Study of management problems in a millwork company

Hugh William Corn

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A STUDY OF MANAGEMENT PROBLEMS

IN A

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HUGH WILLIAM CORN

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CHAPTER I

INTRODUCTION

This paper will present the results of a study of problems presently confronting the management of a Western Montana wood products manufacturing company. The study was undertaken because a prior study performed for the company indicated the need for such further investigation of problems.

The writer's association with the problems of this company began with this prior study in April, 1966, while a Research Assistant for the Bureau of Business and Economic Research of the University of Montana. That study originated from the company president's request that Professor Thomas G. Johnson and the Bureau study company supervisors and prepare supervisor job specifications. The president had indicated a primary interest in the preparation of written descriptions of the duties and rights of company foremen. The resulting study of supervision revealed, however, that existing supervisory problems were of greater immediate importance than the preparation of foremen job specifications. The formal interviews which concluded this prior study showed a need for training of supervisors and additional study of the authority structure and organizational
The chart appearing in the chapter under the title "The company in a major problem area" may therefore be termed a "follow-up" to the study of superstores. The study described here in this chapter, however, the organization of the company will be shown incompletely without the introduction of an organization chart.

The General Organization of the Company would be marketed

...estimated amount of lumber is marketed

...which are sold to toy and furniture manufacturers and a few other specialty items are purchased from wood products about 400 windows and 1,500 window and door frames to toy. The company now employs about 350 people to

...was established in 1947 to provide lumber for the fabricated for manufacturing window and door frames, and purchased wood stock. The factory was established in 1926 to manufacture window frames from the manufacture of wooden window and door parts and other

The company involved in this study is engaged in

The Study Setting

Study description presented below

...are treated sequentially in separate chapters following the steps for solving the identified difficulties. These three steps to present the facts, analyze them, and recommend approaches as this paper deals with problems, it is organized

Pan's problems
Exhibit I, which was copied from a company-prepared chart, should therefore be considered to represent the organization as seen by management.

Exhibit II illustrates the general relationship of production departments in the Company and the flow of material between those departments.

**Study Methodology**

The planning stage of this study began in November, 1966, with a conference with the Company president. Although the president endorsed the idea of pursuing problems which were indicated by the previous study, he again stated his primary interest in the preparation of job specifications for foremen. It was therefore decided that this study would investigate previously indicated supervisory problem areas and concurrently gather information necessary for the preparation of job specifications. It was further considered that the study objectives would be best served by an in-depth examination of one department and its foreman supervisor. This decision was made because a sufficiently detailed study of all departments would have required a prohibitive period of time and because it was felt that a thorough study of a carefully chosen department would provide information about supervisory problems which could be generalized to other departments of the Company. It was further felt that the preparation of job specifications
EXHIBIT I

COMPANY ORGANIZATION CHART
(AS SEEN BY MANAGEMENT)

PRESIDENT

EXEC. VICE PRES.

VICE, PRESIDENT
PRODUCTION MGR.

SALES MGRS

MAINT. ENGR.
PERSONNEL MGR
GENL. SUPT.
OFFICE MGR.

QUALITY CONTROL

SAWMILL SUPT
PLANER FOREMAN

YARD FOREMAN
DRYKILN FOREMAN

FACTORY SUPT

ASST. FACT. SUPT.

-SHIPPING FOREMAN
FRAME MACHINE FOREMAN
SASH MACHINE FOREMAN
RIP & CUT FOREMAN
1. About 45 percent of the planed lumber is shipped as lumber. The remaining 55 percent provides material for the Factory.

2. The Company purchases lumber when Factory demands exceed the Sawmill capacity.

3. Rip and Cut Departments rip lumber to desired widths and cut it to length. Cut stock must be free of knots and other defects.
The study of the cash handling department was based upon indications of problems areas provided by the president, and the department of supervision, the recommendations of the company. When many problems outside the study department were reported, major problems may have been overlooked, this paper will show necessity on one department, that problems of other be patterned. While the fact that this study concentrated the specifications detailed by the company president might not one foreman would provide a model from which the remain
interviews with workers, foremen, and managers to gain additional insights into the organization.

The early stages of this study, during which the physical processes and conditions within the department were observed, revealed the physical problems to be discussed in this paper. The discussion of physical problems contained herein will therefore center on the Sash Machine Department. The later stages of the investigation dealt with other departments, supervisors, and managers as the study examined the relationship of this department and its foreman with the remainder of the Company. The problems which were revealed during these later stages of the study were considered to be so important that the study efforts were redirected toward their resolution. The major problems to be discussed herein thus lie outside the department of initial concentration and directly involve the management of the Company.

Organization of the Problem Discussion

The problems to be discussed in this paper may initially be divided into those which directly involve physical conditions and operations, and other more important problems which do not. A question exists, however, as to the proper identification of these "other" problems, and to the best method of their presentation herein. Regarding the question of identification, it should be noted that these problems primarily involve people and their
relationships with one another. This suggests consideration of the Company as a social unit and identifying the "other" problems as involving a social form entitled "the organization" or "the organization structure."

Rubenstein and Haberstroh\(^1\) define "organization structure" in a manner particularly adaptive to this study situation in view of the Company president's above noted interest in job specifications:

To the layman, the words "organization structure" bring to mind the organization chart used by most private and public organizations of any appreciable size. The organization chart and any associated position descriptions do provide important information on organization structure. Yet, for the person who wishes to study organizations scientifically, a deeper meaning for this concept is needed. In part, this is because of the commonplace observation that organization charts may not be accurate and do not tell the whole story. The more important consideration, however, stems from the nature of these documents and the way in which they and other aspects of organization structure influence organizational behavior.

An organization chart or position description is a collection of ideas or information. It can impinge on behavior only insofar as it affects the beliefs of the people who conduct the affairs of that organization. A satisfactory conceptual definition of "organization structure," then, is the pattern of beliefs about the organization that are shared by those individuals who take the coordinated action that we define as "organizational behavior." It is these beliefs that matter and that provide long-term coherence for the organization regardless of whether their concrete existence occurs in the form of documents, other memory devices, or solely in the perceptions and cognition of the human participants.

\(^1\)Albert H. Rubenstein and Chadwick J. Haberstroh, Some Theories of Organization (Homewood, Ill.: Richard D. Irwin, Inc., 1966), pp. 63-64.
This view of organization charts and position descriptions may help explain earlier comments about this Company's organization chart and also why the Company president's enthusiasm for job descriptions was not fully reflected in this or the previous study.

Another definition provided by Weiss\(^2\) also emphasizes the social aspects of an organization:

The organization is a social form which has the following characteristics:

- (a) a set of individuals in offices
- (b) Individual responsibility for definite tasks
- (c) An organizational goal to which the activities of the staff contribute
- (d) a stable system of coordinative relationship, i.e., a structure.

The importance of these definitions lies in conveying the message that these "organization" problems involve far more than written charts and specifications.

This approach to problem identification allows consideration of the physical problems as being problems of environment—the buildings, facilities and equipment used by the organization to achieve its goals. The management problems revealed by this study will therefore be divided for discussion into the two broad areas of the organization and its environment.

CHAPTER II

DESCRIPTION OF THE ORGANIZATION
AND ITS ENVIRONMENT

This chapter of the paper will attempt to describe the existing operations and practices with a limited amount of evaluation. As was indicated previously, Chapter III will present an evaluation of these findings. The discussion below will proceed in the approximate sequence of actual study steps.

The Sash Departments

The Sash Machine Department obtains wood stock cut to size for customer orders from stock inventory or directly from the Sash Rip and Cut Department, and machines the stock into window sash.\(^3\) The Sash Machine Department's dependence on the Sash Rip and Cut Department as a supplier of wood stock indicates that this supply function should be explored. The following discussion will therefore include that portion of the Sash Rip and Cut Department operations which provide sash stock.

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\(^3\)In this paper, "sash" refers to the window parts which hold the glass pane or panes.
Physical Conditions and Material Flow

The previously noted factory construction and expansion dates may provide an indication of physical conditions. Building additions have been made as necessary over the years to provide for expanded production requirements, and existing buildings have been converted to serve purposes for which they were not designed. This old and unplanned configuration of buildings has resulted in a number of storage and material flow headaches. The age of the facilities and equipment also necessitates considerable maintenance effort. Many items of equipment were described by workers as being old and badly worn, and dissatisfaction was expressed at what was termed a "company policy" of purchasing used machinery.

Material flow through the Sash Machine Department is indicated on Exhibit III, and Exhibit IV shows sash stock flow through the supplying Rip and Cut Department. While these simplified diagrams do indicate inefficiencies which will be discussed in the following chapter, they cannot fully show the nature of storage and material flow problems resulting from the physical arrangement of the factory. Excessive material transportation is involved between production steps which is only partially indicated on the diagrams. The flow charts are presented here primarily to acquaint the reader with the production processes involved so that the following discussion may be more meaningful.
Floor plan sketch—no scale. See Appendix I for description of machine operations.

H = hold stock
EXHIBIT IV

SASH RIP & CUT DEPARTMENT

MATERIAL FLOW

Floor Plan Sketch
No Scale
Written Communication Flow

Written communication to and from the Sash Machine Department may be roughly divided into two types: that which is related to production and that which is not. Production-related communication is considered to be of far greater importance in this discussion due to its close association with the organizational problems which will be presented later in this paper. This type of written communication is the most frequently occurring and voluminous in the department, and is obviously of greater importance to the operations of the Company. For these reasons, and to avoid overloading the reader with information at this point, the discussion to follow will deal solely with the production information system. An outline of other written communication may be found in Appendix 2. As noted above, this section of the paper will explain the existing situation, while analysis and comments will be presented in the following chapter.

The Communication System

As the Sash Machine Department operates on a "job shop" basis, a customer order starts the communication system in motion. The customer's order is translated in the Company office to the several communications which provide for cutting, machining and shipment of finished window parts. With reference to the simplified communication
system diagram shown on Exhibit V, it may be seen that receipt of a sash order causes the initiation of:

(a) an order to the sash rip and cut foreman to cut stock

(b) various forms to the sash machine foreman which provide for stock acquisition, identification and machining, and that become sources of management control information upon their return to the office

(c) shipping directions to the shipping foreman.

Since much of the wood stock which is cut in the Rip and Cut Department is placed in inventory before machining, that department informs the office of additions to inventory. As stock is used by the Sash Machine Department, communications are sent to the office regarding inventory decreases.

Exhibit VI has been prepared to provide a detailed diagram of the same system. While several parts of the system present problems which will be analyzed in the following chapter, it is not desired to burden the reader with nonessential information. The detailed system description associated with Exhibit VI has therefore been placed in Appendix 3.

Although the production communication system described above comprises, with few exceptions, the management information system with respect to the study department, the flow of paperwork within an organization reveals
EXHIBIT V

SIMPLIFIED DIAGRAM

PRODUCTION COMMUNICATION SYSTEM

SASH DEPARTMENTS

CUSTOMER

COMPANY OFFICE

SHIPPING

SASH MACHINE DEPARTMENT

SASH RIP & CUT DEPARTMENT

INVENTORY CONTROL

LUMBER

ORDER

SHIPPING ORDER

PRODUCTION REPORTS

MACHINING ORDERS / FORMS

INVENTORIES

INVENTORY CONTROL

STOCK
only a portion of the actual communication which occurs. One organization investigator found that 232 people in a research organization spent 61 percent of their eight-hour workday in communication: speaking and listening 35 percent, writing 16 percent, and reading 10 percent.\(^4\) The size and informality of the organization in this study suggests that oral communication might comprise a similarly large portion of the total communication.

Accurate information regarding oral communication patterns is difficult to obtain because people often fail to see a pattern in their speaking topics and partners. In addition, the close presence of an observer may alter the pattern. But because these patterns provide insights into the roles of the communicators and their relationship, they were considered important to determine in this study. As the study was initially directed toward the Sash Machine Department, the oral communication of that department forms the next topic of discussion.

**Oral Communication**

The study showed the sash machine foreman to play an important role\(^5\) in oral communication patterns within the


\(^5\)A "role" is defined by Theodore R. Sarbin in "Role Theory," in *Handbook of Social Psychology*, Vol. I, ed. Gardner Lindsey (Reading, Mass.: Addison-Wesley, 1954), p. 225. Professor Sarbin explains that "a role is a patterned sequence of learned actions or deeds performed by a person in an interaction situation."
department. All workers who were interviewed indicated that they spoke to one or two of their co-workers more than they conversed with the foreman, but most noted that they talked with him about the work each day and that they would call him if troubles or questions arose. With the exception of the sash machine loader, no worker regularly engages in extra-departmental communication on work-related matters. The loader deals with the sash rip and cut carrier and foreman in obtaining stock, and with the lift truck operators in moving stock. The loader indicated that he was given the authority necessary to get his job done and to deal with people outside the department. He said that the responsibility and freedom were the best things about his job. On the infrequent occasions when he could not deal with outsiders, the loader turned to the foreman for help.

The Foreman’s Oral Communication

The foreman spends a good portion of his day talking with his supervisors, other foreman, and his workers. In the following discussion, the direction of communication will be termed upward to management, lateral to other foremen, and downward to workers. Information regarding the

---

6 The "loader" is the man who obtains stock from inventory or the Rip and Cut Department and places it by the sash machines. The rip and cut "carrier" places stock in paletized loads in the Rip and Cut Department after it has been cut and sorted. The carrier also prepares tickets showing what each load adds to stock inventory.
foreman's oral communication patterns was obtained by observation and interviews with the foreman and those with whom he talks.

Downward communication requires more of the foreman's time than either of the other two forms, perhaps, as he noted, because there are more people in this category. The workers spoken to most often are the machine set-up men. The foreman gives each set-up man special instructions several times a day, and as these men also control quality, they are checked with frequently. The assistant foreman, who is a worker half of the time, is the second most frequent downward communication "partner," and becomes the most frequent during his four hours as a supervisor. The loader ranks next in order. He and the foreman talk about expediting material or order and schedule changes. The remainder of the foreman's conversations within the department are divided between the workers. He asks questions and makes comments, primarily about quality and production, during his walks around the floor. He is in turn asked questions and presented with problems involving work and personnel matters.

Lateral communication, insofar as it involves work-related topics, reflects the foremen's efforts to coordinate their departments or solve common problems. The sash machine foreman's most frequent such conversations are with the Frame Department foreman. These foremen speak together about
four or five times daily regarding the scheduling of material which will be processed through both departments. As this material may be on a tight production schedule, each foreman must be aware of the progress of the other department to plan his own operations.

The sash machine foreman also talks with the sash rip and cut foreman regarding the availability of stock or production schedules. The loader, who is the Sash Machine Department’s primary stock coordinator, also handles most material moving for the department, but the foreman contacts the lift truck foreman each day about special moving jobs or problems passed up from the loader.

The foreman’s oral communication upward to management tends to decrease in frequency at each higher level as might be expected. The assistant factory superintendent is spoken to most frequently, usually regarding personnel. A common topic of conversation involves changing or switching workers between departments. The assistant factory superintendent may also present the foreman with another foreman’s request for machining, and often conveys information and instructions from the office of the general superintendent, usually regarding personnel or problems of employees’ work habits.

The factory superintendent provides a source of technical advice for the foreman, and is contacted about machining methods, machine break-downs, cutting-head making and other
machine-related problems. Notably, the superintendent does not play a significant role in production on personnel activities in this department. A check with other foremen indicated the superintendent's role to be roughly similar throughout the factory. The factory foremen stated that they contacted the superintendent for technical problems and his assistant for personnel difficulties. It was also considered noteworthy that the factory superintendent and the assistant factory superintendent have no office, as they share a portion of the sash machine office.

The foreman's contact with the general superintendent usually involves personnel problems. The foreman explained that the recent reduction in work force, due to decreased home building activities, caused "bumping" by skilled workers and reductions in pay which resulted in employee unrest and dissatisfaction. Combined with the necessary switching of workers between departments, these forces were said to have caused an abnormal number of personnel problems.

The foreman is more often on the receiving end of communication with higher management. The production manager normally visits the department each day to check production progress, and may also call to advise the foreman of order or schedule changes or to check on operations before making schedule commitments to customers. The foreman
may call the production manager several times a week about questions of quality, production problems, or to request modifications to the production schedule. The executive vice president is rarely seen or spoken to by the foreman, and is thought by the foreman to be involved primarily in financial matters. The Company president usually visits the factory several times a week, and normally converses with the foreman about problems observed during the visit. The foreman said that matters of "house keeping" were often brought up by the president.
CHAPTER III

MANAGEMENT PROBLEMS REVEALED

BY THE STUDY

The previous sections of this paper have attempted to present information about the organization and its environment which was obtained by the study. The paper will now turn to problem identification and analysis. As indicated by the chapter title, the problems to be discussed involve management, and will demand management consideration if solutions are to be found.

This chapter will treat problems of organization separately from those of the environment. The environmental problems will be divided along departmental lines, but a further method of division of organizational problems is not so clearly evident. These problems may be divided in several ways. One approach might be to divide the problems between the traditional functions of management, as it will be indicated that organizing, staffing, controlling and other management "functions" are involved. Another method might involve the division of the discussion along the lines of the organizational hierarchy.

Although both listed approaches to this discussion
have merit and other approaches exist, an analysis of the hierarchy is felt to offer discusssional advantages. It appears, for example, to provide a better framework for organizational problems. It also permits a more meaningful discussion of organization roles. The approach must proceed with caution, however, lest one forget the previously established differences between organization charts and the organization.

**The Organization**

It should be restated that this study was directed at the Sash Machine Department, and therefore the problems to be identified herein will usually relate to that department. The writer has, however, no reason to believe that the situation differs significantly in other departments of the factory. Upward oral communication patterns were in fact verified with other foremen. Since this discussion will proceed downward through the organizational hierarchy, it will begin with a brief examination of the role of the Company president as indicated by the study. As the study provides only a narrow viewpoint of the president's role, the following may more properly be termed a foreman's view of the president's role in the factory. Indeed, all of the roles to be described herein will be as seen by factory foremen.
The President

The preceding chapter indicated that the Company president was not normally involved with the production activities of the factory and that his discussions with factory foremen usually involved problems he observed during his visits. Most of these problems were considered by the foremen to be minor and often involved housekeeping matters. The president also points out safety problems, many of which were not dismissed as minor by the foremen. The purpose of this analysis will be to ask if there is anything wrong with this situation, and to explain why the situation is thought to involve a problem.

The factory foremen see the president as being concerned primarily with what they believe to be unimportant details while not knowing or caring about matters of production, which they consider to be all-important. One foreman observed that "He has no idea what order we are working on when he comes through." This situation contains a management problem because it involves a conflict of attitudes and because the president has to handle such details in the first place. This discussion will not attempt to evaluate the importance of the details involved, except to indicate that if the president feels they are important, one might expect the foremen to reflect his interest. The fact that they do not suggests that a management problem exists. While the study did not explore the problem in
depth, discussions with foremen revealed that the matters of present concern to the president had not been considered important to management in the past, and that the foremen's other supervisors did not now consider them important. This explanation may also show why the president has to handle these details himself rather than entrusting them to a subordinate.

The effects of the problem may be far-reaching. The president can only worsen his image with subordinates and workers by "nit-picking," and these activities draw him away from more important work. At the same time, however, the president cannot dismiss his concern over safety and housekeeping, nor can he convince subordinates to share his concern. This latter point connects this problem with others revealed by the study which will be discussed below.

The Executive Vice President and the Production Manager

The executive vice president is shown on the company-prepared organization chart to be a member of line management. While the foremen's knowledge of this manager's activities was limited, his role was seen as that of a financial vice president rather than a line officer. Since there is no apparent need for the services of an additional line officer in this organization, the major problem would appear to be that the executive vice president's title and position on the organization chart do not reflect reality.
The production manager appears to have considerable contact with foremen on matters relating to production. While contact might be expected, and the situation is viewed as satisfactory by the foremen, it is surprising to note that the foremen usually deal directly with this manager about production matters since they are separated by three levels in the organization structure.

In determining whether this relationship reflects a management problem, we need only repeat that three levels of management are bypassed in the process. One foreman indicated that he had received specific instructions from the production manager to bypass his supervisors. He explained that if the factory superintendent or his assistant were to initiate some action which could cause the foreman to miss a production schedule, he was to call the production manager at once. In addition, written operating instructions to foremen advise them which problems may be handled by the factory superintendent and which should be referred to "management." (It was explained that "management" usually meant the production manager.)

This management problem, like the one previously discussed, has two facets: its continuation will be detrimental to the organization, as it removes much of the authority and effectiveness of the positions being bypassed, and involvement with the foremen's production problems consumes the production manager's valuable time.
The similarity of this problem with the president's situation is noteworthy. Both managers see a job which should be done, and although it would seem that the jobs might be done at a lower level in the organization, these managers perform the jobs themselves. To better understand why they do this, it will be necessary to investigate these lower levels. It is desired, however, to digress at this point to an analysis of a portion of the written communication system, as this matter involves several managers closely associated with the production manager.

With reference to the communication system description, and in particular steps (a) through (e) of the detailed description contained in Appendix 3, it is thought that managers may be too involved in order paperwork. A review of the operations described in these steps suggests that several key personnel of the Company are engaged in completing or checking forms on a regular basis. The assistant production manager and millwork sales manager fill out certain forms for every order received, and the production manager checks certain forms for every order. The paperwork being done by these managers requires experience and a certain degree of judgment, but portions of it do not appear to be beyond the capability of a well-trained clerk. Surely these managers have more important tasks to perform which are now competing for attention with this clerical work.
To pursue the analysis of the written communication system a bit further, the study showed that many forms were checked by another person after entries were made and that several managers or clerks made separate entries on the same form. While continuous checking of clerical work may be a safe way to operate, it must also be costly, and may actually encourage mistakes as the person completing the form knows it will be checked and therefore does not feel fully responsible for its accuracy. Certain labor-specialization advantages may be obtained by having several people work on one form, but this action must result in a loss of familiarity with the order and a reduction in the feeling of responsibility.

Although the paperwork situation cannot be deemed to be as serious a problem as others described herein, it illustrates a continuance of the pattern of management problems outlined to this point. Here again, managers performs tasks which might be done by someone whose time is less valuable, and paperwork done at lower levels is subjected to considerable checking. It is hoped that this pattern will be further illuminated by the following discussion of a key management problem area.

The Superintendents

The Company organization chart indicates that the position of general superintendent should be next considered by this downward proceeding discussion. To briefly review
pertinent portions of the preceding chapter, it may be re-
called that the general superintendent usually converses
with the foreman about people. The superintendent relates
matters of employees' work habits to the foreman, and re-
ceives personnel problems for solution. Although the gen-
eral superintendent's activities are not limited to these
matters, as instances of coordinative effort (e.g. with
the Maintenance Department) were reported, it was gener-
ally agreed that his primary role in the factory was to
help handle people.

To an unknowing outsider, the relationship between
the general superintendent and the factory foremen would
appear unusual since one might expect this line supervisor
to be involved in production. It should be recalled, how-
ever, that the production manager handles most production
matters with the foremen. Further explanation for the
superintendent's role in the factory may be found in the
following exploration.

Prior to assuming his present position, the general
superintendent supervised activities outside of the fac-
tory; that is, the mill, planer, and yard. At that time,
the position of general superintendent did not exist. The
position was created and filled with the present occupant
at about the same time that the present factory superinten-
dent acquired his position. Management explained that the
creation of the position of a general superintendent was
considered necessary due to recognized weaknesses in the new factory superintendent. Although these weaknesses will be explored in depth later, it might be noted now that a primary one involved an apparent inability to handle men. Since the general superintendent had and reportedly continues to display skill in such matters, the substitution of his ability for that of the factory superintendent seemed an obvious move. The study indicated that management did not intend that the created general superintendent position would have line authority over the factory. Rather, they wished to use only the scarce employee-handling ability of the man in the position. As the general superintendent apparently retained his previous line duties and responsibilities outside of the factory after assuming the position, the move amounted to adding staff duties to his job.

Although the general superintendent would seem to be doing the job assigned him by management, exception must be taken with the desirability of this arrangement. The major problem seen in the situation is that it creates ambiguity in the authority structure and uncertainty in supervisors' relations. The company-prepared organization chart does not reflect the actual authority structure. It is considered doubtful that few if any supervisors know the exact limitations of the general superintendent's authority. In addition, the relationship between the general
superintendent and factory superintendent is unclear. Although one might normally expect close contact and common interests between these positions, the incumbents have few reasons to establish any ties. Since the problems of the general superintendent's position are so closely related to the factory superintendent situation, further analysis will require a review of that situation.

It was indicated above that the factory superintendent does not become involved in personnel matters in the factory. And since the production manager controls most of the production activities of the foremen directly, the factory superintendent has a limited involvement in these matters. A review of the communication system as outlined in the previous chapter will further reveal that his position is bypassed by written communication. The flow chart in fact does not indicate the existence of the factory superintendent.

In attempting to determine the factory superintendent's role, reference to the oral communication patterns of foremen would suggest that he manages the factory equipment. The foremen generally converse with him about equipment problems or machining methods, and since he is usually giving advice or consultation, his role might be identified as a technical consultant. The history of this situation, as explained by several interviewees, may help illustrate the management problem.
It was explained that the present factory superintendent had little opportunity to acquire supervisory or personnel skills while serving as assistant to the previous superintendent. The previous superintendent was reportedly a very capable supervisor, but one who failed to delegate any responsibility to his then assistant. As the assistant was skilled in machine operations, he tended to handle technical problems and became very familiar with all the equipment in the factory. Upon the retirement of the superintendent, his technically capable assistant was promoted to the position. When the present factory superintendent assumed his post, he continued to act as an equipment supervisor and allowed the primary duties of his position to be performed by others. As management became aware of the limitations of the occupant of this key factory position, the situations described above were allowed to develop.

The factory superintendent would appear, therefore, to be performing a staff function, and since the general superintendent does not exercise line authority over the factory, the actual supervision of the factory must lie with the production manager. The factory superintendent position is thus a key problem area which clearly affects all levels of management.

The present assistant factory superintendent would seem to be also performing a staff function. A review of
the foremen's oral communication patterns with him indicates that he, like the general superintendent, is primarily involved with personnel problems arising within the factory. Although it appears that the assistant factory superintendent performs some coordinative functions between foremen, these activities also often involve personnel, as for example the temporary transfer of employees between departments. In view of the considerable effort apparently devoted by management to personnel matters, it might be recalled that abnormally low work and employee levels during the period of this study were said to have caused an unusual degree of such problems. It was explained that usually foremen referred personnel problems to the assistant factory superintendent, who referred the difficult problems to the personnel manager. The chain of command in this staff function would therefore appear to more closely approximate the structure shown on the organization chart than the line authority chain.

The Foremen

Since this study was originally directed at one department, it was expected that analysis of this level of the organization would comprise a significant portion of this discussion. The study was problem-seeking in nature, however, and the major problems found were located above the foremen level in the organization hierarchy. This is not to say that no management problems exist at the foremen
level, but only to suggest that they may be of less immediate concern to management. The fact that problems exist is evidenced by the foremen's attitude toward the safety and housekeeping interests of the president.

It was expected that foremen would feel a need for additional authority, particularly since authority seemed to be retained at rather high levels in the organization. This was not found to be the case, however, for as one foreman stated, "I've got all the authority I need to do my job." They indicated that they were responsible to the production manager for quality and meeting production schedules and were given considerable freedom to achieve these goals. They have, for example, complete control over equipment and worker utilization within their departments. They are also free to coordinate the activities of their departments between themselves. Supervisors such as the assistant factory superintendent are requested when coordination problems arise which the foremen cannot solve. In addition, foremen have the authority to discipline and release employees subject to the terms of the labor agreement.

The apparent sufficiency of authority at the foreman level may be attributable to the gap in line management above them. The production manager, previously identified as the foreman's prime supervisor, cannot handle all the details of factory operations. And since the foreman's
other supervisors are primarily engaged in staff activities, he must have the authority necessary to operate his department and coordinate its functions with others. There is some evidence, in fact, that management may not have sufficient control over this level of the organization. For while the delegation of authority to foremen is desirable, management should retain adequate means of evaluating their performance. Several problems regarding this evaluation will be outlined in the "quality-waste" discussion contained in Appendix 5.

Several foremen suggested that the organization was top-heavy. When an employee was asked what he considered to be major problems in the factory, he proclaimed "too damn many bosses!" This sentiment was expressed, in varying terminology, by many workers. Although such expressions may be common in any organization, the above analysis indicates that the criticism may have substance in this case.

In view of the previously expressed differences between the organization chart and the organization as perceived by foremen, it was considered important to prepare a chart showing the latter organization structure. This chart, appearing on Exhibit VII, may be compared to the company-prepared organization chart to review graphically several of the management problems discussed above.
EXHIBIT I

COMPANY ORGANIZATION CHART
(AS SEEN BY MANAGEMENT)

PRESIDENT

EXEC. VICE PRES.

VICE & PRESIDENT PRODUCTION MGR.

SALES MGR.

MAINT. ENG.

PERSONNEL MGR.

GENL. SUPT.

OFFICE MGR.

QUALITY CONTROL

SAUMILL SUPT

PLANER FOREMAN

YARD FOREMAN

DRY KILN FOREMAN

FACTORY SUPT

ASST. FACT. SUPT.

SHIPPING FOREMAN

FRAME MACHINE FOREMAN

SAEM MACHINE FOREMAN

RIPE CUT FOREMAN
EXHIBIT VII

ACTUAL ORGANIZATION

As Seen By

FACTORY FOREMEN

- PRESIDENT
  - FINANCIAL V.P.
    - PRODUCTION MGR. (GENERAL MGR.)
      - PERSONNEL MGR.
        - GENERAL Supt. (PERSONNEL)
          - FACTORY Supt. (EQUIPMENT)
            - ASST. FACTORY Supt. (PERSONNEL)

- FACTORY FOREMEN
The Quality Control-Waste
Problem: A Result of
Organizational Difficulties

It should be expected that the organizational problems discussed above would cause in turn additional practical problems. Although many such problems, dealing with costs or waste for example are thought to exist, one has been found which may illustrate the nature of such problems and their relationship to the organization.

The details of this problem and detailed suggestions for its correction may be found in Appendix 5. The essence of the problem is that the production system does not adequately provide for waste and quality control in the Sash Rip and Cut and Sash Machine Departments. Although one foreman continuously observes the cutting operation, over 10 percent of the stock production of the Rip and Cut Department contains defects such as knots or splits. In addition, few of these defective pieces are removed from the system until after they have been transported to and from storage and have been machined in the Sash Machine Department. Some defective stock is never removed, and is delivered to the customer who often responds with a letter of complaint. The cost of wasted machining effort alone on this defective stock is estimated in Appendix 5 at $1000 per month.

In view of the costs involved in this problem it was surprising to hear that no prior effort had been made to analyze the situation. The foremen in the two departments
involved noted that they both received complaints from management about quality and waste and that they often answered these complaints by explaining that since two departments were involved neither should be singled out for criticism.

The key to Company inaction on this problem to date would therefore seem to relate to the previously discussed absence of effective supervision of foremen. It was thought that this example might indicate the type of problem which could exist in many areas of the factory because it involves more than one department. If the factory superintendent were in possession of the authority and skill implied by his title, he could be expected to seek out and resolve such problems, as well as problems involving only one department. Under the present organization, however, the foremen are not likely to refer their problems to the superintendent, and his limited authority does not permit his being held responsible for the operations of the factory. The supervisory gap has therefore removed an essential element of coordination and control from the factory.

**The Environment**

The early stages of this study included, as has been indicated, an examination of the physical conditions and processes in the sash departments. Although the problems revealed by this examination are thought to be of less
immediate concern to the Company than those involving the organization, consideration should be given to their resolution to allow the organization to function more effectively and efficiently. The nature of several such problems was suggested in the preceding chapter wherein the factory and equipment were described. Many of the problems involved in the possession of old facilities and equipment are well known to this Company and anyone familiar with production processes. Their lengthy reiteration in this paper is therefore deemed to be of little value. It is however desired to discuss one aspect of the production process which may provide an appreciation for its most important and obvious defects. The existing material flow situation reflects many such management problems.

Stock Transportation Problems

The most serious material flow problem involves the excessive transportation of stock into and out of storage prior to machining. Stock produced in the Rip and Cut Department which is not immediately usable by the Sash Machine Department is moved into inventory storage. This step requires that the stock be transported through the machining area and often hundreds of feet beyond into storage sheds which are crowded and confusing. When a machining order for this stock available in inventory is received, it must be retrieved and transported back to the machining area.
The improvement of this situation, as well as most physical problems to be presented, is limited by the configuration of the factory and other facilities. It would obviously be more desirable to have a well-planned storage area adjacent to the supplying and machining operations. The construction of this more efficient situation is however presently prohibited by a railroad track next to the department areas and between them and the existing storage sheds. It appears, therefore, that although this problem should be considered important to solve, its solution will require considerable physical changes, the further investigation of which lies beyond the scope of this paper.

Rip and Cut Department Problems

Material flow problems are thought to exist throughout both departments, and temporary material storage on the floors of the departments has reduced operating space to aisles between the piles in many areas. Observation indicates that the existing situation greatly impairs efficiency, particularly when it is necessary to move material in these crowded areas. The stock conveyor system in the Rip and Cut Department presents a problem, as its present design requires the use of two workers to align material with the edge of the conveyor so that it will fall in the proper length sorting bin. The foreman advised that wood stock frequently becomes jammed in the junction where one conveyor forms a 90 degree angle with another thereby stopping
all cutting operations. It is thought that the existing material flow arrangement, as shown on Exhibit IV, is therefore inefficient, and could be improved by installation of a properly designed straight conveyor system. The physical modifications necessary to install such a system would, however, be major as the cut saws would have to be aligned with the sorting bins. A decision to proceed with the above suggested improvement should, of course, be supported by a more detailed study than was possible here. It may well be that consideration should be given to improving the production system throughout the department in this detailed study.

Sash Machine Department Problems

The flow of stock through the sash machining process as shown on Exhibit III also does not seem to present an optimum material transportation pattern. A more efficient pattern would show material moving short distances between machines and flowing in one general direction through the machining process to the shipping area. It should be noted that the most obvious defect shown on Exhibit III, the bar franker, was corrected during the period of the study by relocating the machine behind the stickers.7 Further rearrangement of machines in this

7A description of these and other sash machines is contained in Appendix 1.
department is somewhat limited by several factors:
(a) the physical configuration of the department, which limits the length of equipment arrangement; (b) the necessity for temporary storage of stock between machining steps on the floor; and (c) the cost of moving machines which require base floor mounting, electrical wiring and waste removal piping.

It appears from Exhibit III that a more efficient arrangement would show the stabbing and franking machines behind the stickers instead of off to one side. However, relocation is presently restricted by space limitations behind the stickers, and moving these machines would be costly and encroach on already taxed storage space. It must therefore be stated that this study cannot provide simple suggestions for improving material flow. While it is evident that improvements can and should be considered in many areas, physical modifications necessary to achieve significant increases in efficiency are so great that additional preparatory study is required. It is understood that the Company is considering extensive modifications to the factory within several years. If such is the case, management could greatly profit by a study of existing production processes to avoid the creation of problems similar to those described above.

The organization environment, because of its comparative rigidity, offers less promise of manipulation than
the organization itself. Although this statement might be challenged by those who believe that "you can't change people," the nature of problems revealed by this study lend the statement necessary support. The organizational problems discussed above are complex, and their solution will involve extensive changes in people and their roles, but the cost of such changes should be minimal. In fact, it is felt that the Company cannot long afford not to solve these problems. One cannot so readily claim that solutions to environmental problems are economically justifiable without further study. For these reasons, and in view of the previously stated comparative importance of the organizational problems, the concluding chapter of this paper will concentrate on approaches for solving the management problems involving the organization.
CHAPTER IV

RECOMMENDATIONS TO MANAGEMENT
AND CONCLUSIONS

The preceding chapter has shown that the management of this organization is faced with serious problems, most of which directly involve members of management. Because of this personal involvement, it is anticipated that management's concept of the existing organization may be in conflict with the organization as viewed by foremen and an outside observer. While the difference in perspective may well result in disagreement over details of the problems as discussed, there should be no conflict as to the existence of these problems. The first step in solving the management problems revealed by this study, then, is recognition of their existence by management.

There may also be differing opinions regarding the optimum approaches for solving these management problems. The recommendations to be outlined below represent the opinions of one observer and are based on a knowledge of the organization which is far from complete. However, these recommendations arise from a detached study which provided many clues as to the needed management corrections.
Organization Revisions

The complex and inter-related nature of the organization ills which were explored previously indicates that the remedies to be proposed should consider the dependence of members of the organization upon each other. It was observed that when one member of management failed to fully assume his organizational role, others adopted portions of that role to their own, at the expense of organizational effectiveness and efficiency. It was further observed that management itself may have helped cause the initial failure. Whatever the cause, it appears that the remedy must begin with that role which was improperly played.

The Factory Superintendent

It is felt that several actions will be necessary to provide for a factory superintendent who performs the functions expected by the organization. The role must be properly defined, it must be properly played, and it must be insured that other organization roles complement it. Particular care must be given to the creation of a role definition that prescribes the duties expected from this role and the authority granted to it. The management which creates this definition must be fully willing and able to abide by it, lest it become meaningless.

The importance of properly defining this role suggests the use of a formal position description which will
explain the position to its occupant and other members of
the organization. An example description, containing
suggested items of role definition, appears in Appendix 4.
This description is not considered to be complete, as man-
agement may wish to make it more specific in certain ques-
tionable areas. Whatever the form of the final descrip-
tion, it is felt that it should indicate that the factory
superintendent is fully responsible for the operations of
the factory and is given sufficient authority to manage
his responsibility.

In view of the high value placed on production by
subordinates and superiors to the position, the authority
of the factory superintendent will depend in a large
measure on his authority in matters of production. For
this reason and others to appear below, it is suggested
that the factory superintendent report directly to the
production manager and that the production manager delegate
all possible factory production authority to his subordi-
nate. As reflected in the position description, it is
thought that this position should include:

1) Full authority over the activities of factory
departments.

2) The authority to make decisions regarding
quality.

3) The authority to move employees between depart-
ments as necessary to maintain factory production.
4) The authority to make decisions on operating
problems affecting production such as equipment breakdowns.

In short, the factory superintendent should be able to
provide foremen with decisions on most matters they now
refer to the production manager or other supervisors. To
be sure, it will be necessary for the factory superintendent
to refer some problems, involving perhaps complicated labor
issues, expensive changes or repairs, or significant alterna-
tions in the production schedule to higher authority.
These are the items which might be further identified in
the position description.

As a transfer of direct personal control will re-
sult from this position, it is expected that management
would wish to expand the superintendent's reporting activ-
ities. It is not, however, thought desirable to increase
paperwork and since foremen presently submit reports, it
is suggested that these reports be submitted to the superin-
tendent who would check their content, retain aggregate
data and then submit them together with his comments and
explanations to the production manager. Informal report-
ing on decisions should suffice if the superintendent makes
judicious use of his authority.

Of immediate concern with regard to properly play-
ing the superintendent's role is the person who will fill
the position as defined. If the present factory superintendent
cannot perform, what should be done with him, and who will replace him? Consultation with top management on these questions resulted in the opinion that the present assistant factory superintendent is the Company's best hope for properly filling the position. He is considered to possess the employee-handling ability so lacking in the present superintendent and is said to be a capable coordinator.

If it is determined that the present factory superintendent should relinquish his title, it is suggested that a staff position be created to fit the functions he is performing. Since his present activities involve acting as a technical consultant on equipment, and since the services he provides are apparently valuable to the Company, it is felt that the organization would be best served by his continuing these activities in a staff position. This position should hold a prestigious title, such as equipment consultant or engineer, and the transfer into it should involve no loss in pay, but it should be clearly indicated that the position will be subordinate to the new factory superintendent.

Further steps are thought essential if the new factory superintendent is to function effectively. He should receive instruction from management in the performance of his duties. This should include especially matters of production which will be transferred to him by the production manager. His subordinates should be clearly
informed of their relationship to him and instructed that they are henceforth to refer problems to him. The superintendent's relationship with foremen should be diligently respected and maintained by other members of management.

The superintendent should have an office suitable to his needs and position, and that office should be the communications center of the factory. It was noted above that all reports from the factory should pass through his office to insure that he has full knowledge of and can maintain desired control over the factory. In addition, he should be fully aware of information contained on forms entering the factory, and should receive copies of all orders for factory products. He should receive and participate in the preparation of production schedules and have some freedom to make necessary modifications to schedules, after which he would report modifications made to the production manager. Important Company communications to foremen, whether oral or written, should be handled through the superintendent. It should be indicated that the creation of such a communications center in the factory may reduce the amount of foreman traffic in the front office, and the delegation of adequate authority to the superintendent should eliminate the need for foremen to contact

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8The present superintendent had a desk in a foreman's office. When it was explained to the Company president that this indicated the Company's disregard for the position, a new superintendent's office was planned and is currently under construction.
other front office managers.

** Modifications to Other Positions **

It is expected that the "rebuilding" of the factory superintendent's position will provide management with the means of dealing with other management problems. This may be anticipated since they will now have a full-time representative with over-all control of the factory. Consider, for example, the president's problem regarding safety and housekeeping. The president should not now be forced to plead with foremen for improvements. He can instead advise the new superintendent that such matters are an important part of his job and therefore will be an important item in rating his performance. The superintendent may be expected to similarly advise foremen. The president will continue to conduct periodic inspections, and may be accompanied occasionally by the superintendent to insure communication of the desired level of housekeeping and safety. The superintendent might make notes of the president's desires and advise foremen in writing of what will be expected. When safety and housekeeping specifications are established, the president should expect the superintendent to maintain them, and should keep notes on deviations. The superintendent should be periodically appraised of his performance and reminded of the relationship between that performance and his future with the Company.
The effect of the new superintendent position on the production manager's role and problems has been indicated above. The change will require that the production manager delegate considerable authority and that he devote some attention to the proper orientation of the new superintendent. It is expected, however, that the superintendent will soon perform many tasks which presently require the production manager's attention, therefore freeing the senior manager for other important activities.

The establishment of an effective role for the factory superintendent will also affect the role of the general superintendent in the factory. The factory superintendent may be expected to handle personnel problems arising in the factory, referring the more difficult ones to the personnel manager. There would therefore seem to be little need for the general superintendent's services in the factory, except perhaps in a personnel advisory capacity or in coordinating the operations of the mill, planer, and yard with the factory superintendent. The general superintendent could resume his previous role outside of the factory where he may deal with problems which he is familiar with and may have the authority to solve.

Since it has been indicated that the present assistant factory superintendent may ascend to the re-created position of superintendent, the question of his replacement will arise. In view of the belief that he will be
performing, as superintendent, many of the coordinative and personnel functions he previously performed as assistant superintendent, and in consideration of the projection that he will have an assistant for technical matters, it is felt that it will not be necessary to refill the assistant factory superintendent's position.

The changes recommended above should have a beneficial effect on relations between foremen and higher management, as factory foremen will have one supervisor to answer to whereas presently they have four or five bosses. The clear definition of organizational relationships and centralization of factory management is expected to significantly improve the effectiveness and efficiency of this organization. It was noted previously that foremen generally felt they had sufficient authority to do their jobs, and that control over factory operations could be improved. The factory superintendent should provide management with the means of that control, without lessening foreman authority. The implementation of increased factory control was suggested above, as the superintendent's duties should include a constant review of the operations of foremen and a frequent reporting to higher management and foremen on the success of those operations. As supervisor of factory foremen, the superintendent should be expected to rate the performance of his subordinates, review these ratings with them, and make foreman salary and promotion recommendations to higher management.
The organizational changes recommended above may be reviewed graphically from the suggested organization chart appearing on Exhibit VIII.

In review, the organizational recommendations presented above would seem to agree in general with the traditional "principles" of good organization as set forth by Urwick\(^9\) and others. Because of conflict between the views of such traditionalists as Fayol, Mary Parker Follett and Urwick and the empirical school of organization theory as represented by Weber and Simon, it is considered important that the position of this study with regard to organization theory be clarified.

This study assumed that the existing hierarchial style of organization in the Company would continue, and sought to improve the organization rather than determine an optimum style. While several of the recommendations contained herein may be similar to "principles" listed by the traditionalists, that similarity is not due to the writer's attempt to apply "laws" of organization, as I am personally more sympathetic with the empirical school. The recommendations resulting from the study were prepared to fit this organization and its specific problems.

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Other Management Modifications

The previous chapter of this paper explored and analyzed several management problems for which no suggested solutions have yet appeared. The perceived defects in communication are similar in nature to the organizational problems discussed above, but are sufficiently divorced to merit separate treatment here.

Communication Modifications

The most important modification essential to proper communication will be, as noted above, the inclusion of the factory superintendent in the system. The analysis of that system contained in the previous chapter suggests additional improvements as well. It was indicated, for example, that several managers were engaged in work which might be performed by properly trained clerks. While it is difficult to ascertain which of these tasks might be given to clerks, it is recommended that top management review all paperwork done by managers, giving special attention to form preparation. Any work which is found to be within the capability of a well-trained clerk should obviously be given to such a less important member of the organization.

The analysis also indicated that form checking might be excessive and that too many people could be involved in the preparation of one form. The resulting disadvantages to efficiency and effectiveness were listed in that analysis.
It is considered that an important criterion governing desired accuracy of forms is the cost of a mistake. The optimum accuracy would balance the cost of checking with the cost of potential mistakes. While this study did not provide sufficient information to make judgments on this optimum point, it is recommended that top management review the situation with such factors in mind. The apparent over-specialization of labor in form preparation should be similarly reviewed, as it is felt that if one clerk handled more parts of each order preparation, he would be more familiar with the order, less likely to make mistakes, and feel that his position was more important to the organization.

An additional example of possible communication modifications might be included in this discussion, as it expresses how existing forms of communication can be placed to better use. A common comment by workers and foremen was that many machines in use were old and constantly in need of repair, and should have been replaced long ago. Although these comments might be dismissed as gripes, it is significant to note that management presently maintains no record of total repair and down-time costs for each machine, and therefore has no established method of determining when equipment replacement is economically desirable.

A communication process is involved, as the work request forms in use by the Company can provide a method
of machine replacement management. When a foreman presently needs equipment repair, he prepares a work request form in duplicate which is sent to the Maintenance Department, often preceded by a telephone call to expedite urgently needed repairs. One copy of this form is sent to the office for filing, and the other is signed and returned to the foreman when work is completed. All forms are presently filed upon work completion, and the valuable repair and down-time cost information they contain is not placed to further use.

It is suggested that these forms become a record of equipment costs by having the Maintenance Department record on them all costs incidental to repair and the department foreman record all down-time costs. The total repair cost could be determined by the Maintenance Department, and records kept for each machine. At the end of each year, the total cost of maintaining each item of equipment could be compared to the cost of investing in and maintaining a comparable new machine. These comparisons could be submitted to management in report form for equipment replacement decisions.

A change in this procedure was initiated in the Sash Machine Department during one interview, when the general superintendent indicated that the office copy was not used. As the foreman expressed a need for this copy to maintain a record of pending repairs, it was agreed that he should send only one copy to Maintenance. This change could be implemented in all departments.
General Conclusions

Although the task of performing a study such as this, wherein the student is exposed to real management problems, is a valuable and perhaps essential experience, even greater value could be assigned if the student learned something which might be generalized to other situations. Although the management problems described in this paper involve a specialized situation, it is expected that many other organizations suffer with similar difficulties. But the greatest opportunity for generalization seems to exist with the complexity of organization problems encountered and the problem-solving approach taken by the management of this Company. This organization was found to be ailing primarily because of defects in one important position. The resulting problems which spread throughout the organization involved such a variety of functions, positions, and situations that they could collectively be described only as "organizational." It is therefore felt that this study served to demonstrate that an organization is a far more complex entity than is normally represented in management textbooks.

The existence of at least some of the management problems described herein was recognized by management as was evidenced by the Company president's interest in preparing job specifications. His approach, however, would serve only to allow each organization member to reduce
his perceived role to writing. Although study of these specifications may have revealed some of the problems discussed above, it is considered that a better approach would be to first analyze the existing situation, correct the organizational defects and then prepare job specifications. It is hoped that the information provided by this study will permit the completion of such a plan.
For tipping. Cash and Toy stock.

Gheet Saw. To plane cash parts.

Pony Planer.

Instruction. Presses, indentation in part for assembly.

Pencils. For titles and parts.

Need to bore holes in window parts.

Mortises or Stitches. Pattern

Need to mould or machine window parts to

Three Stitches.

Cross machine work on window parts.

Need for cutting to exact length, and other

Two Double End Tenoners.

Description

Sash Machine Department Equipment

Appendix I
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Octed once a month, depending on work load. Foreman

sets up men.

Title by the foreman for reference by himself and
new draws and instructions. These are placed on
orders require that the office send the foreman
orders of those in work to be modified. Orders to prepare
Title for those customers. Orders from new ones
foreman has customer draws and instructions on
D. Detailed drawings and special instructions.

Title by the foreman schedule after use.

material descriptions and shipping dates.

Pending on workload. Schedule shows order numbers.

Receiced by each foreman about once a month, de-

Title prepared by assistant production manager, subject

A. Production schedule

COMMUNICATION

SAWS DEPARTMENT--OTHER WRITING

APPENDIX 2
files instructions for future reference.

D. Customer Complaints

The office sends each foreman a copy of all customer complaints on material shipped from his department. Depending on work load, each foreman may receive one per month. Common sources of complaints are manufacturing errors, poorly graded or mismatched stock. Foreman takes corrective action and files complaint.

E. Cost Statement and Waste Statement

Prepared monthly in office, these statements list the cost of the department's production per thousand foot and window opening, and the amount of material wasted in production. The statements are studied and filed by the foreman.

II. Personnel Related

A. Directives

Instructions and information regarding personnel handling, safety, work habits, etc. are sent from office about three or four times a month. Required action is taken and directives are filed by foremen.

B. Employee Warning Report

This form is completed by the foreman following a verbal warning to an employee if the foreman feels that the problem is serious and requires further
disciplinary action if it persists. The warning and report thereof is required by the union contract as grounds for dismissal in cases involving poor work. This foreman has indicated that poor work habits are his primary disciplinary problem, and that rule infraction is not a serious problem. The report is sent to the office where it is placed in the employee's file unless further action is needed.

C. Employee Discharge Report

The foreman may discharge a new employee who has less than 60 days seniority. The same form as in B above is used by the foreman to indicate the reasons for his decision to separate the employee.

D. Employee Excuse Memo

The foreman informs the office by memo when he excuses an employee from work. A similar memo is sent by the office to the foreman if the employee calls the office to say he will be absent.

III. Other Written Communication

A. Work Order

Prepared by foreman when he needs repair work. The order is given to the maintenance engineer, who orders repair and maintains record on order form. The foreman may average one work order per day.

B. Miscellaneous bulletins, newsletters, etc.
APPENDIX 3

WRITTEN COMMUNICATION SYSTEM—
DETAILED DESCRIPTION

The following description, which will attempt to follow the written communication process from order receipt through product shipment, is coded by small letters to the detailed flow chart on Exhibit VI.

A customer’s order is received on his forms and passes down through management to the assistant production manager, who transfers the sash portion of the order to the millwork sales manager. This manager translates the data from the customer order to the Company’s “billing” forms and adds prices (a). The “billing” forms consist of an original to which pricing information is added to eventually become an invoice, and five copies whose format allows for more detailed parts description and machining information. The customer order and billing forms are sent to a billing clerk who checks the form information and adds further data (b). The customer’s order and original billing form are next passed to the production manager and the remaining five copies of the Company forms are given to a clerk. The production manager checks the discount on the form (c) and initials it, whereupon a customer acknowledgement
is completed for an order, the 3X and our Foreman sends his
Stock list to the Cutting and Cutting Department. When the
order is then expressed the production of non-usable
inventory to determine what stock must be cut to fill the
amount to cover waste and poor stock, and checks available
sash 3X and our Foreman (T) adds 20 percent to the order
upon receipt of the copy of the Pitting Form, the
Foreman and Pitting Foreman copy the same sent to the sash machine
through the cutting process. The ticket (T) cutting sheet
will be placed on each load of material for direct machine
the stock and a set of color-coded tickets, one of which
sheet for the benefit of the sash 3X who will obtain
seeds to embed in steps (T) and (H) where other prepared seed
man as matching orders, the remaining Pitting Copy and-
the remaining four copies are sent to the sash machine section.
At this department a cutting order with three of
H and Cut Department as a cutting order. And one copy is sent to the sash
are checked in step (T) and one copy is sent to the sash
are sent to the sash machine Foreman. The Pitting Forms
boxcar. The remaining two copies of the sash machine
is sent to the office superintendent manager, who completes the
is sent to the office superintendent and when the order is to be shipped, a copy of this order
superintendent are several orders on file, to indicate how
sequence, the assistant production manager prepares a
in step (E) which with our later in actual

is prepared by Photocopying the form (P).

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copy of the billing form to the Shipping Department. The rip and cut carrier (j) prepares an original and carbon copy of a rip and cut load ticket, stating the size and number of pieces of stock, for each load of sash stock produced in the department. The original ticket is given to the rip and cut foreman for preparation of production data and forwarding to the office. The carbon copy is placed on the load of material.

It may be noted that the sash machine foreman (k) receives the bulk of the written communication in this system, and that he adds information to most forms. The foreman checks forms to insure comparability and may add special instructions to machine operators or set-up men. The foreman also must add stock to the ordered amount (usually about 10 percent) to allow for poor stock and machining errors. The completed forms are then sent to the loader and machines for execution.

In step (l), the sash machine loader obtains stock for the machines in accordance with the with the loading sheet, either from inventory or directly from the Rip and Cut Department. Loads obtained from either source should have a rip and cut load ticket attached, which the loader removes and sends to the office through his foreman. When partial loads are taken, the loader removes the rip and cut ticket, prepares a new load ticket in duplicate indicating the amount of stock remaining in the load, attaches one copy of his load ticket to the load, and sends the rip and
ticket and the original of his load ticket to his foreman. The loader then places the appropriate color-coded ticket on each load he obtains for machining, and tallies the load on the loading sheet. When all ordered stock has been secured, he returns the loading sheet to the sash machine foreman.

One copy of the billing form is placed at each of the three machines primarily involved in the order production (m). The machine set-up men use these forms and customer blueprints on file to prepare the machine, and the operators tally their production onto the forms. The forms are returned to the foreman upon completion where they are checked and sent to the office. The color-coded tickets remain on each load throughout the machining process, after which they are discarded. The shipping foreman (n) loads boxcars in accordance with the shipping order and tallies loads on the billing form sent to him by the rip and cut foreman. After shipment, he returns these forms to the office.

Step (a) indicates the inventory control process in the office. As original load tickets are received, they are placed on a display board which, in total, reflects the amount of stock in inventory. Upon receipt of the carbon copy of a ticket, the original is removed from the board and both are destroyed, thus reducing the indicated inventory.

The remaining steps in the system involve invoice
preparation and filing in the office. When the billing form is received from the Shipping Department, the original order and billing form are removed from their temporary file, material shipped is checked against material ordered, net prices are computed to prepare the invoice (p) and remaining forms are filed. The invoice is checked in step (q) and sent to the customer.
APPENDIX 4

FACTORY SUPERINTENDENT POSITION

DESCRIPTION

Factory Superintendent

General Function--To supervise the activities of the factory, to coordinate the operations of the various factory departments to insure the proper flow of work through the factory, to be responsible for quality and quantity of work, maintenance of production schedules, and operating costs.

Organizational Relationships--Reports to production manager; supervises shipping foreman, frame machine foreman, sash machine foreman and rip and cut foreman, and through them all employees in the factory.

Responsibilities--The factory superintendent shall be accountable for the following responsibilities, which he shall fulfill through delegation of authority and by initiation of action in keeping with the authority vested in his office and the applicable Company policies and procedures.

1. To insure that production schedules are met.

To keep currently informed of the status of
production in all factory departments and take appropriate action to clear away any difficulties that arise.

2. To assure that the established standards of quality, accuracy, and performance are maintained, directing corrective measures when necessary. To call attention of appropriate individuals to all cases of inaccurate order or production information.

3. To achieve economical operating costs by effective utilization of the facilities and employees' time.

4. To be alert to opportunities for improvement in the operation of the departments and the factory.

5. To administer Company personnel policies, enforce safety and health regulations, and take prompt action on employee complaints to achieve good employee morale. To maintain current status and keep management informed of employee morale. To maintain discipline.

6. To maintain equipment and tools in good working condition, machinery guards operative at all times, and factory areas clear and clean for safe, efficient operation.

7. To develop and maintain training programs to provide efficient personnel for factory
requirements. To check the job performance of subordinates and advise them on their good points and shortcomings; to give counsel on growth potential.

Authority—The factory superintendent is vested with the following authority, to be exercised in keeping with all established Company policies and procedures in carrying out the responsibilities of the office.

1. To transfer, within the limitations of the labor contract, employees between departments as necessary to maintain production.

2. To make decisions on operating problems referred by factory personnel in the event of breakdowns affecting production, quality problems or similar matters.

3. To adjudicate all inter-departmental issues and conflicts.

4. To penalize or discharge any employee in the factory who is found guilty of an infraction of Company rules that calls for such a penalty.

5. To settle complaints and grievances within the limits of personnel policies and labor-agreement obligations.

6. To recommend salary, wage-rate, and personnel-status changes for subordinates.

7. To make decisions on maintenance and repair problems which as presented by the Maintenance
Department or a factory department.
APPENDIX 5

THE QUALITY CONTROL—WASTE PROBLEM

Waste exists in two primary forms in the sash departments: wood waste, the difference between the material input and production output; and effort waste, the handling, storage and machining of stock which is discovered to be defective after machining. Since waste may occur in both the Sash Rip and Cut and Sash Machine Departments, it may be helpful to review the pertinent processes in these areas.

One indication of expected wood waste in the Sash Rip and Cut Department is that the foreman plans, upon order receipt, to cut 20 percent more stock than is ordered. To this must be added the defective portions of boards which are removed as waste in the cutting operation, as the 20 percent refers to stock actually produced which is not shipped for one reason or another. Total wood waste in the department is actually often in excess of 30 percent. During January, 1967, for example, the department ripped 675,920 board feet of lumber while producing 460,353 board feet of stock, leaving 215,567 board feet or 31.89 percent as waste. About 4 percent of this waste was retrieved as small, low value pieces, 18.5 percent was sold or "hogged"
The defective pieces are therefore added to a pattern or stock
the foreman to be primarily the cutter's responsibility.
In the event of a defect being removed from the stock, it is considered by workers and
the good stock, little inconvenience for removal exists since the pieces are not further away than
same point at which sorter relief is available. It is known that on one machine, 20 to 30 pieces
are removed from the stock, but may fall to do so for several reasons:
by the above. These workers are also supposed to remove
accordance to the length, and is removed for further sorting
since the defective piece then falls into a sorting bin
very busy and have little time to look around at each
these workers are supposed to remove such stock that are
attentions at the head of the length sorting bins. Although
stock would travel up the conveyor belt to the material
spot or other defect in a board. The defective piece of
partedment Related to notice and one out of a group, split, rotten
such system. Assume that a cutter in the H.P. and cut de-
the defective one must follow an item of material through the
and the remainder was probably burned.
when needed. The defective piece might pass through a number of machining steps in the Sash Machine Department before it is removed, as operators and helpers must handle stock rapidly. This piece, in fact, may never be removed from the system. The customer, however, will likely discover it and may respond with a letter of complaint to the Company. The sash machine foreman advised that one such letter might be received each month for his department.

It is difficult to determine exactly how much defective material is allowed to pass through these production steps, but several estimates are available. Office records of material returned to the Rip and Cut Department show the amount to be about 7 percent of sash machine production. Such records are based on historical data, as sash machine waste is no longer computed by the Company. The sash machine foreman estimates poor stock at 8 percent of production, while the sash rip and cut foreman thinks as much as 10 percent of the stock leaving his department may be defective.

Using the apparently conservative office estimate, it can be shown that the wasted effort involved in processing this bad stock creates costs worthy of consideration. During the month of January, 1967, the Sash Machine Department shipped 292,636 board feet of product at a total cost of $14,244.60. Assuming that 7 percent of this production

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12 Data taken from Company records.
expense was wasted on bad stock, the department could have saved about $1,000 during the month if the defective pieces had been removed in the Rip and Cut Department. The savings to the Company could have been higher yet, as handling and storage costs (for which no separate records are kept) would have been reduced, and vitally important customer relations could be improved. In addition, the stock can often be made into a higher value product if defects are discovered prior to machining.

**Solving the Waste Problem**

Poor stock cannot be eliminated entirely, as many defects are difficult to see or not evident until after machining, and in addition a small portion of returned stock is attributable to errors in machining. (It was interesting to observe that management had no accurate method of determining the extent of these machining errors and therefore could not accurately identify the source of waste.) Despite the defect identification difficulties, it is not considered unreasonable to aim at reducing this wasted machining effort by one-half. Both sash foremen agree that 3.5 percent of sash machine waste is a reasonable objective. This may be considered to allow 3 percent for undetected bad stock and 0.5 percent for machining errors.

Although the ultimate objective of a waste control program would be to reduce waste at the source, i.e. the cutters, it is recommended that the program start by
controlling poor stock in the sorting operation. The sorters have the best opportunity to examine stock and prevent defective pieces from leaving the Rip and Cut Department. Perhaps the simplest reason why they fail to do so is that it is more difficult for them to dispose of bad stock than it is to stack good pieces. The apparent remedy for this situation would be to provide ample space or a conveyor under each sort chute, thus providing the sorters with an incentive to remove defective stock.

Another reason for the sorters' failure is that they are not held accountable for the removal of defective stock. As noted above, they presently shift from chute to chute, depending upon where they are needed. The rip and cut assistant foreman indicated that the volume of each length does not fluctuate widely, and that each sorter could be assigned to handle certain chutes, receiving assistance from fellow sorters when necessary. It is recommended that such assignments be made, and the sorters be instructed regarding defective stock. The sorters should then be advised that they are individually responsible for bad stock of their assigned lengths which is returned from the Sash Machine Department. To increase control, a record could be made of the number of pieces of each length which are returned. As the returned stock is presently examined and defects cut out, the control step could be achieved by providing this man with a form for tallying pieces by length. This control form will allow the rip and cut foreman and
management to determine how effective the waste control program is and which sorter is failing to properly do his job. The control form could also be utilized by management to determine the extent of machining errors by providing a place to tally stock returned for that reason.

The cost of the waste control program outlined above would involve only the time required to tally returned stock and would certainly be far less than the potential $500 per month savings.

In addition, establishment of these control operations will provide a means of controlling waste at its source. The achievement of this objective depends upon management's ability to identify the work of each cutter. It is understood that a process is available wherein colored ink or paint is sprayed on the wood during cutting. Such a system was attempted on a make-shift basis in this department at one time with poor results, but the foreman reported that he knew of systems which were effective. If an effective system of identification were installed and the sorters were removing most bad stock, the foreman could tell which cutter required attention by reviewing the color coding on defective stock. This control process could be further refined by providing for color identification on the control sheet described above.

It is felt that further improvement in waste and quality control in the Rip and Cut Department will depend
upon the adequacy of training. The study revealed that new cutters presently learn their job at least partially by observing the good and bad practices of other cutters. This apparently occurs even though management considers the cutting operation to be of sufficient importance to assign an assistant foreman to its continuous observation. In view of the turnover among cutters (as high as one a month), it is recommended that more of this assistant foreman's time be devoted to training. It is expected that an operating waste control system such as the one described above would sufficiently free this foreman to implement an adequate training program. The operation of such a program cannot be described here as the study did not provide such detailed information. It is suggested, however, that the department foreman could plan a program with the assistance of the factory superintendent.
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