THE AMERICAN ARCHITECT

VOLUME CIII. WEDNESDAY, FEBRUARY 26, 1913 NUMBER 1940

HEATING AND VENTILATING PRACTICE

PART II

By D. D. KIMBALL

Member American Society of Heating and Ventilating Engineers; American Public Health Association; Chairman, Section on Ventilation, American Museum of Safety; and Chief Referee on the Subject of Ventilation, XV International Congress on Hygiene and Demography.

ONE of the most important details of a heating and power plant and, perhaps the least considered, is that of grates. These come in many forms and shapes and for use with bituminous coal they should be entirely different from those used for anthracite coal.

Where possible the grates should be either round or as nearly square as possible, and the fire doors should be of such a size and so located as to make possible easy access to all parts of the grate.

For both large and small boilers, flat, shaking, rocking or dumping grates are available. The flat grates are used with both soft and hard coal; the shaking or rocking grates are best adapted for use with bituminous coal, and the dumping grates are used when burning anthracite coal.

Usually the fuel bed is twelve inches to eighteen inches deep when bituminous coal is used and the shaking or rocking grates will remove the ashes at the bottom of this bed without losing the good coal, while the fuel bed in the case of anthracite coal is usually four inches to eight inches deep and the rocking or shaking grates may not be operated without losing the good coal with the ash. The dumping grates are therefore used to make possible the cleaning of the fire by raking the good fuel to one portion of the grate while the entire grate is level after which the ash on the section of the grate from which the good coal has been raked, is dumped into the ash pit, then all of the good coal in the fire box is pushed on to the clean grate and the ash dumped from the other part of the grate, the good fuel being then distributed over the entire area of the grate and new fuel is thrown on.

The matter of air space in all types of grates is important. For bituminous fuel with natural draft the total air space may be fifty per cent. of the total area of the grate, the spaces being approximately one-half inch wide; with forced draft the total area of air space may be reduced, in some cases to twenty-five per cent. of the total area of the grate, the spaces being one-quarter inch wide; with large size anthracite coal the air space may be forty per cent. of the total area of the grates and one-half inch wide, while with the small sized anthracite coal and natural draft the total area of the air space may be forty per cent. of the total area of the grate, the spaces being not over one-quarter inch wide, and when using the small sizes of buckwheat coal and forced draft, the air space may, in extreme cases, be reduced to twenty per cent. of the total area of the grate, the spaces being not over one-quarter inch wide.

The conditions determining these questions are varied and require the application of experience and judgment.

In many cases automatic stokers have many advantages. It is not the writer's opinion that automatic stokers are econom-

ical in the consumption of fuel, despite the claim of the manufacturer to the contrary. Nor do they economize in the labor except in plants of over 1,000 horsepower, but their chief advantage lies in making possible the burning of bituminous coal without smoke. The statement relating to lack of economy in the consumption of fuel should be modified to the extent where it makes possible the substitution of bituminous coal for anthracite coal in locations or at times when the price of the bituminous coal is not a great deal more than the price of the buckwheat coal. In such cases a less amount of bituminous coal would be required to do the same work and often this makes possible a material saving which makes the installation of automatic stokers well worth while.

There are many forms of automatic stokers, the principal ones being the chain grate stoker, inclined stoker and under-feed stoker. The latter form will generally produce the least smoke, inasmuch as the coal is fed in from beneath and the volatile gases are burned off in passing through the incandescent fuel bed.

In the case of either grates or stokers the proportioning of the grate area to the heating surface of the boiler has very definite bearing upon the efficiency or economy of the plant. A small amount of coal burned per square foot of grate area means a low temperature in the fire box due to too low a rate of combustion and too much air passing through the fire box. Even in large plants it is not uncommon to find not over three to four pounds of coal burned per square foot of grate per hour while twelve to eighteen pounds of fuel burned per hour per square foot of grate will give much better results, and with forced draft this may be wisely carried to as high as twenty-five pounds.

Every plant requires a smoke connection or breeching from the boiler to the chimney. In the case of cast iron boilers this may be made of number sixteen gage black iron. In large sectional boiler plants or a small fire tube boiler plant the smoke breeching may be either round or rectangular in form, of one-eighth inch mild steel and in large fire tube boiler plants and in water tube boiler plants the breeching should be made of three-sixteenths inch to one-quarter inch mild steel. All large breeching should be thoroughly stiffened with angle irons varying in size from one and one-half inches by one and one-half inches to three inches by three inches, depending, upon the size and length of the breeching. The uptake connections from the boiler to the smoke breeching are usually made of the same thickness of material.

In each uptake connection there should be placed a tight fitting damper closing at an angle of forty-five degrees, and in cases where the greatest dimension of the damper is over twenty-four inches, this damper should move on roller bushings placed on the outside of the uptake. Where there is more than one boiler these uptake dampers are for hand operation to balance the draft among the different boilers and for shutting off the draft in such of the boilers as are not in use. In the main smoke connections there should be placed a damper closing at an angle of forty-five degrees, moving on roller bushings placed on the outside of the breeching, this damper being operated by an automatic damper regulator actuated by the boiler steam pressure.

The extent to which coal and ash handling apparatus shall be provided depends upon the location of the plant and its size. It is usually customary and it is desirable that the coal be stored on the same level with the boiler plant and contiguous thereto. In very small plants no method of delivering the coal from the coal pocket to the boiler is required, as it may be shoveled directly from the coal bins into the boiler. In plants up to 250 horsepower, where the coal must be carried a distance of twenty feet or more, it is desirable to provide coal barrows or better still, small hand-drawn coal cars.

Experience has shown that flat wheel trucks without rails is most desirable, assuming the floor to be of smooth concrete, as with such a truck it is possible to reach any part of the coal vault or boiler room, and they are just as easily operated. Such coal cars are suitable for plants up to 1,000 horsepower. For large plants a dumping type of coal car on tracks may be desirable or an overhead trolley system with dumping buckets may be warranted. The trolley system is especially desirable in plants using automatic stokers, as the coal may be dumped directly from these buckets into

the hoppers of the automatic stoker. Only in very large plants is the storing of the coal over the boilers warranted.

Where the level of the boiler room is below grade and the plant is large some form of ash hoist becomes necessary. This may take the form of an elevator, either hydraulic or electric, but a better arrangement is the chain type of bucket conveyor operated by an electric motor. This should be installed in connection with an ash storage bin into which the ashes are carted in the coal cars or barrows above mentioned and from this ash bin they may be delivered to the teams, as they are available, by shoveling the ashes into the buckets of the conveyor which in turn automatically discharge the ashes into the carts. Where necessary, because appearances must be considered, this bucket conveyor may be of the telescopic type, being telescoped when not in use and thus being completely out of sight. A small motor is desirable for extending the bucket when the use of the conveyor becomes unnecessary.

There is no more important consideration in the design of heating or power plants than that of draft. This may take the form of a natural draft provided by means of a chimney, induced draft as substitute for the high chimney, forced draft which is especially desirable for the small size buckwheat coals, and forced draft is also used with automatic stokers, or in the form of combined induced and forced draft fans. In small plants the chimney alone is the desirable arrangement, but in larger plants the draft fans make possible the best regulation of the amount of air supplied to the fuel and the intensity of the draft, both of which have a direct bearing on the economical combustion of fuel.

The area of a chimney should be determined in accordance with the volume of air and gases to be handled and its height should be determined by the intensity of the draft required. The area and diameter of the chimney have definite relations, however, which make possible a variance of the height and diameter of the chimney to meet varying conditions. For small boiler plants the chimney and its foundations should be entirely independent of the building. In such cases the size of the foundations depends upon the nature of the soil upon which they rest, but it is customary to figure on a basis not in excess of two tons per square foot on ordinary bearing earth.

The larger number of independent chimneys are built of radial chimney blocks especially manufactured for this purpose, with an interior lining extending from a point two to four feet below the smoke connections to a point fifteen to thirty-five feet above the top of the smoke connections. These radial blocks may be had in yellow, buff, gray or red. Where other colors are desired, chimneys are usually built of common building brick, in which case the lining should be extended to a point two-thirds the height of the chimney and often it is necessary to extend this lining to the top of the chimney if ornamental stone is used at the top of the chimney, or if the temperature of the gases be high.

Concrete chimneys are used to some extent, but they are usually confined to factory plants.

In the case of high chimneys lightning rods are desirable, as they have many times demonstrated their usefulness. These should consist of not less than five-eighth inch stranded copper cable supported to the chimney at not less than ten feet centres with insulating supports. At the top of the chimney this rod should be connected to a band going around the chimney. This band should be made of the same material as the rod. From this band there should rise from four to eight rods tipped with aluminum points. At the bottom the lightning rods should be attached to a copper plate of not less than ten feet square area buried in permanently moist earth, if possible.

Where large chimneys are constructed within a building there should be provided a lining which may consist of radial brick blocks, as mentioned above, or it may consist of a steel lining which should not be less than one-quarter inch thick at any point, for this must withstand the corrosive effect of the weather and of the acids in the fuel gases. Its exact thickness is determined by its size and height. It should be braced to the walls of the surrounding flue at not over fifteen feet centres in such a way as to allow for expansion and contraction.

It is desirable that the steel stack be pro-

vided with a protective lining which may consist of fire brick laid in fire clay or vitribestos blocks laid in retort cement. This lining will do much to prevent corrosion and to lengthen the life of the steel stack.

The brick chimney should be built with the joints made with a rich cement mortar with sufficient lime to promote a ready working of the mortar, except that the top quarter of the height of the chimney may well be built with cement mortar without lime.

BLACKSMITHING, SKETCH FOR TECHNICAL HIGH SCHOOL, SALT LAKE CITY, UTAH
MR. MAHONRI YOUNG, *SCULPTOR.* MESSRS. CANNON & FETZER, *ARCHITECTS*

COMPETITIONS

RÉSUMÉ OF AN ADDRESS BY MR. THOMAS CRANE YOUNG DELIVERED AT THE ANNUAL DINNER OF THE ST. LOUIS ARCHITECTURAL CLUB, JANUARY 15, 1913

THE American Institute of Architects has through its regulation of competitions by means of its "Circular of Advice" and "Code" performed a useful service in supplying a definite set of rules under which such contests must be held, thus bringing the custom truly within the sphere of legitimate sport as in any other regulated contest of skill and chance.

Proper professional dignity, however, does not seem compatible with this method of deciding the important architectural questions involved in a competition any more than would be the case were similar methods adopted in the determination of legal or scientific procedure, or in the selection of candidates for professional employment. Nor has the regulated competition relieved the profession at large of the ruinous tax and economic waste involved in the unremunerated preparation of expensive competition drawings.

The following is suggested as a substitute for competitions intended to correct these evils. It is based on certain conditions already existing in practice as approved by the Institute:

The American Institute at present classifies its members in two grades, advancement to the higher grade being made for meritorious performance by action of the Board of Directors.

The first step in this substitute is suggested by the method of conducting the first stage of the recent competition for the Missouri State Capitol Building, which originated with the Standing Committee on Competitions of the Institute. In this case all architects desiring to compete were required to present a record of their qualifications with photographs of buildings erected under their direction. From these records a jury selected ten names, any one of which were declared competent to act as architects of the proposed building with

entire safety to the interests of the state.

This first step then would require that the Institute classify its members in the same manner as at present, but into numerous divisions, according to educational qualifications and the extent and merit of their *executed work*. All buildings may readily be classified into corresponding divisions according to cost and importance.

The proposed method of procedure would then be as follows:

When a government, corporation or individual desired to select an architect for a building of, say the first class, they would apply to the Institute for a list of qualified architects in the corresponding class. Should a direct appointment be undesirable for any reason, ten or twelve names might be selected from this list, any one of which would be competent for the proposed employment. These ten or twelve architects would then *by lot* choose one of their number to prepare preliminary sketches at the customary compensation. In case these sketches should not prove acceptable the process would be repeated until a satisfactory solution of the problem was obtained.

The application of this method would:

1st. Conserve the interest of the employer in securing competent service.

2nd. Relieve the unsuccessful competitor of useless labor and expense.

3rd. Avoid the humiliation of implied inferiority endured by all unsuccessful competitors under the present system.

GREENHEART TIMBER OF COMMERCE

GREENHEART is the trade name of a valuable British Guiana timber botanically known as *Nectandra rodiaei*, and a few notes in regard to it may be interesting to the architectural and engineering professions, particularly to those members engaged on marine works. It is the opinion of those who are familiar with this wood that if this material were better known, it would enter largely into construction in this country, where timber of a perishable character cannot be introduced, and where, in consequence, some more expensive material has to be substituted. The virtues of Greenheart timber are all that could be desired; a combination of strength and durability suitable to any class of construction in any part of the world. Exposed to the alternations of air and weather, soil or sea water, it is not materially affected, remaining perfectly sound after many years of trial. Other considerations of importance are, great strength, hardness, toughness and elasticity, large sizes and reasonable cost as compared with timber of the same class now available in this country. It is among the strongest timbers in use, having a crushing strength of 12,000 pounds per square inch, or sixty-five per cent. greater than that of English oak.

Greenheart is one the *Nectandrae* so common to the tropical parts of South America. This species is found principally in the Guianas and Venezuela. The finest trees grow just back of the deposit of alluvial soil along the coast and rivers. Trees grown on the more elevated regions yield a timber of inferior quality. The young sappy trees are unfit for structural timber and only mature specimens should be cut. In regions where the timber has not been cut the forests are of considerable extent, full of noble looking trees, clear of branches of from fifty to sixty feet, straight as a mast, and having a diameter sufficiently large from which logs or timbers from eighteen to twenty inches square can often be obtained. The total height of the tree ranges from eighty to one hundred and twenty feet.

Undoubted authority, to be found in the records of the English wood users, has declared that Greenheart timber cannot be equalled, and is, under certain conditions, indestructible. The following is an extract from the Forest Service Circular 211 on the subject of Greenheart for marine purposes: "It has been known to stand in wharves for a period of thirty years, and logs of Greenheart which have remained

under water for one hundred years have kept in perfect sound condition. All the gates, piers, and jetties of the Liverpool docks and practically all the lock gates of the Bridgewater Canal (England) are of Greenheart. It furnished the material, also, for the fifty pairs of lock gates in the Manchester (England) Ship Canal. Indeed, the chief engineer of this canal has asserted that apart from its practically unlimited durability, Greenheart has many advantages over steel for such purposes. It is, in fact, impossible to fix a limit to the durability of lock gates built of Greenheart, the only element in their construction which might curtail their length of service being the iron bolts and other fastenings. These, however, can usually be renewed without serious difficulty. When the Greenheart dock gates in Mersey Harbor were removed, in order that the channel might be deepened and widened, the wood originally used in their construction was again employed in building the enlarged gates. Similarly, the wood in the gates of the Canada Dock, built in 1856, was used again in its construction in 1894. The use of Greenheart has been specified in the lock gates of the Panama Canal."

Attention is drawn here more particularly to timber intended for heavy works, such as sea facing, dock lining, foundations, etc. It is, however, equally suitable for all building purposes, framing, planking, flooring, and block beds for machinery; it forms also durable paving blocks and is used for a great deal of wear and tear. The white ants so destructive to many kinds of timber in the tropics will not touch it, and the alkaloid principle in the heartwood is sufficiently strong to prevent the wood-destroying fungi from rotting it. The wood is not attacked by teredo and is, therefore, so much sought for jetties and other structures exposed to sea-water. Vessels built with this timber have been enabled to do away with all copper plating.

It is strong, of a close grain, hard, heavy with a specific gravity ranging from 1.08 to 1.23, or about 75 pounds per cubic foot. After long exposure to water the wood becomes very dark and as dense as ebony; the wood of old trunks of trees grown in low land is almost black.

REPORT OF COMMITTEE ON CONTRACTS AND SPECIFICATIONS OF THE AMERICAN INSTITUTE OF ARCHITECTS

THE work of the Committee for the past year has been confined to matters relating to slight modifications in the Standard Documents, which from time to time have been requested by the various members and chapters of the Institute, or from bodies who were considering the adoption of our documents in their practice, and desired to have them modified in certain details to suit local conditions. The Washington State Chapter, for example, has issued under our supervision the Washington State Chapter Edition of the Standard Documents. Quite a number of individual practitioners have in a similar way had their own documnets printed, as provided under our agreement with Mr. Soltmann, the licensee, as well as certain corporations, such for example, as the Sage Foundation Homes Company, which has used the documents in this way for some 200 or 300 contracts. According to a statement from the Licensee, the sales of the Standard Documents have in round numbers amounted to 10,000 Proposal Sets, 10,000 Agreement Sets, 10,000 General Conditions.

In addition to this, 3,000 of the General Conditions and 1,000 of Agreement "A" were printed for the Washington State Chapter.

Considering the fact that the documents are new and that not a few practitioners had anticipated the final issuance of these documents by having printed documents of their own based upon the preliminary reports of your committee and therefore would not purchase from the Licensee our documents until their stock was exhausted, your committee feels that the result of the first year is very satisfactory and fully comes up to the committee's expectations.

As to criticism of the forms and conditions of the documents it is perhaps too soon to make an intelligent report. The suggestions received to date have all been of such a minor character as to make a discussion in this report unnecessary. A sufficient time has not elapsed to bring the documents under the test of legal interpretation by the courts. In a number of instances, however, known to the committee, the documents have been passed upon by important corporations and found satisfactory.

Your committee is now considering the matter of a proper contract between owner and architect, combined with a schedule of services, or what might correspond to the general conditions of the building contract, which

(*Continued on page 128*)

THE AMERICAN ARCHITECT

Founded 1876

PUBLISHED EVERY WEDNESDAY BY

THE AMERICAN ARCHITECT (INC.)

No. 50 Union Square, New York
(Fourth Avenue and 17th Street)

G. E. SLY, PRESIDENT
E. J. ROSENCRANS, SECRETARY AND TREASURER

Address all communications to "THE AMERICAN ARCHITECT"

SUBSCRIBERS' RATES:

In the United States and Possessions (Porto Rico, Hawaii, Philippine Islands and Canal Zone), Mexico and Cuba

TEN DOLLARS PER YEAR, POSTAGE PAID
ALL OTHER COUNTRIES . . . $12.00 PER YEAR
SINGLE COPIES (Regular Issues), 25 CENTS

Entered at the Post-office, New York, as Second-class Matter

VOL. CIII FEBRUARY 26, 1913 NO. 1940

AUSTRALIAN FEDERAL CAPITAL COMPETITION

IT is hardly possible to conceive, as affecting the dignities of architectural practice, a more regrettable condition than that at present surrounding the outcome of the Australian Federal Capital Competition. It will be recalled that at the outset the program of this competition failed to receive the approval of either the American Institute of Architects or the Royal Institute of British Architects. Their protests, however, were unavailing and the Australian authorities have proceeded practically in accordance with their original plan. As the initial result of the competition an American architect was awarded first prize. The fact was loudly acclaimed in this country and the design designated first has received wide publication in both technical and daily press. According to latest advices, it now develops that this so-called "American victory" is but an empty honor or one that is comparable in some of its aspects with the winning of a Beaux-Arts student competition. It undoubtedly possesses educational features of much value, but it is not destined to see fulfillment and therefore possesses interest only in the originality of conception and cleverness of portrayal. In fact, the Australian authorities, having come into possession by the terms of the competition of the prize winning designs, have purchased another from a local architect and set about creating a composite plan in which the ideas contained in the various designs, combined with certain features to be added by the Australian Departmental Board, will, it is proposed, constitute the scheme to be finally adopted.

While the outcome might, under the circumstances, have been expected, it appears none the less regrettable. Of course, it is quite evident that a plan evolved by the method proposed will lack entirely the elements of coherency and consistency, but just at this moment, it is the conditions surrounding the matter that are of greatest interest. Why architects continue to lend themselves to political intrigues or furtherance of ignorant, ill-considered plans, involving architectural problems of obviously uncertain outcome, it is difficult to understand. It has been demonstrated times without number that the chances of a happy result or even what architectural bodies consider, just treatment, are, under such circumstances, so remote as to be practically negligible. When the leading professional organizations place their stamp of disapproval on a scheme, it becomes measurably worse for architects of reputation to participate, for not only the individuals but the dignity of the profession at large is bound to suffer by the fact of such participation.

Viewing the entire matter broadly, it would appear that possibly some measure of responsibility might rest on the American Institute by reason of that paragraph in the Code governing the conduct of members taking part in competitions, which leaves them free to compete for work to be erected elsewhere than in the United States, even though, as in the present instance, the program failed to comply with the Competitions Code. It is not exactly plain why participation in a competition that would be considered unprofessional in the United States is freely permitted to Institute members, if the work is to be erected in a foreign land. Certainly, members are thus frequently pitted against each other in unprofessional practice and the fact that, in the remote possibility of an architect of standing winning the prize and actually securing the commission, the work would be executed in Toronto or Montreal, for example, seems much like

a distinction without material difference. Both dignity and consistency demand that either the Institute assume jurisdiction in cases like the one under consideration, or refrain from passing upon them and issuing recommendations that are apparently disregarded with impunity, even by members high in the councils.

CIVIC PRIDE VS. COMMERCIALISM

THAT growth in civic pride has been great within recent years no one acquainted with the facts will deny, but that there is much work still to be done before the average American business man regards it seriously, if it seems in any way to conflict with commercial projects, is indicated by considerable evidence possible of accumulation without extended search or effort. One of the latest illustrations of this condition is contained in a clipping received from a subscriber in Sioux City, Iowa. It appears that business men of Sioux City recently evolved a scheme for financing the construction of a county courthouse in accordance with which the two lower stories were to be leased to the promoters for business purposes for a term of fifty years. Of course, the possibility of any designer being able to produce plans for a building of appropriate character with the two lower stories devoted to store fronts, shops, etc., is too remote to be worthy of discussion, but the menace that it will be ultimately attempted is nevertheless present.

It is to be hoped that wiser counsel will prevail and the promoters of the project will be brought to an appreciation of the fact that the dignity of the city will suffer more by the adoption of the plan proposed than by foregoing the construction of a new building until such time as one of appropriate character and befitting in every way the needs and importance of the city, can be regularly authorized. Probably a little broad study of the matter will serve to convince a majority of those having the best interests of the city at heart that such time has already arrived.

REPORT OF COMMITTEE ON CONTRACTS AND SPECIFICATIONS

(*Continued from page 126*)

defines and explains more fully than the schedule the charges of the Institute, the functions and responsibilities of architect both as implied and expressed in the Standard Documents customarily rendered by the best architects.

While your committee is not sure that it is wise or necessary to provide a standard form for such an agreement between owner and architect, it is nevertheless impressed with the great advantage of presenting a standard of practice and relations which might be referred to as the basis of individual contracts between owners and architects. It would seem that such a schedule ought to be substantially the same whether the commission be the result of a competition or a voluntary selection, and therefore your committee has consulted with the Committee on Competitions in their preparation of a draft to be submitted by them in connection with their report. In considering this draft, your committee would suggest that the Convention look upon it not only with reference to work obtained through competitions, but as the basis of such a general schedule of practice as might be approved by the Institute and thereafter represent a standard of reference for specific documents to be employed in general practice.

A RECENT LEGAL DECISION

GENERAL CONTRACTOR'S LIABILITY—INDEPENDENT CONTRACTORS

An architect entered into a contract with the owner of land whereby he became the general contractor for the erection of certain buildings thereon. He sublet the mason work, carpenter work, and plumbing to independent contractors, but reserved to himself and exercised the right to supervise the work. A servant of the carpenter contractor was injured by the collapse of a brick pier, resulting from its negligent undermining by the plumbing contractor, for which he sued the general contractor. It was held that the latter was liable for the injuries, and could not escape liability on the ground that the plumbing contractor was an independent contractor.

Wilson *v.* Hibbert, C. C. A., 194 Fed. 838.

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

DETAIL OF LOWER STORIES

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

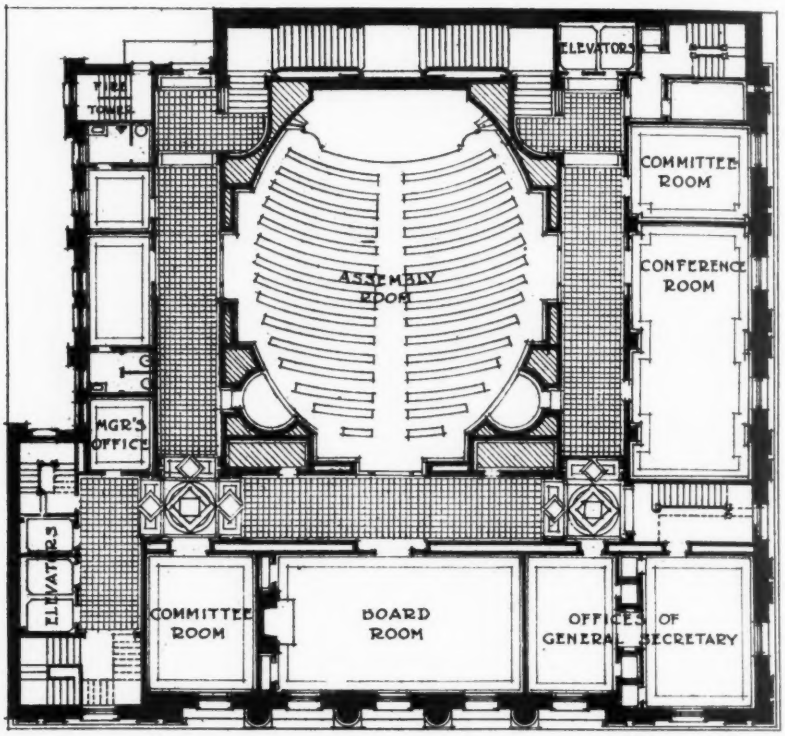
MR. DONN BARBER, *ARCHITECT*

DETAIL OF ENTRANCE

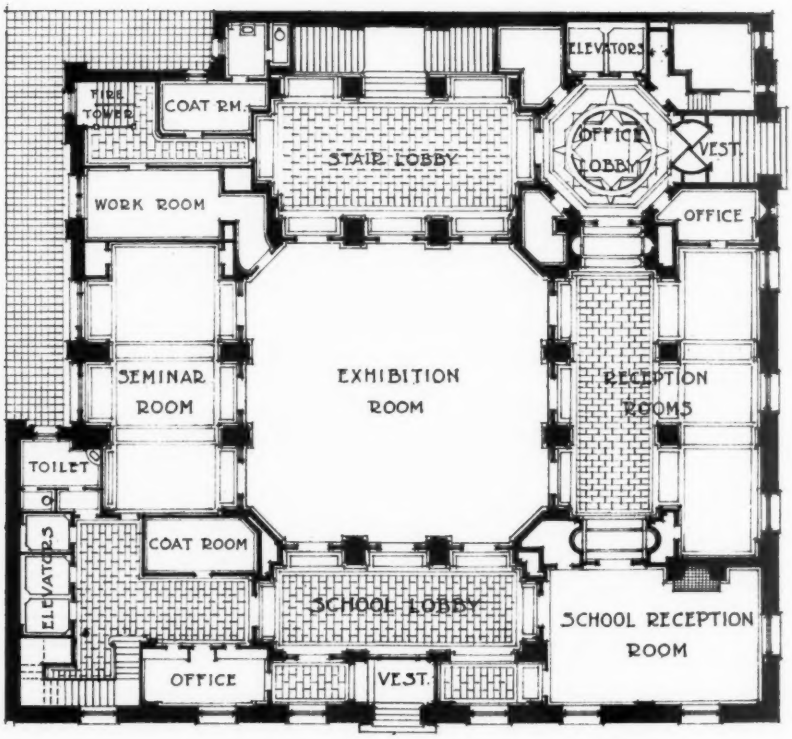
HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*



PLAN OF SECOND FLOOR

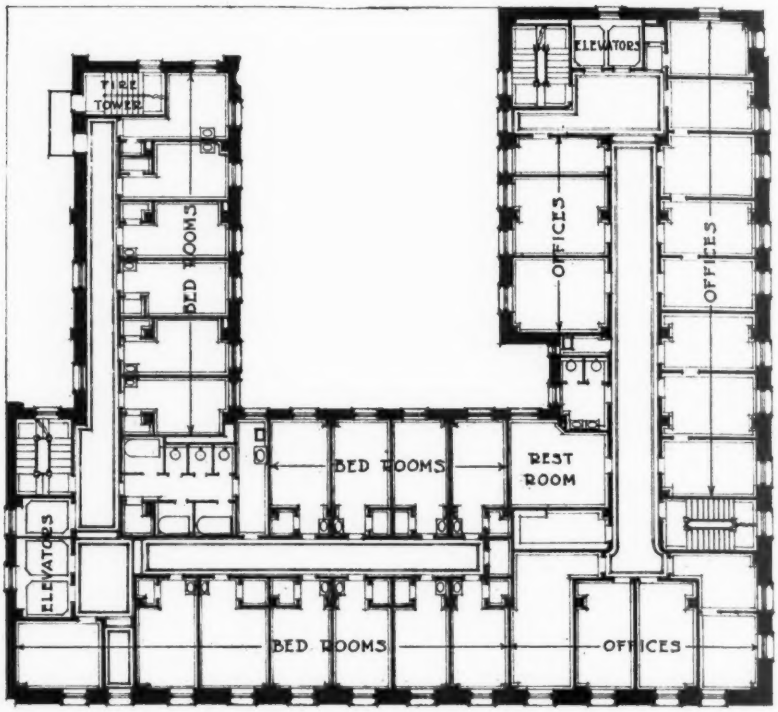


PLAN OF FIRST FLOOR

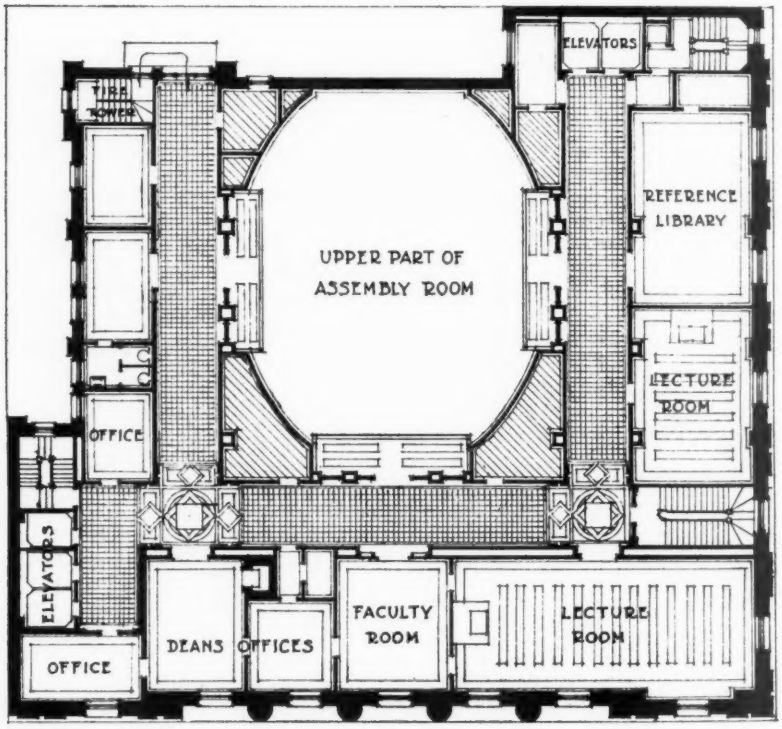
HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*



PLAN OF TYPICAL FLOORS

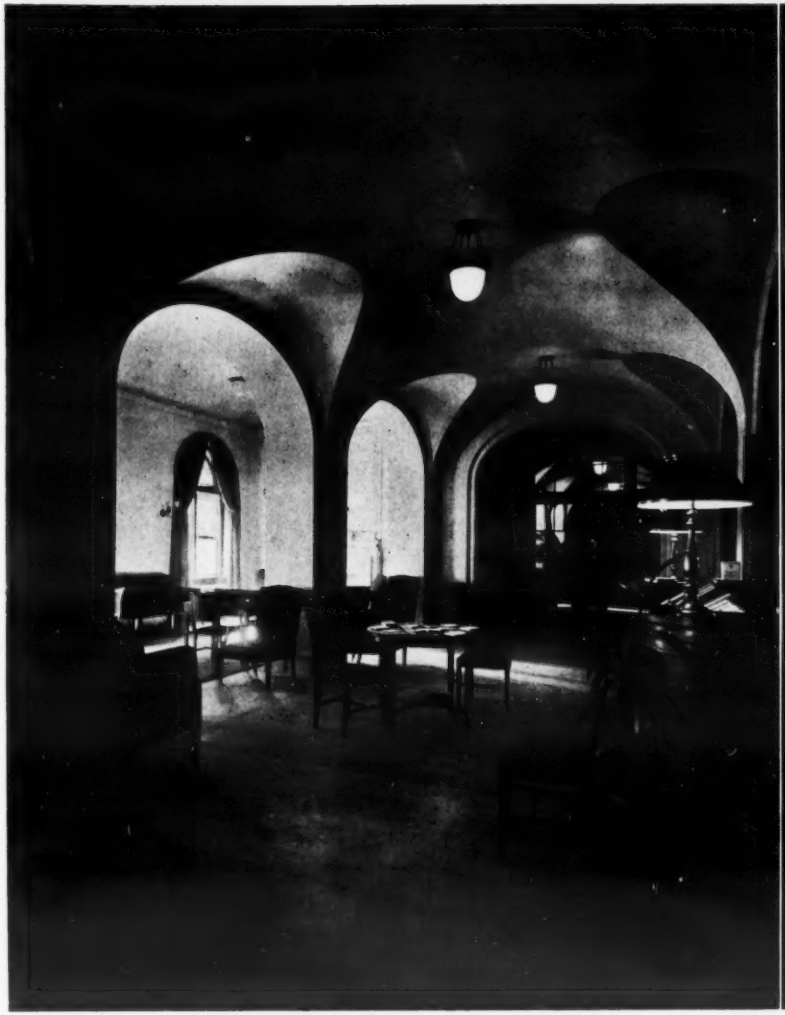


PLAN OF THIRD FLOOR

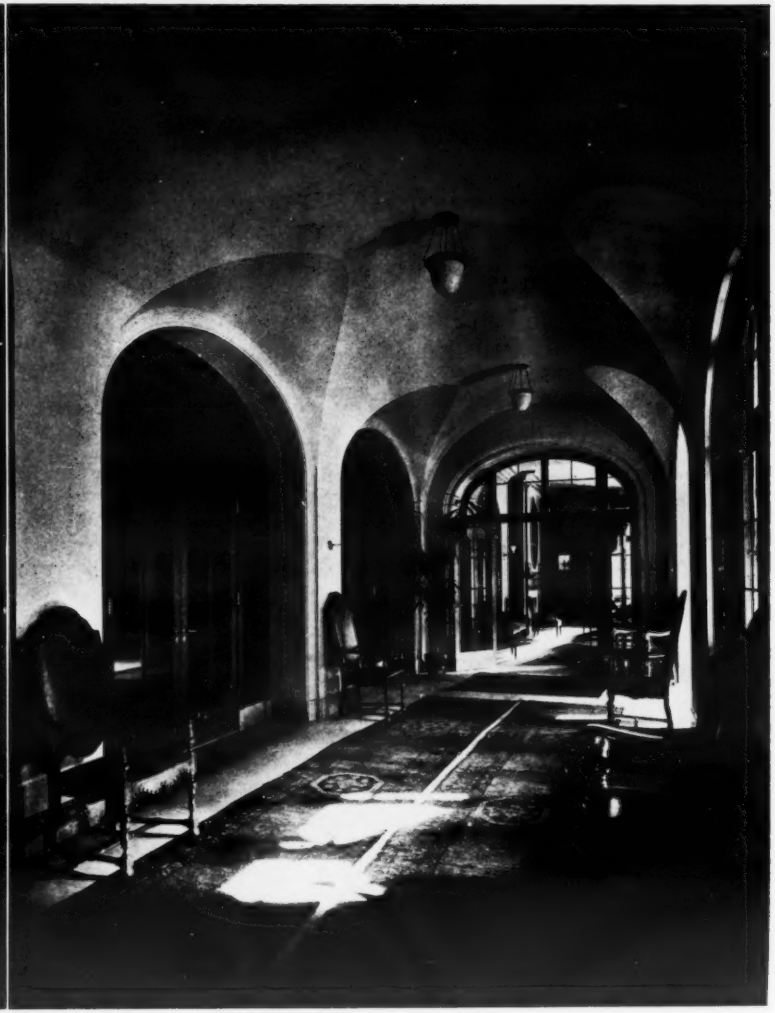
HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*



OFFICE RECEPTION LOBBY



SCHOOL ENTRANCE LOBBY

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

SCHOOL RECEPTION ROOM

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

SCHOOL LIVING ROOM

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

ABOVE: THE BOARD ROOM. BELOW: SEMINARY ROOM

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

ASSEMBLY ROOM

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*

DETAIL OF BALCONY IN ASSEMBLY ROOM

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

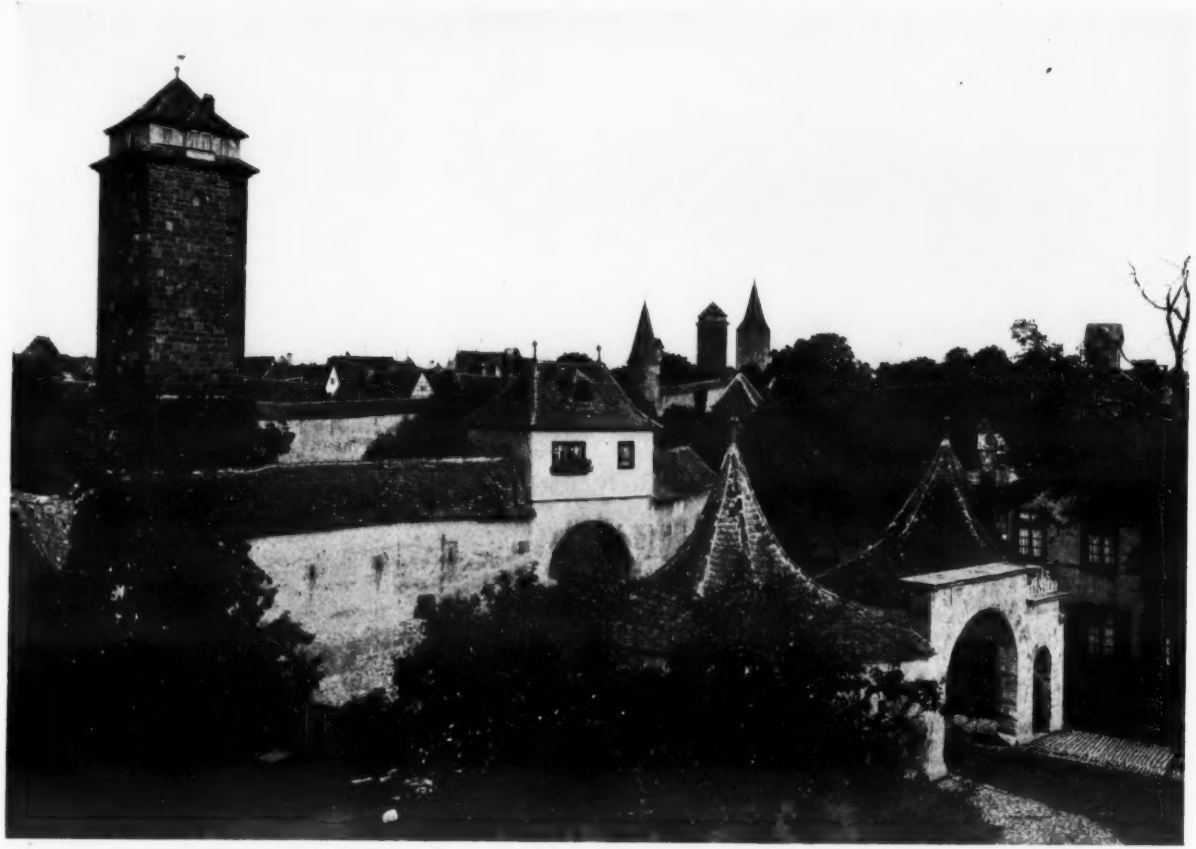
MR. DONN BARBER, *ARCHITECT*

ABOVE: LUNCH ROOM ON ELEVENTH FLOOR. BELOW: MAIN STAIRCASE

HEADQUARTERS BUILDING OF THE NATIONAL BOARD OF THE YOUNG WOMENS CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA

Northwest Corner 52nd Street and Lexington Avenue, New York

MR. DONN BARBER, *ARCHITECT*



ROTHENBURG ON THE TAUBER—RÖDER GATE AT THE CITY WALL