Department's workshop in Colt Park got busy. Bricks were reshaped, slate and stone were cleaned and recut, timbers and boards were sand-tinted and rehewn. And then up in Keney Park went the new clubhouse. And in Colt Park the new swimming pool. And in Bushnell Park the addition to the pump house.

The Keney Park clubhouse is a typical sample. Architect H. Hilliard Smith gratuitously offered his services to the Park Department. He and Mr. Hollister inspected the old orphan asylum, finding therein much good material. From this asylum came all the new clubhouse's brick, all the doors, all the floor joists, rafters, rough flooring, roofers, slate on the caddy house and some of the copper flashing; the white oak paneling and trusses in the lounge, the stone and lintel on the sides and top of the fireplace. The toilet and shower bath rooms for both men and women were entirely lined and partitioned with marble salvaged from the old post office. From the post office too came the slate steps leading to the locker rooms and some of the slate in the piazza floor. The hand rails and electrical supplies, finish flooring, window sash, casings, mill work, etc. The only appropriation asked for and granted by the Common Council was $75 for purchase of new slate for the roof. Receipts from the golf course were used for kitchen and lunch room equipment. Labor, with the exception of one plumber, was furnished by CWA and later by FERA. And when the clubhouse was finished the Park Department had a building roughly valued at $50,000.

Taking all its new buildings into consideration it was estimated that the Park Department gained a $150,000 return on a $82,000 investment. Which is a return sufficiently large to satisfy financially minded Hartford or any other community in the land.

FLOATING AIRPORT

Clevelanders have to travel to the western limits of their city to reach their airport. New Yorkers have to go to Newark or through Brooklyn to Floyd Bennett Field. Yet both these cities have large areas of water conveniently close to their centers. The same, thought E. LeRoy Pelletier, Detroit inventor and one-time publicist, probably holds true for half a dozen or more cities throughout the land. The obvious thing, it seemed to him, was to build a floating airport on the convenient water since land airfields near the centers of towns are generally impossible because of prohibitive land costs. Last month in Washington Mr. Pelletier was exhibiting his solution to any
member of the Department of Commerce who would pay him heed.

Mr. Pelletier plans a 4,000 foot arrow-shaped runway involving the use of hollow reinforced concrete blocks joined together by ball and socket joints. The arrow, 600 ft. wide, is to be anchored off center so that it turns in the wind (airplanes, of course, always land and take off into the wind). A small motor is provided for in case the wind is not sufficiently strong to swing the arrow (but a two mile wind velocity will head it windward). Steam pipes immediately beneath the surface will prevent formation of ice. A semi-circular breakwater with access from the land forms a half circumference to the arrow’s diameter so that no matter where the arrow swings it is always in contact with the breakwater, hence with the shore. The field is to be used principally as a landing place where airplanes may discharge or receive passengers. Hangars and other equipment would remain on the already constructed land fields.

Mr. Pelletier estimates his construction costs at $1,250,000. Before his idea may be adopted by any Class 1 airport it must receive the sanction of the Department of Commerce. It is the Department of Commerce also, which has to render services in regard to a possible PWA loan. Unofficially, the idea has met with the approval of certain Army and Navy members. The attitude of the Commerce Department is not yet known. But Washington was last month freely predicting that Washington would never see the Pelletier arrow in the Potomac for too many Congressmen are angling for other airport sites.

Ernest Le Roy Pelletier knows he was born in 1867 but is not sure whether he was born in New Brunswick or in Maine. He was a staff reporter for the New York Times covering the Yukon gold strike in 1897. On the side he laid out several good claims which were taken away from him by Canadian claim jumpers. He finally drifted into the automobile business and was invited by Henry Ford to become a consulting engineer in Detroit. He turned out to be a better advertising man than engineer and remained with Ford in the latter capacity until 1908. To him are credited the circulation of many of the oldtime Ford jokes which indirectly played a strong part in publicizing the automobile. He still carries a card, signed by Mr. Ford, reading: “Pass Roy Pelletier and friends any place any time.” Among his friends is Eddie Guest who has included Mr. Pelletier’s anapestic name in many a homely rhyme. Another friend was the late Elbert Hubbard who once gave him a Windsor tie with the admonition that he always wear one. He generally does. For the past few years Mr. Pelletier has been a gentleman farmer famed for his Holstein-Friesian cattle, his Belgian horses, his Borzoi dogs and his champion cow, Wandermere Belle Hengerveld, who broke record cattle prices when she was sold for $18,300. Few months ago he sold all his Borzoi dogs. But he still keeps his Shetland ponies, is proudest of the fact that he has managed to raise a pure white and a solid black strain.

UNIVERSUM BUILDING
The days of prosperity with skyscrapers in construction around every corner used strangely to stir the minds of architects. There was the spectacle, for instance, in Manhattan of William Van Allen’s Chrysler Building fighting lustily to be higher than H. Craig Severance’s and Yasuo Matsuzo’s Bank of Manhattan Building. Only to have Shreve Lamb & Harmon contemplate dwarf them both with the Empire State Building. Architects when they had nothing else to do used to plan buildings that would soar three or four times higher than any other building on earth. The Sunday supplements bristled with magnificent H. Ferriss conceptions. Raymond Hood would vehemently exclaim that buildings 7,000 ft. high were logical.

Lately with the signal exception of Rockefeller Center, skyscrapers have become little heard from. In Paris Henri Lossier and M. Faure-Dejarrie are hoping to build a 6,250 foot tower for the 1937 exposition but that is little more than the Eiffel Tower multiplied by six and a half. In St. Louis, however, Depression instead of quelling has inflated in one architect the ardor to build a super-sky-scraper. More than anything else in the world, Henri Russe of A.E.A. wants to build his Universum Building.

The Universum Building (if it is built) will house approximately 250,000 people (more than a quarter of the population of St. Louis), have 193 stories and cost approximately $28,000,000. Mr. Russe’s plan calls for an observatory dome 80 ft. in diameter at the top and directly below it, two floors of high altitude research laboratories and radio stations. The 103rd floor is a rotating platform with coupling facilities for dirigibles. A university for social studies, a national economy and commerce courses occupies the 192nd to the 168th floors. Police office, novelty shops on the 168th. To the 160th a dining hall seating 6,000 persons or 24,000 for one meal. The top extends along the outside of the building with large wired (in case of breakage) window area. Eighty-eight stories down to the 78th floor contain apartments for those employed in the building. A hospital with 4,000 beds capacity occupies the 78th to the 55th floor. There are twelve aseptic operating rooms with glass lined walls and ceilings below which the heating and cooling coils are placed. The 58th floor extending all around the building provides an exercise and recreation platform. On the 57th and 58th a large gymnasium and an indoor exercise hall with an area of 106,800 sq. ft. and a 24-foot ceiling height. On these floors are club rooms, libraries, dance halls, movie picture halls, a bank, a church auditorium. The next 37 floors (down to and including the 20th) are given over to commercial and industrial enterprises, such as bakeries, laundries, refrigeration plants, warehouse factories. Along the outside walls, divided
Water-Vapor Refrigeration

A simple, safe and economical method of cooling water for AIR CONDITIONING

Cooling is accomplished by direct evaporation of a small quantity of water under a high vacuum, created by steam-jet boosters or a centrifugal compressor. Water chilled by this evaporation is the cooling medium and is circulated for direct use. No chemicals or brines are used. The system is simple, safe and economical.

I-R Water-Vapor Refrigerating Units have been installed throughout the country for air conditioning in government building, stores, theatres, restaurants, in skyscrapers and office buildings, auditoriums, museums, hospitals, hotels, foundries, factories, aboard ships, and for cooling in manufacturing processes.

Two types of units—Steam-Jet and Centrifugal—permit the selection of the most economical equipment to meet widely varying conditions of steam or electric power, cooling water supply and cooling requirements.

STEAM-JET TYPE
Steam jet boosters compress water vapor from high vacuum to condenser vacuum. This type is free from moving parts, and is extremely flexible and reliable due to exclusive I-R features of design.

CENTRIFUGAL TYPE
A centrifugal compressor driven by a motor or a turbine, compresses the water vapor. Low in operating cost and condenser water requirements. Self regulation at part loads gives minimum power consumption without requiring automatic controls.

Let us tell you about the overload capacity, the sustained efficiency and other advantages of I-R Water-Vapor Refrigerating Units.

Branches or Distributors in Principal Cities the World Over

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WHY ANOTHER
FAMOUS RESTAURANT USES
Armstrong's Linoleum
FOR ITS DANCE FLOORS

This smart dance floor of Armstrong's Linoleum in cadet blue with orange stripes gives Child's Restaurant at 1501 Broadway, New York, an air of warmth and spaciousness. Armstrong's Architects' Service Bureau offers complete technical assistance in designing floors like this.

In this Child's Restaurant, the dance floor is Armstrong's Linoleum—a daring modern design in blue and orange. And here's why Child's installed it:

First of all, Armstrong's Linoleum makes a good floor for dancing. It's smooth. It's resilient. It's comfortable underfoot. And because it can be laid in distinctive, made-to-order designs like this one, it "trade-marks" a restaurant...makes patrons remember it and come back.

Furthermore, an Armstrong's Linoleum Floor is easy and inexpensive to maintain. It never needs sanding or refinishing. It doesn't buckle or warp. And an occasional washing with Armstrong's Floor Cleaner, and periodic use of Linogloss Wax, keep it smooth and beautiful for years. That's because the colors run clear through to the back, so that scuffing feet and scraping furniture cannot wear them off.

During rush hours, tables can be placed on an Armstrong's Linoleum dance floor without fear of denting it or ruining its dancing surface. Spilled things wipe right up without leaving a stain or spot.

Point by point, Armstrong's Linoleum offers economies and advantages you cannot find in ordinary floors. For complete information, write now for your copy of "Public Floors of Enduring Beauty." Armstrong Cork Products Co., Floor Division, 1203 State Street, Lancaster, Pa.

Armstrong's LINOLEUM FLOORS
LETTERS

Left Handed Piano

Forum: It was with great surprise and amaze ment that I read your recent advertisement in the May issue of a high priced magazine, FORTUNE.

In this article you write that architects say and Simpson of Cleveland have won a large amount of money on a contest for smaller and better homes, etc. But I must ask who the bright person was who rew the grand piano backwards in their house plan or is it a new type of piano which I am not familiar with. Anyone who says the piano and saw that would surely be surprised I am sure. Possibly it would be better for them to stick just to drawings of houses and not furnishings. Or do you think so?

Also in a magazine such as FORTUNE is, evidently your copy man lets things slip which is rather too bad as the magazine is so good for that.

In the future I would advise you might look things over carefully before sending them to the East where we do see many uncountable things from day to day. I should be pleased to hear whether the grand piano is a new innovation to this ever changing world of ours.

Mrs. R. J. Moore
Tainanfa, Chantung, China

The reply of Architects Hays and Simpson to Mrs. Moore: "... A thorough and searching investigation of our organization has revealed that cross-eyed draftsman in our piano drawing department is not only left handed but is a freak of nature with his thumbs on the uhar side of his hands and that he was wearing canvas gloves and looking in a mirror when he drew the piano. Now we suspect that he may have a complete extrasensory, which only an X-ray examination can confirm. When we have had this made and know the true conditions we will attempt to give a complete explanation of this horrible mistake, and hope that it will not retard further progress in our efforts to promote sane logical thinking in home building."

Chapel Hill vs. Modernism

Forum: For the last fifteen years a small group here in Chapel Hill have been trying to make the University Town practically Georgian or Colonial architecture. This, with stone walls of our old stone and point, we hope, will put the town on the map in a right way: we are not anxious to be any longer. We do want to be better so that while we do not advertise, we do in a small way correspond with retired professors, school masters, and intellectual people in general, urging them to come here for the cultural advantages and quiet of the University place. We are afraid that someone will start the "Modernistic" craze and hope that this will not be the case for it would sadly upset our "apple cart."

H. D. Carter
Chapel Hill, N. C.

Colonial vs. Modernism

Forum: I have been looking over the August issue of THE FORUM and have been enjoying the photographs of the First Presbyterian Church at New Rochelle. The FORUM has been showing so much modernistic work recently that it is quite refreshing to again see a fine piece of Colonial work illustrated.

L. P. Smithy
Roosevelt, Va.

Not one whit interested in "styles." The Architectural Forum presents distinguished architecture, whether traditional or modern, wherever it may be found.—Ed.

Obsolescence vs. Modernism

Forum: Congratulations ... on the courageous editorial "Respectability vs. Architecture," and the excellent choice of illustrations.

But gentlemen, yours is a voice crying in the wilderness. One telling indication of said wilderness is the impending Federal Reserve Building. Another, the enclosed clipping:

[The enclosed clipping quoted Robert C. Carlson, appraiser of Chicago, who upheld "evolution" in design as against "revolution." Mr. Carlson pointed out that the FHA standards for insured mortgages stipulated that the house involved "must be appropriate in its neighborhood setting." cited the example of a modern house set among brick Colonial residences. "In placing a value on this property," he said, "we had to figure on obsolescence of $4,100 because of lack of conformity to neighborhood setting, lack of general appeal, over-improvement of site, requirement of special furniture and lack of adaptability to ordinary furnishings."

Now all this implies a bland assumption of the following amusing propositions:

1. That a modern house is per se not high grade.
2. That brick (in all probability brick veneer on wood frame, admittedly the worst sort of firetrap) is high grade.
3. That the gardens and lawns surrounding modern houses would not be well kept.
4. That neighborhood setting is unchanging in perpetuity.
5. That modern design lacks general appeal.
6. That a modern interior is more hostile to "period" furnishings than vice versa.

It is not necessary to enlarge upon the first three points. (It does not matter here which of the words are Mr. Carlson's and which are the Herald Tribune's. I am speaking of the wilderness.) Point 4 was discussed in your July editorial. The answer to point 5 is given by the manufacturers of furniture and accessories, refrigerators, toasters, automobiles and what have you. Point 6 reveals most clearly the mentality of discussion. It does not matter if a Louis XIV dining room set is placed in a "high class residence of English design"; if a house of "English," mass, plan, roof, etc., is given Colonial details (let's have the best features of each); the eligibility of the house for financing is not thereby impaired. Bankers and appraisers were never so insistent on purity of design and catholi-(Continued on page 12)
ity of taste. Think of all the discordant trash that has been built into conserva-

tively financed houses! "Anything goes" has always been their motto, so far as

artistic harmony is concerned—if only the dreaded modern is avoided.

It never occurs to them that, in a "period" house, there is an elemental, funda-

tamental "lack of adaptability to the or-

dinary furnishings" of our daily living: to ra-

dators, electric lighting, modern dress, cy-

linder locks, resilient floors—an endless

list; and it never occurs to them that, slow-

ly but inexorably, an intelligent Amer-

ican public is coming up to a keen realiza-

tion of this.

And finally, the limit is reached when an arbit-

rarily fixed penalty is called an "obsolescence." Which will be obsolete

sooner, a 1935 automobile or a sedan chair?

In all the pronouncement of the FHA

people (bankers, brokers, contractors mostly) we find the same fetishes:

"time-tested construction methods"

"conformity to neighborhood character"

"4:1 ratio of house to lot value"

"location in a well-developed commu-

nity"

"proximity to churches, schools, stores"

Translated into terms of actual houses and communities of living, we know too well

what these fetishes mean. They mean

perpetuation of "quaint" ruble and rub-

blish outside, bad stairways, poor light-

ing and lack of comfort inside our houses; they

mean the perpetuation of the long drive-

way to shovel snow from, and of that

peculiar curse, the Narrow Lot, with its

way to shovel snow from, and of that

perpetuation of "quaint" rubble and rub-

blish and its "sounds of the neigh-

bors' bathroom and radio in our ears, its

walks and sewers, its "proximity to churches, schools, stores." It is the immense power of the FHA

millions being used to stifle the develop-

ment of American home building?

ANDRE HALASZ

New York City

Friedlander Plan

Forum:

I note with considerable interest the variable interest rates plan described in

recent issue of The Forum. This plan and identical schedule were developed many

months ago by Mr. I. Friedlander, who is

president of the Gibraltar Savings and Building Association of Houston, Texas,

and was taken up by Mr. Irons and

others, after associates of Mr. Friedlander

had made a public address on the rating

plan at the Chicago building and loan

meeting, and after publication of the

Gibraltar schedule. We think very highly

of Mr. Irons, but, in fairness, it was Mr.

Friedlander's constructive and progressive

mind which developed the whole matter,

and I thought you'd want this informa-

tion.

MORTON BOODISH

United States Building and Loan League

Chicago

Who Built Liberty Hall?

Forum:

I seldom write regarding published

articles that lead to, perhaps, controversy,

but in The Architectural Forum for Sep-

tember, 1934, an article on Historical

American Buildings has illustrations and

reproductions of Liberty Hall in Frank-

fort, Kentucky, under which Thomas Jef-

ferson is described as the architect. I do

not know what Fiske Kimball would say, but I am positive that Thomas Jefferson

was not the architect of that building. He

might have made some designs or offered

some criticism, but they hardly could have

been followed. This often happened to him as an architect.

Let me point out non-Jeffersonian fea-

tures of this house. One glance at it indi-

cates Maryland influence, or Tidewater

Virginia. It does not have an order, ex-

cept for the door, and does not have the full entablature; has flat arched window

heads; the chimneys are not his type; the

bell course at the second story he never

used; he never made the traditional Wren
type central pavilion with pediment; door-

way including paneling is different from

any existing Jeffersonian doorway; plan has

no recognizable Jeffersonian features; the

cornice in details have features which do

not appear in any Jeffersonian one; the

interior details are distinctly non-Jeffe-

sonian. It would take documentary evi-

dence to convince me Jefferson had any-

thing to do with this house. What is the

evidence?

In the same number, it seems most un-

reasonable for Dr. [Rexford] Newcomb to

bring Laxtre so far forward as to his near-

by part of the University. As a historian, my good friend, Newcomb, should do a little better.

It seems evident Mills taught Cornelia Randolph drafting, but that his grand-
dauughter helped Jefferson on drafting at

the University is rather stretching the

facts. She used his designs and redrew

them as exercises in drawing, the same as

Mills used Montiello and Shadwell des-

igns when Jefferson had Mills as a pupil.

EMUND S. CAMPBELL

Professor of Art and Architecture,

University of Virginia

The Forum pointed out that the ascription of

Liberty Hall to Thomas Jefferson rested upon a

"family tradition," did not suggest that this was

incontrovertibly proved. Jeffersonians are in-

vited to submit further information which will

tend to clarify the doubts surrounding the origin of this historical American building. Fiske Kim-

bail, not Rexford Newcomb, who had nothing to do with the preparation of the article and

who has often expressed his doubts as to the

Jeffersonian origin of Liberty Hall, stated that

Cornelia Randolph occasionally "Tasted and

shaded" Jefferson's drawings.—Ed.

Financial Survey Origin

Forum:

I think you have done a very splendid

job on the Financial Survey data. [Fin-

ancial Survey of Urban Housing, Archi-

tectural Forum, Aug., p. 143] There is only one point of criticism which I have and that is the apparent misunderstanding of the origin of the Financial Survey.

The project was initiated by the Bureau of Foreign and Domestic Commerce and was, from the beginning, a part of the Real Property Inventory. After we had decided to include this phase of the study, we sought the best qualified man we could find to assist us with this. It proves to be Dr. [David Lawrence] Wickens of the Department of Agriculture, whose services we borrowed to take care of the technical aspects of the Financial Survey.

N. H. ENGLE

Assistant Director,

Department of Commerce,

Bureau of Foreign and Domestic Commerce

Forum's Design

Forum:

I have just received my August issue

of The Forum. The material in this issue is, as usual, excellent, but the compo-

sition of the magazine and the manner

in which you have presented the material has set a new high. Forum has always

been advanced in its selection of material and now sets the pace in presentation.

Allow me to congratulate you and the members of your staff and to express my appreciation of the service Forum is render-

ing.

CHARLES T. GRANGER, Jr.

To Architect Ernest Born of The Forum, editorial staff is due full credit for the design of this issue. —Ed.

Architect's Asset

Forum:

I wish to reiterate the feeling I have had

that The Forum, to the architect who desires to keep abreast of what is happen-

ing in his profession, is probably his most

valuable asset.

This publication does not confine itself to reproducing photographs of completed

work, but covers a wide field, of interest to draftsmen and engineers as well as

architects. I have in mind the "Master

Detail Series" which should be valuable to

every office. Then again, "Building

Money" Section should have a special ap-

peal to all in the profession and to many in

other allied lines of work, when new legis-

lation for building financing is being given

so much study and so many changes are occurring in that connection.

The International Section familiarizes one with some of the better work being

done abroad and is of decided value to the designer.

MAXWELL A. NORROIS

Cleveland
Revere has developed a reasonably-priced flashing that offers important new advantages for architectural plans. Briefly, these are the advantages:

This new flashing of Revere Copper (soft temper) or non-containing Revere Leadtex (lead-coated sheet copper) is much stronger than plain sheet metal flashing. The design is simple but effective: parallel ribs are rolled at 3-inch intervals along the full width of the flashing, and embossings are rolled between each rib. Because the ribs are rolled rather than stamped, they are of equal thickness with the rest of the flashing and the metal retains its original softness. Because they extend the full width of the flashing, they provide a stiffened counterflashing face that hugs the wall tightly.

The parallel ribs permit a water-tight interlocking joint with 2-inch overlap to form continuous flashing without the use of solder. The ribs also allow water to drain off quickly. These ribs and embossings make an unusually tight bond between mortar and flashing, prevent all lateral movement of the wall, and allow for expansion and contraction.

Revere Thru-Wall Flashing is considerably less expensive than the customary patented flashing. Due to its interlocking feature, which makes a water-tight joint without the use of solder, it can be installed for less than plain sheet metal flashing with soldered joints.

Another advantage of this flashing is its availability through the country-wide organization of Revere Distributors. The well-known Cheney Flashing is also available at Revere Distributors and is reduced in price. These two flashings answer your requirements for every type of construction. If you would like more complete details, address our Executive Offices.

REVERE FLASHING SPECIFICATION

Thru-Wall Flashing shall be provided below the parapet coping for counterring in masonry parapets and where low roofs about the superstructure and elsewhere as indicated on drawings. That portion in the wall shall be bonded horizontally at intervals of not more than 3 inches by a series of ribs and raised projections three-sixteenths of an inch high, with ribs extending the full width of the wall. End joints shall be interlocking and overlapping at least 2 inches so that a water-tight joint is made without soldering. The flashing shall be Revere Flashing (Revere Copper and Brass Incorporated), and shall be formed so as not to cause any accumulation of water on the horizontal surfaces and the transverse bonding ribs shall not be drawn or stretched.

Patent No. 1,528,549
Revere Copper and Brass
INCORPORATED

Founded by Paul Revere 1801

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SEPTEMBER • 1935
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ARCHITECTS FIND A NEW ALLY IN

BRIGSTEEL

Beautyware

The resources of the Briggs Manufacturing Company are your guarantee of the finest materials and workmanship.

In the fields of ceramics and metal combine, in this revolutionary new plumbing ware, to provide an interesting flexible medium for achieving effects in bathroom design.

Effects, such as the bathroom formerly possible only in the more designs, are now well within the reach of today's most modest budgets.

Colors and pastel shades cost little at the Brigsteel line than plain white in cast iron ware. Color combinations and color trim not obtainable in any other type of ware are available at a very slight increase over the cost of solid colors. High lustre porcelain enamel finish is furnished at no addition in cost. All designs are ultra modern and include many new convenience features. Construction costs are substantially reduced when Brigsteel Beautyware is used because it is but one third the weight of cast iron. Ruggedly built to withstand the hardest usage, these beautiful new fixtures will outlast the building in which they are installed.

Architects are cordially invited to write for complete catalogues containing specification data, working drawings, etc.

These luxury-type plumbing fixtures, in a wide range of colors and color combinations, cost so little more than ordinary all-white ware that you can use them in the medium and low priced homes that dominate the building field.

BING WARE DIVISION • BRIGGS MANUFACTURING COMPANY • DETROIT, MICHIGAN
Announcing

THE NEW PYREX GLASS CONSTRUCTION UNIT

• Scientifically designed fluting on inside faces of unit provides ever-changing decorative effect—high diffusion of light—obscures images—produces no lens effect—made of Pyrex Brand heat-resisting glass with a coefficient of expansion second only to natural quartz—partial vacuum—size 11 3/4" x 11 3/4" x 4".

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COST LEAST, GIVE MOST
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Pre-planned telephone facilities add little to construction costs. But your client can have as few or as many telephones as he wants, when and where he wants them. He can move them as needs change with the years. He and all his household will save steps, stairs and minutes... have more privacy for personal conversations... and be grateful to you for the lasting livability you've provided.

Incidentally, your local telephone company keeps trained telephone engineers always ready to work with you... on remodeling jobs or new construction... whether you're locating a second-floor outlet in a small house or planning an elaborate intercommunication system for a large estate. There is no charge, of course. Just call the Business Office and ask for "Architects' and Builders' Service."

For further information on Bell System telephone services and equipment, see Sweet's Catalogue

Built-in conduit and eight outlets provide for telephone convenience in the residence of Mrs. C. M. Kitselman, 2400 West Jackson Street, Muncie, Indiana. Fredrick Wallick, Architect, Indianapolis, Indiana.
CONSTRUCTION can depend upon

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Here is the way this Banking Room looked before modernizing with Magnalux... 3 1/2 foot-candles of inadequate light was replaced by 23 foot-candles of glareless, shadowless illumination.

Shops, stores, banks, offices and buildings everywhere are modernizing lighting with Magnalux. They have learned that proper illumination pays big dividends. Eyes keep sharp and keen... efficiency is increased... costly errors are decreased... morale is uplifted... new business is attracted. And Magnalux provides the clear, glareless, shadowless illumination that is needed.

Westinghouse has completed a new handbook that covers every detail in the design of modern interior lighting. A copy is yours for the asking. Also see the Westinghouse lighting section in the 1935 Sweet's Architectural Catalog, Section 28.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.
Lighting Division, Edgewater Park Cleveland, Ohio

WHEN YOU THINK OF Lighting THINK OF Westinghouse
A BILLIARD ROOM
IN EVERY HOME

When clients ask for something unusual . . . the New Home Billiard Table is your answer.

Architects, to meet home owner demands, are constantly seeking new ideas that add a touch of the unusual, the exciting, in house design. Entertainment must be provided . . . parties made more novel and exciting. Growing children need activity under parental supervision. The new home billiard table supplies a lasting solution to these and other home entertainment problems.

With this new table a score of exciting possibilities suggest themselves for the construction of new houses and the remodeling of old. It has beauty of color and line to harmonize with smart interiors. It has streamline strength and lightness. It has a utility top which makes billiard table suitable for table tennis, cards, buffet suppers, lunches, etc. And it is offered at a new low price of $195. Really the billiard room for any home, large or small, has arrived, in modern dress, to serve modern requirements and, best of all, at a modern low price.

PUT ON THE UTILITY TOP AND HAVE

An ideal party card table or buffet supper table.

5 INNOVATION

FIRST: Streamline Design. Harmonizes modern home decoration. Chromium have screw adjustments to level table.


THIRD: Light-Weight Table Bed. Set in six minutes by two people. Heavily perfected new metals and new method construction. The heavy, bulky, slate bed old fashioned tables now obsolete.

FOURTH: Utility Top. Fits neatly over making table suitable for table tennis, cards, buffet suppers, etc.

FIFTH: Low Price. $195. Billiards can now be enjoyed in every home at little expense.

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Gentlemen: Kindly send me complete information on the New Brunswick Home Billiard Table.

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THE ARCHITECTURAL FOR
Automobile production methods enter the building field, creating light-weight, drawn steel bath and kitchen fixtures in new designs.

About a year ago the Briggs Manufacturing Company cast an eye over the potentially rich building field and decided that its giant presses could squeeze out sinks as cheaply and quickly as they did automobile bodies. The result was a new line of plumbing ware, 65 per cent lighter than similar products of cast iron, with the consequent advantages of lower shipping and installing costs. The sinks were pressed from sheets of crystal-etched Armco Ingot Iron, and covered with a porcelain enamel finish claimed to be proof against acids, scratching and burning. The sinks were supported on chromium tubular legs, furnished in a variety of colors, and except for a few models that went in for fake mother of pearl, they were attractive and in good taste.

Recently, at the Plumber's Show in Chicago, Briggs showed how far it had progressed with its new line of products. Two model rooms were displayed, a kitchen and a bathroom, entirely outfitted with the company's stamped-out fixtures, and in addition the rooms themselves were made of the same material. When these metal wall panels, in addition to the existing line of fixtures, go into production, Briggs will have on the market what are virtually two completely prefabricated rooms. The lavatory has a cabinet under, fitted out with glass shelves for use in place of the usual medicine cabinet. A radically different toilet design is included in the line.

(Continued on page 46)
When you buy an Otis Elevator, you buy one of the finest pieces of machinery that money can buy. Its quality is recognized everywhere.

In order to make sure that not only the elevator machinery but a complete elevator installation of Otis quality is available, Otis has manufactured cars, car doors, door hangers, and door-operating devices for a number of years. Into this apparatus goes the same quality of materials and workmanship as into the Otis Elevator itself.

In designing cars and car doors not only quality of workmanship but also styling and design are important. And Otis craftsmen have developed a wide variety of modern treatments. From these you may choose a design that harmonizes with the architectural treatment of your building. Or, if you wish, you can have any special design executed. Cars are available in metal, wood and metal, or all wood.

We wish to mention also that we make a wide range of door hangers and that in designing these we have made every effort to minimize noise and turn out a product that will give lasting service. Safety and silent operation are two important features of Otis door-operating devices.

Your local Otis office will be glad to furnish complete details on any of the apparatus mentioned above. And may we suggest that you get an Otis proposal before buying any of this equipment for either an elevator installation or an elevator modernization project?

Otis Elevator Company
Many new products have been added and many new mills put in production on USG Building Materials during last five years.

- This illustration will suggest materials you have not previously associated with USG manufacture. Many have been added in the last five years — new insulation plants, new roofing plants, a felt mill, a new hardboard factory, a new fiber board factory, a new lime plant; new equipment for the manufacture of Insulating Sheetrock, Insulating Rocklath and Wood Grained Sheetrock. A new wool has been added to the USG group of materials — in bat, bulk, strip and nodulated form.

These and other USG Materials are recommended on the basis that every material of USG quality used in conjunction with other materials contributes measurably to the success of those other materials. A good plaster finish is not possible without a good plastering base. This is an argument for Rocklath, Insulating Rocklath, Red Top Metal Lath, Red Top Insulating Lath; the USG Resilient Plastering System.

The same logic applies to other USG Materials. Each additional one used in a particular construction adds to the certainty of performance of the others, because all are made to a definite USG quality standard.
FORMICA doors in red and gray refinishing stock were specified for all of the main exits and entrances of the new Pennsylvania Station at Newark, N. J. Similar doors were also installed about a year ago in the Pennsylvania Station, New York. They are made with a type of Formica sheet that is uniform in color and texture throughout its entire thickness, and will therefore maintain its original appearance indefinitely in spite of vigorous wear. These doors were made by veneering Formica sheet on wood cores. Steel fireproof doors can also be surfaced with Formica for locations where fire regulations require it. Architects are making use of Formica for table tops, counters, wall covering and many other uses. Write for the facts.

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FORMICA FOR BUILDING PURPOSES

THE • ARCHITECTURAL • FORUM

Right—Hotel San Pablo, Oakland, Calif. Exterior painted with Dutch Boy White-Lead and Lead Mixing Oil. Owner writes, “The appearance passed all our expectations and the paint is standing up well after an unusually severe winter.”

* Gentlemen...we give you the flat paint of your dreams! A flat paint so rich and beautiful you'll want it for your finest interior jobs...and at the same time so durable it stands up outside, where it is used to seal and waterproof stucco, concrete, brick and stone.

Its resistance to the weather outside gives you a good idea how it withstands repeated washing and hard wear inside. You never saw a flat finish that is harder to soil permanently. Ink stains, pencil marks, finger smudges, grease and dirt can all be completely removed.

All your painter needs to produce this superior “flat” is Dutch Boy White-Lead and its special companion product...Dutch Boy Lead Mixing Oil.

This combination not only gives extraordinary durability but a finish with the characteristic beauty of a white-lead “flat.”

Other advantages: Easy to mix—just add Lead Mixing Oil to white-lead.

Levels out smooth and even. Requires no stippling. Has excellent sealing qualities. Hides fire-cracks. Brushes with the ease and high spreading rate of all white-lead paint. Gives a white-lead “flat” at a reduced cost per gallon.

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111 Broadway, New York; 116 Oak St., Buffalo; 900 W. 18th St., Chicago; 659 Freeman Ave., Cincinnati; 420 W. Superior Ave., Cleveland; 722 Chestnut St., St. Louis; 2240 26th St., San Francisco; National-Boston Lead Co., 800 Albany Street, Boston; National Lead & Oil Co. of Penna., 516 Fourth Avenue, Pittsburgh; John T. Lewis & Bros. Co., Widener Bldg., Philadelphia.
The rustlessness and tarnish-resistance of stainless steel trim keeps the store face clean and attractive. Stainless steel is uniform in composition from its glistening front to its unfinished back. It does not pit, chip, or peel. It can be washed as easily as glass. No polishing and no protective coating are required to maintain its gleaming beauty. Modernization of store fronts with this metal brightens the customer's outlook as well as the store's... For twenty-nine years Electromet has pioneered in the field of ferro-alloys and alloy steels. The information on stainless steels and other alloy steels thus developed, together with the further help of Electromet Engineers in selecting suitable materials for your designs, is yours for the asking. A request today on your letterhead will bring it without obligation.

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Electromet
Ferro-Alloys & Metals
Not so long ago, the editor of a leading women's magazine declared a new declaration of independence aimed at a long-suffered and unnecessary household evil—the square corner, that dirt-collecting, hard-to-clean spot in cupboards, stair cases, and at the baseboard. Much progress has been made in establishing the round corner principle. Today Crane Co. presents the housekeeper with round corners in another place where they are badly needed—the laundry tub.

The new Crane Porcelain (all clay) Laundry Tub, its glistening white, hard, glasslike surface impervious to strong alkalies, dyes, and acids, has well-rounded corners, inside and out, which make it as easy to clean as a dinner plate. Its all-clay composition eliminates all danger of rust. One-piece construction, in both single and double styles, is a further aid in cleanliness. Supporting frame is angle iron, but porcelain or painted cast iron legs are also available. The supply fixture is a new Crane development, precisely made, durable, and located above tub rim to prevent back siphonage.

At a price only slightly higher than cement tubs, the new Crane Porcelain Laundry Tub brings cleanliness and fine appearance to the laundry far in excess of the slight additional cost.
SHOWING MISSOURIANS

THE BEAUTY AND VERSATILITY OF

GENUINE MASONITE TEMPERED PREGSDWOOD

Genuine Masonite Tempered PREGSDWOOD is proving a real box-office attraction for the Lee Theatre, Clinton, Mo. Modernizing the front of the theatre with 3/16" Tempered PREGSDWOOD, decorated with unique color scheme, produced an immediate increase in patronage. Below: before alteration. At right: after alteration. Robert O. Bolter, architect, Kansas City, Mo.

THIS one board offers an amazingly wide variety of uses...and ways of saving money. • For instance, if smooth-surface concrete is wanted, forms of Genuine Masonite Tempered PREGSDWOOD produce it...without any finishing treatment. If walls and ceilings are to equal the beauty of fine panel-woods, the natural warm-brown surface of Masonite Tempered PREGSDWOOD achieves the result. If the architect wants a surface for displaying ultra-modern decorative schemes and devices, he will find it in Genuine Masonite Tempered PREGSDWOOD. For bathrooms, halls, sun-rooms and kitchens—gleaming, realistic tile effects can be had with Genuine Masonite Temptrtile, enameled in desired colors. • Genuine Masonite Tempered PREGSDWOOD comes in 1/8", 3/16", and 1/4" thicknesses. It is grainless...moisture-resisting. Will not warp, chip, split or crack. It can be varnished, painted or enameled with any standard application. Can be installed by regular carpenter...decorated by regular painter. It is light and durable. Easy to handle. • Write us today for a sample of Genuine Masonite Tempered PREGSDWOOD. Masonite Corporation, 111 W. Washington St., Chicago, Ill.

Genuine

MASONITE TEMPERED PREGSDWOOD

AND INSULATION

QUARTERBOARD
CUSHIONED FLOORING
TEMPRTILE
STRUCTURAL INSULATION

30
DONOVAN awning type windows
by TRUSCON
Designed to Exceed The "Ten Fundamental Requirements"

10 Fundamentals
For School Windows

1. Must admit maximum fresh air and daylight.
2. Easily operated.
3. Easily and inexpensively shaded.
4. Weathertight under severe conditions.
5. Inexpensive to purchase.
6. Permanent in construction.
7. Low in maintenance cost.
8. Easy to clean.
9. Adaptable to screening.
10. Attractive in appearance.

It would be over conservative to say merely that Truscon has met the ten rigid requirements now regarded as essential to school window efficiency. In its Donovan Awning-Type Window Truscon has far exceeded these. And school buildings throughout America equipped with this advanced type of window bear witness to this fact continuously. A point by point comparison will indicate clearly why Truscon Donovan Awning-Type Windows should be your choice for any school construction you have in mind.

Write for information and details on Donovan Awning-Type Window by Truscon

Permits 100% ventilation with drawn shades — non-draft ventilation. Permits proper shading. Eliminates glare from sun but admits sufficient natural daylight.

TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO

SEPTEMBER • 1935
A half million consumers set up their own architect's office to design shops, factories, housing, packages, furniture . . . . A new study of present-day hospital designs for Sweden, or anywhere else for that matter. In the early days of the office's activities it was found that the retail stores were not well designed, goods were badly displayed, and one of the first things done was to study intensively the problem of the retail store. The findings were incorporated into a standard set of drawings, with certain variations for different types of stores, and these standards set up were subject to revision at any time. So many improvements were made as new experience was gained that by 1931 the original set was scrapped and a new one adopted. Since shops are continually being built, two mills are on yearly contracts to supply equipment, and the savings made in this way are passed on to the retailers. No compulsion is being made to use the architect's office, but so obvious are the advantages that demands for its services have increased steadily. The office is divided into ten departments, each dealing with a separate branch of the Society's building activities; each department is under the direction of an architect. In charge of the entire group is Eskil Sundahl, a man whose high professional standing in Sweden is unquestioned. His ten subordinates enjoy a remarkable degree of liberty and responsibility, functioning as a group only when major questions of an economic or technical nature come up. This book—printed, incidentally, in the Society's plant—deals with the work of these men. That this work is remarkably good is apparent instantly. Country stores look like what they are: simple wood frame construction is characteristic of nearly all of them, and they are modern in that they are clean, rational, and unembellished by "architectural" motives. As arrangements of selling space they are models that might be followed with profit. The building of factory groups at some distance from town led to a study of housing for workers, and this in turn has led to experimental production of chairs and furniture, glassware, and other household goods. All of these expanding activities are represented in the book. One criticism might be made: the compilers, perhaps assuming that the Swedish cooperatives are as well known in England and America as the deserve to be, have omitted much that would have been of interest. The outline of the cooperative organization might have been treated more fully; stock drawings of shops and store equipment might have been reproduced in larger numbers. An much material of a technical nature, valuable because of the immense amount of research and experimenting behind it, might well have been included. But these are after all slight omissions, and the book as it stands is an excellent, if tantalizing, record of some of the finest commercial and industrial work that is being done in the world today.

OSPEDALI by Bruno Moretti. Ulrico Hoepli, Milan, Italy. 91 buildings with illustrations. 292 pp., 306 plans and other drawings. 9 x 11, 120 lire.

This new book on hospitals is the second of a series dealing with present-day buildings. It has a preliminary section devoted to theoretical problems, and the designer of hospital buildings discusses many types with the aid of comparative plans, summing up with considerable completeness the available data. America is represented by the Medical Centers of New York and two or three other large hospitals. The European structures include some of the happiest expressions of modern architecture which have yet been seen. Cantilevered balconies and large expanses of glass characteristic of reinforced concrete construction are frequently and fittingly used, and many of the planning problems have been solved with great ingenuity. Italy is, of course, very completely represented, and in general most creditably.

The completeness with which the subject is presented, and the advantages of having the latest examples of hospital design throughout the world collected in one volume make it well worthy of serious consideration. It contains a bibliography for those who wish to go into the subject more completely, and is well indexed.

MANUAL OF ACCOUNTING FOR ARCHITECTS by the American Institute of Architects. Standard Document No. 978. 91 x 6.

This book has been prepared by practicing architects, and follows closely the standard textbooks on the subject. Its purpose is to indicate the procedure of keeping accounts and to describe a practical system which will record the usual financial transactions of the architect's practice and will present essential cost data. It deals very briefly with the theory of accounting, restricting itself for the most part to the method of keeping these books. A most valuable part of this manual is the series of bookkeeping and accounting forms included, covering all the forms of which the architect is likely to have need.

As a service to interested readers, THE ARCHITECTURAL FORUM will undertake to order copies of foreign books or others not conveniently obtainable locally, which have been reviewed in this department. Checks and money orders to be made payable to The Architectural Forum.

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VARNHOLMEN: FACTORY AND HOUSING GROUP OUTSIDE OF STOCKHOLM
THE NEW CENTRAL PARK
ZOO

DEPARTMENT OF PARKS, CITY OF NEW YORK, ARCHITECTS
AYMAR EMBURY, II, CONSULTING ARCHITECT
GILMORE CLARKE, CONSULTING LANDSCAPE ARCHITECT
Two considerations governed the design of the New Central Park Zoo in New York City. First was the presence of the old Arsenal; second was the necessity of using relief labor, which meant that only basic materials could be used. Since brick is one of the cheapest of basic materials, the problem of harmonizing the new group with the Arsenal was automatically solved, and the result is a series of low, plain buildings, contrasting agreeably with the jagged skyline of mid-town New York. Work began in February of 1934, and by December of the same year the project was completed, something of a record for work done with relief labor.

The problems attending the design of a group of buildings for a large number of animals did not exist in the Central Park project. The Zoo has no funds with which to buy animals, and must rely on gifts to fill out its collections. These, therefore, make no pretense to completeness and the aim of the Zoo’s directors is to show specimens of the more common animals and birds, rather than to present groups for study. The animals are for the most part well-housed, and the ventilation throughout is excellent. The character of the collection indicates that the primary function of the Zoo is to provide a pleasant gathering place where a few animals provide the attraction; wide promenades, an open court, benches, and a low-priced cafeteria with an outdoor dining terrace are some of the features which have made it popular since it was opened.

It is in the attitude of the Park Department as revealed by this project that the Zoo’s greatest significance lies. There is a growing recognition of the fact that open park space is not in itself enough for recreation. In Europe few parks exist where cafes and restaurants cannot be found, and the success of the cafeteria in the Zoo is an indication that the idea is a sound one for America. The Central Park Zoo is much more than a collection of animals: it is an important contribution to better living in a big city. For this achievement credit is due to the city’s social-minded and energetic Commissioner of Parks, Robert Moses, and to his capable assistants.
1. The arsenal
2. Bird house
3. Zebras, llamas, etc.
4. Camel, buffalo, etc.
5. Antelopes, deer, elk, etc. (south side)
   Small animals (north side)
6. Garage
7. Offices
8. Animal food kitchen
9. Elephant, hippopotamus, alligators
10. Restaurant
11. Women's toilet
12. Bear dens
13. Men's toilet
14. Lion house
15. Monkey house
16. Sea lion pool
17. Monkeys
18. Birds
These three exteriors show how consistently the small scale of the buildings has been maintained. 1. The information booth which is repeated on the other side of the path. 2. Service quarters. 3. Entrance to Monkey House. 4. Interior Lion House. 5. Interior Monkey House.
GENERAL

NATURAL LIGHT—Overhead lighting is most desirable as spectator gets a glareless view of animals. If skylights cannot be installed, windows should be placed as high as possible.

ARTIFICIAL LIGHT—Indirect light is preferable. Where direct lighting is used, the light source must be placed close to ceiling to avoid shadows and glare. Spot lighting may be used in certain cases where it is desirable to dramatize the beauty of the animal.

VENTILATION—Power ventilation is necessary for all buildings in addition to natural ventilation through windows and doors. It is important to arrange ventilators in windows so no draft endangers the health of the animal. (See Ventilation in "Monkey House").

HEATING—Required temperatures for different kinds of animals are listed below. Steam heat is the best suited system. Radiators must be placed so that radiation provides an equal temperature distribution in the cages. (See notes below under "Floor Heating").

WATER—Built-in porcelain enameled drinking fountains with running water, sizes given below. They must be easy to clean and special care has to be taken with overflow and drainage.

Sufficient water faucets at frequent intervals because cages have to be flushed often. To create natural rain conditions showers should be installed in the cages and stalls of all animals; they like it and they keep themselves much cleaner.

DRAINAGE—Waste pipes to be five or six times the normal size (see "Drainage" below) to avoid congestion from hair, dirt, etc. No traps are installed, the main sewage lines receive ball valves.

KEEPER'S WALK—A space in front of cages about 3 to 4 ft. wide (see below) is provided for the dual purpose of keeping the spectators from cages and giving the keeper an unobstructed passage.

MOATS—Where conditions allow, moats as a separation between animal and spectator are preferable to heavy iron fences. The unobstructed view tends to give some impression of the animal in its free state. (See sketches below.)

LION HOUSE

ANIMALS HOUSED—Lion, Tiger, Leopard, Hyena, etc.

SIZE OF CAGE—indoor: 10 x 10 ft., 9 ft. high, outdoor: 10 x 10 ft., 9 ft. high.

TYPE OF BARS—cold rolled steel, 3/4" diameter.

SPACING OF BARS—3" on centers, 2" between cages.

TYPE OF FLOOR—in door and outdoor cement, smooth finish.

FINISH OF WALLS—ceramic tile.

SIZE OF DOOR—2 ft. wide, 4 ft. high.

TEMPERATURE—winter, 70° to 75° F.

FLOOR HEATING—floor has to be kept in room temperature so it dries quickly after washing.

DRAINAGE—5" to 6" waste line.

EQUIPMENT—scratching post, wooden bench 1 x 1 ft., 6" deep drinking fountain, removable food trough.

KEEPER'S WALK—distance between cage and spectator—3 ft. 6".

MOAT—10 ft. deep, 21 ft. wide, filled with water, water level to be 5 ft. below level where spectator stands. (See sketch 1.)
ONKEY HOUSE

Ily for smaller species. Gorilla and orang
en require special cages. Most species are kept indoors in northern climates, each
one has to be kept in a separate cage.

PE OF BARS—cold rolled steel, ½", ¾"
diameter, depending on size of monkeys.

SPACING OF BARS—8" to 10" on centers
depending on size of monkeys.

IRE MESH—½" square between cages.

TYPE OF FLOOR—cement, smooth finish.

NISH OF WALLS—ceramic tile.

TEMPERATURE—winter—75°F, summer—78°F.

DOOR HEATING—floor has to be kept at

75°F for tropical birds

and camel require 65°F in the winter.

WADING POOL—4 x 10 ft., 3 ft. deep.

DRAINAGE—6" drain pipe.

EQUIPMENT—galvanized iron removable food
trough, drinking fountain 1 x 2 ft., 12" deep.

KEEPER'S WALK—Distance between spec-
tator and cage—6 ft.

MOAT—6 to 8 ft. deep, 15 ft. wide, filled
with water, water level to be 5 ft. below
level where spectator stands (see sketch 3).

BEAR DEN

The same arrangement for Brown Bear as for
Polar Bear. They are kept in the open
throughout the year. Sloping ground is pre-
ference where rocks can be arranged natu-

rally.

SIZE OF AREA (approximate)—50 x 50 ft.
for four or five animals.

TYPE OF BARS—cold rolled steel, ¾" dia-

meter.

SPACING OF BARS—12" on centers.

HEIGHT OF BARS—8 ft. the top of the bars are curved inward extending 2 ft. and
are sharply pointed.

POOL—for Brown Bear, 6 x 10 ft., 6 ft. deep.

DRAINAGE—10" drain pipe

EQUIPMENT—tree trunks, rocks.

MOAT—9 ft. deep, 12 ft. wide. Water level
to be 5 ft. below level where spectator
stands. (See sketch 3.)

ELEPHANT HOUSE

As a rule only female elephants are kept in
zoos since bulls are harder to handle.

SIZE OF CAGE—18 x 20 ft. for one, height
20 ft.

AREA OF RUN—approximately 3,000 sq. ft.
for one or two.

TYPE OF BARS—cold rolled steel, 3" dia-

meter, 12 ft. high. Steel of the same type
for railroad rails has to be used for cages
for bull elephants.

SPACING OF BARS—12" on centers.

TYPE OF FLOOR—indoor: cement, outdoor:
sand.

FINISH OF WALLS—cement-covered.

SIZE OF DOOR—5 ft. wide, 8 ft. high.

TEMPERATURE—winter—70 to 75°F.

POOL—12 x 18 ft., 6 ft. deep, 25' ramp.

This pool can take up most of the area of
the indoor cage.

KEEPER'S WALK—Distance between spec-
tator and cage—6 ft.

MOAT—10 ft. wide, 8 ft. deep, water level
to be 5 ft. below level where spectator
stands. (See sketch 3.)

HIPPOPOTAMUS

The cage can be located in elephant house.

SIZE OF CAGE—15 x 20 ft.

PODEA—10 ft. x 10 ft., 20 ft. deep.

TYPE OF BARS—cold rolled steel, 2½" dia-

meter, 6 ft. high.

SPACING OF BARS—12" on centers.

TYPE OF FLOOR—indoor: cement, outdoor:
sand.

SIZE OF DOOR—5 ft. wide, 6 ft. high.

TEMPERATURE—70 to 75°F.

POOL—12 x 18 ft., 6 ft. deep, 25' ramp.

This pool can take up most of the area of
the indoor cage.

KEEPER'S WALK—Distance between spec-
tator and cage—3 ft. 6".

MOAT—10 ft. wide, 8 ft. deep, water level
to be 5 ft. below level where spectator
stands. (See sketch 3.)

ALLIGATORS AND CROCODILES

CAGE—indoor: 12 x 25 ft., outdoor:
30 x 30 ft. for ten to fifteen animals, depend-
ing on size.

TYPE OF BARS—cold rolled steel, ½" dia-

meter, 11" on centers, 4 ft. high.

TYPE OF FLOOR—indoor: cement, outdoor:
sand.

SIZE OF DOOR—3 x 4 ft.

TEMPERATURE—winter—80°F.

POOL—40 x 50 ft. for six to twelve animals.

STANDING room temperature, so it dries quickly after

washing.

DRAINAGE—5" drain pipe.

SEA LION POOL

Sea Lions stand a moderate climate better
than Seals, which are used to the colder
climate of Labrador. Both kinds can live
in fresh water as well as in salt water.

They are kept outdoors throughout the year.

POOL—40 x 50 ft. for six to twelve animals.

STANDING room temperature, so it dries quickly after

washing.

DRAINAGE—5" drain pipe. Water trough 2 x 2 ft., 2 ft.
deep.

KEEPER'S WALK—Distance between spec-
tator and fence—3 ft. 6".

SMALL ANIMALS

Fox, raccoon, porcupine, opossum, etc.

SIZE OF CAGE—indoor: 6 x 10 ft., outdoor:
10 x 10 ft., height 6 ft.

TYPE OF BARS—cold rolled steel, ½" dia-

meter, 2" on centers.

WIRE MESH—½" square between cages.

TYPE OF FLOOR—indoor and outdoor: ce-

ment.

SIZE OF DOOR—2 x 3 ft.

FLOOR HEATING—floor has to be kept at

room temperature, so it dries quickly after

washing.

DRAINAGE—5" drain pipe.

EQUIPMENT—wooden bench, drinking
fountain, removable food troughs.

KEEPER'S WALK—Distance between spec-
tator and cage—3 ft. 6".
TVÁ'S YARDSTICK FOR HOUSING

... is a cinder-block house costing from $2,325 for one story and four rooms to $3,150 for two stories and five rooms. Brick veneer and frame houses, electrically heated and plywood paneled, are alternate at Norris, Tennessee.

by EARLE S. DRAPER *

HERE today and gone tomorrow is the life cycle of the average construction camp. The wreckers appear almost before the last builder is out of sight. This means waste, usually unavoidable, but waste nevertheless. At Norris, Tennessee (named like the dam it serves for the insurgent Senator from Nebraska), the circumstances seemed favorable to the establishment of a permanent town. The probability of the development of small local industries and craft shops; the need of housing facilities for the various forces engaged in reservoir protective work, such as forestry and erosion control; the operation, maintenance and administration of plants and properties in the reservoir area, and other TVA activities, together with the probability that the Norris area will develop as a tourist and convention center—all establish a need for a continuing, modern home community after the completion of the dam.

The building of Norris was a progressive development in more ways than one. All through the construction period plans and methods were constantly being revised and developed with the aim of producing better and cheaper houses. The fact that Norris was built during a period of rising construction costs helped to stimulate the search for cheaper methods. Thus, Norris was built in three stages, each representing a somewhat different approach to the low cost housing problem.

The first group of 151 houses at Norris were built from about a dozen basic types of plans ranging in size from two to six rooms, all of them of frame construction, though many are brick veneered and all are completely electrified. The second group consists of 80 cinder-block houses of unusual construction which will be described later. The third group is based on three types of four-room houses of frame, cinder-block, and stone construction. In addition to these, ten duplex and five four-to-eight-family apartment houses were built and some two dozen farm houses on TVA property were modernized and repaired.

Before starting any building plans, the local conditions and customs were explored by members of the TVA architectural staff. Photographs and studies were made of the characteristic houses of the region. And the people—particularly the womenfolk—were interviewed and consulted in order to determine the functional relationship between the house and the local mode of living.

Prior to completion of the new TVA "freeway," one of the early problems at Norris was the transportation of building materials. Lying in a rather remote section away from paved highways, it was necessary to weigh the bulk as well as the fitness of the various materials to be used in the houses. This is one reason for the use of lighter materials than plaster for interior wall finish, and also for the use of brick veneer walls rather than solid ones. Other reasons were the slow drying out of plaster and the relatively deep space for wall insulation between the wooden studs.

TVÁ houses are intended to supply neither thrills nor frills. They are straightforward, simple designs, well suited to the locality and the people—inefficient to build, easy to maintain and comfortable to live in. Trim, for instance, is sparingly used. In the design of entrances, mantels and so on, only stock moldings are employed, and the results obtained have been surprisingly distinct and good looking. Halls are reduced to a minimum through careful relationship of rooms. The rooms are not large, but in many cases are supplemented by porches which add space inexpensively. Generous windows and expansive views prevent any feeling of cramped quarters. Most attics are made accessible by means of stairs, which though narrow, make the attics far more useful than if only celotex scuttles were provided, as in most low cost houses.

Basements were eliminated from TVA houses. Electric heat makes space for a central heating plant and fuel storage unnecessary. Furthermore, the Valley people do not consider them important or even desirable. Because foundations in this climate need not extend more than in, below grade, an appreciable saving results from the omission of basements. The fact that, according to first underwriters' records, basements are the most frequent source of fires in dwelling houses also was considered.

The actual costs of TVA fully electrified houses at Norris range from $83,896 for a three-room brick-veneer house to $87,212 for a six-room house. The cinder-block house range from $83,325 for a four-room, one-story house, $85,150 for a five-room, two-story one. In the last group of 49 one-story, four-room houses built at Norris, costs range from $82,675 to $83,000.** These costs include all construction overhead and water and sewer connections to street mains.

Rents at Norris range from $12 per family per month for a duplex type house to an average of $80.38 for the fully electrified houses of the first group. This rental is based on a 7 per cent gross return on the cost of the town after deducting the equivalent cost of a construction camp.

After the construction of the dam it is expected the lease-holds for commercial and industrial purposes will pay a large share of the taxes and administrative expenses at Norris, so that the houses will pay only their normal share of this burden. Sir Raymond Unwin, for instance, says that the residential section of a well-balanced community should pay about one-third of the total taxes.

*Director, Division of Land Planning and Housing, Tennessee Valley Authority. Charles Barber and Roland A. Wank were the architects in charge of all houses.

**The above figures involve a number of unusual factors not normal to the construction of houses. Final allocation of costs on Norris Dam as yet to be determined. Reducing the construction schedule on the Dam from four years to two increased the difficulties of delivering materials already accentuated by a ten-mile material haul from the nearest railheads.
A typical room in a TVA house has an oak floor; a wide plank wainscot extending up to the window sill line, and plywood panels above that point. Ceilings are of insulation type fiber board—all finished "natural." This room treatment forms an effective but unobtrusive background for almost any type of furniture and completely eliminates the bareness and cheapness so often associated with the interiors of inexpensive houses.

Any architect who has given his profane vocabulary a work-out while arranging wall board panels so that the finished surface will not look like a mesalliance between a jig-saw puzzle and a garden trellis, will recognize that by using this material as at Norris it is easy to confine the joints to room corners and the edges of openings where they are rendered unobtrusive.

The sinks used in TVA houses are of the combination type with sink and laundry tub in one unit. Space nearby is provided for the storage of an electric washer. With an electric washer, the kitchen becomes a logical and convenient place for washing clothes, and the deep tub is always handy for washing and preparing vegetables, rinsing out a few pieces of clothing, etc.

Although expert advisers and consultants were called in to aid in the layout of kitchens, no attempt was made to devise a "standard" or "scientific" or "model" kitchen applicable to all houses. If anything, these kitchens emphasize the fact that people living in the same environment do not necessarily all think alike, live alike, eat alike, nor accomplish their work through following the same exact methods of procedure.

This doesn't mean that TVA houses are designed without attention to any rule whatsoever. Certain definite principles of house planning have universal application in creating convenient, comfortable, san...
TVA houses. When the CWA asked Knox County farm people what repairs and improvements would be desirable if $500 were available, 24 per cent of them listed "porches"—and this in a region where it seems that almost every house already has a porch. But porches here are almost as useful as rooms, so TVA house plans usually contain at least one porch arranged in such a manner that it may serve various purposes—either living, eating, or sleeping; as the need may arise.

The porches are screened and may easily be glazed or enclosed with some form of glass substitute in winter, if desired. In
some cases a small compartment is partitioned off on rear porches to serve as a laundry, providing space for set-tubs, electric washer, soiled clothes closet, etc.

The sinks in TVA kitchens are placed either on an outside wall immediately beneath a window, or against an inner wall with a window at one end, at right angles to it. This provides for the two schools of opinion as to the best location for a sink, some women maintaining that a sink against an inner wall provides full utilization of wall space for built-in cabinets and reduces fatigue due to the glare from a window facing a sink; but many other women insist that to be able to glance outdoors from time to time, merely by raising the eyes, makes work at the sink seem less monotonous and tiring, and that in summer it seems to offer a cooler place to work.

As a group, the permanent TVA houses have perhaps been more thoroughly insulated than have any other low cost dwellings in this country or abroad. Electric heat, even in a moderate climate and at low TVA rates, cannot be wasted or dissipated if electric bills are to be kept within limits that are reasonable for wage-earners to pay.

Therefore, with the exception of the cinderblock houses to be discussed later — all exterior walls and all ceilings immediately below roof spaces are insulated with mineral wool. This in addition to the insulation board used for ceilings and, in some cases, for lining attics. First story wooden floors are insulated with aluminum foil between the joists.

Temperature tests run last summer in a number of houses showed that the differences in temperatures were negligible between insulated attics or upper rooms and those below.
The majority of TVA houses have low ceilings (7 ft. 4 in.) and high set windows. This gives the illusion of larger rooms and also provides space for furniture against the wall area beneath the window. In these cases cement paint is applied directly to the cinder-block surfaces, interior and exterior.

The ceilings of TVA houses are low — averaging about 7 ft. 4 in. — but the heads of the windows are placed close to the ceilings, thus insuring thorough air drainage from the upper portion of the rooms. The high-set windows also provide useful wall space for furniture beneath the sills. The low ceilings not only cut down construction costs, but make the rooms appear large, while making the houses easier to heat.

Many evidences of mingling the old with the new are found in TVA houses, both inside and out. For instance, the open, wood-burning fireplace — that oldest survivor of house heating devices — is often found in the same room with a built-in electric heater of the latest type. And these modern, insulated, steel-casemented houses are in most cases roofed with wooden shingles, rived by hand in the ancient manner.

These seeming paradoxes, however, represent a facing of reality rather than concessions to tradition or a romantic gesture toward picturesqueness. The fireplaces actually supplement the electric heaters, and the split shingles — as thick as boards — offer considerable insulative value; both reduce electric heating bills.

Too, an extensive CWA survey of Knox County, Tenn., shows that more than 70 per cent of the rural houses of the region have fireplaces. The making of hand-split shingles is a traditional rural occupation among many people of the Valley, and the opportunity to stimulate local employment was one not to be overlooked.

In this section, as in many other parts of the country, termites offer a constant threat to the durability of any wood-framed building unless thorough precautions are taken against such damage. Therefore, all TVA buildings—including the semi-per-
Board and batten house with entrance into living room, and bedroom with triple exposure at right. All wooden framework is kept at least a foot above ground because of termites. Screened foundation vents provide air circulation in the space between ground and floor. No TVA house has a basement.

This house built of shingle has the same plan as the house above with the exception of a higher ventilated attic. The differences in building materials and in the treatment of the porch are typical of TVA's efforts to prevent monotony of design in their settlement.

In order to speed up laying and to reduce

mangement - are built to resist termites. All wooden framework is kept at least a foot above the ground surface. Screened foundation vents provide air circulation in the space between ground and floors, and overhanging sheet-metal shields are built into all junctions between foundations and woodwork so that a continuous termite barrier is formed around the entire building — including the piers and posts.

The group of 80 cinder-block houses at Norris is perhaps the most significant contribution that TVA has made to low-cost housing. They are simple and easy to build, good-looking, unusually durable, sanitary — in short, they offer clean, comfortable, homelike housing accommodations at very moderate cost.

In this group the exterior walls are of 6 and 8 in. thick cinder concrete blocks, with 3 in. thick interior walls of the same material, except that second-story partitions are of V-joint shiplap, laid in a double layer. The floors are of precast concrete joist and slab construction and the roofs are of sheet metal. The insulative and fire-resistant qualities of cinder concrete are well known, and the roofs of these houses are thoroughly insulated with a 2-inch layer of mineral wool between the ceiling joists. The wall finish of the houses of this group is simplicity itself. Cement paint applied directly to the cinder-block surfaces of the houses — interior as well as exterior — produces a finish that is inexpensive, durable, attractive and easy to keep clean and sanitary. Interior trim is narrow, and the woodwork is stained natural. The metal roofs are painted to harmonize with the surroundings.

Considerable study was given to the improvement of the shape of cinder-blocks.
Wide board and batten construction with rough siding used for the gables. A screened porch at the rear may be used for dining or sleeping. An unusually successful plan with access from the small hall to every room including the bathroom. Each three rooms of the house has exposure on three sides.

This house which is almost identical with the one above is another example of TVA's efforts to break monotony. Here the front porch was cut off in order to save the tree standing by the entrance. This slight change gives the house an entirely different character.

the percentage of joints, a large size—12 x 24 in. face—block was tried out. But it was found that masons handling this over-size block soon became tired and the loss in efficiency offset the other advantages, so the large block was discarded in favor of the standard 8 x 16 in. size. A real improvement was effected, however, in eliminating solid through joints which cause much leakage in block walls. This improvement is effected by forming a deep indentation—about two inches—at one end of the block, leaving the other end flat. The projecting lugs at the indented end are placed against the flat end of the next block in the course, thus forming an air space. By breaking off a lug, a ½ in. deep offset is provided as a wind and water break around openings in the wall.

In some TVA low-cost houses, partitions have been made of two layers of matched boards with beaded joints—one side a horizontal layer, the other vertical. Another space-saver is the use of copper-bearing wrought iron pipe, with threaded connections, for soil vents, thus largely eliminating the need for thick partitions.

There is a real need for the development of a foolproof fully automatic humidifier for use in connection with electric heaters. In several Norris houses the toilet float was connected to the evaporating pan by means of small diameter copper tubing.

Considerable difficulty was experienced in the selection of lighting fixtures for the first houses. Commercial fixtures for the lighting of stores and offices without glare were available, but these were hardly suitable for homes, so a number of fixtures were specially designed and made by hand at low cost in one of the colleges in the mountains of North Carolina.
A typical living room showing the screened porch to the rear. The advantage of the high set window is clearly expressed by the couch comfortably placed beneath it.

The fireplace has been retained. This is not merely a gesture toward tradition but actually supplements the electric heaters, thereby cutting electricity costs, an important consideration.

In general, the sink with its built-in cabinets for dishes, packaged foods, etc., is considered the work center. The electric stove is set to one side of the window to avoid glare.
Hotel Torni, Helsingfors.
Architects: Jung & Jung.

The tower system of hotel building, deservedly popular all the world over, is doubly advantageous in a city between the forests and the sea.
Located in the sparsely peopled region of forests near Oulu on the Bothnian Bay, the O. Y. Toppila Sulphate Pulp Mills stand out as a monument to enterprise in the Far North.

Architect: Alvar Aalto.
A coöperative flour mill and silo for sifted grain at Viipuri.

Architects: Valde Aulanko & Erkki Huttunen.
In Finland, where the relative scarcity of older architectural features has facilitated the triumph of functional solutions over decorative work, a harmonious effect is largely attained, in industrial architecture in particular, by simple means, generous outlines, and an apt utilization of the surface influence of materials. The suggestiveness of these immense towers of poured concrete cannot be ignored.
Observe the trolley-course, through the building, from sitting-towers to trucks.

The main street-front is across the top of the diagram.
Itself resembling a gigantic liner with a wealth of decks and funnels, this imposing edifice occupies a commanding position in the city harbor. In a land of long winters, the storage of flour is a matter of national moment.
The Lalluka Artists' Home, Helsingfors.

Architect: Gösta Juslén.

In the short days of the northern winter, it is up to Finnish artists to get what light they can. This window merging in a skylight seems a particularly happy solution.
Whether employed as a studio or as a living-room, this apartment can claim both aesthetic and utilitarian assets. The half-exposed staircase, continued downwards on the right, needs no apology for passing through the premises.
Day-room in the Paimio Sanatorium for Consumptives.

Architect: Alvar Aalto

Thanks to an exemplary heating-system and minute precision in regard to the closure of the gigantic windows, all available sunshine can be exploited without impairing the warmth of the premises when the snow is thick outside. The concertina screen of flexible material shuts off light and sound if need be. The atmosphere of clinical cleanliness is enhanced by both architecture and furnishings.
A concrete fortress of health in the heart of the forests, the ideal cure-house for a greater number of patients.
External View of the Mortuary Chapel at Parainen.
Architect: Erik Bryggman.

Severely unassuming in its total lack of any attempt at adornment, there is pathos and piety in the aspect of this pure whitewashed structure, whose simplicity is strikingly typical of the primitive faith of a northern people unused to camouflage the stark necessity of death.
Within, the effect of a single window, shedding its light upon the bier, is poignantly symbolic.
Bath House, near Helsingfors.
Architect: Oiva Kallio.

Lumber is even now Finland's main building material for rural purposes. There is something extraordinarily appealing about this log-cabin with its thatch of grass and flowers. Many features of the old peasant house are here preserved.
EVEN THE BASE OF THE OLD-WORLD STOVE IS FASHIONED OF WOOD, AS IS THE ENTIRE INTERIOR OF THIS "SHIPSHAPE" CABIN.

THE BATH-HOUSE IS A CUSTOMARY APPENDAGE TO THE TYPICAL FINNISH FARM. THE PREFERENCE FOR INDOOR BATHING IN A LAND OF LAKES MAY BE EXPLAINED Climatic Considerations.

SECTION, SHOWING THE POSITION OF THE BATHER. THIS METHOD OF BATHING IS CENTURIES OLD.
Architects: Valde Aulanko & Erkki Huttunen. Coöperative store building at Terijoki, a small seaboard town close to the Russian frontier. The coöperatives are the backbone of retail business in Finland, as they are in Scandinavia. In the place of half a dozen more or less primitive stores, many a Finnish village boasts only its coöperative, which, however, is almost without exception neat, handsome, and progressive.

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COMPOSED AND ARRANGED IN FINLAND
Repeal created the need for smartly designed bars for the sale of drinks, and shops for the sale of wines and liquors. Hotel men and restaurateurs, wherever the law allowed, began building bars and new dining rooms or redecorating or remodeling old ones. In the last two years, they and the architects and designers they employed, achieved considerable success in the solution of the new bar as a design problem. But shops and stores for the retailing of liquor have seen little progress in decoration, design or architectural treatment. The simple formula of lots of shelves, lots of light, a cash register and a counter was considered sufficient. When the young firm of Bates and Schoonmaker opened its Manhattan offices, however, it demanded a less simple and superficial treatment. Fundamentally the architect’s problem lay in the organization of a greatly restricted area and in the creation of an appropriate background for modern merchandising of a very special type.
The elimination of all non-essential a color scheme of stark simplicity (color throughout, see technical no p. 194) and a pleasing sense of spa achieved in spite of an actually small area, result in an atmosphere at variance with the jittery confusion 42nd Street just below. Contrasting with the dark wood paneling and heavy clumsy furnishings of the traditional wine selling and tasting establishment these rooms are in sympathetic accord with the clean unaffected principles and constitution of the wares sold.
"Bottled wine should ALWAYS be stored in a horizontal position, so that the wine touches the cork." This accounts for the fact that no wines are on open display in the selling room. A small group of wines under immediate consideration is removed from the storage bins behind the aluminum doors and stood on the middle level. As the selection is narrowed down to one or two or more wine bottles are isolated from the others, placed on the low shelf and a conclusion reached by the customer with a minimum of confusion. With several hundred different wines in stock, obviously necessary to simplify selection by concentrating attention on one wine group at a time. A compact refrigerator which in a half hour can chill to the lowest temperature, required fits conveniently under the drainboard of a metal sink. A glass cabinet (removable) fits between the sliding door and the sink trap.

The viticultural maps are a necessary part of the equipment. Glasses appropriate for the serving of each wine may be placed on the top shelf in a position relative to the wine on the shelf below.
Here is where the serious business of tasting takes place after preliminary discussion at the "bar" at the opposite side of the room. Naturally not every purchase is pre-tasted. In the case of rare or costly wines a day is usually set when a group of interested prospective customers may attend the tasting of a particular wine. Also in some cases a light luncheon or certain special foods in conjunction with certain special wines are served at the small table shown above. Ordinarily, however, the method shown at the right is employed.

Trade periodicals and a small wine library are shelved above the leather seat. Their bright colored bindings and the gay colors of the wine maps are the only notes of positive color in the room, a legitimate dramatization which forces attention on the bottle under consideration. The use of the cushioned seat to help create a sense of leisure was not accidental. Whisky may be gulped on the run but not wine.

Although Bates and Schoonmaker operate under a wholesale license, this merely means that all wines must be delivered, and does not restrict the sale of small quantities or single bottles. The selling technique employed is based more upon retail sales, rather than large wholesale orders, and the intimate and personal nature of the offices is a direct reflection of this policy.
The plan required that there be three definite parts: 1. A space for two girls, secretary and stenographer, which space would also act as an entry and waiting room. This space must have outside light for the workers. 2. A private office for Messrs. Bates and Schoonmaker, to accommodate two clients, must be directly accessible to entry and secretary and also the Tasting Rooms. 3. A general sales space and tasting area. This should be accessible to the entry and the private office.

COST—About $1,650 including furnishings.

DEMOLISHING—and removing about 400 sq. ft. of 5" tile wall, removing radiator enclosure, lighting fixtures, all cornices, moldings, base boards and projections.

NEW WORK—WALLS—construction of approximately 550 sq. ft. 3" gypsum block wall plastered on both sides, patching walls and otherwise making all walls smooth, patching after all electrical work. 3" run cement base, on new and old walls.

DOORS—flush metal trim and bucks of smooth hospital type. Doors, flush white pine, built by carpenter with 1/4" plywood on stock-mill door (about one-third cost regular flush door).

RADIATOR ENCLOSURE—top of 1 1/2" white pine varnished (Valspar) with 1/4" aluminum strips, see detail—radiator and recess painted flat black.

SEATS, WARDROBE, DESK TOPS—white pine, Valsparred.

VENETIAN BLINDS (Watson Mfg. Co.)—natural wood, Valsparred, black ribbons.

STEEL FILES (National)—black, chrome hardware.

FLOOR—covered with terra cotta color linoleum, waxed. All floors same color.

ILLUMINATION—all indirect by built-in strip lighting, except in private office, where a special fixture in satin chromium was used (Egli Co., who also made the lamps).

CHAIRS—satin finished chromium, black lacquered wood parts, leather upholstery—natural color leather—all by Thonet.

PAINTING—ceilings, all in sunflex, pink white except in entry which is lemon yellow. Walls all stippled oyster white. Base paint to match floor.

HARDWARE—stock, satin chromium finished. All new doors equipped with flush handles because of compactness to avoid traffic bumps. Ordinarily these handles would be criticized as impractical but after a few months of use no objection has arisen.

PLUMBING—including sink and faucet all work and materials. INCO C-2048L and non-suction trap.

REFRIGERATION—Norge Model S-310.
AND SOME EATING PLACES

BARS

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Built over a decade ago, the Heering Liquor Pavilion in Copenhagen has a freshness of design and that rare quality of style which continues to deceive visitors into thinking that it is one of the newest buildings in the city. While obviously "modern" in the sense that it has no recognizable precedents, it nevertheless has the strong individuality which is characteristic of Scandinavian work and is one of its greatest charms. The architect, Helweg-Moller, long known as one of Denmark's most gifted architects, not only designed the building, but did all of its accessories, such as the furniture and the very successful lighting fixtures. The pavilion is of white stucco with a gray marble base; its windows, with black metal frames and silver-painted grilles, can be raised into wall pockets, thereby opening the pavilion almost completely. The interesting concave shape was not arrived at for esthetic reasons, although it looks very well, but was used to save an old tree on the property. The murals were designed to preserve the integrity of the plain wall surfaces, and illustrate the products that go into the manufacture of Heering's liquors; they were painted by the Danish sculptor and ceramic artist, Jais Nielsen.
The long clean lines of this new bar in the Empire Hotel in New York have been given emphasis by the refreshing simplicity of the room. The bar face, with its covering of bright orange fabrikoid sets the color note, echoed in the lighter portions of the linoleum floor. Both the footrail and bar edge are of brass, and bar top is mahogany. The back bar is white fabrikoid on which designs in strips of chromium-plated metal, conceived and executed by Ted Weidhaus, have been applied. The portholes and grilles which form part of this decorative scheme are used for air conditioning. The main lighting fixture consists of three separate tiers of glass which run the length of the bar; lights are concealed in a pocket in the ceiling. The upholstery of benches and chairs is a green-blue fabrikoid, and the yellow walls with a black base complete the color scheme of the room.
This new cocktail lounge is designed to serve food as well as liquor. In addition to the chairs and tables in the center of the room there are ten booths, each accommodating from eight to twelve people, and equipped with special ventilation. Illumination is furnished by two chromium light troughs, each 60 feet in length. Other lighting, also indirect, is furnished by neon tubes.
lighting in this room dominates the decorative scheme. Behind the frosted glass plates are reflectors concealed light troughs in which a series of bulbs of three colors are set. These are controlled from thestra platform, and by means of switches and rheostats almost any color or light intensity may be obtained. The general color scheme is blue; the ceiling is a deep blue, the backgrounds of the murals are tions of the same color. The mirrors, set on the columns, are dark blue with gold foil moldings. The paintings, depicting the various national dances, are in a number of colors which are picked up in the upholstery, carpets, and draperies.
The successful use of two new products characterizes the new Tea Room in the Hotel Taft. Structural glass brick appears as the main material in the soda fountain, employed in a manner which realizes some of its many decorative possibilities; the use of mirrored backs gives great depth and brilliance to the blocks, and the ease of cleaning its surface is an added point in its favor. The new lumiline lamps which were brought out last winter form the chief light source of the room; their use in conjunction with the aluminum leaf-covered ceiling is very effective. This type of lamp has been in common use in Europe for a number of years, both in straight and curved forms, and its introduction in the U. S. will undoubtedly result in a number of interesting developments in decorative lighting. An amusing series of murals by William Gropper, based on the Georgian period in England, cover the walls of the room. The gaily colored painting was done directly on the lacquer wood walls.
HE UPKEEP OF HOUSING

in the U. S. is twice what it is in Europe. It need not be, the opinion of Frankfort’s onetime housing czar, who lays own seven different methods of reduction.

ERNST KAHN

THE ardently discussion of how to approach the huge problem of low cost housing there is just one rather important person who seldom is consulted: the future administrator or manager of all the wonderful houses the reform dream of. This omission may turn out to be the hole in the dike, for success or failure is vastly dependent on how it is administered.

In fact the real problem only starts when the architect has his job. The task of the administrator is difficult and far-reaching because of a fundamental distinction between his function and the business of the ordinary property manager. Whereas it is up to an efficient manager to secure for his boss as high a return as possible, the manager of those new low cost housing developments all have in mind can never forget the noble aim of the rehousing movement they are supposed to serve. The outlay of many billions, partly out of the taxpayer’s pocket, hardly would be justified, if rehousing were to confine itself to replacing old structures by new ones. Rehousing in a broader sense aims at producing a new generation, fundamentally happier and better than the old one through the instrument of a home contrasting the hopelessly insufficient, overcrowded, ill-planned dwellings of our days with shelter not only at lower rents, but more space, light, and amenities, but also by the encouragement of a sound community life.

But a satisfactory conception alone of the management problem will scarcely guarantee success. Rehousing is bound to fail unless based on sound business principles and unless the management is aware of the profound shortcomings in human nature. The tenant seldom is an angel; he has to be guided diplomatically, educated, sometimes forced into the right way.

Again and again one has to keep in mind that housing is no charitable institution. Unless the capital invested in housing can expect at least a moderate return, and unless in the course of the years sufficient reserves are accumulated, no housing scheme will work. No country is rich enough to establish and carry through a program large enough to meet its citizens’ housing needs, if not primarily calculated to be self-liquidating.

U. S. Rents Based on Double Interest and Profit on Invested Capital

The calculation of rents varies widely in different countries. No matter how ingenious he may be, a manager can alter certain items only with difficulty, if at all. Others vary widely with the efficiency of the individual administrator. To illustrate both the chances and the limitations of reducing the expenses of low cost housing we may start with a somewhat crude comparison of European and American charges in housing. Such a compilation simultaneously may explain why rents in this country so vastly surpass those in Europe. It goes without saying that the instances given apply by no means to all actual developments. The table does not claim to offer any kind of “scientific” average. It just attempts to show the characteristic differences in dealing with low cost housing on both sides of the Atlantic.

RENT CALCULATING IN EUROPE AND U. S. (BASED ON TYPICAL CASES)

<table>
<thead>
<tr>
<th></th>
<th>U. S.</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest on invested capital</td>
<td>8.5%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Depreciation on invested capital</td>
<td>4.2%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Repairs on invested capital</td>
<td>1.3%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Management on invested capital</td>
<td>1.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Taxes on invested capital</td>
<td>2.2%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Losses on vacancies on invested capital</td>
<td>0.7%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Losses on arrears on invested capital</td>
<td>0.3%</td>
<td>1.0%</td>
</tr>
<tr>
<td></td>
<td>16.5%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

Interest rates have started downward in this country, but similarly, European mortgage money is also cheaper for low cost housing (in England between three and three

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and a half, in Germany not higher than three). So that generally speaking capital invested in real estate yields twice as high a return in this country as in Europe. Since the cost of building surpasses the European level by 100 per cent, one easily understands the alarmingly high rents in the U.S.

Inexpensive Construction the First Element in Low Rents

Before exploring the possibilities of reduction in expenses we may observe that an administrator should use his influence to obtain as inexpensive construction as possible without endangering the durability of the project, realizing that any additional capital expenditure involves additional charges for interest and depreciation. This seems to be one reason (out of many) why the future manager should be consulted as soon as the drafting of the future development starts.

As to the current charges, there is comparatively little chance to cut down the interest rates prevailing in a country. This is primarily a question of more efficient organization of long term credit. It undoubtedly is beyond the power of an individual person to replace a say 8 per cent mortgage by a 4 per cent one as long as market conditions cause those high charges. Yet, this does not mean a complete impotence on the administrator's part. In the first place, a mortgagee prefers to lend his money to an efficiently managed property even if he must accept lower interest rates. The chance of bettering borrowing conditions will certainly improve if any form of government assistance is to be expected, and it is up to the administrator to show the authorities how essential lower interests are in housing the unprivileged. A difference of only 1 per cent may enable him to lower the monthly rent per room by 80 cents (based on a price of $1,000 per room). (Arch. Forum, August, 1935, p. 94.)

Depreciation Figured on a 60-year Instead of a 30-year Basis

The table on p. 203 shows a striking contrast in calculating depreciation on both sides of the Atlantic. European experts feel entitled to reserve not more than 2 per cent on the capital invested for depreciation, thus spreading the lifetime of the houses over a period of 60 years. There are cases where even a depreciation of 100 years is approved by the authorities (Germany). Frequently the depreciation only is based on the actual cost of structure thus leaving aside the cost of the land. In America one usually calculates rather above than below 2 per cent on the entire cost (including land).

This difference in method naturally has a significant influence on the rents. If based on a cost price of $1,000 a room, the adoption of Europe's method would bring the monthly rent per room down by $1.25. How is that strange discrepancy to be explained? Does the American way of building have a considerably shorter lifetime than the European technique? This does not seem to be the case. On the contrary, even the average American frame house is often of more solid construction than most of the English brick cottages.

It safely may be assumed that the quick depreciation generally expected in America is based not so much on poor physical structure as on the social structure of the country. There are plenty of instances in practically every American town where the influx of a race or a nation considered as inferior suddenly drives down the value of entire neighborhoods. This often is combined with overcrowding by proletarian elements who quickly run down the property. In Europe such depreciating influences do not exist.

Granted then that depreciation in America is wholly due to outside influences rather than to inherent weaknesses in the construction, the problem of retardation of obsolescence by the management becomes clear.

When Reform Accompanies Housing The Useful Life Is Longer

Low cost housing, rightly conceived, should automatically diminish practically all the dangers of a premature depreciation. First of all, housing reform cannot tolerate overcrowding. Further, one of the principal aims of American low cost housing managers should be to fight the quick shifting of the population and to insist on geniality of his tenants. In this point he certainly is in a decisively better position than the individual property owner who is powerless if his neighbors take in heterogeneous tenants causing a removal of the old established population in this particular section.

This danger point in American housing can easily be avoided if only one agency deals with the management and renting of an entire neighborhood. Influence of undesirable tenants, wholesale shifts of population, intrusion of non-conforming structures can be minimized, if not prevented entirely. In view of these virtues of large development, it seems unreasonable to insist on as large a depreciation reserve as 2 per cent. One to one and a half per cent should be adequate.

One often meets the objection that too low a depreciation rate may be dangerous considering the quick technical progress in our time and more especially in this country. This pessimism does not seem to be borne out by experience, as there are many older housing developments which still serve their purpose despite having gone through several technical revolutions. The most famous instance is the Fuggerei in Augsburg (Bavaria), a foundation which built row-houses for the poorer classes more than four hundred years ago, which is still serving its original purpose in a most satisfactory way, although the lighting system has changed successively from burning chip to candle, from candle to oil, from oil to gas, from gas to electricity.

An Annual Repair Fund is a Prime Essential in Keeping Costs Low

The third item in our table refers to "Repairs." Once more we find here an outlay twice as high as in Europe. To limit repairs to a tolerably low expenditure without endangering the property is one of the fundamental problems of any housing manager. The experience of some of the older demonstrations in Europe shou
rve as a warning. They show only too clearly that re-
pair expenditure may easily endanger the financial struc-
ture of a housing company. One should not be misled by
comparatively moderate requirements during the first
ears. After a period of fifteen to twenty years even model
structures sometimes require major repairs absorbing in
one year twenty and more per cent of the rent. One cause
of costly repairs can be eliminated: the architect should
not be given too free a hand in considering the new de-
velopment as carte blanche to experiment with all kinds of
ew ideas. Rehousing should not be hostile to progress,
it if it easily cause heavy losses if those experiments
out to be failures.

There cannot be any doubt that the most efficient safe-
agar against premature repairs is a solid structure. For
this reason the German low cost housing regulations de-
mand from the contractor a three year guarantee. Should
no repairs become necessary during this period, the con-
tractor is liable.

Right from the beginning a scientific management
ould establish a repair account and endow it regularly to
 matter how low the actual need may be for the time
.ing. Interest on the fund naturally accelerates an ac-
ulation of a sufficient reserve for forthcoming require-
ments.

The accumulation of such a repair fund simultaneously
elps towards the solution of another problem otherwise
t easily dealt with. The slow depreciation rate advo-
ced above frequently may contrast with a considerably
icker amortization, demanded by the mortgagee, thus
using a gap between income and actual obligations. The
repair fund, not required for many years, may fill this gap.
ther, when the actual repairs surpass the yearly assign-
ent out of the revenues, the amortization of said mort-
gees will have been completed. Thus the money bor-
owed by the amortization fund from the repair fund
can be easily redeemed when required by the rising ex-
enes for maintenance.

To be on the safe side it is good practice to strengthen
both the depreciation and the repair account out of ex-
ordinary profits whenever they may arise. Those spe-
ial profits are by no means out of the question in housing!
ill times the renting of stores yields a higher return by
he square foot than calculated, sometimes a premature
bursement of mortgages with a discount is possible.

Should Tenant or Management
ake Minor Repairs?

So far, in discussing methods of keeping repair costs
within certain limits, we have dealt only with the financial
ide of the problem. Important as this certainly is, re-
pairing is primarily an administrative and technical task.
The administrator must decide whether he has to under-
take any minor repairs or whether this should be left to
the tenant. There is, of course, no hard and fast rule in
lealing with this question. The decision is to a certain
derg depending upon local customs, the type of lodgers
one has to deal with, etc. As to the technical side, there
are wide possibilities. Again it is an open question whether
these repairs should be executed by one’s own staff or by
the trade. As a rule, it may be wise to steer a middle course
avoiding both overstaffing and too much contract work.

Keeping the structure always in good order not only
aves money, but pleases the tenant. This is of the greatest
importance as a contented tenant is the surest guar-
ance against abnormal repair expenses, because each
turnover involves heavy extra repair. European instances
ow how in times of a crisis and consequently serious
rinkage in income repairs required at least twice the
mount as in normal times because the heavy turnover
quired redecoration for most of the dwellings which
nchanged hands. One of the leading German housing cor-
porations figured out that each change in occupancy
equals the rent of fully one month. In America it may run
even higher.

Large Scale Management Reduces
The Estimated .8% for Overhead

The table puts the cost of management including all
other overhead expenses in this country at .8 per cent of
the capital invested as compared with only .4 per cent in
Europe. To base overhead expenses on the invested capi-
tal is a somewhat uncommon method, as they usually are
brought in relation to the rents. We select this method
in order to enable a better comparison with the other
items. Anyhow, we again arrive at distinctly higher
charges over here. This may be due partly to the con-
siderably lower compensation a European manager
receives. His salary sometimes seems to be in striking
contrast to the heavy moral and financial responsibility
burdened on the manager’s shoulders. This certainly is
the case in England at least where the female manager
has to live on an income not so very different from a
skilled laborer’s wage. Yet, the main reason why overhead
expenses compare unfavorably with Europe lies in the
smaller size of the developments. America, the classical
country of highly concentrated capital and consequently
huge units in industry, up to now possesses only a very
few housing companies comprising more than a thousand
housing units, whereas England, Germany, Austria and
Holland show instances enough where many thousands of
dwellings are under one management.

Vienna’s city-owned and centralized housing comprises
66,000 dwellings; in Birmingham (England) nearly half
of this record figure is handled from one desk; in Germany
one single corporation, inaugurated by trade-unions, con-
trols as much as 80,000 units all over the country, whereas
some local demonstrations in Cologne and Frankfurt
(Main) show some 15,000 each under one board. This
concentration naturally cuts the overhead expenses mate-
rially as an increase in the number of tenants does not
raise the staff accordingly.

The concentration of many units under one manage-
ment involves other advantages, the most important one,
as compared with smaller companies, being a certain
spread of the risk. These large corporations are in a posi-
tion to build different types of dwellings and single family
houses and apartments, smaller and bigger units, devel-
opments on the outskirts and in the center, cheap and
more expensive dwellings. Such a variety of types enables
the companies to act as a kind of a clearing house for their
clients. All these obvious advantages make a similar evolution highly probable for this country.

**Improved Housing Is in Itself a Weapon Against Vacancies**

The European housing expert, visiting this country, is at first amazed at learning the considerable losses on arrears and vacancies his American colleague considers as normal. Whereas the European model demonstrations claim that their average losses on rents are limited to 1 per cent of the rents, one again and again is assured that a loss of 5 per cent is considered normal (the contrast in vacancies being somewhat less pronounced). Gradually one grasps the reason for this striking difference. The tendency of shifting from one neighborhood to another obviously is much more pronounced in America than in Europe. This tendency undoubtedly leads to vacancies.

As to the higher arrears in this country, they may be principally caused by the absence of a compulsory social insurance protecting the workman and employe against the hazards of employment, sickness or accidents. In times of depression when many of his tenants lose their jobs, it is one of the major problems for a European housing manager to come to an understanding with the relief administration as to which of the rents of those out of work are fully or partly paid out of public means.

Such an understanding is much easier to be achieved if the authorities have to deal with a comparatively small number of large housing corporations, as compared with a multitude of single house owners.

**Combating the Ever-Present Problem of Rent Arrearages**

The prevalence of the latter type in America certainly is another reason for the abnormally high arrears. The landlord would rather run the risk of losing the rent than to have his dwelling empty, as the depreciation of vacant units sometimes is alarming. This is especially true with single family houses in slum districts. To the visitor from abroad one of the strangest sights is to see in distressed quarters houses uninhabited only a few weeks or months already deprived of their windows, doors or even roofs by some friendly neighbor who was short of fuel. It goes without saying that fear of these deprivations never would induce a European housing manager to follow a lenient policy in rent collecting, as dangers of that type do not confront large developments. On the other hand any experienced manager realizes the moral and economic dangers of rent arrears. He knows in the first place that it is harmful to the tenant to let arrears start, as it involves him in debt. That is why the very first delay must be dealt with energetically. There are many ways the problem can be solved. In many cases a mere warning persuades the slow tenant to find the overdue rent somewhere. Quite often, however, an investigation will show that he positively cannot pay the full rent any more and the family has to be moved, as a matter of common interest, to a cheaper shelter. This, of course, is much easier with a big company which has a variety of dwellings at its disposal. To collect rents weekly seems to be another effective method of keeping arrears down. Some European administrators succeeded in arranging the payment of rents in advance which naturally is, to a certain extent, safeguard against losses.

Manifold as the methods to fight arrears may be, they test a manager's abilities to keep the losses down to tolerable percentage. Even the most efficient is bound to fail if political or other influences interfere. No matter how social-minded a housing demonstration may be, rent have to be collected fearlessly if the project is to succeed.

To summarize: The essential point in solving the hiring problem for the unprivileged is low rent. Any activity in this field, therefore, has to start with the utmost effort to eliminate unnecessary charges.

**Tenant Associations a Frequent Cure for Operating Ills**

Granted cheap rents based on sound financing and efficient management the art of handling the tenant is the next most important quality in low cost housing. No measure should be omitted to make the tenant feel happy in his specific surrounding. He has to be convinced that the administration always acts in his interest and that even the punctual and full payment of rent is "must as it is the basis of social-minded housing.

To further such mutual understanding, permanent intercourse between both parties must be maintained. Obviously the manager of a large development is not in the position to deal personally with all the tenants' sorrows. But he can act wisely by constantly keeping in contact with representatives of his tenants. No matter how busy he is, he should visit typical dwellings regularly. Furthermore, he should encourage his clients to form associations and elect representatives to discuss their problems with him. Meetings of this kind offer a splendid opportunity for better understanding. As the manager learns the complaints of the tenant, the tenant easily becomes convinced that everything possible is being done to cater to his wishes. It is only one step further to induce the tenant to cooperate with the administration in saving money and even in educating and, if necessary, fighting disagreeable elements.

Tenant strikes obviously cause heavy losses and lower the development's standing in public opinion. The should not if the management establishes confidence. Here is an instance from our experience in Frankfort. One day, in the midst of the depression, the rather young Communist representative of a largely unemployed housing section announced his intention of starting a rent strike in order to fight the company which, he explained, the section considered a typical capitalistic proposition. My assurance that the company was managed exclusively in the tenants' interest was met with skepticism. Whereupon I offered to instruct his constituents and their friends in the elements of housing management based on the actual figures and facts of our corporation. They accepted my suggestion, the class began, my new pupil bringing along as much skepticism and opposition as possible. After the first two or three lectures of the course they admitted that a rent strike would positively be...
against their own interests. Furthermore, they requested me to continue the classes. Some of these opponents soon came my most devoted helpers in that specific housing situation. I, personally, would not confine myself to a loose operation with the tenant but would go much further offering their appointees one or two seats on the board of the housing corporation. The eligibility should be subject to certain conditions, such as a punctual payment of the rent, permanent tenancy, etc., in order to avoid the action of mere demagogues and professionals. These members of the board would be valuable advisers in many practical questions and most likely would assist the management more efficiently than other members of the board is familiar with the needs.

Families accustomed to poor housing conditions, living their lives in run down dwellings, may be inclined to treat the new surroundings no better than the old and thereby cause premature depreciation of the new houses. The danger clearly indicates the desirability of a certain guidance of the tenant’s life. Even a hundred percent business man without any social understanding can appreciate what harm his development is bound to suffer if the children are not offered kindergartens, playgrounds, etc. Children, being children, will damage the property if they are not dealt with properly and are retained within the apartments or compelled to play in narrow courtyards or on the roofs.

**Splitting the Cost of Community Activities with the Tenants**

Naturally, all improvements cost money and increased arrears. Any expenditure for community life has to be within the narrow limits of the calculation. As a rule, even in low cost housing seldom allow more than 1 percent of these rents to be spent for social purposes unless there are extra revenues; in some European cases extra profits, drawn out of the rents for stores, are put aside in order to finance community life.

The problem arises whether there are not other possibilities to secure the necessary funds. It will sometimes be possible to assure the cooperation of local social or religious agencies. In special cases the municipality may be induced to give its help. There is at least one American (Cincinnati) which lately offered at a cost of one million dollars a park with playgrounds to improve a certain number of years. Such an allowance can easily be counterbalanced by the advantages of permanent tenants. A family staying say ten years in the same flat and paying all minor repairs out of its own pocket, saves the owner as much as one to two years rent, as compared with five families staying only two years.

Each turnover requires considerable expenses for re-decoration and involves the possibility of temporary vacancy—quite apart from charges of advertising, paying the agent, etc., and quite apart also from the bad impression too quick a turnover leaves with present and would-be tenants.

The type of discount to be offered and when it should begin is a question of accounting. Naturally the rebate should never surpass the actual savings on repairs, vacancies, etc., by the permanent tenants as otherwise the budget would be endangered.

Similar effects may be achieved by a somewhat different reward; instead of actually reducing the rent, it might prove less risky to present the conservative tenant with a share in the corporation. For example, offer a discount of 5 percent granted on the rent after ten years. Based on an annual rent of $400, this would amount to $20. In case the discount should be increased by 1 percent at intervals of two years, the tenant would receive:

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Total after 20 years $280 in shares

From the company’s point of view this system may be preferable to the first one for these reasons: the actual revenues are not reduced as the tenant has to pay his full rent; the tenant receives a dividend on his share only if and as long as the company shows a net profit and can consequently afford it. Furthermore the tenant becomes a partner of his landlord which, from a psychological point of view, is certainly important. Finally the shares, which remain as a deposit with the management as long as the tenant stays with the company, may serve as a guarantee against arrears.

---

**Two Forms of Rent Rebates For Prompt Tenant Payments**

Considering the overwhelming importance of permanent tenants, special inducements and advantages calculated to retain them may be justified. Naturally, the most efficient instrument to keep turnovers within reasonable limits is a discount on the rent to be offered after a certain number of years. Such an allowance can easily be counterbalanced by the advantages of permanent tenants. A family staying say ten years in the same flat and paying all minor repairs out of its own pocket, saves the owner as much as one to two years rent, as compared with five families staying only two years.

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REMODELING

SHOE SHOP, TYLER, TEXAS
SHIRLEY SIMONS, ARCHITECT
By raising the vestibule one step and decorating it with flowing directional lines the architect endowed what had formerly been a commonplace shop with importance and chic. When the interior was remodeled the architect discovered an unattractive dark spot at the rear, a flaw in design which was cleverly eradicated by the installation of a lighted display case. The lines of the stacked shoe boxes on the wall, broken at intervals by small lighted display areas, tend to lead the eye to the more important display at the rear.

The entire interior of this old apartment house in downtown Manhattan was demolished, the old partitions were scrapped to make way for a new layout of which the main feature was the installation of an elevator. The exterior was shaved of the old-fashioned cornice and fluted pediments over the windows and the stores were flushed to the sidewalk where before they fronted on grated sidewalk openings. The new cornice motif is apple green and black and the brick wall was repainted in buff. Previously this wall was bright yellow with the brick joints picked out in a darker color. The store front treatment of black Carrara glass base with large areas of plate glass and white metal molding carried out the general simplification of the entire job. Cost: $60,000.
BUILDING MONEY

A monthly section devoted to reporting the news and activities of building finance, real estate, management and construction

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JOHN CUSHMAN FISTERE
Editor

Man of the Month FREDERICK M. BABCOCK (see Page 212)
THE RISK RATING OF MORTGAGES

gives promise of being the greatest lever ever devised to lift the standard of U. S. homes. The science developed by Babcock.

A layman's chances of knowing what he is buying in a house—either an un built one or one that is fully clothed in paint and gadgets—are slim to the point of vanishing. Yet for the average man, not only does the down payment constitute the biggest single check he ever writes, but the cost of financing and maintaining the house is an annual budgetary annoyance.

Because in the ordinary house there are 47 separate items to be purchased, no layman could educate himself to buy wisely. Someone's word has to be taken—a friend's, his architect's, a salesman's—for everything. If only some wholly unbiased agency could pass on the construction, the design, the planning, the equipment, the location, and the dozen other factors that give value to a piece of property, his worries would be over.

It was not such a Consumer's Research Bureau that the framers of the National Housing Act had in mind when they invented the idea called the risk rating of mortgages. They were trying to conceive a way of judging the comparative security of different mortgages. Nevertheless should the full implications of mortgage risk rating ever be realized, the result will be as accurate a yardstick of property values as has ever been devised.

This new semi-science of risk rating, which has been added to the already intricate business of property appraisal is equally intricate, and equally dependent upon a nice balance of formula and common sense. Whereas a mortgagee's appraisal is primarily to indicate to a lender how much, if anything, he ought to advance on a piece of property, risk rating seeks to forecast the comparative chances of the mortgage remaining in force throughout its scheduled life. As yet the new science is pretty much of a secret throughout its scheduled life. As yet rating seeks to forecast the comparative security of different mortgages. Nevertheless, should the full implications of mortgage risk rating ever be realized, the result will be as accurate a yardstick of property values as has ever been devised.

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It is important to remember, however, that any mortgage insured by the FHA, whether it be rated "A," "B" or "C" is a reasonably good mortgage. Experienced lenders, who once thought that they would use FHA insurance only when they were on the fence about a loan, have come to the conclusion that FHA's valuers and risk raters are even more penetrating in their appraising than their own men. In more than 90 per cent of the cases, FHA's valuations are lower than those made by mortgagees' appraisers.

Significance. Concerned as it is with the dry stuff of actuarial accounting, risk rating is not an exciting topic. None the less, its significance to every unit of the building industry and its financial counterpart is immediately great and prospectively greater. Forgetting for a minute the use to which it is put, risk rating amounts to an official ranking of houses on the basis of design, construction and equipment, plus factors of neighborhood, the character of the borrower, and the type of mortgage. Further than that, it places a dollar and cents value on these things in addition to their influence in valuating the property.

For instance, on a $1,000,000 mortgage running for 20 years, the mortgagor pays $20 a year insurance premium, $1,000 during the life of the loan. Should his mortgage be rated "A" and be placed in a group that suffers very few losses, he will receive back most of his $1,000 (minus charges for operating costs). If on the other hand, his mortgage is "C" and his group suffers heavy losses, he may lose a greater part, or even all, of his $1,000. That, in brief, is the meaning of risk rating to the owner. What that means to losses in any group may be had from the FHA, which has been established because the fund had not been operating long enough. To the building industry, it has other meanings.

Architect: Because risk rating is not, initially, not entirely, based on good architecture, it gives a cash value to architectural services, makes pecuniary the significance in good and bad site layout, in planning, design, construction, and equipment. If, through paying an architect's fee, an owner can save a significant percentage of the 1/2 of 1 per cent a year of face value of his mortgage, which he has to pay for mortgage insurance, architect's service steps out of the luxury class and his mind into something close to necessity.

Contractors: That too familiar w imp of the "jerry builder" is not to be the only kind of contractor who will feel the sting of risk rating. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating. The "1½%" house, while it may be constructed, has not the sales appeal of the house which rates "93%" in comparison. And the contractor who has a high rating, who is a necessity. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating. The "1½%" house, while it may be constructed, has not the sales appeal of the house which rates "93%" in comparison. And the contractor who has a high rating, who is a necessity. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating. The "1½%" house, while it may be constructed, has not the sales appeal of the house which rates "93%" in comparison. And the contractor who has a high rating, who is a necessity. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating. The "1½%" house, while it may be constructed, has not the sales appeal of the house which rates "93%" in comparison. And the contractor who has a high rating, who is a necessity. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating. The "1½%" house, while it may be constructed, has not the sales appeal of the house which rates "93%" in comparison. And the contractor who has a high rating, who is a necessity. For while he is not to have his houses insured at all, a contractor whose work is even less than standard is the best is certain to earn a lower rating.

Developers: The man with a "100%" house for sale in a "90%" community will find a whole lot less sales resistance than his competitor whose house is rated "71%" and his development "C." A Lending Institution: "A" mortgage will sell quicker than "C" mortgage when the discount percentage (either that of the Federal Home Loan Bank System present, or through whatever discount agency is set up in the future) will reasonably be slightly higher for "A" mortgagors than for the other classes.

Manufacturers: For producers of the machine materials, the promotional possibilities of risk rating are equally obvious. If, though the FHA is far from it now, the time may come when construction materials and items of equipment will be either rated or formally approved by the FHA.
until that time comes the broad incen-
tive of construction engendered by the
rating is of vital concern to every
manufacturer, thus no element in the building indus-
try is untouched by the implications of risk rating.

Babcock. Unlike the general theories of
valuing mortgage insurance, the idea of which is claimed by nearly everyone as his own opinion was ever asked about it, the science of risk rating belongs alone to Frederick M. Babcock. The notion of
"selling" mortgages by risk is not his, but it was contained in the original Na-
ional Housing Act—but for the develop-
ment of the method, he alone deserves
credit.

Whether someone else claimed it or not
wouldn't care, for while not holding
himself modestly, he is unbothered about it other people think. Son of the well-
known William H. Babcock, whose real
estate consulting firm in Chicago was one of the pioneer appraisal outfits in the coun-
try, Fred Babcock has been a practical
economist all his life. Years of train-
ing with his father's firm, which inci-
dually made the famed land use survey
of Los Angeles in 1926, equipped him to
write a book in 1925 on real estate ap-
raisal, which though as good as anything its day has been superseded in 1932 by
it is probably the best book on valuation in the U.S. If it has a peer it is Philip
H. Sokler's "Real Estate Appraisal."

When 1931 came along, William H. Bab-
cock & Sons found itself with a much re-
duced staff and little business to carry. At
the result: The office was further reduced to its affairs left entirely to Partner
Mary A. Babcock (Fred's brother and an
cinally significant factor in U.S. appraisal). It was an opportune closing for Fred
Babcock was retained by the University of
Michigan to write a book on appraisals. Over a year of work, the Prudential Life
Insurance Company hired him away from his colleagues and returned him to practical applications of his methods.

He had scarcely mussed up the point on
desk pen when the Federal Housing
ministration sent out a hurry call for
people to come down to Washington to write
an appraisal manual for the field staff. Of
everyone else who went there Bab-
cock became immediately immersed in the
er brilliance of the planning of the FHA. He threw himself into the task as
the chief of the underwriting section, a job he

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<td>RATIO OF LOAN VALUE</td>
</tr>
<tr>
<td>3.0 3.5 4.0 4.5 5.0</td>
</tr>
<tr>
<td>RATIO OF USEFUL BUILDING LIFE TO MTGE LIFE VALUE</td>
</tr>
<tr>
<td>4.0 8.0 12.0 16.0 20.0</td>
</tr>
<tr>
<td>INTEREST RATE</td>
</tr>
<tr>
<td>3.0 6.0 9.0 12.0 15.0</td>
</tr>
<tr>
<td>AMORTIZATION PROVISIONS</td>
</tr>
<tr>
<td>2.0 4.0 6.0 8.0 10.0</td>
</tr>
<tr>
<td>SERVICE CHARGES BY MORTGAGEE</td>
</tr>
<tr>
<td>1.0 2.0 3.0 4.0 5.0</td>
</tr>
<tr>
<td>TOTAL RATING</td>
</tr>
<tr>
<td>$6.0</td>
</tr>
</tbody>
</table>

The Five Rating Grids
has grouped a handful of non-political, competent aides.

Though the FHA's underwriting organization is intelligently decentralized, bales of problem cases pour in on the Washington office for review. Sometimes the fault is some violation of a principle in the minimum standards prescribed by the Technical Division. Since one such violation causes rejection of the application, the Underwriting Division works hand in glove with the Technical Staff straightening out rejections.

Though disappointed critics say the FHA's slow motion, the truth is that the practice of valuation and risk rating has been reduced to as few moves as possible, the typical application should take not more than seven days to get from the lending institution through the Chief Underwriters Office and back again. Tricky applications take more time, are more often the cause of complaint than the others.

Science. The system of rating properties has been cut out of whole cloth by Babcock and his aids, with worthy contributions from Technical Director Miles Coleman. Any appraiser worth his salt would be able to tell which of two houses was the better mortgage risk, but to invent a scheme that could be used for measuring houses all over the U. S. was something that required more than experience as an appraiser. The basic principles are outlined in the five rating grids which are shown on p. 215. The over-all risk is composed of five different elements:

1. The property
2. The neighborhood
3. The relation of the property to the neighborhood
4. The borrower
5. The mortgage pattern

Each of these divisions is covered in a separate grid, and under each division are listed from five to eleven specific considerations affecting the percentage rating in each case. Each of the determining features is assigned a maximum percentage of weight (see column 5 on grids), which added together equal 100 per cent. For less than perfect ratings on each of the features diminishing percentages are assigned (see columns 1 to 4 on grids). The FHA official making the report checks the ranking he would give to the different elements, caries out to the end column the assigned percentage, and adds them up to get his percentage for that particular grid.

If, for example, the design of the house were found to be average and typical, the inspector would check No. 2 in livability, and hence a 6.0 per cent would go out in the margin. The "Rating of Property," grid is filled out by the FHA's architectural inspector at the same time he is making an estimate of the replacement cost. The grids on "Neighborhood" and "Rating of Property in Relation to Neighborhood" are filled in by the staff or fee valuator. Those on the character of the borrower and the mortgage pattern are the responsibility of the Mortgage Risk Examiner. When all grids have been filled in, they are sent to the Chief Underwriter of the local insuring office, who summarizes the findings:

If one or more of the individual risk features is rated "Reject" insurance of the mortgage is automatically turned down. If the percentage of any one of the grids is less than 50 per cent, the application is likewise rejected and marked "D." If the average of the grids is between 50 and 70 per cent, the rating is "C." If the average percentage hits between 70 and 85 per cent, "B" is the rating. For 85 and over percentages, the rating is "A."

Interpretation. Obviously as in any form of appraising, risk rating is not an exact science. Personal opinion based on experience is still the yardstick. Although the FHA has issued minimum standards for all properties, compliance with the minimum standards does not fix the rating. In its "Underwriting Manual," for instance, the FHA goes as far as it can in setting up guide posts, but it does not yet chart an undaunting path.

Sample guide posts:

Under "Design of Property": "If the exterior of the house is a simple, direct expression of the plan and of the materials used, its design should rate high. Low rating should be given in case of houses that are 'shirt-front' designs, in which the appearance of the building has not been considered from all sides. The use of false elements will tend towards higher ratings; easy of operation by householder; avoidance of damage to structure in installation; good workmanship in installation; apparatus made by well-established manufacturers who can furnish replacement parts."

Under "Structural Soundness": "The rating should be influenced by the probability of maintenance cost being high or low. For instance, a tile roof will have a longer life and will involve a lower maintenance cost than a shingle roof. Brick or stone walls require occasional pointing, the upkeep is likely to be less than for shingles or siding. Fireproof floor construction is likely to require less interior repair than wood-floor construction."

In broad generalities which state the purpose, but not the specific method, a future manual proceeds thus to outline the possibility for rating.

In only one category, the "Rating of Mortgage Pattern," has the FHA set it to become definite. Instructions to underwriters allow no room for discretion.

The specific rulings, however, are undergoing alteration.

Future. Could all the risk characteristics be calibrated as neatly as they are in the mortgage pattern, the building industry would be equipped with a significant set of standards as had ever been devised, Of course, such sharp definitions are not possible in the other rating categories. What, for instance, could be the established standards of design? Or what mathematical formula could be applied to the neighborhood rating, or the rating of a piece of property to the neighborhood? In only one division does the opportunity loom large for acceptable standards—"in the construction and equipment of houses."

That, curiously enough, is the division where the possibilities for national improvement are the greatest. As an expert who has ever labored over a building knows, the complexities of getting approval for different types of construction can be unending, Similar difficulties would face the FHA's underwriting division if it attempt to frame standard rating.

It requires little imagination to envision the possibilities for improved construction if it were generally known to the public that the Federal Housing Administration was rating houses according to their suitability, that certain types of construction were regarded higher than others, but yet the problem is insoluble, provided the FHA sets up performance standards and does not attempt to admit the methods of construction and new types of equipment by special tests for each project. It is well known that building codes have retarded progress of construction more than any other single factor.

If the FHA were to say that it made a difference what the physical characteristics of a wall system were, so long at it could meet specified performance standards, it would rate high for construction. If it failed in some degree, it would be included in a lower rating. What this would do is advance the influence of building construction as it is easily appreciated.

Some such plan is reported to be being worked over in the minds of FHA technical men and appraisers. For the material manufacturer and dealer, the developer and builder, and the financier it promises to be equally important as a business-producing lever as it is an uplift to U. S. home construction. The wave of opinion from the building industry itself would do much to encourage the FHA to undertake the mammoth task.
MOVES OF THE MONTH

2. Stuck to its guns in its "subsistence wage" ($14 to $19 monthly) controversy with the A. F. of L.; reported that 183,000 were working under WPA.

5. Bill passed providing for rediscounting of "any satisfactory security" with the Federal Reserve. Territorial requirements lifted, and other liberalizations made in Senate version. (See p. 3.)

7. Announced that it would ante 81,000-000 towards the formation of a $82,000,000 National Mortgage Association, but had no takers up to the middle of last month.

10. Agreed to buy any amount of FHA-insured mortgages.

14. Continued paying "prevailing wages" to the 27,000 workers on its payrolls.

15. Reported receipt of nearly 3,000 applications for loans and grants totaling $667,048,000 under the new program.

16. Announced a $82,000,000 project for Oklahoma City, and a $400,000 one for Enid, Okla. Appointed former Virgin Islands Governor Paul M. Pearson to be assistant director, succeeding nobody.

20. Continued to be the biggest employer of idle with 442,000 enlisted.

21. Administrator Moffett, home from honeymooning, formally resigned.

22. With July its biggest month, reported total modernization credit insured of $113,071,612.

23. With July its biggest month (see above) reported insured mortgage applications of $812,518,711. Applications now averaging between $83,000,000 and $84,000,000 daily.

27. Total loans outstanding reached new high for year, $87,952,502.
FROM ESKIMO PIES TO HOUSES

is the path of R. S. Reynolds, who has launched a new non-prefabricated house company.

Ox one side are the prefabricators who insist that tomorrow's houses will be built like Fords. On the other are the seasoned veterans of the industry for whom the old time religion is still good enough. And in between is an ever growing block that is sympathetic to advances in construction technique, and yet which feels that there are some practical truths in the old-time religion.

If the latter group has a single standard under which all can march, it is that residential construction advance must be made by the standardization and mass production of parts, but not of the complete house.

For the last six months the industry has been passing around rumors that the Reynolds tobacco people were about to launch a multi-million-dollar company to build houses. Whether they were to be prefabricated or not, nobody knew. About all that was definitely known was that the houses would be insulated with the aluminum foil which has been on the market for about three years.

Last month the rumors ended with the announcement by R. S. Reynolds that two new companies had been added to the forty-million-dollar string. One was the Reynolds Corporation, which manufactures and sells a complete structural and mechanical system; and the other was the Reynolds Fiscal Corporation to finance houses "only when local financing is not available." From the announcement, it appeared that Reynolds was neither on one side, nor the other, but squat in the middle.

Prime feature of the plan is its adaptability to the building industry as it now exists. It will supply its structural and mechanical system through local lumber and material dealers, and only for houses designed by architects, built by local contractors. The system itself is fireproof, termite-proof, completely insulated; and the mechanical equipment includes complete year round air conditioning, and a plumbing system that is noteworthy for such gadgets as a thermostatically controlled shower mixer.

Reynolds. From cigarette wrappings to Eskimo Pies to insulation to a complete home construction and equipment system is the peculiar path along which Richard Samuel Reynolds has been led by aluminum foil. Nephew of the founder of the tobacco firm, R. S. Reynolds in 1912 threw up a $100,000 a year job with his uncle to start in business for himself making cigarette wrappings. He came to Wall Street to be a banker and broker in 1928 with 15 years of successful foil making behind him, due only in part to the whopping contract he received annually from his uncle.

One of his biggest foil customers was the Eskimo Pie Corporation, manufacturers of that novel confection which swept the country ten years ago. Shortly thereafter Mr. Reynolds found himself owning the company.

It was not because foil kept the ice cream from melting that Eskimo Pies were wrapped in shiny brightness but it was that facility which led Mr. Reynolds into investigating the insulating possibilities of his packaging. Immediately he discovered that in Germany shiny foil, because of its high reflective power, had long been used as an insulator in building, marine and industrial construction. Anticipating large volume, he set up a building division and within three years boosted his insulation business from $30,000 to $300,000 a year.

He soon discovered, however, that selling to the building industry was a much more expensive process than selling bulk orders of foil for package wrapping, and while he anticipated increased volume in building insulation, he realized the necessity for diversifying his products in that field to cut down the overhead per sale.

His first expansion was the acquisition of a wire-backed paper lath; then a plumbing company; later the manufacture of temperature control devices. The rapid expansion, coupled with the constant rumbling about prefabrication, suggested to him that the future path for him to pursue was manufacture of all the materials for housing. While the company has stopped short of finish materials and has definitely stayed away from prefabrication, it does in materials for what the company terms "a basic house," which simply means the complete structural and mechanical equipment.

System. Specifically the company manufactures these materials:

1. Fireproof framing and structural flooring
2. A paper-backed wire lath
3. Metal foil insulation
4. Complete heating and air conditioning system
5. Complete plumbing including fixtures and fittings

Finish materials are all optional in the buyers of the houses.

The company has no stock houses, no plans to sell. It simply takes an architect's plans, prepares working drawings for all its equipment and materials, and sends an engineer to assist the architect and contractor in the construction. The framing members are steel units filled with a cementitious compound that can be nailed, sawn, and otherwise handled just like lumber. The structural floor consists of precast cement slabs, 1/4 in. thick, 15 1/2 in. wide, as long, cast on sheets of the plastic lath fabric. After the foundations have been completed, the framing goes in, in exactly the same way as a semi-balloon wood frame. Sills are laid directly on the foundation to conform with whatever finish is to be used on the exterior, brick veneer, stucco, etc.

Floor joists are placed on the sill, on centers, bridges every 8 ft. with gauge steel, 2 in. wide. The longest and widest is 18 ft. Floor slabs are laid directly on the joists with the 4 ft. shiplap dimenions right at angles to the joists. The outer framing consists of a series of conduit studs (all but the window and door studding which are flat on one side) placed on centers either 16 or 24 in. Interior partitions are framed with smaller studding with studs either 16 in. centers, secured by a shoe on the floor and a plate at the top. When the frame is completed the plaster base, which may or may not have a metal surface on one side, is nailed directly to the studs. When air conditioning ducts are to be run through the partitions, plates are cut out to admitted passageways for the ducts, and tied together with structural angles at the side. Plumbing is installed in the same manner as in wood construction. When foil insulation is used, it is placed in the wall construction, under the rafters.

Probably the neatest trick in the whole Reynolds house, which is to be marketed as the "The House with the Silver Liner" is the air conditioning system. Every item in the system, including the ducts...
emodeling plans must take into account the hidden enemy—RUST

Building modernization without rust-proofing is only “skin deep”. It covers up flaws but does not correct them. Foresighted owners, managers and architects look on modernization as an opportunity to replace rustable metals with rust-proof brass and copper throughout—in roofing, plumbing, heating and lighting.

Rust is costly; it increases expense for maintenance and repair. Rust is ugly; it decreases the chance to rent or sell. The toll it takes may easily make the difference between profit and loss on income property.

This is why more and more modernization plans are being written with the specification “Chase Brass and Copper”. The name is a guarantee of quality manufacture, sound design and thorough satisfaction in service.

CHASE BRASS & COPPER CO.
Waterbury
Incorporated
Subsidiary of Kennecott Copper Corporation

Connecticut
standardized, so that the design of a system consists simply of the specification of the proper units. The air conditioner unit is complete in itself, except for the condenser, which is placed adjacent to the conditioner, and connected with a pipe. After months of experimentation, Reynolds engineers worked out a series of standard duct units that would combine to meet the requirements of any layout. The units are all stocked by the company, and shipped ready to be assembled by a patented snap-lock that eliminates soldering, etc.

How much the fireproofness, the term-proofness, the insulation, and the air conditioning would cost the home buyer extra, there was no positive indication but it was somewhere between 3 and 5 per cent. Whatever it cost, a New Jersey developer (see below) was able to lure one to sell for $5,950.

Progress. Omitting the usual publicity fare that accompanies the announcement of a new system of construction, the company has already sold between 40 and 50 houses of which are under construction, two completed. The system is adaptable to any design or size of house.

Though there is no official confirmation from the company, it is generally understood that Reynolds will continue its pension policy until it will be able to finish as well as structural materials-roofing concern is said to have recently been bought, and negotiations are underway for window and trim manufacturing outfits.

Associated in the development of the company are Roe Black and Gardner Taylor, both veteran building men. Black is vice president and general manager of the Reynolds Corp., and Taylor, being vice president and general manager of the fiscal company, is vice president and in charge of housing for the Reynolds Co. as well.

The Reynolds construction system apparently represented an entirely new approach to the problem of home building and yet an approach based on using existing agencies of the building industry. For the first time one agency has seen its way clear to assume the responsibility of coordinating the work of manufacturer, architect, contractor, dealer and mortgage company.

Which should bring about no revolution such as is proposed in prefabrication, but distinct advance in U. S. home building technique.
WITH SIX SPEED ADJUSTABLE ORIFICE VENTING VALVES

FOR "FASTER" OR "SLOWER" VENTING OF ONE-PIPE STEAM RADIATORS

Simple, Visible Adjustment eliminates guesswork in selecting and setting the proper Vent Port

Hoffman engineering again contributes a great advance to heating efficiency. All Hoffman Radiator Valves, both air and vacuum, are now equipped with new Six-Speed Adjustable Orifice Venting Ports—making it possible to accurately "balance" one-pipe steam systems.

Now, by a simple adjustment of the Hoffman Valve Cap, the rate of venting can be varied, which in turn controls the rate of steam flow into the radiator. By this means, the venting of large radiators can be accelerated and that of small radiators reduced, so that in a given time the same proportion of each radiator will be heated.

Especially valuable on automatically fired systems and concealed radiation

Where oil or gas-fired boilers are used, venting of radiators in the room where the thermostat is located can be retarded and venting of the more remote radiators accelerated to assure proper distribution of steam during each period of burner operation. Likewise the relatively small air content of convectors makes retarded venting desirable and often imperative.


One-pipe system balanced with Hoffman Adjustable Port Venting Valves distributes steam proportionately to all radiators
A Brooklyn title company reviews its 28-years of lending, finds the loans it made in depression years and its loans on homes the hardiest.

A low, institutional-type building on Brooklyn’s Willoughby Street houses the Home Title Guaranty Company. In contrast to most New York guaranteed mortgage companies the Home Title Guaranty Company has a healthy atmosphere about it. Its offices are no newer than many of its brothers’, and the people are possibly no younger, but they are efficient people and they go about their business in such a way as to leave no mistake about it: the Home Title Guaranty Company has its head up and is going places.

To get the full import of this one must go back a little. Two years ago Home Title Guaranty was the Home Title Insurance Company, a name which reporters were wont to include in citing evils of the guaranteed mortgage “racket,” and reviling its perpetrators. Formed chiefly to service the great log jam of mortgages of its predecessor company, which is still in rehabilitation under New York’s State Insurance Department, Home Title Guaranty is controlled by the same officers who ran the old company, including its president, shrewd, hard-hitting Henry Joralemon Davenport, son of the man who founded the business almost 30 years ago.

When Home Title Insurance Company was formed the 1907 panic was just around the corner, but the company stepped in and during those early years made some of the best loans in its history. Until around 1918, when participation certificates in guaranteed mortgages were made legal investments for the funds of life insurance companies and savings banks, Home Title loaned consistently between one and two million dollars a year. After the War its volume steadied for a time at from four to five million annually, then jumped and stuck at around ten million for the ten succeeding years. The high point was in 1927, and here Home Title distinguished itself by applying the brakes some years before its fellow companies did.

A little more than a year ago Home Title's Davenport sat in a witness stand and distinguished himself again by frankly admitting before the Governor’s Moreland Act Commissioner the ineffectuality of those brakes. Home Title’s mistakes were not among the worst, but mistakes they were, nonetheless.

Guarantor Davenport won the commission’s praise that day by his frank statements, including a complete assumption of personal responsibility for everything his company had done while he was at the helm. Prideful of his company, he read the record a statement clearing its life management of any personal graft, extolling its “most efficient force, working night and day with a crusading spirit to produce the best possible result for investors.” But of course the staff of Mr. Davenport so sincerely lauded was crusading at the old job of making selling mortgages. The business which occupied it down through all its 28 years had come to a stop for Home Title.

Looking Back. The servicing of Home Title’s mortgages, with the greatest part of them in history in default, is a job which would tax any organization. With the chief task since its formation last January, Home Title Guaranty has also been looking back upon its 28-year record with a critical and searching eye.

1906-21 Middling to Palmy Days; 1922-27, Up Mortgages; 1925-27, Up Trouble; '28 Onward, Boil & Bubble

220
The Larger the Loan, the More Likely a Loss

Twelve and three-tenths per cent of all mortgages made by Home Title since the beginning have become trouble cases. Loans in trouble are classified as those involving foreclosure, or in connection with which rents from the property have been assigned to the company, or if interest is past due for ten months or more. Summing up, the study gives this bird's-eye view of the company's activities over the period from 1906 to October 1, 1934:

<table>
<thead>
<tr>
<th>Percentage of Foreclosed and Trouble Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Type of Property</td>
</tr>
</tbody>
</table>

### AMOUNT OF LOANS MADE BY SIZE OF LOAN

![Chart](chart1.png)

### PERCENTAGE OF FORECLOSED AND TROUBLE LOANS ACCORDING TO SIZE OF LOAN

![Chart](chart2.png)
Classified in three ways—by year made, by size of loan and by type of property—the trouble loans were immediately to be marked off as having possibly resulted from 1) investment in boom years, 2) excessive lending, or 3) investment in the wrong type of property.

**Loans by Year Made.** Chart 1 (p. 221) shows the amount of loans made each year from the organization of the company until the present time, with the amount of each of the totals which fell into trouble. In Chart 2 the percentage of trouble loans in each year is given. Up to 1925, the percentage of trouble loans per year exceeded 6 per cent only one—in 1922. From 1926 on, however, it rose sharply to a peak of 37 per cent of the loans made in 1928.

Proud is the company of the fact that in 1928 it reduced its volume by almost 25 per cent, and in 1929 by more than 50 per cent of the 1927 figure. The loans it did make in those years fared worse than those of any other period. Loans made in depression years, with the exception of the past depression, proved to have made the best records. This is to be noted by the good records of the loans made in 1907, 1913-14 and 1921.

The peaks and valleys in the percentage of trouble loans recorded for various years serve to indicate the fact that general business conditions are highly important as a factor influencing the safety of mortgage investment, and that accurate general indices of income and value are well worth watching as a guide to scientific mortgage lending.

**Loans by Size.** Classifying its loans by size, the company discovered that the larger the loan, the greater was the percentage of the total amount loaned causing trouble. Two-thirds of the company’s mortgages were under $15,000 in size, but with approximately $40,000,000 in mortgages of a greater amount there seemed sufficient basis for the comparison.

The situation, depicted in Chart 4, may be summarized as follows:

<table>
<thead>
<tr>
<th>PERCENT FORECLOSED ON IN TROUBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $7,000.</td>
</tr>
<tr>
<td>$7,000 to $20,000.</td>
</tr>
<tr>
<td>$20,000 to $50,000.</td>
</tr>
<tr>
<td>Over $50,000.</td>
</tr>
</tbody>
</table>

Thus, only 4.3 per cent of the total amount of loans made for sums under $7,000 got into trouble, as compared with 43 per cent of the total amount of loans for $800,000 and over. This, of course, does not mean that the company actually lost these percentages of the amounts invested. It simply means that there were difficulties encountered in recovering, in the case of loans under $7,000, $82,279,000 out of $85,1,827,000 invested; and, in the case of loans of $800,000 and over, $356,000,000 out of $88,279,000.

**Experience by Types of Property.** The excellent experience which the company has had with its loans on one-family dwellings was the most striking of the facts revealed in the classification of loans by types of property. Out of $44,000,000 of loans made over the 8-year period on this class of property, only $2,000,000 or 5 per cent got into trouble; whereas 27 per cent of the loans on stores went away (see Charts 5 and 6).

The record made by the single-family home group was bested by several others, including the loans on office buildings; churches, schools and theaters; garages and service stations; and factories, laundries and warehouses. So great a portion of Home Title’s loans as residential property, however, that more credence was to be given the report for dwellings than for miscellaneous of this type. The record for vacant was likewise somewhat better than it is expected to be in most cases.

The company points out that the original reason for the high percentage of losses on large apartment houses being classed as in trouble was its policy of obtaining control of such properties when they fell into arrears of interest or taxes to insure that net rents were applied toward the payment of carrying charges.

For its own use, and for that of the Federal Housing Administration, which interested in the survey for what figure might yield value of its mortgage insurance program (see page 212), the company went further to figure the actual and aped dollar loss to total loans made each type of property.

In estimating the losses to be sustained on properties foreclosed but not actually sold, and those under rent assignment, process of foreclosure, there was added an operating loss equal to 50 per cent of the sales loss on the former one-half times the actual sales loss on properties already sold, and a sales loss on the latter estimated on the same percentage basis for each type of property as experienced on properties already sold.

Based on these estimates, total and partial sales and operating losses amounted $8,732,000, which is equal to 1.99 per cent of all loans made, or 16.2 per cent of mortgages in trouble, during the 8-year period.

These losses were incurred from loans of various types of properties as is shown Charts 7 and 8. Chart 7 furnishes the cent of losses to total loans, and Chart 8 the percentage of all foreclosed and troubled loans. A remarkable showing was made by the one-family house group, with a record of losses on only 0.50 per cent of total loans.

Although losses on this type of property constituted 38.2 per cent of total loans made, they accounted for only 12.7 per cent of the total of all foreclosed and troubled loans and for only 9.37 per cent of the total dollar losses from all types of property. Therefore, the percentage of the amount one-family dwelling loans foreclosed or trouble to the total of all one-family loans made, was less than one-third of the average for all other types of property. And the percentage of dollar loss sustained on one-family dwellings to the total of all loans made on this type of property was less than one-fourth the average for all types of property. The percentage of dollar loss on one-family foreclosed and troubled loans was 12.2 per cent. This figure and the per cent of loss to total loans compare with averages for all other types of properties.

**PERCENT OF DOLLAR LOSS TO TOTAL AMOUNT OF ALL LOANS MADE ON EACH TYPE OF PROPERTY**

<table>
<thead>
<tr>
<th>TYPE OF PROPERTY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FAMILY DWELLING</td>
<td>0.18</td>
</tr>
<tr>
<td>2. FAMILY DWELLING</td>
<td>0.71</td>
</tr>
<tr>
<td>3. THREE TO EIGHT FAMILIES</td>
<td>0.98</td>
</tr>
<tr>
<td>4. MORE THAN EIGHT FAMILIES</td>
<td>1.19</td>
</tr>
<tr>
<td>PERCENT ALL TYPES</td>
<td>0.38</td>
</tr>
</tbody>
</table>

**PERCENT OF DOLLAR LOSS TO AMOUNT OF MORTGAGES FORECLOSED ON EACH TYPE OF PROPERTY**

<table>
<thead>
<tr>
<th>TYPE OF PROPERTY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FAMILY DWELLING</td>
<td>0.18</td>
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<td>1.19</td>
</tr>
<tr>
<td>PERCENT ALL TYPES</td>
<td>0.38</td>
</tr>
</tbody>
</table>

**Losses Compared to Total Loans and Trouble Loans**
HOME BUILDING CONTINUES

to soar, amid other exciting statistics. Building stocks top general stocks; life company loans exceed '33 plus '34.

PERCENTAGE LOSSES ON ONE- AND MULTI-FAMILY HOUSES

- One-family houses: twice as high as losses on one-family houses, but still less than the average for all types of property, were those for family houses, in terms of their ratio to loans on the latter. For three- to eight-family houses, the percentage of losses to loans was four times as large as in one-family houses; for apartments it was almost as big. Stores made the poorest ring next to a "Special Purpose" group, lending loans for clubs, charitable institutions and the like, and one called "Implied Property Where Loan Was Made" esp. on Land Value.

Significance. Many a banker and insurance man with the responsibility of a sizable mortgage portfolio, as well as many straight mortgage banker, has been pipped by the problem of how to go about job of analyzing his loans for the purpose of uncovering past mistakes and of developing a more scientific approach to mortgage lending. To those so stumped the Title's job provides both a method and a basis for comparison. However, it will readily be noted that it is neither in fullest measure. To such analysis there scarcely could be said to an end. The study might well have gone for instance, to provide exemplary data determining the effect of amortization; interest, age and tenancy of property; rent rate and total effective cost to borrower; and percentage of loan to raised value. The latter two items, in which it would have seemed logical for the Title to have taken up, were not added, according to the company, because "there was no great variance in a during the period under study."

LITERALLY, the methods to be followed in making such a study depends on the kind of records kept. Ill-kept books have undoubtedly forestalled more than one such survey. Fortunately for its survey, however, Home Title had been uninsured ownership and management throughout its existence, and its records are fairly intact. Covering as large a group of mortgages it did, and reflecting the application of consistent policy in the making of these is and the administration of them, one Title's survey has set up some laws of universal interest. The FHA, in its job of fixing adequate rates on mortgages to be insured under the National Housing Act; New York's new State Mortgage Commission, charged with recommending legislation for prevention of the guaranteed mortgage fiasco; and other groups as the Mortgage Conference New York (Arch. Forum, August 5, p. 159) which is now busy collecting data from a membership including all types of mortgage lenders, are all to find Home Title's mortgage analysis invaluable guide.
AN OPERATING COST CONSENSUS

to ward off Washington rent restrictions, provides a primer of expenses for figure-shy apartment owners.

FINGER-TIP familiarity with operating costs is mandatory for skyscraper architect, financier, realtor and building manager. Nor can they be overlooked in any appraisal of the state of the building business. Last month out of neither a primary interest in rents nor an attempt to paint the state of the industry, but a clinched battle to keep a bill from passage by the 71st Congress of the U. S., came a fund of apartment operating cost statistics, the like of which has never before existed, save in the office building business.

Made primarily to marshal facts against the Ellenbogen bill, which still threatens (although most observers think not dangerously) to impose on Capital apartment owners the rule of a rent commission similar to that which operated in D. C. during the War, a Washington survey covering completely almost 300 apartment houses provided the industry an opportunity to test the worth of making like compilations periodically in all centers.

Stout to maintain that rents began to fall shortly after the old rent commission's demise, and that new building, and not the commission, was responsible for the decline, the Real Estate Legislative Committee of the Washington Taxpayers' Protective Association has sharpened its argument with the claim that rent restrictions have heretofore stifled building in the District, and will do so again if imposed. As part of the fact-finding done to back up this and the contention that present Washington apartment profits are not exorbitant, a survey of costs and incomes was initiated. Its results the committee's chairman, Manager Edward C. Baltz of Washington's mammoth Perpetual Building Association, summed up last month as follows:

In 1934 when Washington apartment buildings had an average occupancy of over 95 per cent—the best in over ten years—the net earnings of 274 buildings, having an assessed valuation of $424,000,000, was 4.89 per cent on the assessed value (see Table 1). Two and one-half per cent of the value of the buildings was allowed for depreciation. These same buildings earned 3.03 per cent in 1933.

Pointing to how new building now in progress (ARCH. FORUM, August, 1935, p. 136) is keeping pace with the increase in the number of Government employees, the committee saw no chance of as marked a rise in 1935 as in 1934.

But building men attached far more than momentary value to the figures enmassed for this defensive. Those familiar with the office building figures regularly distributed by the National Association years ago, after two years as not publicity director for the "Crusaders," seven previous to that as secretary of Operative Builders' Association of the tract of Columbia, Mr. Lusk is also executive chief of the Washington Building Owners and Managers Association, has been lobbying and the building business equally. Building statistics have long been his hobby.

The difficulties incidental to carrying out the Legislative Committee's scheme were a challenge to his statistical insight. More or less standard method of office building construction have made it possible the interchange of office building statistics on a square foot basis. But apartments, no such adequate a common denominator has been generally employed. Unused to applying scientific operation methods, most apartment owners never bothered to figure out the sq. footage in their buildings, and building managers are agreed that it would take a mule-team job to get them to do it.

In view of the various sizes of apartment figures, dwelling units are viewed open to objection. Equally questionable are the familiar "per room" figures, a fast nowhere more apparent in the small room sizes resulting in high rent of the current low cost housing.

In the end, Mr. Lusk decided to play the most exact of all units of measurement, and the job he did is hailed as most notable for the figures it sets on a cubic foot basis. A factor recognizing these especially logical was the ready availability of cubic footage figures at assessor's office.

The figures were classified through both by types of tenants and by building heights. Apt for $7 per cent New Leaf, Washington, but not of interest nationwide the tables by types of tenants have not been made public.

| Number of Buildings | Number of Stories | Number of Rooms | Total Net Income | Total Expenses | Net Income as Percentage of 
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>2</td>
<td>302,239</td>
<td>4,121,295</td>
<td>6.61</td>
<td></td>
</tr>
<tr>
<td>193</td>
<td>2</td>
<td>339,050</td>
<td>4,121,295</td>
<td>6.61</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>3</td>
<td>47,789</td>
<td>1,096,705</td>
<td>4.32</td>
<td></td>
</tr>
<tr>
<td>195</td>
<td>4</td>
<td>1,829,682</td>
<td>9,276,046</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>196</td>
<td>5</td>
<td>1,164,149</td>
<td>1,829,682</td>
<td>62.82</td>
<td></td>
</tr>
<tr>
<td>197</td>
<td>6</td>
<td>9,845,460</td>
<td>22,912,360</td>
<td>42.60</td>
<td></td>
</tr>
</tbody>
</table>

The Figures Gleaned from 274 Buildings, by Building Heights

THE • ARCHITECTURAL • FORUM
Per Room and Per Cubic Foot Averages for 274 Buildings, by Building Heights...

national amounts reported by all buildings, by building heights, the tables worldwide

... and for 174 Buildings from 1931 through 1934

nationally include first a comparison of averages of the figures for 274 buildings

Ratio of Each Cost Item to Total Cost

4 Ratio of Costs and Income to Rents...
Increased Income Offsets Slight Maintenance Cost Increases in Chicago

In 1932 and 1933, which is elaborated by a compilation, more interesting historically, of yearly averages back through 1931 for 174 of the reporting buildings. These are followed by tables giving the ratios of maintenance costs and net income to rents collected, both by building heights and over the period of years, 1931 through 1933. A special chart of national interest details the percentage of the cost of each maintenance item to total maintenance costs.

Coupled with those from Washington, a set of operating figures from Chicago last month gave observers a better feeling about the vast going industry of existing buildings than they have had in full five years.

Since the first of 1933, the Chicago Title & Trust Co. has been keeping figures on the cost of operating identical apartment buildings in its tow. Last month it felt for the first time like releasing them. Two tables on these buildings (see below) footed up a report in which the bank had combined its own with other Chicago survey papers to substantiate definite occupancy gains rising rentals. The first of these records costs per room per year for each maintenance item, which, in the second, matches up against the income figure.

An average increase in expenses from 1932 to 1933 of 3.7 per cent was reduced by a decrease of 7.5 per cent in two- to six-flat buildings, a 13.7 per cent increase for twelve- to 26-flat buildings, and a 7 per cent increase for 37- to 46-flat buildings. Greater income figures for latter group brought it out ahead of twelve- to 26-flat group, however, in final accounting.

Reporting 8 per cent of the increase in income due to elimination of concessions alone, the bank declared that increased occupancy and firming rents had reduced the rise in operating costs, the additional factor of "unprecedented potential demand for housing rigidly limited by high replacement costs" from "a good picture of the future of real estate investment in Chicago."

<table>
<thead>
<tr>
<th>ITEM</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Income</td>
<td>$12,000</td>
<td>$12,000</td>
<td>$12,000</td>
<td>$12,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>Less</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>Net Income</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
</tr>
</tbody>
</table>

In 1933, the bank declared that increased occupancy and firming rents had reduced the rise in operating costs, the additional factor of "unprecedented potential demand for housing rigidly limited by high replacement costs" from "a good picture of the future of real estate investment in Chicago."

As in the Washington tables, the comparatively high cost of fuel for the smaller buildings is striking in the Chicago operating figures (right), which are combined with income figures on the same buildings below.

Increased Income Offsets Slight Maintenance Cost Increases in Chicago
Lawrence Moore, Architect, of the architectural firm of Evans, Moore and Woodbridge, New York, completely insulated his own home in Wilton, Conn., with Reynolds Metallation and Ecod Fabric.

Less bulk, less heat absorption, moisture-proof...yet saves approximately 50% in cost

Check the definite advantages of Reynolds Metallation, the silver-like insulation that reflects heat just as a mirror reflects light.

No other insulation offers the advantage of less bulk. Reynolds Metallation is thin as a calling card. No other insulation so effectively guards against heat absorption—Reynolds Metallation reflects about 95% of the radiant heat. No other insulation completely combats atmospheric moisture. (Moisture absorption greatly reduces the efficiency of ordinary insulation.)

And with all these advantages Reynolds Metallation reduces insulation costs approximately 50%.

Reynolds Metallation is installed in homes in two forms — strips nailed right over the rafters, roof joists, studs or sheathing—or as Metallated Ecod Fabric which combines Metallation with an electrically welded, metal reinforcing plaster base.

Metallation and Ecod Fabric are only two of the Reynolds Architectural Products that architects are choosing to give the public better values in construction and modernizing work. Learn about them all. Write for descriptive folders.

For complete specifications

See 1935 Swets, Catalog II, Section 13


REYNOLDS ARCHITECTURAL PRODUCTS...

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- Reynolds Ecod Fabric
  The insulated, reinforced Plaster Base.

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Offices in Principal Cities
INCOME VALUATION

for taxation is pushed as the final point in NAREB's program.

Admitting with Benjamin Franklin the blunt inevitability of la mort et les impôts, some ways of dying and some ways of being taxed are more obvious than others. Real estate men, for instance, regard current methods of property taxation as comparable to murder by slow torture. Along five different fronts (see box) the National Association of Real Estate Boards has for a year been hammering for reductions. Last month they cranked up on Point No. 3 on their program: tax assessments based partially on income.

Property owners of the U. S. pay an average annual tax bill of between four and five billion dollars on property assessed at about $125,000,000,000. In the year 1931, for instance, the National Association of Real Estate Boards pointed out that total property taxes were $4,550,000,000 on property assessed at $129,282,000,000, or an average rate of 3.31 per cent. The known income for real estate, including rental values of owner-occupied buildings, in that year was $4,754,000,000. Thus NAREB figured out that real estate was paying 95 per cent* of its income for taxation.

As an argument for its income method of assessment NAREB pointed out that if the value of the property was established on the basis of income the real value of the property would be only $85,080,000,000. This assumption cut in 8.5 per cent on money invested in it. Hence its value would be 20 × $4,754,000,000 = $95,080,000,000. And if the average tax rate, 3.51, held, taxes would have amounted to $5,138,000,000, a reduction of nearly 30 per cent.

Direction. To direct its campaign Paul E. Stark, Madison, Wis., realtor, was named chairman of the NAREB's tax committee, a job vacated by Dayton's Adam Schantz. A veteran among NAREB members, Realtor Stark was once president of the National Association. One of the most popular men in the real estate business, Mr. Stark is tall and angular, good humored and a hard worker. His office in Madison is one of the largest home building outfits in Wisconsin. If he has a reputation outside his immediate business it is as an expert in real property values.

Though reduction in taxes is the weapon with which he hopes to stir up action among property owners, Chairman Stark is laying his campaign on a much more altruistic base. Among his most potent arguments in urging State legislatures and courts to recognize the income method are:

1. That it will tend to minimize favoritism and fraud by assessing officials.
2. That it will tend to measure taxes by the ability to pay.
3. That it will simplify assessing procedure both in the initial assessment and in appeals because the factors will be more easily demonstrable.
4. That it will necessitate annual reassessment.

Fortunately, Chairman Stark's committee is not starting at scratch. In five States

1. We propose in each State an agency with the right, upon appeal by taxpayers, to review any proposed tax levy and to revise it downward, and to veto bond issues entirely.
2. We propose in each State a constitutional amendment specifically limiting the total tax on real property for all purposes to any one year to a fixed percentage of the true value.
3. We propose in each State a broader use of State taxing powers to provide funds for educational purposes, and that Federal assistance be obtained to further this.
4. We propose in each State using funds obtained from gasoline and vehicle taxes for maintenance and construction of urban streets as well as for rural roads and highways.
5. We propose in each State that improvement assessments shall require the written consent of owners representing more than one-half the property proposed to be assessed.
6. We propose in each State that the valuation laws be amended so that in valuing property for tax purposes the income or annual use value shall be a major consideration.

NAREB's Six Points

the income method is already recognized by law. In ten others it is recognized by courts and tax boards.

Few States have any legal prohibition against the income method but selection of assessing officials on the basis of political qualifications rather than experience in appraising has hindered general acceptance. Apart from bombarding legislatures with briefs asking recognition for the income method, Chairman Stark's Committee urged all property owners to file an action requesting that their assessments be made partially on the basis of income, believing that if enough decisions in enough States support the method laws need not be enacted. Even if the income method should be adopted, three major problems still remain unanswered:

1. Shall net or gross income be used?
2. What percentage constitutes the proper capitalization base?
3. Shall actual or potential income be used?
TENANTS PREFER SILENT REFRIGERATION

ELECTROLUX

is Permanently Silent

because it has no moving parts to
cause noise or become noisy

AND LOOK

at these other important ways Electrolux offers
MORE for tenants and for owners!

FOR TENANTS:
1. Low operating cost
2. Finest modern beauty
3. Every worthwhile convenience

FOR OWNERS:
1. No moving parts to wear
2. Long life
3. Gas Company service

If you want to avoid the disadvantages of noisy refrigeration—and what owner or operator doesn’t?—choose Electrolux for your properties.

Thanks to its simpler, more efficient operation, Electrolux is silent the day you install it... and silent after long use! For a tiny gas flame takes the place of all moving parts!

This freedom from noise is one of the big reasons why, in New York City alone, more than 4500 apartment buildings are equipped with this modern gas refrigerator. And there are other important reasons, too!

Electrolux appeals strongly to tenants and prospective tenants because of its unusually low running cost... its smart modern beauty... its many worthwhile conveniences.

Consider these important rental appeals of Electrolux! And then consider, too: since Electrolux has no moving parts to wear, this cause of interrupted service and shortened life is eliminated. In addition, your local gas company backs and services every Electrolux it sells! Another assurance of complete tenant satisfaction... another big advantage for you!

See the new Electrolux models on display at your gas company’s showroom! Servel, Inc., Electrolux Refrigerator Sales Division, Evansville, Indiana.

NEW AIR-COOLED
ELECTROLUX
THE SERVEL GAS REFRIGERATOR

SEPTEMBER • 1935
FOUR NAMES

and a landscape architect collaborate on a swank subdivision.

In names make news, the biggest news of last month was the completion of a house at Westbury, Long Island, for what may turn out to be the smartest subdivision on that sandy strip of land. The nominal developer, although his interest in it was something less than intense, was Stewart Iglehart, son of the Grace Line owner, the finest amateur hockey player in the U.S., and close to the finest polo player as well.

But his name was not the only one. Architects for the house were William Adams Delano and Chester Holmes Aldrich, who together compose the faultless firm of Delano & Aldrich, and who share with John Russell Pope the social honors of the profession.

Nor did their names complete the list of newsworthy ones. Agent for the house turned out to be Nancy Heckscher, recently married daughter of the octogenarian Manhattan real estate man, August Heckscher, at present on her honeymoon.

Last month, the house was unsold—not for lack of prospects, but because the prospect who finally buys will have to measure up in other ways than simply having the $60,000 it will take to buy it. For the house rises up on Jericho Turnpike, a malllet's drive from the estates of the horseiest families on Long Island. It was to prevent undesirables from moving into the property that Poloist Iglehart built the house in the first place.

Whether the rest of the 40 acres which comprise the proposed subdivision will ever be developed depends on how quickly House No. 1 sells, and how much time Hockey Player Iglehart can spare from his skates and his horses. If he does go ahead, he will undoubtedly lean heavily on the experience of the landscape architect who is in charge of all the Iglehart properties, and who landscaped the grounds around the first house, Richard S. Burns, who though no celebrity, is an able planner and designer.

CONTINUED BETTERMEN

of building profits backbones record rise in stocks.

Assuming that the state of building stock could be counted upon to provide an exact measure of the health of building, the industry might well have sat up in bed and eaten what it pleased last month. For the first time in five years the most trustworthy of all indicators of trends in stocks, Standard Statistics' weekly stock price index recorded a rise for its 12 Building Equipment and Supply stock classes, the first such gain since December of 1930. The reaction seemed less a bullish one than to justify the rise. If the following companies have reported their earnings for the first six months of 1935, which are compared below with figures for the same period of 1934:

<table>
<thead>
<tr>
<th>Company</th>
<th>Earnings 1935</th>
<th>Earnings 1934</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armstrong Cork</td>
<td>81,522</td>
<td>81,461</td>
</tr>
<tr>
<td>Bohn Aluminum &amp; Brass</td>
<td>923</td>
<td>1,138</td>
</tr>
<tr>
<td>Bridgeport Brass</td>
<td>375</td>
<td>307</td>
</tr>
<tr>
<td>Briggs-Manufacturing</td>
<td>6,345</td>
<td>3,068</td>
</tr>
<tr>
<td>Brunswick-Balke-Collender</td>
<td>1,590</td>
<td>1,101</td>
</tr>
<tr>
<td>Certain-lead</td>
<td>341</td>
<td>461</td>
</tr>
<tr>
<td>Congoleum-Nairn</td>
<td>1,536</td>
<td>1,540</td>
</tr>
<tr>
<td>Cook Paint &amp; Varnish</td>
<td>321</td>
<td>290</td>
</tr>
<tr>
<td>Devoe &amp; Raynolds (6 mos. ending May 31)</td>
<td>202</td>
<td>203</td>
</tr>
<tr>
<td>Dresser, S.B., Manufacturing (owns Bryant Heat­ er Co.)</td>
<td>9D</td>
<td>29</td>
</tr>
<tr>
<td>Evans Products (flooring, etc.)</td>
<td>357</td>
<td>1,270</td>
</tr>
<tr>
<td>Flintkote (8 wks. ending July 15)</td>
<td>621</td>
<td>131</td>
</tr>
<tr>
<td>Formica</td>
<td>69</td>
<td>37</td>
</tr>
<tr>
<td>General Paint</td>
<td>115</td>
<td>80</td>
</tr>
<tr>
<td>Heywood-Wakefield (the­ ater seating, etc.)</td>
<td>330</td>
<td>59</td>
</tr>
<tr>
<td>Johns-Manville</td>
<td>798</td>
<td>174</td>
</tr>
<tr>
<td>Libbey-Owens-Ford</td>
<td>4,884</td>
<td>2,532</td>
</tr>
<tr>
<td>Minneapolis Honeywell</td>
<td>271</td>
<td>206</td>
</tr>
<tr>
<td>National Gypsum</td>
<td>396</td>
<td>184</td>
</tr>
<tr>
<td>National Lead</td>
<td>2,615</td>
<td>2,086</td>
</tr>
<tr>
<td>Otis Elevator</td>
<td>115</td>
<td>203</td>
</tr>
<tr>
<td>Parker Rust-Proof</td>
<td>574</td>
<td>350</td>
</tr>
<tr>
<td>U.S. Gypsum</td>
<td>1,627</td>
<td>1,142</td>
</tr>
<tr>
<td>Westinghouse</td>
<td>6,965</td>
<td>311</td>
</tr>
</tbody>
</table>

Outstanding fact about such a compilation—a fact not evident in many a depression moon—was the tendency for those companies most wholly interested in building, and especially residential building, to show up best. Attesting to this were such healthy gains as made by General Paint, Johns-Manville and U.S. Gypsum, in contrast to such reports as issued by Brunswick-Balke-Collender and others less vitally concerned with building.
TWO VIEWS IN CONTRAST
Massachusetts v. Rhode Island in a test of amortization.

It is well-known that, as far as savings banks are concerned, Massachusetts is the citadel of the straight loan. Less generally appreciated is the fact that in nearby Rhode Island the amortized savings bank mortgage is a commonplace, and, indeed, the general rule. Catering especially to New England savings bankers, Boston's United States Inventor landed a well aimed punch last month by matching up figures on the mortgage troubles of the savings banks of these two States.

Crediting Massachusetts' moneymen with having "picked their bonds, their mortgages and their other investments with such painstaking care that they have won the profound respect of the whole banking and business fraternity," the Inventor matter-of-factly added: "It is only when you compare their experience under the common form of mortgage with the experience of Rhode Island's banks under amortization that you discover a way in which the Massachusetts' record could have been bettered."

Rhode Island's banks began as early as 1918 to insist upon amortization. Mortgages are generally written in Rhode Island for a single year, without reduction of principal during that period; then they are renewed with the provision for payment of $1 1/2 per cent of the principal at once and for further payments of $1 1/2 per cent each succeeding six months. Semi-annual interest is collected in advance from the beginning of the loan. In contrast, loans in Massachusetts have been allowed to run indefinitely, so long as mortgage payments and taxes were kept up. Danger to building lay in the fact that Massachusetts' banks were not getting back a regular flow of funds for further lending.

Comparative figures reveal the dangers to the banks themselves inherent in pursuit of the old plan. As of February 9, 1935, Rhode Island's banks held 28,065 mortgages. Same date, the number of foreclosed properties on their books totaled 699, or 2.49 per cent of the total number of mortgages.

Against the value of the Rhode Island banks' mortgages—$1,090,404,000—foreclosed properties amounted to $4,750,000, or 4.7 per cent. Opposite these figures, Massachusetts' record as of October 31, 1934, revealed 8,109,842,666 in foreclosed properties against $8,132,241,649 in mortgages, or 9.7 per cent.

Further figures, gathered in a confident survey last December by the National Association of Mutual Savings Banks, were cited to clinch the point. These, compiled in answer to the question as to what per cent of deposits was represented by real estate acquired through foreclosure, gave a graphic picture of savings bank mortgage troubles in the eight Eastern States where savings banks are strongest:

<table>
<thead>
<tr>
<th>State</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>2.00%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>2.41</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>2.74</td>
</tr>
<tr>
<td>Connecticut</td>
<td>4.25</td>
</tr>
</tbody>
</table>

New York: 5.96
New Jersey: 6.31
Massachusetts: 6.33
Vermont: 20.02

In the extreme situation in Vermont, due not so much to lack of amortization provisions as had boosted Rhode Island up to second place as to the many Western and Southern farm loans which its banks made nearly a decade ago, the Inventor saw a strong argument against the Steagall provision in the Banking Bill, allowing banks to lend wherever they choose. Vermont's experience obliged the adoption of careful safeguards in lending under this provision, which won out last month in the final stages of the bill's adoption.
WE WILL gladly mail you complete data regarding the comprehensive line of Sturtevant Air Washers. Just ask for Catalog 295-2.

Keep in mind, too, that in addition to air washers Sturtevant furnishes fans, motors, control, and heating and cooling coils...for complete installations. One source of supply — undivided responsibility.

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Sales Offices in Toronto and Montreal Repres. in Principal Canadian Cities
on the interior by sound and fireproof walls are a number of rooms arranged with separate elevators for service. These may be used for offices, studios, art exhibitions, etc.

From the 11th floor down to ground level a World's Fair suggested. This could be turned into a profitable world mart, with eighties 120 by 120 ft. and 100 by 120 ft. may be combined into even larger space. Total exhibition space: 14,000,000 sq. ft. The first floor is divided into many small permanent sales exhibits and compartments with 133 outside elevators. Separate lobbies are provided with 120 passenger elevators. There are 20 large entrances to promenades 40 ft. wide. The underground stories (which reach solid rock) are occupied by street car and bus stations. Freight depots with platforms for trucks and trains are directly connected with warehouses and factories above by means of 72 freight elevators. 7,000 thousand autos can be parked in this underground area. The lowest underground story where much ground water may be encountered will have swimming pools, properly ventilated. A large plaza surrounds the building. Automobile access to the building is underground only.

Mr. Rush figures that his building would keep 100,000 skilled workers busy for four years. It would also enlist the services of 1,000 architects and engineers to prepare working drawings. The architect sees the Universeum Building as a means whereby "many now unemployed mechanics will again become self-sustaining and off the relief lists." He adds: "Let us also remember that our nation must do something to recover our prestige in the world. The erection of such a building as a world market and international trading center is bound permanently to help our foreign trade."

HORMON MEMORIAL

Jumoralh Hill, in Palmyra, N. Y., marks the birthplace of Mormonism. Here, last month, was dedicated a memorial to this event. Designed by Sculptor Torlief S. Knaphus, a Norwegian convert to the church, the monument consists of a 1 ft. light gray granite shaft surmounted by a nine foot bronze statue of the angel Moroni who delivered the gold records to Joseph Smith, September 22, 1827. These records Joseph Smith translated by means of Urim and Thummim.

(Continued on page 42)
AEROFIN
HEATING AND COOLING SURFACE

SPECIFY AEROFIN FOR HIGHEST EFFICIENCY

Aerofin Standardized Lightweight Fan System heat exchange surface is the first choice of architects, engineers and building owners for Heating or Cooling because of its proved superiority. Progressive heating and cooling contractors install it because it gives complete satisfaction.

Aerofin is years in advance of ordinary heating and cooling surface because of its exclusive features. It is available in aluminum, copper or other special metals. Whatever you have wished for in a fan system surface you will find in Aerofin.

The home office in Newark or any of our branch offices will gladly send complete descriptive literature or render prompt, personal and efficient technical cooperation. Simply write to the address below.

FORUM OF EVENTS

(Continued from page 41)

(objects mentioned in the Old Testament in connection with the breastplates of the high priest, they are supposed to have been precious stones used in casting lots) and the translation of the records was made in Palmyra during the winter of 1829. Bronze plaques at the base of the monument depict the translation which resulted in the Book of Mormon.

It was in 1847 that Brigham Young arrived in Utah, now the seat of Salt Lake City there stands another Mormon memorial. And close to this memorial J. Edgar Hoover, director of the Federal Bureau of Investigation, found 890,700 which the Weyerhaeuser family paid to the kidnappers of their child George.

ARTISTS INCORPORATED

When, in the course of human events, an artist faces depression he has to think fast. Painting, decorative, sculpture, cabinet work are among the first ornaments of civilization with which the public starts to dispense. Commissions are rare; payments are apt to be slow or grudging. Prices drop. Sometimes the Government launches a scheme like the now not forgotten Public Works of Art Project but that is, at best, temporary. And the work, once done, is Government property and goes into Washington galleries or public schools and museums where it is not too likely to find an admirer who might also be disposed to look up the artist and give him a commission. The artist, in other words, has a fairly tough time during depressions. In Manhattan, an Italian-born U. S. citizen, Alphonso T. Toran, artist,

TORAN STUDIOS AND TORAN
Murals covered the piper’s ganglia

one-time dancing teacher and world war veteran, pondered these matters and came upon an idea. He would form a corporation of other artists who like him were hard put to it to find jobs. They would share profits (with larger share going to the actual creator), help one another

(Continued on page 43)
The work. The idea is perhaps not startling but the decision of its execution merits attention.

The first thing that a corporation needs is a home. Mr. Toran found one in New York City’s Hell Kitchen, an unused machine shop near the Hudson River. Rent to the city was $25. In order to participate in the corporation an artist was required to pay $50 for stock. Several artists were willing and anxious to do so, one selling a right to raise the money. Toran Decorative Arts Studios, Inc. moved into its new home which was a mess. But the artists were willing to work. They whitewashed the dingy walls, painted the ganglia pipes that lined ceiling and walls, hung panels and murals.

The corporation has to have a desk. Toran Studios numbered among its members a cabinet maker. He built the desk. Last month the corporation gave an exhibition of its works. Next month it will invite the public to see its second exhibition.

The Toran group is Depression-born and expects no huge missions. It announces “No contract too large—no job too small.” But while the group tries to do jobs at reasonably low rates, it allows no chiseling, expects that every job will take a small profit over the cost of materials and the slight overhead. Already in Manhattan are many examples of the work of Toran artists. José Maria Sert’s murals for the Waldorf-Astoria were a little too small for their destined space. A Toran artist added to them. Toran Artists are also represented in the Chrysler Building, the Sherry-Netherlands Hotel, the Bank of Manhattan Building. One of their last jobs was painting a portrait for a Midwest client. He sent a photograph of his wife and no comment as to the color of her hair, etc. Toran did it. It turned out all right and the client was immensely satisfied. Anne Morgan has shown interest in their work. So has President Roosevelt. One of the proudest Toran exhibits is a letter signed by the President... "I congratulate you on the energy and resourcefulness which you are using to help yourselves at this time, and assure you of my sympathy and interest in the difficult situation which confronts you.”

An Exide Keepalite Emergency Lighting Battery System is available for as little as $150, and operates for less than one cent a day. Larger, 115-volt systems are proportionately economical. Such systems are most efficiently installed as an integral part of a building—which adds to the special interest of the architect in this protection. Write for bulletin on Exide Emergency Lighting.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World’s Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Refer to Sweet’s Catalogue, Section 27—Page 1

Exide Keepalite
EMERGENCY LIGHTING SYSTEMS
$150 "ND UP
There is always something to be shipped or ordered; and regardless of shape, weight or size Railway Express will transport it swiftly and unerringly. Railway Express service is as widespread as the Nation and as local as the next town. With offices at 23,000 different points, Railway Express is always ready to pick up your shipments, speed them on fast passenger trains and deliver them quickly, safely and economically in all important cities and towns—without extra charge. For service or information telephone the nearest Railway Express office.

ANYTHING
ANYWHERE
ANYTIME

Railway Express is always ready to
pick up your shipments, speed them on fast passenger trains and deliver them quickly, safely and economically in all important cities and towns—without extra charge.

RAILWAY EXPRESS
AGENCY INC.
NATION-WIDE RAIL-AIR SERVICE

FORUM OF EVENTS
(Continued from page 43)

power and minerals which we commonly associate with the term."

The speaker was Governor Lehman of New York. The setting was Saratoga which last month made its official plea for recognition as a spa second to none in Europe. The Governor Lehman should speak of conservation showed a familiarity with one of his State's pet projects. In 1909 New York purchased 122 springs of the 175 which give Saratoga the distinction of having the only natural carbonated water east of the Rockies. By that act the State saved its springs from depletion at the hands of commercial interests.

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Saratoga Springs water was venerated by Mohawk Indians and esteemed by George Washington who tried to buy the site whence they issued. In 1883 Saratoga boasted hotels with a total capacity of 14,500 and an annual attendance of about 100,000. The famed Saratoga racetracks were built in order to entertain them.

The racetracks held little interest for Dr. Simon Baruch, father of Bernard Mannes and Dr. Herman Benjamin. What interested him were the waters and their efficacy in cardiac therapy. Last month, had he been alive, he would have rejoiced to see Saratoga's waters finally honored with a great bathing and drinking establishment.

This establishment cost approximately $8,500,000. Its new bathhouses have raised the spa's capacity to 6,000 people a day. Research will continue in the new Simon Baruch laboratory. Joseph Freedlander's $900,000 Hall of Springs houses huge bulbs in which the spa's several waters will continually wash and a balconied orchestra. From Dwight James Baum's recreation center and golf house cardiac patients may go to a "therapeutic" golf course, flat but tricky. In Marcus Reynolds' new Gideon Putnam Hotel the same patients may find more modern comforts and surroundings than are offered by the more famed Grand Union and United States hotels.

That Saratoga will become a paying proposition is evidenced by the sober prophecy of many a stute observer that within five years it will see 25,000 people paying $5,000 a year into its coffers. More concrete evidence is supplied by the fact that for the fiscal year ending June, 1934, Saratoga gave 101,449 treatments (90,000 were baths) and sold 870,286 bottles of water. Business this year is approximately 15 per cent up. Last summer, in July and August alone, 6,000 people took 50,000 baths. Architecturally the spa...
Above: A view looking across the gap from one broken end of the tunnel to the other. Below: A photo which gives a clearer idea of what happened to the tunnel and pipe lines.

Nature's test of AIRCOWELDING

Right in the path of the flood which recently ravaged a large section of Northern New York, is the State Hospital at Willard. When this modern hospital was built a comparatively short while ago, the heating and power piping was AIRCOWELDED throughout. The contractor was John W. Danforth Co., Buffalo, N. Y.

Part of this piping ran through a tunnel. With devastating force the flood washed out a section underneath the tunnel 90 feet wide and 60 feet deep. The tunnel collapsed, forcing the pipe line to support the entire weight of the concrete tunnel, which hung upon it in sections like an enormous string of beads. Yet not a single weld parted. In fact the drag of this tremendous weight, sagging the pipe line 60 feet below normal, threatened equipment to which it was connected, and the line was cut for safety's sake, on both sides of the wash-out.

The welds in those lines must have been subjected to tremendous strains and stresses. Yet not a single weld broke or cracked. Nature has proved, beyond the possibility of doubt, the STRENGTH of AIRCOWELDED piping. Furthermore, a 500 ft. emergency line for temporary laundry and kitchen service, was AIRCOWELDED and operating within twelve hours. Speed as well as strength is a feature of AIRCOWELDING.

Get the facts about AIRCOWELDING

AIR REDUCTION SALES CO.,

General Offices:
60 East 42nd St., New York, N. Y.

DISTRICT OFFICES and DISTRIBUTING STATIONS in PRINCIPAL CITIES

SEPTEMBER • 1935
HIGH STANDING
in Halls of
HIGHER EDUCATION

MONEL Metal for food service is a point on which even West Point and Notre Dame agree. So do Harvard and Yale. All these great schools (not to mention Leland Stanford, Tulane, Rutgers, Chicago and many others) have installed Monel Meta equipment in cafeterias and kitchens.

Food displayed on a silvery Monel Metal counter always looks more appetizing. Furthermore, these smooth surfaces are exceptionally easy to keep clean and sanitary. A hard usage means nothing in Monel Metal — long life. It is rust-proof, chip-proof, crack-proof, accident-proof.

We have recently published an informative booklet entitled, "The Selection of Food Service Equipment"— profusely illustrated with actual photographs. A copy is yours for the asking.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N.Y.

MONEL METAL

From this spacious Monel Metal kitchen comes the food which helps keep Notre Dame's famous athletes in championship condition. Note the 38-foot Monel Metal canopy over the range. Architects: Maginnis and Walsh, Boston, Mass.
FORUM OF EVENTS
(Continued from page 44)

utely conscious of its Colonial history, has remained con-
servative. Financially, it looms as a success. And socially and
erapeutically it promises to break the stranglehold which
European spas for years have had on ailing (physically or
psychologically) citizens of the U. S. Governor Lehman and
resident Roosevelt, who as Governor, fostered the project,
as good reason to be pleased with Saratoga last month.

WILSON AND HOUSES, INC.;
AMES IN THE NEWS

CHARLES E. WILSON, vice president of General Electric Co.
has been elected chairman of the board of Houses, Inc.,
with Foster Gunnison, president. Other officers are James A.
Ingar and J. A. Olson, vice presidents. Directors include P. D.
Reed, J. W. Lewis, and T. K. Quinn, G. E. vice president. At
the time of this announcement a statement signed by Owen
D. Young and Gerard Swope indicated the general field of
activity in which Houses, Inc. will be engaged. Of no concern
is the company will be the enclosure of houses. Since the com-
pany's main interest is the interior mechanism of the house,
refabricated, partly prefabricated or traditional exteriors are
equally acceptable. The statement of policy clarified a con-
fusion, causing some to think that Houses, Inc. intended build-
ing modern houses, arising from the exhibition of a prefabri-
cated Houses, Inc. home in Wanamaker's Manhattan store.
Houses, Inc.," said Messrs. Swope and Young, "will not itself
engage in the construction or sale of houses. It will undertake
help others in worthy projects and to carry on fundamental
work and experiments for the particular benefit of those inter-
ested in perfecting modern houses."

Mayor Fiorello La Guardia of New York City appointed
Dr. John Erskine, author and president of the Juilliard School
of Music, and Carl Paul Jennewein, sculptor of the bronze
doors for the British Empire Building, Rockefeller Center
(Arch. For., Aug., p. 93) to the city's Municipal Art
Commission.

J. M. Hopwood, president of the Hagan Corp., Pittsburgh,
announced the appointment of Dr. Everett P. Partridge as
research director of Hall Laboratories, Inc. He will be associ-
ated with Dr. Ralph E. Hall, managing director of Hall Labo-
atories, with the staff of Hagan Corp., the Burmon Co. and
Calgon, Inc. (all allied organizations) and also with the in-
cumbents of the Industrial Fellowship on Calgonizing sus-
pected by Calgon, Inc., at the Mellon Institute of Indu.strial
Research.

James A. Wares, architect, announces the opening of his
office at 11528 Normal Ave., Chicago.

Francis Rassier Roberson, architect, has opened an office
at 3414 Humphrey St., St. Louis.

Keist & Co., engineers, have opened offices in Albany, Ill.

Allen John Strange and Bealton Beatty announce the open-
ing of an office for the practice of architecture and city plan-
ing at 616 State St., Madison, Wis., under the name of Plan-
ing Associates.

Howard L. Cheney, Chicago architect, now with the pro-
curement division of the Treasury Department, has been
awarded the Czechoslovakian Order of the White Lion for his
share in the construction of the Czechoslovakian exhibit at
the Century of Progress Fair.

Claire Bates Manning, architect, announces the opening of
the office of the Spiva Building, Joplin, Mo.

The Public Works Officer, U. S. Naval Air Station, Pensa-
cola, Fla., would like complete manufacturers' catalogues.

Erratum. The July Forum, p. 58, erroneously attributed the
remodeling of the Hanseon Bake Shop, New York, to
Architect Horace Ginsberg. Apologies are made to Horace
Ginsberg, whose name was misspelled.

THE BIGGEST LITTLE THING
in Modernization

Next to complete Air-Conditioning—Automatic
Room Temperature Control is the most appreciated
modern comfort improvement. Yet Sylphon Auto-
matic Radiator Valves—simply used to replace ordi-
nary radiator valves in one room, a suite or through-
an entire building—cost so little, are so easy to install
without alterations in building structure or heating
system layout, and return so much in fuel economy,
they may be considered as a paying investment in
any modernization prospect, no matter how small.

Are you familiar with the present highly developed
line of Sylphon Automatic Radiator Valves for both
exposed and concealed radiation? Do you really appre-
ciate their flexibility of application, their beauty of
appearance, their simplicity of design—self-contained
and self-sufficient, requiring no outside source of power,
nor auxiliary equipment for accurate, reliable operation.

Up-to-the-minute information for building operators,
architects and heating engineers is contained in
Bulletin RA-253, yours for the asking.

SEPTEMBER • 1935

47
Steamed lines

Ric-wil. Conduit is the correctly engineered system for the permanent protection of underground Steam Lines. In combination with Ric-wil Dry-pac Asbestos Insulation, it is certified for the highest known operating efficiency. It is made in a variety of types and materials to meet all conditions. Ric-wil systems are complete, including installation instructions and engineering service drawings, also supervision for the job if desired. Bulletin 2559 on request.

The Ric-wil Co., 1562 Union Trust Bldg., Cleveland, O.
New York San Francisco Chicago
Agents in Principal Cities

In Philadelphia

Air Conditioned Restaurant

All the luxuries and comforts of modern living ... a gracious hospitality famed the world over ... and at the very hub of Philadelphia's social and commercial life. Theatres, Shops, Sports, Transportation and your appointments are but a step away.

Bellevue Stratford
One of the World's Great Hotels

Claude H. Bennett, General Manager

Products and Practice

(Continued from page 23)

In the "Kitchen of Tomorrow" several departures from customary arrangements have been made. A circular stove on casters, based upon the idea that a movable unit would increase the efficiency of the room, is the most interesting. Not in production, offered by the company as a suggestion to the industry, it is an exceedingly handsome innovation whose practicability is open to discussion. All cabinets, of course, are steel, and the dishwasher is housed in a simplifying development by the company's designers. An excellent space-saving device is the table which folds against a wall cabinet when not in use. A built-in clock is placed in the metal panel over the window, and suggests the possibility of incorporating other indicators and instruments into similar panels.

Although these metal rooms were developed as a background for the company's fixtures, and are not yet in production, their suggestions of further applications of mass-production methods to kitchens and bathrooms, they are most significant.

901. Air Filter

Davies Air Filter Corp. announces the improved Airplex filter, of the replaceable dry type, in which the medium is a specially processed cotton which has been found to operate successfully even when filtering air at 100 per cent humidity. The standard frame, 20 x 20 in., exposes 30 sq. ft. of pleated surface to the incoming air. From 500 to 1,000 hours of active service, depending on operating conditions, are claimed for each cell. For larger installations, steel frames containing from two to twenty-five cells are furnished.

902. Mixing Valve

The Babbin thermostatic mixing valve, distributed by the Evry-Use Products Co., Inc., automatically regulates the delivery of hot water from copper coils or tubes submerged in the hot water boiler. Adapted to domestic as well as manufacturing uses, it will deliver the water at any desired temperature from 140 to 190 degrees, a larger range than that possessed by any other type of tempering valve. It has only one moving part, is of all bronze construction, and is guaranteed for two years.

(Continued on page 51)
Today the architect can provide, even for his client whose budget is limited, the peace of mind that comes from living in a fire-safe home. At an almost negligible difference in building costs, Kalman Steel Joists make any dwelling virtually immune to fire.

Any blaze that may start in a home built with Kalman Steel Joists quickly burns itself out. It cannot spread because the stories, and particularly the first story and the basement, are separated by a barrier that fire cannot pass—a floor structure consisting of Kalman Steel Joists, concrete floor slab, and plaster.

The peace of mind that comes with security against fire is only one reason why the owner of a home built with Kalman Joists has reason to be grateful to his architect. These joists make a home better to live in and a sounder investment, because it is less subject to swift obsolescence. Ugly cracks never form where floor and walls meet. Floors never creak or sag. There's no possibility of damage by termites.

Kalman Steel Joists can be economically applied to any type or size of dwelling.
A FEW
UNVARNISHED FACTS
ABOUT
INSULATION

We have plenty of laboratory figures to show why BALSAM-WOOL is better insulation. But your clients don’t want laboratory figures. They want insulation efficiency—on the job.

Here are a few questions every architect should ask...he is interested in giving his clients more insulation value per dollar:

**Is It Moisture-PROOF?**

We know—and you know—that moisture destroys the effectiveness of insulation. We know—and you know—that moisture gets into any insulation which is not adequately protected as a whole. BALSAM-WOOL is completely and permanently protected from moisture...sealed in a water-proof covering. In addition, it is chemically treated to make it vermin-proof and fire-resistant.

**Is It POSITIVE in Application?**

To be effective, insulation must have no weak spots—leave no loopholes for wind, heat or cold to get through. But you cannot be sure of continuous insulation with materials that are merely poured or dumped in common labor. BALSAM-WOOL is positive in application—fastened in place by qualified carpenters who know their business. Flanged edges now make it even easier to apply than ever before.

**Is It Permanent in EFFECTIVENESS?**

Materials that settle or that change their form, cannot be permanent effective. BALSAM-WOOL lasts as long as the building in which it is applied —stays where it is put and does not change its form.

**Does It Offer the RIGHT Thickness for the Job?**

For every home and every climate, there is a right thickness of insulation beyond which it does not pay to go. BALSAM-WOOL comes in thicknesses to fit every insulation need, everywhere.

Let us tell you all of the facts about BALSAM-WOOL. We believe you will find them worth knowing!
PRODUCTS AND PRACTICE

(Continued from page 48)

1. DESK LAMP

Wilbur Henry Adams & Associates have designed a new minum desk lamp. It is of the open top variety acting as a reflector as well as a direct lighting unit. The lamp is housed in a shell Monax glass which gives a diffused light down the desk surface. It has a clamp arrangement which leaves the top of the desk unobstructed while making possible any position desired for the lighting source.

4. ELECTRIC ORGAN

The Hammond Clock Company has developed an electric organ operating on a wholly novel principle. It is built to conform to established pipe organ standards and requires pipe organ technique in the playing, but is operated by electricity and has no pipes, reeds or other vibrating parts. The instrument permits the enormous variety of tone colors necessary to render the great works of classical organ literature. It consists of a two manual console with pedal clavier and a power cabinet. The organ can be produced at less than the cost of a grand piano and it is claimed that the instrument will revolutionize the organ industry, as the large spaces formerly required for the installation of pipes are no longer needed.

5. RUBBER PUTTY

A new type of rubber putty, known as Plastikon, has been announced by the B. F. Goodrich Co. It is claimed to be highly resistant to moisture, corrosive chemicals, and fumes, and is offered as the solution to the problem of properly sealing windows against air leakage in air conditioned buildings. It is similar in appearance and consistency to ordinary painters' putty and may be applied with a knife in the same manner. It adheres equally well to steel or wood surfaces and because it contains little oil, requires no mixing.

(Continued on page 52)

The Old
FIFTH-THIRD BANK
Building
Sealed Weather-tight with

When the old Fifth-Third Bank Building in Cincinnati was remodelled and styled for 1935 commercial occupancy the work as planned provided for permanent protection against weather damage and undue heat losses. This was assured by calking all masonry joints and also the joints around the metal work with Pecora Calking Compound.

For old structures as well as new, and a prime essential in air conditioned buildings, no material is so dependable, so permanent, so sponsored by years of satisfactory performance, as Pecora—for it will not dry out, crack or chip when properly applied.

For further details see Street's Catalogue or write direct to us.

EPTEMBER • 1935
MARCH, 1935, FORTUNE MAGAZINE, referred to The John Van Range Company as “the only national organization” in its field. They might have said “international”. Wherever architects desire to check their own preliminary plans for food service equipment, or to solve food service problems that have not come within their own recent experience, they generally avail themselves of the

JOHN VAN RANGE
KITCHEN ENGINEERING SERVICE

Leading architects have welcomed the help of John Van Engineers in detailing and equipping the food service floors of their building projects. For instance:

- Albert Kahn, Inc., Detroit, Michigan
  GENERAL MOTORS BUILDING
- Robert Leon White, San Antonio, Texas
  UNIVERSITY OF TEXAS COMMONS
- James L. Ritchie and Associates, Boston, Massachusetts
  BOSTON CITY HOSPITAL
- McKim, Meade and White, New York City
  NATIONAL HOTEL, HAVANA, CUBA

It is quite as essential that the small job be as efficiently planned as the large job . . . quite as necessary that every detail contribute to fast and economical operation so that food can be prepared and served at a profit. It is because the same care and attention is given to all jobs, regardless of size, that architects commonly utilize our staff.

Our engineering service is rendered without charge. It places the architect under no obligation. You are invited therefore to submit plans of all food service floors . . . before construction is begun, if possible.

PRODUCTS AND PRACTICE
(Continued from page 51)

906. ESSWOOD

The Driver-Harris Company has put a new natural veneer on the market. It comes in thickness of 1/80 in. to 1/2 in. and is not mounted on paper or fabric. The veneer is applike wall paper to walls, metals, or other surfaces, and can be applied to fireproof steamship cabins, staterooms, and airplane interiors. It is obtainable in lengths eight, ten and twelve feet and in widths of from eight to fourteen inches, depending upon the size of the log from which the veneer is cut.

907. BILLIARD TABLE

A radical departure in billiard table design has been announced by the Brunswick-Balke-Collender Co. Their new table has light metal construction replacing the usual massive supports and can be used not only for billiards, but, since it has the new utility top, also for general use and for ping-pong. A new material in place of the slate bed which has been used up to the present time provides a playing surface that is quite as rigid as slate and weighs much less. A claret-color cloth claimed to be easier on the eyes than green completes the radical changes incorporated in this new table.
The electrical and structural modernization of America's business property is under way. Through the Federal Housing Administration, the money is available. Business men and the Government are stressing Modernization for one purpose: To create better business for all. Architects are being asked to draft the plans.

TEMLOK ROOF INSULATION PROVIDES ADEQUATE THICKNESS Without Lamination!

This efficient, low-cost material for roof decks is fabricated in solid 1½" and 1" boards.

CHOICE of full inch or one and a half inch Armstrong's Temlok Roof Insulation insures greater comfort and fuel savings for any type of building—commercial, residential, industrial, public or semi-public!

And it does more! It reduces installation costs by eliminating the necessity of building up with thinner layers where more adequate insulation is desired. Most important, the structural strength of this thicker insulation permits a reduction in density, thus giving lighter insulation and greater insulating efficiency. Also its light weight makes Temlok easy and economical to handle and minimizes the weight on the roof slab.

Armstrong's Temlok Roof Insulation is also furnished in ⅝" thickness, as well as solid 1" and 1½". Temlok is made from the heartwood of the southern yellow pine, the fibres of which are super-charged with resin. It is this natural resin-impregnation that gives to Temlok the high resistance to moisture necessary for a roof insulation that is permanently efficient.

For complete information about Armstrong's Temlok Roof Insulation—and the other insulating products in the complete Temlok line—write today to Armstrong Cork Products Co., Building Materials Division, 900 Concord Street, Lancaster, Penna.
PRODUCTS AND PRACTICE

(Continued from page 52)

GARBAGE ELIMINATOR
The Specialty Appliance Department of the General Elec
ctric Company has announced a new electrical device which
eliminates waste foods, thereby eliminating the garbage can
in the home. The device is installed beneath the kitchen
counter and can be attached to existing sinks. It grinds and
mixes all waste foods including citrus fruit skins, chicken
bones and chop bones. Reduced to a fine pulp the waste food
flushed by water and carried away as part of the sewage
stream. The grinder is a rugged high-speed device. Its speed,
with the centrifugal action, results in aerating the food solids,
causing the garbage to coagulate into small particles which
are carried away without clogging the pipes. Water used in the
grinding and flushing process is almost negligible and the com
pany claims that its average

STEEL DOORS
The Kinnear Manufacturing Company has recently com
pleted one of the largest installations of steel doors in the
country. These doors were used in the giant pier in New York
harbor, especially for the docking of the "Normandie;" the
doors consist of two sections. As the lower section tele
tops with the upper one, the two sections slide to the over
top position on heavy steel tracks. The doors are so counter
danced by the concealed weights that only 15 pounds of
energy are required to open them. A feature of special interest
is the safety drop lock which minimizes the hazards of rais
ing and lowering doors of such great weight. It is similar to an
elevator lock in that it prevents the door from dropping
while the lifting chains accidentally break.

WALLBOARD
The Upson Company announces the production of a new
fiber wallboard. By the use of a formula developed by the company the board has been so treated that
moisture absorption has been reduced to a point hitherto un
known in fiber wallboards. It is claimed that water immer
sion tests have shown that other boards have a capillary rise
of thirty-one to eighty times greater than this new product. In
addition, a new surface has been developed which eliminates
the necessity of a sizing or priming coat of paint. Each board
comes with two surfaces, one smooth and the other pebbled,
both of which can be used depending upon the texture
desired. A new method of application for this product has
so been developed which will permit the installation of
slings without visible cracking or joints.

A DISTINGUISHED HOME
World leaders and distinguished visitors . . . for over forty
years . . . have stopped at The Waldorf-Astoria. For The
Waldorf is more than an internationally famous hotel.
it is a delightful home. Room rates are from $5 the day.

IRON FIREMAN
The machine that made coal an automatic fuel

W E will gladly send Don Graf Data Sheets and other de
scriptive Iron Fireman literature to architects and draftsmen who are
interested in the application of automatic coal firing to residential
heating plants and to commercial boilers up to 300 hp. Address 3213
W. 106 St., Cleveland, Ohio. Iron Fireman Manufacturing Co., Port
land, Oregon; Cleveland, Ohio; Toronoto, Canada.
"Specify Reading GPWI* Pipe for all the vents, downspouts, and waste lines, McGregor. That's the only stuff that stands up in this town in tough services like those."

*Genuine Puddled Wrought Iron Pipe

For help in specifying the right pipe for the right service, write

READING IRON COMPANY
PHILADELPHIA

CAST IRON VERANDAS AND BALCONIES

Smyser-Royer Company cast iron verandas and balconies have a wide variety of applications in architectural design. Write for our new catalogue.

SMYSER-ROYER COMPANY
Main Office and Works, York, Pa.
Philadelphia Office—1700 Walnut St.

MANUFACTURERS' PUBLICATIONS

Among the manufacturers' publications recently received interest to the architectural profession were the following:

912. GYPSSTEEL PLANK
From the Structural Gypsum Division of American Cyanamid & Chemical Corporation a catalogue showing uses of Gypsum Plank on various types of buildings.

913. HEATING
From the Spencer Heater Company a new booklet entitled "Heating the Multiple-Family House," dealing with the heating problems of owners and managers of dwellings, of buildings and stores.

914. FLASHING
From Revere Copper & Brass Incorporated a booklet showing typical details of Thru-Wall Copper Flashing.

915. DOORS
From C. V. Hill and Company a new catalogue of the new and complete line of cold storage doors.

916. PORCELAIN ENAMEL
From the Porcelain Enamel Institute a new brochure titled "Sales Manual for Porcelain Enamel" describing the history and application of this material.

917. REFRIGERATING UNITS
From the York Ice Machinery Corporation a new series of bulletins, A.I.A. File No. 32, with specifications and other data on York Refrigerating Units.

918. PUMPS
From the Worthington Pump and Machinery Corporation a booklet on the company's deepwell turbine pumps.

919. FOLDING PARTITIONS
From the Richards-Wilcox Manufacturing Company a new catalogue, A.I.A. File No. 19-E-61, describing their complete line of folding partitions and doors, with details and photographs of numerous installations.

920. MANUAL

921. PIPING
From the Air Reduction Sales Company a new booklet "Facts About Piping for Buildings."

922. WINDOW
From the Kawneer Company a new booklet describing their new Light Sealair aluminum or bronze double hung window.

923. CONTROLLERS
From the A. W. Cash Company Bulletin No. 963 on the New Type 100 Series of Cash Standard Controllers for automatically operating valves, rheostats, stokers and other apparatus.

924. CONCRETE
From the International Cement Corporation a new booklet with a simple non-technical discussion of fundamentals of concrete construction.

(Continued on page 59)
The test was made in a northern Indiana mill town. The 100 homes in the community were divided into 3 sections. Each section was painted with a leading kind of paint. In a short time, two of the paints used had cracked, peeled or discolored badly. They had to be touched up within two years. During the same period, the third paint — 100% Eagle Pure White Lead — showed little sign of wear. The houses in this section did not need repainting until 5 years later!

The initial cost of Eagle Pure White Lead was approximately the same as the other paints, but its final cost was much less. It went on giving good service 3 years after the other two paints had failed.

There is a definite swing to quality paints everywhere. Save yourself the embarrassment of premature paint failures by specifying Eagle Pure White Lead for exterior work on all your houses.

MAIL THIS COUPON • The Eagle-Picher Lead Company, Dept. AF9, Cincinnati, Ohio. Please send me a copy of the folder that tells the complete story of the Indiana Community Paint Test.

Name ________________________________
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City ___________________________ State ______

SEPTEMBER • 1935

57
Another Tavern goes MODERN with the help of Russ and G·E BAR PLANNING SERVICE

OWNERS of the Southern Mansion, Omaha, wanted a truly modern bar—attractive, efficient and including a beer dispensing system that was dependable and economical. The local architect and builder called upon Russ and G-E Bar Planning Service. Pictured above is the answer—a modern, skillfully laid out, thoughtfully planned Russ Service Bar equipped with General Electric refrigeration, Russ Beer Dispensing Apparatus and complete facilities for cocktail service. General Electric refrigerated Russ Bars are made in all standard sizes or fabricated and built of any special materials to your specifications. A complete bar planning service that covers every type of bar where liquor and draught beer are served is offered to architects and builders. The service includes detailed information and specifications on the laying-out of bar interiors—and cocktail service and beer service stations—where to locate beer stations—and how to space working units for most efficient operation. Phone the nearest G-E refrigerator distributor for details or write direct for full information. The Russ Manufacturing Co., Dept. 935, 5700 Walworth Ave., Cleveland, Ohio.

RUSS BARS AND BEER DISPENSING APPARATUS EQUIPPED WITH GENERAL ELECTRIC REFRIGERATION sold exclusively through...

GENERAL ELECTRIC REFRIGERATOR DISTRIBUTORS
Manufacturers' Publications (Continued from page 56)

Steel Ceilings
new booklet from the Edwards Manufacturing Co. devoting in detail their line of steel ceilings with tables for quoting the area required and cost.

Humidistsats
Bulletins A and AT R describing the new range of Friez Mounting Humidistsats and Friez Relays and Complete 1xrd Assemblies for use in conjunction with their humidifiers and thermostats.

Elevators
from the Sedgwick Machine Works a new general catalogue of their line of dumb-waiters, freight elevators, and book

Cafeterias
new booklet from the John Van Range Co., A.I.A. File 1, entitled “Practical Planning for School Food Service.” Booklet contains a number of articles on the practice of cafeteria planning, copiously illustrated with photographs and siled plans of a number of schools of various types in which problem of serving large numbers of students had to be solved. This booklet is one of a series of five, the others dealing with restaurants, clubs, hospitals and churches.

Wiring
From the Bryant Electric Co. a new booklet, “Home Modification for Wiring Convenience,” with illustrations of various switches, receptacles and outlets manufactured by the company.

Air Conditioning and Heating
A folder from the Perfectione Stove Co. containing material on its air conditioning equipment and fuel oil heating plant, A. File 30-F.1.

Glass
From the Lord & Burnham Co. a new booklet on “Glass Closures” for sun rooms, conservatories and glass gardens, illustrated with many photographs showing the use of their glass units, both as separate buildings and connected to residences.

Sheet Glass
from the Scohy Sheet Glass Co. an interesting little booklet describing the use of sheet glass for lighting fixtures, windows, furniture, passe partout, glass shelves, wall murals, and nurseries.

Steel Conduit
From the Rigid Steel Conduit Association two new pamphlets giving advantages of standard rigid steel conduit over other methods of wiring.

Duracal
From the United States Gypsum Co. two booklets explaining the advantages of Duracal, the new wall and ceiling paint.

Steel Boilers
From the National Radiator Corp., a new catalogue giving a sizes and complete measurements of their line of steel steam boilers.

Motors
Bulletin No. 601 from The Louis Alis Co., dealing with special characteristics of electric motors for centrifugal fives.

(Continued on page 62)
EMPIRE BAR
SCOTT & TEEGEN ARCHITECTS
Also the following hotels
ROOSEVELT - - - - N. Y. C.
CONGRESS - - - - CHICAGO
ROBERT TREAT - NEWARK PLAZA - - - - N. Y. C.
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and many others
337 Adams St. Phone
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B·O·O·K·S

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Book Service Department
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New York, N. Y.

Your back copies of THE ARCHITECTURAL FORUM are virtually irreplaceable.

Available now are binders that will preserve them in either sewn or spiral bound form.

Illustrated above is a new binder, covered in natural tan Webtex Studio cloth and stamped with black letters, specially designed to hold the January-June, 1935 issues. The rods which slip through the spiral binding, and the inside back strip are of chrome plate. Complete single issues are easily removed and returned. Price: $2.00, f.o.b. New York City.

Illustrated below is the binder for sewn issues. This is available in either royal blue or maroon crash cloth with 22 carat gold leaf printing and the option of having your name printed on the front cover at no additional cost. Price: $3.50, f.o.b., New York City.

Binders are now available for the January-June and July-December, 1935 issues.

Send check or money order to THE ARCHITECTURAL FORUM
135 East 42nd Street, New York City.
The World’s First
Large Home Development
WITH
Complete Year-round Air Conditioning

Section of the community of semi-detached dwellings equipped with year-round G-E Air Conditioning now being completed in Washington, D. C., by Washington Builders, Inc., Harry Sternfeld, Architect.

THERE is pleasing variety in the appearance of forty-eight semi-detached homes which Washington Builders, Inc., are erecting on a tract overlooking Rock Creek Park, but all the houses have at least two things in common: They sell for less than $12,000, and they have complete summer-winter General Electric Air Conditioning.

The G-E equipment comprises a Gas Furnace, a Central Plant Air Conditioner and a Condensing Unit. The air conditioning system is laid out with ampers so that in summer the first floor may be cooled during the day and the second floor at night.

Frank Koplin, head of Washington Builders, Inc., believes that homes without air conditioning will soon be obsolete. He is providing it now because purchasers want it and the cost is much less than after a house is built. He is stressing health and comfort factors and the economical operation of G-E Air Conditioning.

And (note this, progressive architects) he is selling these fully air conditioned houses at a price comparable with that asked a year or two ago for houses of similar grade with only ordinary steam heating.

Architects will find in the complete and flexible line of G-E Air Conditioning equipment exactly what is needed for any home. A unique dealer service in your town, with G-E-trained engineers, works with you on any phase of air conditioning. For details see G-E Air Conditioning section in your 1935 Sweet’s Catalog. Or write to General Electric Company, Air Conditioning Dept., Division 42415, Bloomfield, N. J.
THE WORDS

or Equal

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HYLOPLATE Quality

nor the performance this popular Blackboard has been giving for nearly a half century.

Economical, long lasting, OLD RELIABLE HYLOPLATE BLACKBOARD has a velvety writing surface that registers a clear, uniform chalk mark. It never reflects light, nor does it fade out writing. So it is easy on pupils' eyes.

On your next school job, specify OLD RELIABLE HYLOPLATE WITHOUT RESERVATION. That will insure your getting the GENUINE.

ARCHITECT'S PORTFOLIO FREE!!

A new portfolio (A.I.A. File 35-6-12) gives Blackboard details, specifications and drawings. Send for your copy today. Address Dept. HH77.

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SERIES "RP" RIVETED HIGH PRESSURE BOILERS

THE MODERN ECONOMICAL HEAT-POWER UNIT

Portable return tubular fire box power boilers for 100 to 150 lbs. pressure. Send for Form 9090-AAF.

THE TITUSVILLE IRON WORKS COMPANY
Division of Struthers Wells - Titusville Corporation

TITUSVILLE, PA.

MANUFACTURERS' PUBLICATION

(Continued from page 59)

937. FURNITURE

From the Charak Furniture Co. a new catalogue on line of period furniture.

938. WASHFOUNTAINS

From the Bradley Wash Fountain Co. a new catalogue showing group washing fixtures including washfountain showers.

939. VALVES

From the Fairbanks Co. Catalogue No. 27 illustrating line of bronze and iron valves.

940. TOILET SEATS

From the New Process Rubber Co. a folder describing new line of solid rubber toilet seats, with list prices.

941. LEAD

A new illustrated booklet containing information on lead pipe and other lead plumbing supplies, issued by the Lead Industries Association.

942. PORCELAIN STEEL

From the Porcelain Steel Buildings Co. an illustrated catalogue showing the application of their products to modern business units.

943. CONCRETE HOUSES

"22 Low Cost Concrete Homes" a new booklet published by the Portland Cement Association, suggesting designs for all types of small concrete masonry homes.

944. STAINLESS STEELS

From the American Rolling Mill Co., a folder listing advantages to be expected from the use of Armco stainless steel.

945. LINOLEUM SPECIFICATION

From the Linoleum and Felt Base Manufacturers Association, subscribed to by the leading companies in the industry, standard specifications for linoleum installations.

946. HEATILATORS

From the Heatilator Co., a new booklet with many example of the uses of its heat circulating fireplaces.

REQUEST FOR DATA

To obtain any of the publications reviewed on these pages, indicate the number and send coupon to THE ARCHITECTURAL FORUM, 135 East 42nd St., New York

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Please check here if engaged in Architectural Practice

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THE ARCHITECTURAL FORUM
IN THIS toilet room, White Carrara Structural Glass has been used for attractive, easy-to-clean walls, and for sturdy, sanitary partitions. Cap and base of rich Black Carrara contrast smartly with the large white areas.

Toilet Room Walls and Partitions of CARRARA are

CARRARA Structural Glass has won the approval and enthusiastic endorsement of architects throughout the country. A structural glass which is ground and polished, which has brilliant, reflective surfaces, a hard, durable, fine-textured finish, Carrara is an ideal medium not only for use in executing new toilet rooms of distinction, but also in remodeling old toilet rooms which have become outmoded.

When the toilet rooms in a building are finished in Carrara, they will never give away the building’s age by their appearance. For Carrara installations will look as fresh, new and unblemished thirty years from now as they do today. Carrara never checks, crazes, stains, fades, absorbs odors or moisture. It is unaffected by chemicals, oils, pencil marks.

And to keep it clean... merely wipe it occasionally with a damp cloth! No cleaning powders, no special preparations necessary... which means a big savings in upkeep.

You will like Carrara especially well because of its versatility, the wide scope of possibilities for original and effective treatments it offers you. We invite you to send the coupon below for our interestingly illustrated booklet on Carrara Structural Glass, which contains complete information.

CARRARA
The modern structural glass

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PLATE GLASS COMPANY
2270A Grant Bldg., Pittsburgh, Pa.
Please send me, without obligation, your booklet entitled “Carrara Modern Structural Glass.”
Name
Address
City State

SEPTEMBER • 1935

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IX ONE BASKET?

In spite of every precaution you may take to insure a reliable and constant supply of electricity, there is always the threat that fire, storms and other untoward circumstances may pitch the buildings you design into total darkness. Panic and personal injury might result.

That's why it is so important that you don't have all your eggs in one basket... why some provision for emergency lighting should be made in the design of every public building.

One of the most inexpensive and dependable methods is through the installation of a Westinghouse Gas-Electric Set designed primarily for emergency service. Long life and freedom from attention and maintenance makes the Westinghouse gas-electric set ideal for such standby operation. Fully automatic, it operates the instant there is any interruption of the normal power supply. It can be supplied for operation with gasoline, natural or artificial gas. Capacities from 800 watts to 75-kilo watt either alternating or direct current.


Are all your Eggs

IN ONE BASKET?

EMERGENCY GAS-ELECTRIC SETS

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In the Home, too...

Storage Heaters of EVERDUR METAL

In hospitals, stores, public and semi-public buildings...in small homes and large residences, storage heaters of Everdur Metal have proved the economy of this strong, not-rust metal of moderate cost.

Nearly all copper, alloyed with silicon, Everdur possesses the strength of medium carbon steel. Since it is readily welded by all commonly used methods, this unusual Anaconda Metal fulfills all the requirements for durable, rustless storage heaters, domestic storage tanks and tank units in automatic heaters. And all are available today from leading manufacturers.

Equally successful is the use of Everdur for air-conditioning equipment, drains and ducts, electrical conduit, smoke washers, masonry anchors, window cleaner bolts, etc. Additional data on any specific use of Everdur furnished on request.

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EVERDUR METAL for TANKS
YOUR clients have the right to expect heating equipment that is stylish — that is quiet — that is economical — that delivers the heat in a manner that assures maximum comfort.

Trane engineers realize these facts — that is why you get more in a Trane Unit Heater. “Floor Line Spread,” for instance is one of the major developments in unit heater design. The grille which produces it not only looks better than louvers but it actually causes the heat to be delivered and distributed in the living zone. In announcing this 1936 line of unit heaters — both propellor and blower type fan units — we believe that we are placing in the hands of architects and engineers the most modern heat distributing equipment available whether for fashionable shops or for factory installations.

Construction: The same famous Trane Heat Transfer coil that has been accepted as a standard of heat transfer in the unit heater field as well as by many of the leaders of the air-conditioning industry for their own units is employed in the Trane Unit Heaters. Casings are heavy gauge steel. Fans are improved and higher efficiency.

Quiet: Completely enclosed fan on propellor units makes possible a lower decibel reading than before available in a unit heater.

Unbiased Recommendations: Trane has available every type of unit heater. Suspended and Floor type propellor fan units. Wall, Ceiling, and Floor Type Blower Fan units with either direct or belt drive, will pay you to call a Trane engineer into your office on your next heating installation. His recommendations of the proper type of unit will be unbiased — cause Trane has a unit heater to fit any job.

Complete Data: Here is complete working data for the drafting and consulting departments covering every phase of unit heater selection and application. Your letterhead or the coupon will bring all of this valuable working information without cost.

TRANE UNIT HEATER

40 PAGES OF WORKING DATA
Is justice blind? Not in South Dakota when it became necessary to judge the merits of various materials for the spandrels and mullions of this modern new court house. Republic ENDURO Stainless Steel was awarded the decision, just as it is winning its case wherever discriminating designers and builders seek a distinctive material of everlasting beauty.

Now you be the judge! Here is a material which doubtless has no equal for versatility and long life. Republic ENDURO Stainless Steel provides the designer with a unique means of expression in decorative trim—both for exterior and interior work in every type of building. It is available in a wide variety of finishes from a dull matte to a high mirror polish—all of which defy the elements and retain their original lustre. It never rusts or tarnishes. It is stronger than ordinary steel—yet it may be fabricated into most every conceivable shape by any well-equipped shop. Two of the decorative forms from this South Dakota court house are illustrated.

You'll find a wealth of information on Republic ENDURO in Sweet's Architectural Catalog. For further detailed information, write us.
The history of this 100-family apartment house, built in 1923 (name and location on request), shows the importance of modern plumbing, and points an interesting moral in protecting an owner's investment.

After 12 years, the hot water ran rusty, and the pipes, almost eaten through in many spots, were so clogged in other places that the water could scarcely flow. Tenants complained and then moved out; rent receipts dropped with alarming speed. But—the owners saved the situation, in the spring of 1935, and won back many of their old leaseholders by replacing all hot water lines with rust-proof brass—Bridgeport Plumrite Brass Pipe being used throughout.

On any piping job, new or old, Bridgeport Brass Pipe is the finest material obtainable, especially in larger buildings, where utmost strength and generations of service are required. Where building budgets are limited, Bridgeport Copper Water Tube, with soldered fittings, is advised. It gives a rust-proof job at prices competing with rustable pipe. Excellent for underground service, steam and hot water, fuel oil piping, etc.

Bridgeport engineers have studied plumbing problems from every angle. Write for free booklets, "Water Pipe Sizes" and "Bridgeport Copper Water Tube." They contain valuable data.

Bridgeport Copper Water Tube is recommended for a good-looking, rust-proof job where costs must be kept down. Can be used with any standard make of soldered or flared fittings that are made according to government specifications.