The Business Organization of an Architectural Office.

Cyrus F. Springalf
Course IV
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THESIS

Cyrus Foss Springall '12.
THESIS.

THE BUSINESS ORGANIZATION OF AN ARCHITECTURAL OFFICE.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

Class of Nineteen Hundred and Twelve.
General Arrangement.

Introduction.
General principles sought.

A. Statement and assumptions of condition.

B. Departmental work.
   1. Designing department.
   2. Constructive department.
   3. Financial Department.

C. Filing and classification.
Introduction.

The problem of the organization of an architectural office is one that confronts nearly every man when he enters into the profession as a practising architect. The only ones who escape are those men who enter into or succeed to the business of previously established firms and in doing so, also succeed to the system and organization that has already been developed.

The new practitioner generally solves this problem by adopting into his office, as nearly as they apply, the practices of the architects in whose offices he has been employed and where he receives his preliminary experience. He probably combines into one system the parts of various systems and it is through this selection and elimination of inadequate and clumsy forms, that he achieves a better system than his predecessors. A considerable number of forms and customs are not needed in a new and necessarily small office and these are gradually introduced as the need for them arises.

This method of development is very similar to the methods that brought out the systems in factories and commercial houses. The principles of scientific management are now being generally applied to the latter systems; but as yet has made little headway in the professions and particularly the architectural profession. Some objection to the introduction of
systematic methods may be urged with the excuse that architecture is essentially a fine art and to handle it as a factory would be handled would lower the aesthetic viewpoint and the distaste for prosaic detail would handicap an artistic man and conflict with his best work. However this may be, it stands to reason that a man as an architect has trained and fitted himself, a costly training at best, with the primary object of earning a competence. He is, in a way, in the business of selling his technical skill and knowledge. If he lacks business ability and businesslike habits, he places himself under an enormous handicap, one that even a genius of high order will have difficulty in overcoming. The confidence and patronage of his clients will depend greatly upon the way in which he will handle their business for them.

Much has been written on the many subjects included under and related to Architecture; but little has been written on the subject that confronts almost every architect, the subject of the organization and business system of the office. This has influenced the writer in his choice of a thesis and while admitting his lack of much practical experience, has tried to combine into one system the best features, in his opinion, of the several he has studied and with some features that he believes are in line with scientific management. Several periodical articles and books on kindred subjects by both American and foreign authorities have been consulted.
General principles sought.

The essential idea of an organization of this kind is fundamentally to transact the business of the firm with due regard to:

A. Efficiency.

1. The largest amount of work that can be done in a given time and conversely the shortest possible time (consistent with the other points) in which a certain amount of work can be done. Time economy.

2. Thoroughness of attention. Enough, but not too much time given to each and every detail.

3 Financial economy. The execution of the work of the required grade at the least cost.

B. Prevention of oversights and fixing of responsibility.

The complexity of architecture, recognized as being a profession in which knowledge in many and varied subjects as well as specialism in certain subjects, is required—demands very careful to detail, so that a comprehensive system is needed to check off the various branches. A system that will prevent and at the same time protect. That fixes the responsibility of not having fulfilled his duty upon the delinquent.

C. Classification of work so that it receives automatic attention.

The office force should be graded that each can work at his point of highest efficiency. The high priced draftsman should not have to spend valuable time in answering phones
and looking up drawings and supplies. These should always be attended to by less highly skilled and paid employees, as the clerk, stenographer or office boy. The executive heads should have as far as possible merely executive duties of the routine to perform. Ordinary routine being more or less automatic and being performed without executive attention.
A. Statement and assumptions as to condition.

The ideal architectural firm is generally conceded to be composed of three men, each of whom is peculiarly fitted for the supervision of one of the three general departments of architectural practice, i.e. Design, Construction and Financial or Business. Sometimes it is possible to find some man who can successfully carry on both of the last two departments at the same time. In such an event the two can be made into one and the firm composed of two men.

The system and organization here outlined assumes a firm of three members whom we will designate as Messrs. Color, Bolt and Credit. The names suggesting, for future reference the departments of the work that each is especially fitted for. The assumption is also made that the firm are well established and doing a business that entails an office force of about twenty persons, which may be grouped as follows.

Drafting room manager or Head draftsman 1
Head designer 1
Detailer 1
Engineer and Head structural draftsman 1
Specification writer and Material inspector. 1
Inspector 1
Draftsmen 10
Stenographer and bookeeper 1
Stenographer 1
Filing clerk 1
Office boy 1 or 2
Total office force 20 or 21

The firm is also assumed to be engaged in a general architectural practice such as is to be found in any of the larger cities of this country.

The system here outlined can be reduced and compressed and some parts omitted to suit the needs of a smaller practice as desired.

The idea is not to define each department with close and narrow lines; but to form an unconcious grouping that will facilitate work and at the same time make for the strength and harmony of the whole. The close distinction into departments will probably not occur in the office; but is used here to better take up the procedure of the work.
Suggested Arrangement for an Architectural Office.
B. Departmental work.

1. Designing department.
   a. Personnel
   b. Methods
      (1) Distribution of work.
      (2) Supervision and management.
      (3) Recording and numbering.

   a. Personnel.

   The designing department is under the immediate supervision of Mr. Color. He has, as his assistant, the Office Manager or Head Draftsman who consults with him as to the work to be done and then is responsible that the particular work is done. The drafting room is nominally under his (the Office Manager) charge and to him is the question of the distribution of the work. He is preferably a man of wide experience and with some executive ability, one who can carry on the regular work of the office at the same rate whether in immediate touch with Mr. Color or not. He shall be able to settle all matters of detail and drafting room procedure, subject only to change by one of the firm. In the absence of all the members of the firm he is in charge of the entire office. He is also responsible for the proper carrying out of the office system by those under him. In addition to the drafting room staff, he has immediate supervision over the filing clerk and the office boys. He shall see that the time is correctly kept and shall deal with the various agents etc.
A tablet arranged as follows may aid the architect in taking notes of an interview with his client.

Program sheet.

Client. ______________________ Address. ____________

Proposition: ____________________________________________

To be used for: __________________________________________

Location: ____________________________________________

Reached via ______________________________________

Approx. size of land. ______________________________

Approx. size of construction; __________________________

Approx. cost of construction __________________________

Type of construction ________________________________

Style _____________________________________________

Any precedent? ______________________________________

Special features. ____________________________________

Special conditions. __________________________________

Prepare following: __________________________________

Above to be ready by ____________________

To be sent to ______ __________________________ Address as above.

Remarks: ________________________________________
The head designer shall have no duties or routine to see after, he being a high priced man and highly skilled shall be expected to devote all his time to the large general design of the work. He will probably be in touch with Mr. Color a greater part of the time.

The detailer also being a highly skilled man will have no duties other than the detailing. He will be in touch with Mr. Bolt and also the Specification writer a considerable part of the time. At times he will doubtless require the services of other members of the drafting room as assigned by the Drafting room Manager.

The draftsmen are under the personal supervision of the Manager and are assigned their work by him. As far as possible the head men will have the more important work and the same men kept on a job so as to get the better results from the continuity of work. Inexperienced men are placed under older draftsmen for guidance and advice. Strictly speaking therefore each draftsman has no responsibilities to another; but an "esprit de corps" under the leadership of the Manager should be built up that will greatly facilitate better work.

b. Methods.

(1) Distribution of work.

Before any drawing can be started in the drafting room, a Requisition Slip must be filled out for it. The form of the printed slip follows. This slip can be filled out by any member of the firm or the Head draftsman in their ab-
Form of Requisition Slip.

COLOR, BOLT & CREDIT. Architects.

Requisition for a drawing.

Date required ______________________

Drawing No. 369.  

Job No. ____ 

Date. ______________________

Descri. of Draw. required. ____________

__________________________

Tracing? _______ No. Blue Pts. ______

Black Pts. ______

To be sent to ____________

__________________________

Ordered by ____________

Checked by ____________

Completed and sent ______ 19

__________________________

Filed ____________

Filing Clerk.

Form of print order.

COLOR, BOLT & CREDIT. Archts. Address.

Print and send to us before ______________________

M. ___________ 19. Date. ____________

Copies ______________________

Prints of drawing (our) No. ______

and charge to our account. ______________________

Color, Bolt, and Credit. By. ______________________
sence and this slip constitutes an order for a drawing. The slips bear serial numbers and this number becomes the number by which the drawing is known. These numbers run consecutively for a year and then repeat. If the work is urgent the signer will write the word RUSH at the top of the slip, if required on a certain date that will also be filled in. If no date is given then the drawing will come up at the first convenient time.

This slip is sent to the Managers desk and deposited in a special basket. The Manager receives the slip and as soon as convenient, in view of the work already under way, he assigns the work to some draftsman; then he files the slip in a special file on his desk and therefore has under his hand the orders for all the work being done at the moment, in the office. At the beginning of each day he can run over these slips and by inquiry can keep in mind how the work is progressing. When the drawing is finished, the head draftsman inspects it and if it is all right he signs the drawing and also the slip as "checked" and sends the drawing and the slip to the filing clerk.

The filing clerk will now file or send out the drawing as indicated upon the slip. He will sign the slip and fill in the date of doing so. If blue or black prints are required, we are assuming that printing is done outside of the office, he will send the tracings or drawings, in the case they are on the right kind of paper, to the printers. At the same time
he will retain the Requisition slip and instead will send along an order form as shown (see sheet # 10a), filing in the date required and generally the hour also, and signing the slip. The requisition slip will be filed as further described under part C.

(2) Supervision and management.

During the progress of the different drawings in the drafting room the draftsmen are encouraged to present difficulties as they arise, to the head draftsman, who will settle the matter or refer it to the proper person for correction. He may find points that obviously require consultation with persons outside of the office and if this is so, he should as soon as possible see the member of the firm who is in charge of that particular part or line and have that member make a memo of the point.

It may be, as is often the case, that changes are desired by the client, contractor, or unexpected difficulties arise, even after the working drawings are out. These points should be noted upon a special pad of paper (see sheet # 12 a) by the member of the firm authorizing the change and they are attached by a clip to the drawing and sent to the head draftsman instead of being returned to the filing room. The head-draftsman then assigns the matter to a draftsman and when they or their tracings are corrected, he rechecks the drawing and turns it over to the filing clerk. The old prints that are then superseded are taken out and stamped so by the filing
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<th>Drawing No.</th>
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Changes authorized by ____________________
(3) Recording and numbering.

Each drawing is to be stamped (except in unusual cases) with a stamp as follows.

<table>
<thead>
<tr>
<th>Date filed</th>
<th>COLOR, BOLT &amp; CREDIT. Archts.</th>
<th>Job No.</th>
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<tbody>
<tr>
<td>Address</td>
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</table>

Space for complete title.

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<tr>
<th>Checked by</th>
<th>Drawn by _____________________</th>
<th>Draw. No.</th>
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<td>Traced by</td>
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All drawings to be on Double Elephant size paper or cloth. This paper or cloth is issued by the filing clerk from the stock of material in his charge and he stamps the sheet in the lower right hand corner with this stamp, at the time of issue. This in a way affords a check against dishonesty on the part of any draftsman in using the firm's materials for his own use. The job number and the drawing number are filled in by the draftsman from the data on the requisition sheet.

The drawing number as previously described is the printed number on the requisition slip, which runs consecutively for a year and then repeats. On especially large jobs, an ind-
ependant numbering system can be used. If desired, each years production can be designated by a letter, thus D432 would indicate a 1905 drawing, then F 831 would be one done in 1907. Another plan is to have the numerals of the year precede the number of the drawing as 05-432 and 07-831. The method of numbering by years will facilitate the filing of the work and obviate large numbers. The job number will run consecutively through the years as is assigned by the head draftsman to the next number as indicated upon the Reference board. (See sheet # 14a). The job number and the drawing number are placed upon every drawing in the places assigned to them in the stamped form.
REFERENCE BOARD OF WORK NOW UNDER WAY IN THIS OFFICE.

<table>
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<tr>
<th>Job No.</th>
<th>For</th>
<th>Where to be built</th>
<th>Type</th>
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2. Constructive department.
   a. Personnel.
   b. Methods.
      (1) Working plans and details.
      (2) Engineering and structural plans.
      (3) Specifications.
      (4) Supervision and Inspection.
   a. Personnel.

   The constructive department is under the immediate charge of Mr. Bolt. As his chief assistant he has an engineer who at the same time is a head structural draftsman. He also has a specification writer who at the same time combines as a material inspector and a regular inspector. In busy seasons he will have additional structural draftsmen.

   The Engineer or Head Structural draftsman will prepare in consultation with Mr. Bolt, the engineering plans for the structures erected. The detailing and working drawings such as steel framing, trusses, both steel and wood, girders, foundations, bearing walls, piers, and columns, etc. will be among the phases of the work that he will be obliged to handle. He is nominally under the Head Draftsman or Office Manager, in points of superiority.

   The Specification Writer and Material Inspector will of necessity be a specialist, one who is familiar with various trade products, brands and qualities. He shall draw up the
specifications for the work in progress and of course will be in consultation with each member of the firm. He shall also be sufficiently experienced in materials as to inspect and test them as they are presented and he shall be empowered to hold up a job if in his opinion, inferior materials are being used. The matter then being referred to Mr. Bolt for settlement and decision. He shall be in close touch with the inspector as their respective duties lie along parallel lines.

The Inspector shall devote his whole time to being out on the various jobs in progress. A daily visit at a specified time shall be made to the office for conference with Mr. Bolt and others, if practicable. On large jobs, a permanent inspector or to remain on the job is often used and if so shall be under the regular inspector, and shall make his reports to him. Draftsmen may occasionally be employed as inspectors, as it gives them a better insight into the actual conditions to be met in the construction and thus raises the standard of work done in the drafting room.

b. Methods.

(1) Working plans and details.

The working plans are to be drawn up by the regular draftsmen under direct supervision of the Structural draftsman and the detailer. Strictly structural plans are drawn by the structural draftsman or man. The full size detail work is done principally by the detailer or under his immediate supervision.
(2) Engineering and structural plans.

The engineering features of the constructions will be worked out by Mr. Bolt and the Engineer. If much work of importance is done, it is probable that one man will do the figuring and the other man check his work. Otherwise the important features will be sent out of the office to be checked. The data sheets and calculation sheets will be of uniform size and punched with holes corresponding to a flat binder. The original sheets are placed in this binder in their numerical order and are not taken out except for replacing sheets in error with corrected ones. This affords a set of computations that can be easily followed and checked and prevents to a considerable degree the loss of valuable figures at some future time. For the design of certain forms of construction such as beams, columns and usual cases of frequent occurrence a strotyped form can be easily gotten up, that will guide the designer in the logical sequence of computations, will aid the checker in the same manner and will greatly economize time and labor. A typical sheet, in this instance for the design of a concrete beam, is here shown (see 17a). The data sheets for one job are kept in one binder and filed away as described in the section devoted to Filing.

(3) Specifications.

The writing of the specifications are taken in charge by the Specification Writer, who is in close touch with Mr. Bolt on all troublesome and doubtful matters that arise.
Concrete Beam (T) No.______ Job No.______

Wall = ______
Live = ______
Slab = ______
Beam = ______
Total Weight = ______

M. pos. = ______
+ ______
Pos. rods = ______ cut off ______ out from edge of sup.

Left Min ______
+ ______
Left Neg. Rods = ______

Right Neg. Min ______
+ ______
Right Neg. Rods = ______

Stirrups.

Des. by ______
The specifications are typewritten by the stenographer who at the same time makes the necessary number of copies by carbon sheets or turns it over to the office boy for duplication on a mimeograph or similar machine. Mr. Bolt shall specify the number of copies required. The specifications are on paper of uniform size and each sheet bears the firm name across the top as a safeguard against substitution. The sheets are bound between substantial covers and the title, and job number are placed on the outside. (See below).

The PLUMBING Specifications for Job No. _____

______________________________

______________________________

______________________________

COLOR, BOLT, & CREDIT.
Architects.

(Address)

Date. _____________________19__.

The job Number is the same as the number on the drawings of this job. The title appearing at the top assists in locating from the files, the set of specifications required. Each division of the work has the specifications for it bound in a separate entity and the specifications are all filed together under the job number.
(4) Supervision and inspection.

It is the Inspector's duty to personally inspect the building in progress as often as practically needed. Some contractors will doubtless need more supervision and inspection than others and it is the inspector's job to know the reputations of the contractors and to make his visits accordingly. The inspector must see that the work is being carried on in accordance with the intent of the plans and specifications. He must be well experienced in the various types of construction so that he can tell at a glance whether the work is being carried on as it should be or not. He must be watchful to prevent skimping and must be quick to correct mistakes of the workmen. A contractor will correct a mistake a great deal more readily if his attention is called to it at the next visit of the inspector; but if it is not brought to his attention until some time later, when he probably has finished contingent work—, he will protest vigorously and doubtless has some grounds for his protest.

The Specification Writer takes charge of the inspection of important materials, such as the quality of brick, stone, cement, timber, steel, paints, etc. His visits to the work in progress will necessarily be less frequent than the Inspector. The latter should work in conjunction with him however and call his attention questions that demand a test or his inspection, as they arise.

Most contracts provide for the payment of sums of
money at various stages of construction. The various sub-contractors should also be paid when their contracts are completed and not held over until the completion of the building. The retention of a part of the contract sum is often made for a certain period after the completion of the contract as a sort of guarantee. All these payments are made upon the decision of the architects. It becomes the duty of the inspector to make out a certificate (see 20a) when the work is at the stage when there is a payment due. These certificates are made out in part, upon the letting of the contract and are filed in the office in a chronological manner under each job. The inspector, upon his visits to the office, runs over the file and notes the ones that are approaching the time for use. When the inspector is called on by the contractor for a certificate or thinks it is about due, he will take a copy of the requirements as set forth in the contract, on file in the office, and will personally inspect every portion that is required. If it appears satisfactory to him, he will fill in and sign the certificate and hand it to the book-keeper in the office. The book-keeper will make out a money certificate to be sent to the owner and the contractor (described later) and will file the inspectors certificate. This certificate remains in the office as a voucher that the work therein described has been satisfactorily accomplished.
INSPECTION CERTIFICATE. Refer to Job No.____

COLOR, BOLT, & CREDIT. Architects.

(Address)

Date. ________________19___.

I certify that I have personally inspected the work done on the above job by ________________________
of ____________________________ holding the contract for the ________________________________ on said job, and that the portion described in the contract as _____________

__________________________________________________________________________

is satisfactorily completed in accord with the plans and specifications furnished by this office.

Inspector for C., B. & C.

Money certificate sent to owner: ___ (date) ________

Money certificate sent to Contractor (date) ________

Clerk C., B. & C.
3. Financial Department.
   a. Personnel.
   b. Methods.
      - (1) Correspondence.
      - (2) Cost keeping and general book keeping
      - (3) Contracts and other legal matters.
      - (4) Estimates.
      - (5) General business.

a. Personnel.

The financial department is in personal charge of Mr. Credit. He must be the business director and is responsible for the financial standing, returns and profits of the firm. The general efficiency and dispatch in the production of office work, the adaptation and adherence to a system, and the making of a harmonious working of the various parts are under his special oversight. He must keep an oversight on the costs of the drafting room and other parts of the organization. He should also be able to ascertain cost leaks and excessive expenses and see that they are eliminated. He must have a general working knowledge of commercial law, with especial regard to the relations of employer to employee, with the law of contracts and the law in regard to real estate and inheritances. He shall write and oversee the contracts entered into by the firm. He shall have had experience with contractors in general and be able to ascertain their financial responsibil-
ity, business reputation and the general quality of their work.

He has for a general force— a book-keeper, two stenographers, one of whom may be the book-keeper in dull seasons, a filing clerk and one or two office boys.

The book-keeper shall keep such books and records as are described under part C as are assigned to him. He shall keep a cost book (see 22a) that shall show the personal professional services rendered by each member of the firm, such as professional advice, opinions, expert testimony, etc. Much may be non-chargeable; but is entered and a value adjudged. The book-keeper shall receive the time cards of the employees, shall enter the charges and costs in the proper accounts and shall make up the payroll. The book-keeper shall also keep the customary sets of books that determine the financial standing of the firm, its expenses and its profits.

The stenographers shall attend to the correspondence, specifications and contracts that need to be written.

The filing clerk is in rather an important position in the office. He shall have charge of all the drawings in the office that are not in actual use, and of those not in his charge he must have a proper record of their whereabouts. The methods of so doing are outlined under Filing. He shall keep a record of all taken out and all returned. With the assistance of a card catalog he must be able to find any required drawing in the maximum allowable time of three minutes. He shall have
<table>
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<tr>
<th>Date</th>
<th>Particulars</th>
<th>No. Hrs.</th>
<th>Time Value</th>
<th>Cash Expnd</th>
<th>Fees Chqble</th>
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Specimen page from Cost Book.
charge of the binding and mounting of drawings and material as required by the Head Draftsman. He has charge of office supplies and issues materials as called for, keeping a record of the same. He shall report shortages in the supply of materials on hand to Mr. Credit or the head draftsman. He is directly in charge of the office boys and various details of the office routine. He shall meet clients, contractors and all visitors upon their arrival at the office and shall ascertain their wishes and turn them over to the proper person. He shall have charge of the receiving and sending of all parcels, letters and samples. He shall see that the library is kept in arrangement and that all files are kept up-to-date and in working order.

The office boys are entrusted with the mounting of paper simple work on the drawings as "poche" work, cleaning boards, returning files of drawings, samples and reference books; errands and general messenger service in the office.

b. Methods.

(1) Correspondence.

The proper care of correspondence is of the greatest importance, especially in the architectural profession. All letters coming to the office are received and sorted by an office boy. The letters to the firm are then opened by him; but the contents NOT removed. They are placed in a letter basket on Mr. Credit's desk. He devotes the first hours of the day to the examination of the mail that has accumulated over it.
over night. There are several trays at hand. In one he places all the communications that are to be referred to Mr. Color, in another tray all those for Mr. Bolt, in a third tray those that he reserves for himself and a fourth for letters referring to detail and that can be attended to by the members of the staff. All circulars and useless letters are thrown away. Enclosures are pinned to the letters that they accompany. If an enclosure is missing he notes it upon the letter himself. He also jots down on the letters that go to the other members of the firm, any comment that he may wish to make. The four trays or baskets are then taken by an office boy and stamped with an ordinary date stamp. Each piece being individually stamped. The stamp will merely bear the legend "Rec'd Jan. 8, 1912" etc. the date being changed every morning. The several trays are then sent to the respective persons; the letters for the staff are checked off with a check mark that signifies that the staff may go ahead on it. The letters to the staff go to the Head draftsman who sees that the details are attended to. The answering of the letters then is attended to by the members of the firm and the Head draftsman, and the letters are then placed in another basket, one for each group of letters and in these baskets the letters accumulate during the week. On Mondays the contents of these baskets are turned over to the Filing Clerk and he makes a record of them on form cards (see 24a) he then files them in a correspondance file, of which there are numerous varieties upon the market. As a rule of
Letter card. Used to index the received correspondence.

| Letter from __________________________ |
| of __________________________ |
| Rec'd. __________________________ 19 | |
| Refering to __________________________ |

| File No. ___ Answ'd. ___ |
| Color, Bolt, & Credit. ___ |

○
good business every letter should be answered the day it is received; it may happen that it will take some time in order to collect data for an answer and in this case an acknowledgment should be sent to the writer. It is important that the attention to correspondence should be attended to by the members of the firm rather than to delegate it to some employee. It prevents in-attention on the part of careless clerks and enables the firm to get in better personal touch with its clients, and contractors.

(2) Cost keeping and general book-keeping.

The draftsmen each have a time card which is kept in a file on the head draftsman's desk; but accessible to the men. On this card (see 25a) there are spaces for each hour of the week and for overtime. The job number and the number of hours at work on that job are set down upon this card by the draftsmen, time being kept to the nearest half hour. The figures 1/2 in a space indicate the half hour. These cards provide the data from which the book-keeper can set down the amount of work done on each job and the amount done by each draftsman. On Monday the cards of the previous week are turned in to the book-keeper and he can add up the number of hours that each draftsman has worked — if paid by the hour or paid for overtime, and he can then set down the amount due the draftsman. He can then enter the the proper charge in the cost book opposite the job. These time cards are signed by the draftsmen when paid off and prevent errors and are
Draftsman's Time Card.

Mr. ______________________ For week beginning ____________

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<tr>
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Salary ______
Deduct ______

Rec'd Payment. ____________________

0'time @ ______
Tot. due ______
kept in a file by the firm, thereby constituting a receipt.

It will probably not be advantageous to keep an extremely accurate record of the work done in the drafting room as it is liable to influence the quality of the work and also to degrade the attitude of the men toward it.

The general book-keeping will not be taken up, as it will be only a slight modification of the forms and methods used in general business practice. It is enough to say that the books should be so kept that an account can be readily referred to and the complete data in connection with it be immediately available.

(3) Contracts and other legal matters.

A standardized printed form of contract is very handy for general use and should be kept in stock in the office (see 26a). Contract papers should all be of a uniform size and the exterior labeled in a uniform manner, to facilitate the rapid location of each contract in the files. For a typical heading for the outside of a contract see 26b.

A good knowledge of the principles of inheritance laws and laws in regard to real estate, especially of how to get information and proof of the validity of titles, is of great value. Mr. Credit should also be well versed in general commercial law and the relations between employer and employee. These latter relations are being constantly brought up and the architect often finds himself in the position of arbiter between contractors and labor or owners. Often strikes can
AGREEMENT.

made between ____________________________ (hereinafter called the Employer)

of the one part, and ____________________________ (hereinafter called the "Contractor")

of the other part.

The contractor hereby agrees, in consideration of the agreement hereinafter set forth, to execute, or cause to be executed at ____________________________

the work described in the Plans Nos. _______ inclusively and the Specifications No. ______ prepared by Color, Bolt and Credit Architects and this day signed by the said contractor and the said architects and such further drawings and instructions based upon these plans and specifications as may be from time to time furnished him by the said architects. And to complete the said work to their satisfaction. In consideration of the above the Employer agrees to pay, or cause to be paid, to the Contractor the sum of ____________________________
in the manner as hereinafter set forth.

(Conditions)

In witness whereof, the parties hereto have set their hands this ____ day of ________________ 19__.

Witness ____________________________ (Employer signs)

Witness ____________________________ (Contractor signs)
Title on outside of contracts to facilitate ready finding and filing.

---

**PLUMBING**

**JOB NO.**

**CONTRACT.**

Signed ______________________ 19__.

between

__________________________

and

__________________________

from the plans and specifications furnished by

COLOR, BOLT, & CREDIT.

Architects.

(Address)

Contract completed ___________ 19__.

---

Form of stamp for drawings and specifications.

**Drawing No.** referred to in the Agreement made between

__________________________ Emplr.

and

__________________________ Contr.

Dated ____________________ 19__.

Witness Contr.

Witness Archt.
Form used in authorizing contractors to make changes in their work contrary to the original plans and specifications.

Color, Bolt and Credit. Architects.

Date. __________19__. 

Holding Contract for the ________________ on (our) job number ___. You are hereby authorized to make the following changes or additions in the plans and specifications of referred to in your contract. These are ___ considered as extras.

Signed for Color, Bolt & Credit by _______. 
be avoided and corresponding delay obviated by a little judicious interference by the architect.

(4) Estimates.

It is almost always up to the architect to give the client a rough estimate of the cost of the proposed work. Mr. Credit should compile from the cost data of previous jobs a general table of costs per unit of measurement, as square feet of floor area or cubic contents of the building or otherwise. From this data, kept always up to date with respect for the prevailing cost of materials and labor, a very close approximation can be made.

In securing bids on a job, the architect should take charge of the matter. The number of bids that should be asked for depends on the size of the work in view. The architect assumes the role of judge in seeing that each bidder is used fairly and that it is the client's intention to treat all bidders alike, before the architect will allow the invitations to submit a bid, to be sent out.

The estimates should be received in sealed envelopes and opened on a certain specified date. Late estimates should be generally barred. The client should be present when the envelopes are opened and the estimates examined. He thus become a party to the transaction and also can see that there is absolute honesty in the whole matter. The practice sometime employed by owners of peddling the contracts out should be strongly discouraged.
Form of invitation for an estimate.

Color, Bolt & Credit. Archts.
(address).

Date

Gentlemen,

We are instructed by our client _____________
to invite you to submit bid __, in a limited competition, for
certain work to be done at _________________ __ __ __
____________ __ __ __ as set forth in the accompanying plans
and specifications. Should you decline to bid, please return
the same to us, in the accompanying envelope.

Tenders will be received at our office up to __ o'clock

______________.

Your tender must be sealed in an envelope and bear, your
name, and our job number which is No.___. Please return plans
and specifications in another envelope or package at the same
time. You must state distinctly within what period you would
be prepared to enter upon the job. The right is reserved to
reject any orall tenders. Successfull bidder must suscribe
to articles of agreement to be seen at our office.

Unless the above conditions are complied with your bid
will not be considered.

Respectfully yours,

Color, Bolt & Credit.

By _________________.
(5) General business.

The members of the firm should keep certain office hours i.e. a certain part of the day devoted to being in the office. If contractors know of these hours, being posted up in the office, they will get into the habit of calling during these hours and much time will be saved. With clients, it will not be so easy to establish such rules, as professional men cannot refuse to see their clients except at stated hours. It will help however, in case a client calls to see some member of the firm and that member happens to be out. With specified hours the client can be told just when the member will be in. In the absence of regular hours it is possible that the client may call several times and each time find the member of the firm out.

In the absence of all the members of the firm, the head draftsman shall interview the caller and will enter or cause to be entered, in a special book, the date and hour, name of caller, who he wished to see, and a brief note as to the object of his visit. In this way, the member of the firm can keep in mind and anticipate the needs and wishes of his callers and he can send a letter of regret at being absent, which will retain the latter's good will.

Interviews require careful handling on the part of the filing clerk. If the member of the firm asked for, is busy, the callers card or his name on a slip of paper is immediately brought to the member by an office boy. The member of the
firm is then in full possession of the facts and can act accordingly.

The offices should all be interconnected by some form of intercommunicating telephone system through which any person can be talked to, without leaving the chair. The main line telephone into the office should be attended to by the filing clerk or book-keeper, who will connect up with the proper person required. Bells from the offices of the firm and the drafting room to the filing room are installed with an annunciator, for the use of the office boys, one of whom should always be there on duty.

Applicants for employment are interviewed, personally, by some member of the firm on appointment; if no immediate vacancy exists, but they appear suitable, they are requested to fill out an employment blank (see 29a).

The money certificate heretofore referred to is made out by the book-keeper upon the presentation of the certificate of inspection. It is signed by Mr. Credit and sent to the owner, another one to the contractor. The one sent to the owner can be regarded as a draft against him and the one sent to the contractor as a notice of the sending of the draft. (See 29b).
'APPLICATION FOR EMPLOYMENT'  Keep filed ___ mos.

Color, Bolt and Credit.

Date. ____________________

Name in full. ____________________

Residence ____________________
(Notify us of any change.)

Age ___  Nationality__________  Married?____

Where now employed? ____________________

In what capacity? ____________________

Have also been employed by ____________________

_________________________________________________________________________

How soon could you accept a position? _________

How many years experience in an architects office? ______

Other practical experience. ____________________

_________________________________________________________________________

College attended. ____________

Did you graduate? ____  If not how long were you there _____

What course did you take?__________

What weekly salary do you ask?____  What is the lowest weekly

salary you would accept with prospect of advancement? _____

Have you a specialty? Name it. ____________________

References with addresses.
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We certify that the sum of ________ is due ________ of ________ on acct. of work done and materials supplied. Re Job No. ____.

Respectfully,
Color, Bolt and Credit

Cert. by ________

Date: ____________
C. Filing and classification.

Methods of,

(1) Drawings.

(2) Contracts and estimates.

(3) Catalogs.

(4) Samples.

(5) Current literature.

(6) Specifications.

(7) Correspondence.

(1) Drawings.

All drawings are to be grouped into three general classes.

(a) Unfinished. Drawings that are in an unfinished state i.e. have work yet to be done upon them. This applies to the drawing from the first lines drawn upon it until finished and checked up by the head draftsman.

(b) Finished. These include all drawings that have been checked up by the head draftsman as complete and are ready for use. These drawings remain in this classification until the job of which they are a part is completely finished and all active connection between it and the firm has ceased.

(c) Completed. All drawings that are to be saved by the architects for possible future reference after they cease to have active connection with the job. Completed drawings will not be necessarily stored in the office especially if at all
crowded for room. A card catalog of these drawings will however be retained in the office to facilitate the quick and easy finding of any particular drawing.

The sets of drawings when finished and checked, with the exception of those going to the blueprint office, are to be mounted under the direction of the filing clerk, on stout wooden strips, the drawings being fastened between the strips by clamps. These sets will then be placed on swinging screens or on wall space. The strips have holes in them to correspond with the metal pegs set in the screen. These pegs are set in two vertical rows on either side of the screen and about six inches on centres. This affords an uniform arrangement of the drawings. At the side of each pair of pegs is a number and each screen is given a letter. Hence if a drawing is required the clerk on looking up the the number in his card index will find say F 7. He will find the required set on screen F and on the number seven pegs. These screens should be about seven and a half feet high and about four feet wide so as to take the long side of a double elephant sheet. They may be made of wood or metal. These screens are arranged in the filing room (see sheet 8a) convenient to the clerk. On his desk he has the card index that merely gives the job number the drawing number and the indexed letter and number. All the drawings and blue prints of a job are bound and filed together. The tracings upon their return from the printerd are filed with the blue prints. A record of all drawings leaving the filing room is
Screen for filing drawings. Scale 1 in. = 1 ft.
kept by the filing clerk. He has a block of numbered gummed labels with an attached record (see 32a), Every drawing and set of specifications that leaves the filing clerk, does so with a numbered label attached to it and the accompanying blank left in the filing clerk's hands shows where it has gone. When the drawing is returned the label is torn off or cancelled by marking across it and a new one substituted when taken out again. This constitutes a register on all drawings and by merely looking over the uncanceled stubs, the missing drawings can be located.

(2) Contracts and estimates.

The contracts in progress or to be fulfilled are all kept together in a vertical file. The contracts of one job being all together. The several jobs being separated by indicating cards. The jobs are filed in numerical order in the files so that once the job number is known, all the contracts for that job are found together and the various titles such as Heating, Wiring etc. are arranged alphabetically. These contract files are kept in the clerk's office and are not allowed to go out of the office. When the contract is fulfilled and the job completed the contracts are taken from this file and turned over to the owner or destroyed. The contracts are made out in triplicate and the owner and contractor each have a copy as well as the architect.

The estimates are filed in drawers. No two are generally of the same size and may be unbound and are therefore hard
This stub remains in the filing room.

This gummed label is attached to every drawing and set of specifications taken from the office.

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to file. Each job has a job assigned to it. As an estimate is received, sealed, it is placed in this drawer, the job number being placed on the outside of the envelope by previous arrangement with the bidder. When the time allowed is up and the client arrives, all the envelopes are taken and opened. The successful estimate is retained, the unsuccessful are first recorded in a book as a matter of record and then returned to the bidders. The successful estimate is then turned over to Mr. Credit who has the contract made out (in triplicate). These contracts are then returned to the drawer with the successful estimates and remain there until the contractor and the client get ready to sign. Then they go into the file as previously described.

3) Catalogs.

The many and varied specialties that are part and parcel of the practice of architecture will require a large number of catalogs to be kept on hand. They are in constant use and it is very important that the collection be complete, up-to-date and so classified as to enable one to find any required catalog in a few seconds. It is evident that an adaptation of a library system is needed; but the preciseness of a library system in which every book has its individual place, is not sufficiently economical of time.

The following system is offered:

In the office library is a cabinet (see 33a) or case which is essentially a case of sections or pigeon holes. These
Elevation of Catalog cabinet. 
also showing sample closets.  
-Scale 3/4" = 1 ft.
<table>
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<tr>
<th>Date</th>
<th>Contractor</th>
<th>Est. Rec'd</th>
<th>Est. Accept</th>
<th>Ext.</th>
<th>Cert.</th>
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Contract for ___________________________  Job No. ____________

Contract for ___________________________  Job No. ____________
are of varying size to take the differing sizes of the catalogs as they come. Catalogs are never of any particular size but may be grouped into two general divisions, those that will stand upright by reason of their thickness or covers and those which will not, such as pamphlets. This divides the sections of our cabinet into two divisions of horizontal and vertical files. Each division is now subdivided into three groups according to the size of the catalog, large medium and small.

By reference to 33a it will be noted that the cabinet has three sizes of vertical sections and three horizontal. Each section is numbered consecutively, regardless of the size or shape of the section, beginning at the left upper corner and running right to left. At the bottom of the case are two drawers for duplicates and unclassified catalogs.

The catalogs to be filed are first divided into the main divisions, determined by whether they will stand up or not. Then each division is divided into groups of the various sizes and these small groups arranged alphabetically.

\[
\text{Catalogs} \begin{cases} 
\text{Those that will stand} \\
\text{small.} \\
\text{medium.} \\
\text{large.} \\
\text{Those that lie flat} \\
\text{small} \\
\text{medium} \\
\text{large}
\end{cases}
\]

The small groups are then distributed among the various sections in general alphabetical order, the large standing catalogs in the large vertical sections etc. Large gummed labels
bearing the numbers of the pigeon holes or sections are now affixed to each catalog then all the books in say section 14 will bear a label with a large 14, the catalogs in 15 section having a large 15, etc.

Two card indices are now prepared. One index has the catalogs arranged with the firm's name in alphabetical order. The other has the catalogs grouped under subject classifications as:

Mantels.
Simonds & James 46
Wheeling Bros. 29
Wheaton & Co. 64

In this way, anyone requiring a certain catalog will look up the section number and going to the section will select from among the five or six books in the section, the one required. With an average of six catalogs to a section the cabinet shown in 33a will accommodate 360 books and if more are to be kept on hand other sections can be easily added. As most catalogs have their name upon the back, it becomes a rather simple matter to instantly select from each section the book required.

In returning a book to the case, which may be done by an office boy, the number pasted upon the catalog will immediately show in which section it belongs and can easily be replaced.
As new catalogs or new editions are received, they can be temporarily be placed in one of the lower drawers and then filed at leisure, the superceded catalogs being removed and thrown away. Valuable duplicates may be also kept in the bottom drawers.

The reference library will probably consist of volumes of more uniform size, and should be grouped into subjects. The system of small sections of not over a dozen volumes each with the section numbered only will prove to be more practical than the usual method of separate numbers for each book.

(4) Samples.

Samples are much harder to deal with than catalogs. The methods of filing them depend somewhat upon their weight, shape and use. For example, samples of varied kinds of marble can easily be affixed to the wall where they are always conspicuous, never intended to be removed and out of the way. Thin slabs of building stones, different varieties, polished and unpolished and with various finishes, can be treated in the same manner. These will need no classification other than a label attached to each, giving the variety and the trade name.

The method adopted for other samples is to have special compartments made in which to store these samples. Series of these compartments will run along the top and bottom of the shelves in the library. The heavier samples being placed under the shelves and the lighter ones on top. These compartments
are shown in the same drawing as the catalog cabinet on 33a. These compartments will be approximately 18 inches high, 18 inches deep and of varying lengths from 18 inches to 3 feet. Doors of the full width of the compartments will afford easy access. Above the upper row of compartments will run a series of partitions that may be used to classify and hold samples or may be used to store old records or books. The closed compartments are lettered, the upper row being lettered A, B, C, etc., and the lower row being lettered AA, BB, CC, etc., in order around the library. A card index similar to the one for catalogs will enable one to find the sample wanted. About half a dozen samples can be placed in each compartment and different samples for the same uses should be grouped together as much as possible to afford easy comparisons.

(5) Current literature.

The current periodicals should have suitable binders and are placed in them when they arrive. These binders may hold several numbers at the same time. At the completion of a volume the numbers should be bound and the volume placed on the shelves the same as any other reference book. The articles of importance may be specially indexed on the card system. Loose illustrations of current work may be classified and pasted in to scrap books and then these books filed as any.

(6) Specifications.

These are prepared upon paper of uniform size, bound between suitable covers and the titles are on the outside
cover (see sheet 18). A vertical filing case will hold a great quantity of these. The jobs are separated, in the case, by cards bearing the number of the job and mark off the sets of the specifications filed therein.

See sketch below,
(7) Correspondence.

The accumulated correspondence of the week is noted on filing cards by the clerk. (See 24 a) These cards are quickly filled out and are filed alphabetically and the cards of one correspondent filed in order of their receipt. This file is a common vertical one with a rod or some other device to prevent the cards from being removed from the file. The clerk can fill in the last line with a date stamp, by looking over the outgoing mail every day. The cards are not placed in the permanent file until the last line "answered" is filled in. This will leave a card list of unanswered letters in the hands of the filing clerk, where it can be looked over every day.

The letters themselves are filed in some standard letter file properly indexed, so that by reference the letter card (see sheet 24a) the index number and thence the letter is readily found.

The proper care of correspondence is of great importance and is worthy of considerable attention.