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School Plant Management

Administering the Custodial Program

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Foreword

THE JOB of operating school plants so as to utilize their potentialities in promoting an effective educational program is one that requires training, knowledges, skills, and services of a specialized nature. School officials in charge of school plant management are primarily responsible for developing an operating program that will meet this challenge. A thorough understanding of operational problems, careful planning, adequate supervision, and good judgment are essential to the development and management of this program.

This bulletin, planned as a companion volume to *Organising the Maintenance Program*, OE-21002, deals with management aspects of school plant operation. It is hoped that these two publications will be useful to school officials and other people who are concerned with planning, organizing, improving, and administering school plant maintenance and operational programs.

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Preface

THIS BULLETIN has been prepared to give school district board members, superintendents, business managers, supervisors of maintenance and operations, principals, teachers, and school plant operating personnel a better understanding of some of the problems involved in providing adequate school building services. It brings together in one document many ideas, practices, and suggestions which have been used with success in various parts of the country. These have been collected from numerous magazine articles, conference reports, proceedings of professional organizations, professional literature, and from the reported experiences of qualified people in this field.

The author wishes to acknowledge the use of all materials to which reference is made, and to thank those who have contributed in any way to the preparation of this publication.

R. N. F.

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CHAPTER I

Introduction

SCHOOL PLANT MANAGEMENT, an area of major responsibility in educational administration, involves all services, activities, and procedures concerned with keeping existing school facilities open and in usable condition. Operation, one phase of plant management, includes, among other things, those day-to-day services which are essential to the safety, comfort, and well-being of those who occupy and use school facilities. These services, for the purpose of this bulletin, are restricted to those performed by school-plant custodial personnel, and are regarded here as elements of the total program of school plant services.

PURPOSES OF CUSTODIAL SERVICES

In former years, custodial services for schools were primarily concerned with sweeping floors, dusting furniture, tending furnaces, and similar chores. To a large degree, the methods were haphazard and unproductive. Those who performed them, usually referred to as "janitors" and generally regarded as handy men, were often given the job without regard to their individual abilities to achieve high performance standards. These attitudes and administrative practices generally resulted in the payment of low wages, the purchase of cheap supplies, the neglect of minor repairs, and the consequent deterioration of buildings and equipment.

Fortunately, these practices are not so prevalent today as they once were. The recent increasing emphasis on adequate school facilities, coupled with newer concepts of property preservation, learning environment, safety, and a greater utilization of school facilities by the public, has led boards of education and school administrators to recognize the value of adequate custodial services and the importance of providing trained people to do the work.

This recognition, together with careful evaluation of school-plant operational needs, has contributed to the development of certain well-defined purposes of custodial services. Among these purposes are

(1) preserving property values, (2) protecting health and safety, (3) providing a climate for learning, (4) developing good will, (5) maintaining cleanliness and neatness, and (6) effecting operating economies.

Preserving Property Values

School custodians are responsible, in part, for the operation, care, preservation, protection, and custody of buildings and equipment worth billions of dollars. Under proper management, they can prevent undue depreciation and preserve property values by making minor repairs when needed; as "Keeper of the Keys," they can help protect the property against misuse, vandalism, illegal entry, and other damaging activities; and as trained school plant operating personnel, they can eliminate numerous fire hazards and prevent others from developing. A well-planned, efficiently managed custodial and operating program is one of prime importance in preserving school property from excessive deterioration and protecting it against fire loss.

Protecting Health and Safety

Protecting the health and safety of occupants of school buildings is another recognized purpose of the custodial program. Underheating, overheating, poor ventilation, inadequate sanitation, improper lighting, unsatisfactory light control, uncontrolled noises, improper humidification, and recirculation of dust-laden air are some of the health hazards which may be overcome or relieved through adequate school plant care.

Safety of occupants, a custodial function closely related to health protection, involves such activities as keeping obstructions out of corridors, stairways, and exit lanes; repairing handrails, stair tread and nosing, playground equipment, and other types of equipment as soon as they are found to be defective; keeping all doors unlocked and all exit devices operable while the building is in use; preventing overloading and the consequent possible overfusing of electric circuits; seeing that fire extinguishers are properly charged and that other fire protective equipment is usable; observing recognized safety precautions in storing wastepaper, treated mops, and other combustible materials; inspecting and keeping in working order all automatic safety controls for heating plants; and preventing floor surfaces from becoming slippery, either as the result of cleaning and waxing or as the result of moisture carried into buildings on shoes. These and other custodial services can help eliminate school accidents and thus protect the lives of pupils, teachers, and other employees.

Providing a Climate for Learning

The school plant, an essential tool in the educational process, makes major contributions to pupil progress if it has adequate care. This care envisions clean, attractive, comfortable, and orderly surroundings; it creates a physical environment conducive to mental and physical alertness of both teachers and pupils. This environment, or climate for learning, promotes efficiency in teaching and learning.

Moreover, a wholesome school atmosphere improves the pupils' morale, contributes to their aesthetic development, engenders respect for school property, and develops other desirable character traits, all of which are elements of the modern concept of education for citizenship.

Developing Good Will

The public school is one of the most important institutions in a community. Many favorable aspects may be developed for the school through efficient and capable management of the custodial program. The children's impressions of the school plant, as well as those of adults who visit or see it in passing, are often established by the type of custodial services. Many children will recognize the school as the cleanest and nicest home they have ever had. The first impression of many parents toward public education may be created by the custodian as he directs them to their child's room.

Other adults and patrons may judge the school by the way the custodian performs his duties and conducts himself at public functions held on school premises. From the standpoint of public relations and good will, it is important that school custodians adequately prepare the premises before public meetings. The preparations may include installing directional signs, reserving parking spaces, roping off sections of seats, providing an American flag and a stand to hold it, checking lights, heat, and ventilation, properly lighting all entrances, halls, and stairways for night events, and unlocking all exits for safety.

In addition to creating good will for the school through these services, the custodian can make friends for the school by using tact and diplomacy in adjusting situations as they arise. He can and should know something about the operation of the school so that he will be able to give sensible answers to questions, but he should never discuss with patrons what goes on around the school, nor criticize his fellow workers, the teachers, the principal, or the school administration. He should be a copartner in education, have a fine working spirit, develop a sense of pride in his work, and maintain a feeling of responsibility toward his school.

Maintaining Cleanliness and Neatness

Cleanliness and neatness, though directly related to health, have other implications for the purposes of custodial services. As schools attempt to teach children standards of cleanliness and neatness, the children will be influenced by the presence or lack of these conditions, in and around the school plant. If the school building, grounds, and equipment are kept clean and neat, the children, being influenced by good example, will consciously or unconsciously strive for cleaner and neater home conditions. On the other hand, if school facilities are dirty and unsightly, the children will pay little attention to classroom instruction regarding these aspects of their home surroundings.

Neatness is closely associated with cleanliness, but the two terms are not necessarily mutually inclusive. School custodial services may be such that buildings, grounds, and equipment are kept immaculately clean; but furniture, shades, books, instructional supplies, and equipment may be placed, adjusted, stored, or arranged in such a way as to give the impression of complete disorder. Adequate custodial service will make neatness a complement of cleanliness so that pupils, teachers, other school employees, and outsiders will look upon the school with pride, treat it with respect, and think of it in terms consistent with its contribution to personal and community life.

Effecting Operating Economies

Another major purpose of the well-managed custodial program is to insure the economical operation of school facilities. Linn¹ suggests three areas in which operating economies may be effected, namely, personnel, utilities, and operating supplies and equipment.

In cleaning operations, labor accounts for from 90 to 95 percent of the cost; tools and equipment, 5 to 10 percent. A careful evaluation of working techniques and procedures, the use of time-and-motion studies, and the utilization of labor-saving equipment for custodial tasks may produce better results with fewer man-hours, and thus effect savings in labor costs.

Custodians can reduce school plant operating costs by correcting conditions which cause waste in the use of such utilities as heat, electricity, water, and gas.

The custodian-engineer in charge of the heating plant can do many things to improve its efficiency. Among other things, he should: Keep the heat-control system in good condition in order to avoid wasteful and unhealthful overheating; maintain all valves and steam traps so that there will be no leaks and/or wastage of steam; adjust vent dampers on ducts so that a slight pressure will be built up within the build-

¹ Henry H. Linn. *Economies in Plant Operation. The American School and University*, 17: 281-289. New York: American School Publishing Co., 1945.

ing to prevent excessive air infiltration; caulk and weather strip all windows to prevent excessive air infiltration and heat loss; keep boilers free of soot and scale to prevent fuel waste; prevent excessive heat waste up the stack by careful control of boiler dampers; utilize the heating system to the fullest extent during early morning hours, cutting out some boilers as soon as the peak load is over; and heat the building to the desired temperature only during hours of occupancy, thus conserving fuel when no or less heat is required.

The cost of electricity is generally determined by the number of kilowatt hours consumed. In many schools there is evidence that much electric current is consumed without justification. It is recognized, however, that the atmospheric soiling of glass over a month's period will impede light transmission by as much as 25 percent. Likewise, dirty ceilings, or ceilings having poor light reflectance, adversely affect seeing conditions in the classroom. Electric lights are often used to overcome these deficiencies. Adequate custodial services, though, will eliminate waste by periodic cleaning of ceilings, glass, and light fixtures.

Some other ways by which the custodial staff can economize on electric current are turning off unnecessary lights; using the correct type and size light bulb for each location; avoiding circuit overloads; discarding obsolete electric equipment; being sure that electric motors are powerful enough to do the job demanded of them; watching corridor lights, keeping their use to a minimum; making sure that every circuit is properly wired (since improper wiring wastes electricity); and replacing worn-out belts on electrically driven machines.

Possibilities for reducing waste in water consumption are numerous. Every water spigot, valve, drinking fountain, and sanitary fixture is a potential point of water loss. A single faucet leak of pinhole size ($\frac{1}{32}$ ") will waste approximately 95,000 gallons of water annually. At a cost of \$2 per 1,000 cubic feet, this will amount to \$25.40 per faucet per year. If the water has been heated, there is an additional waste of nearly \$100 on fuel costs. Urinals which are flushed by automatic syphoning devices may be flushing more frequently than necessary. It is a simple, inexpensive operation for the custodian to correct the leaky faucet, adjust the urinals so that they will flush at appropriate intervals, and shut them off when not needed at night, on weekends, and over holidays. Adequate custodial services will reduce or eliminate these and other types of water waste.

Custodians may be able to locate and then correct several sources of waste in gas consumption. Leaks in gas lines, particularly at valves and cutoffs, are both dangerous and common. These should be inspected at least twice each year. Gas appliances that do not provide the proper mixture of gas and air, or stoves and heaters that are obsolete, can waste tremendous quantities of fuel. Automatic con-

trols, if not checked regularly, may become clogged with dust or lint and fail to operate efficiently. Units in which gas is used should be kept in top operating condition if they are to function properly and economically. Gas heating units that are turned down to a minimum level at night will hold heat as well as if kept at full blast.

Other school plant operating economies can be effected through the proper management and use of custodial supplies and equipment. Custodians who know the type and quantity of supplies, as well as the correct methods to employ in their economical and efficient use, can save both supplies and time. Furthermore, proper care and storage of such custodial equipment as mops, push brooms, brushes, hand tools, vacuum cleaners, scrubbing-buffing machines, lawn mowers, and other items will prolong the life of this equipment, thereby reducing operating costs.

IMPORTANCE OF CUSTODIAL SERVICES

In the United States an estimated 125,000 custodial employees currently provide daily care for 1,286,000^a public school instruction rooms and related facilities. Occupying and using these rooms and related facilities are 85.8^b million pupils enrolled in the full-time public elementary and secondary day schools, their 1,867,000^c full- and part-time classroom teachers, and other professional and nonprofessional school personnel. In addition, an undetermined number of people, both in and out of school, frequently use school buildings, grounds, and equipment for educational, recreational, and other community purposes.

During 1955-56, the most recent year for which National data are available, expenditures for operating the public elementary and secondary school plants in continental United States amounted to \$752,789,000.^d Representing slightly more than 9 percent of the total current expenditure of \$8,251,420,000^e for public elementary and secondary education for this year, these school plant operating funds paid salaries of custodians, engineers, and maids; purchased water, electricity, gas, fuel, and power; bought custodial supplies and minor maintenance materials; and absorbed other expenses of operation.

^a Samuel Schloos and Carol Joy Hobson. *Full 1959 Statistics on Enrollment, Teachers, and School Housing in Full-Time Public Elementary and Secondary Day Schools* (Circular No. 604). U.S. Department of Health, Education, and Welfare, Office of Education. Washington: U.S. Government Printing Office, 1959. p. 8.

^b *Ibid.* p. 2.

^c *Ibid.* p. 3.

^d Chapter 2 of *Biennial Survey of Education in the United States, 1954-56*—"Statistics of State School Systems: 1955-56, Organization, Staff, Pupils, and Finances," by Samuel Schloos and Carol Joy Hobson. U.S. Department of Health, Education, and Welfare, Office of Education. Washington: U.S. Government Printing Office, 1959. p. 20.

^e *Ibid.*

Another and more important consideration is that the physical and moral well-being of all who use school facilities, the efficiency of teachers and other school personnel, and the educational achievement of pupils depend in part on the adequacy of custodial services. Adequate custodial services, in turn, depend on sound, efficient administrative procedures.

This bulletin is concerned with some procedures and practices which have been found useful in administering the custodial program. These include (1) methods of determining custodial personnel requirements; (2) policies relating to employment standards and employee benefits; (3) criteria for assigning duties and work loads; (4) techniques for organizing and conducting training programs; and (5) procedures for the purchase, storage, and distribution of custodial supplies and equipment.

CHAPTER II

Determining Custodial Personnel Requirements

DETERMINING manpower requirements for school plant operational services and equalizing workloads among personnel responsible for these services are two problems which continue to plague school administrators. There is no rule-of-thumb method by which these problems can be satisfactorily answered for all localities and for all situations. Local conditions and other pertinent but variable factors relating to each school plant must be considered when custodial requirements are determined.

FACTORS INFLUENCING CUSTODIAL REQUIREMENTS

Custodial requirements for schools are influenced by many variable factors. Some of these are related to the site; some to the building or buildings; some to equipment; and others to climate.

Site

Site size, development, and condition are variables which determine overall labor requirements for the school site. Specific elements of the school site which influence labor requirements are amount and type of shrubs and plantings that require pruning, insect control, and other care; total lawn area to be mowed, watered, weeded, fertilized, and reseeded; number and extent of driveways, parking areas, walks, and covered passageways which require sweeping and/or snow removal; types and quantity of playground equipment which need adjustment, minor repairs, and periodic inspection for safety; types of facilities, such as picnic tables, shelters, comfort stations, drinking fountains, benches, fireplaces, and bandstands, which are used for community purposes; and extent of bituminous play surfaces which necessitate the removal of litter, snow and ice, and some minor maintenance.

Building

Some variable building factors that affect custodial requirements are number, size, design, and age of buildings. Others include program offerings and occupancy, finishes, floor materials and surfaces, fixtures, hardware, mechanical systems, and building utilization.

Experience has shown that concentration of activities in one building as compared with two or three smaller buildings on the same campus reduces custodial man-hour requirements.¹ Furthermore, a building having several general-use areas, such as an auditorium, a gymnasium, and a cafeteria, will require more custodial man-hours than another building having a comparable capacity but lacking these general use areas.

Buildings designed to facilitate operational procedures require fewer custodians than those in which such features have been omitted. For example, properly located utility and storage rooms, mop sinks, and electric service outlets can save time in distributing supplies, and in obtaining, using, and returning custodial equipment and tools.

Buildings deteriorate with age. As deterioration progresses, house-keeping and current building operation and care become increasingly difficult. Soil, accumulated over many years in attics and other inaccessible places, has a tendency to sift to floors and furniture. Minor repairs, generally done by custodians, must be made with greater frequency. Some surfaces, marred by age and use, are difficult to clean. These extra services, necessary because of building and equipment age, add to custodial work loads.

Program offerings and type of occupancy also influence custodial requirements. High schools with broad curricula necessarily require a greater variety of special instructional areas and hence more custodial services than schools with offerings limited to traditional college-preparatory courses. Elementary schools with enriched programs need more space than those with instruction largely confined to the so-called "fundamentals." Furthermore, elementary schools with kindergarten rooms and self-contained classrooms having individual room toilets, lavatories, and drinking fountains require more custodial attention than schools not having such rooms.

Finishes that are easily cleaned, floor materials that do not require frequent waxing or refinishing, coved corners, and rounded, sloped, or glazed surfaces that do not catch and hold dust can effect custodial requirements by reducing the time required for cleaning operations.

Examples of items that lighten custodial workloads are nondirt-catching light fixtures that can be cleaned without demounting; lavatories, drinking fountains, water closets, and urinals that have prop-

¹ M. G. Pattington. *How Many Janitors?* *The American School Board Journal*, 112: 49. May 1946.

erly located cutoff valves and are manufactured of materials that can be kept sanitary with minimum effort; and master-keyed hardware that does not have to be polished.

School plant operating personnel requirements are also influenced by the school's mechanical systems. Heating plants having automatic controls and fuel feeds, with pipelines marked and properly valved for selective cutoff, require less attention than manually operated plants. Gravity-operated ventilating systems will require less attention than mechanically operated systems. Electric services with lines marked, major switches properly located, and circuit fusing designated in all fuse panels can be effectively maintained with a minimum expenditure of time.

Plant utilization by nonschool groups often creates problems whose solution requires additional custodial personnel.

Equipment

School equipment, both instructional and custodial, affect personnel requirements. Some types of instructional equipment that contribute to manpower savings are movable desks, or desks with rounded bases over which a broom may be easily pushed; wall-mounted maps, charts, and screens that do not obstruct sweeping operations; and cabinets, television sets, and stands that are mounted on casters for easy moving. Types of custodial equipment that reduce man-hour requirements are power mowers, snow plows, sweepers, wet-dry vacuum machines, scrubbing-buffing machines, and push brooms of appropriate size for each task.

Climate

It is generally recognized that climatic conditions affect work loads of school operating personnel. Schools located in regions having heavy precipitation, particularly rain and snow, are difficult to keep clean; those located in parts of the country having extremely low temperature of long duration require heating equipment of great capacity and those subjected to heavy wind and sand storms accumulate much dirt by infiltration. Existence of these conditions usually means that additional custodians are required to keep buildings clean, comfortable, and safe. On the other hand, schools located in fairly uniform, mild, dry climates can be operated with much less custodial help.

WORKLOAD FORMULAS

More than a half-dozen custodial workload formulas have been developed during the past three decades. Variables in custodial services and in standards of proficiency have precluded their general

acceptance over wide geographical areas. Although all of these formulas have certain elements in common, they approach the problem from different angles. For the purpose of discussion, these formulas may be classified according to their basic concepts relating to manpower requirements. These concepts are time units, room equivalents, overall duties, job frequency and worker skill, time study techniques, and measured work technique.

Time Units

One of the early custodial workload formulas was developed in the Minneapolis Schools by Pykoski,² who used time units and repetitive factors as the basis for determining janitorial-engineering manpower requirements for schools. This procedure requires a listing of every custodial-engineering job expected to be performed in and around the school plant.

A time factor—the number of minutes required to perform a specific amount of work—is applied to each job. This time factor, which varies with the type of job, is based on performance standards for the particular work. In Minneapolis, for example, a time factor of 10 minutes was assigned to sweeping 800 square feet of classroom floor; for sweeping gymnasium and corridor floors, where furniture does not have to be moved, 10 minutes to 2,000 square feet; for shop floors, 10 minutes to 600 square feet; and other tasks were assigned similar time factors.

This time factor is then applied to each total job in order to obtain a *time unit* for the total job. For example, if the total area of all classrooms in a given building is 16,000 square feet, and if the time factor for sweeping 800 square feet is 10 minutes, the *time unit* for one sweeping of all classrooms in this building will be 20.

The product of the time units and the time factor for each job is the total number of minutes required for one performance of the job. In the foregoing illustration this is 20×10 , or 200 minutes.

The next step is to determine the total amount of time required to perform the given task during the school year. This is accomplished by multiplying a *repetitive factor*, which is the number of times the task must be performed during the year, by the number of minutes required for one complete performance. For instance, if the classroom floors in the preceding illustration are swept once daily for 180 days, the total annual sweeping time for these classrooms will be 200×180 , or 36,000 minutes.

In a similar fashion, the total annual time required for the performance of each listed job is calculated. These totals are then com-

² Conrad Pykoski. *Methods of Calculating Public School Janitorial-Engineering Manpower*. Minneapolis: Minneapolis Board of Education, September 1935. (Mimeographed)

combined in order to obtain the total time required to perform all custodial-engineering jobs for a particular building during the year.

The final step in determining the annual custodial-engineering manpower requirements for a given building is to divide the total time required to perform all jobs for the year by the *manpower unit of measurement*. This unit of measurement is the total amount of time, exclusive of holidays and vacation leave, that one man is expected to spend on the job during the year. For example, if there are 49 work weeks of 40 hours each, excluding annual vacation and holiday leave, one man would be expected to work 1,860 hours, or 111,600 minutes, during the year. For purposes of illustration, suppose the total annual time required to perform all custodial-engineering tasks at a given building is 613,800 minutes. If this figure is divided by 111,600 minutes, the manpower unit, the result is 5.5, which is the number of custodian-engineers required for the building. This means that five employees will work full time and one will work half time.

Womrath,³ using slightly different methods of calculation, developed a janitorial manpower formula by the following procedures:

1. Each custodial task required to be performed in and around the school plant is listed, and the daily amount of time required to complete each task is shown in minutes.
2. The total daily time required to complete these itemized tasks is found by adding the time elements for all jobs.
3. The total annual time consumed by all jobs is the product of the total daily time and the number of days school is in session.
4. Summer and holiday tasks are summarized, and each is assigned a specific amount of time, in minutes, for completion.
5. The total time consumed by summer and holiday jobs is the sum of the time elements of all individual summer and holiday jobs.
6. The total annual time for all daily, summer, and holiday tasks is the sum of the results obtained in items 3 and 5.
7. Annual engineering services are calculated on the basis of the total annual time in minutes devoted to:
 - a. Care of the boiler room
 - b. Care of boilers
 - c. Care of boiler feed pumps
 - d. Firing and daily operation of boilers.
8. The total annual custodial and engineering time is the sum of items 6 and 7, expressed in minutes.
9. This total is converted to hours by dividing by 60 minutes.
10. These hours are then divided by 8 (the number of work hours in a work day) to obtain the number of work days required per year.
11. The number of work weeks per year (52) is multiplied by the number of work days in a week to obtain the number of work days per year per man.

³ George F. Womrath. Janitorial Man-Power Requirements. *The American School Board Journal*, 88: 56. December 1981.

12. Finally, the total number of work days required per year (item 10) is divided by the total number of working days per year per man (item 11) to get the total number of men required to do the work.

Room Equivalents

Steen,⁴ in developing a custodial workload formula for the schools of Pittsburgh, Pa., transposed daily routine jobs into units of work which he designated as "room equivalents." He pointed out that the values assessed in terms of areas for room equivalents are those found to apply in Pittsburgh and may not be applicable in other districts. He suggested that each school district should conduct its own timing experiments in order to develop values for its own conditions, and that each district must apply the units in terms of necessary repetitive cycles of work. For instance, in Pittsburgh it was necessary to wash windows once each month, but in winter months when weather prohibited outside cleaning, only the interior faces were washed. Conditions in other localities may be such that other types of adjustments will be required in transposing routine jobs into room equivalents.

Furthermore, efficiency and performance standards of school plant operating personnel are influenced by types of construction materials, by kinds of finishes, and by kinds of custodial tools and equipment used. The extent to which these factors affect time requirements for the performance of tasks should be reflected in the basic setup of units. For example, the use of a 5-foot push broom instead of a 1-foot push broom to sweep corridors of terrazzo, linoleum, or some material other than wood, can reduce the time required to sweep such floors by as much as 80 percent.

As used in Pittsburgh, this formula transposed routine daily cleaning duties to room equivalents by using 800 square feet of classroom floor as one room equivalent. The schedule for various cleaning duties was as follows:

<i>Duties</i>	<i>Area in square feet</i>	<i>Room equivalent</i>
<i>Sweeping and dusting</i>		
a. Classrooms (including kindergarten, teachers rooms, etc.; or 0.25 room equivalent for each 200 sq. ft. of all such areas.)	800	1. 00
b. Gymnasiums and playrooms	2, 400	1. 00
c. Auditoriums	1, 200	1. 00
d. Corridors:		
1. Wood floors	1, 800	1. 00
2. Linoleum floors	2, 400	1. 00
3. Terrazzo floors	3, 200	1. 00
e. Cafeteria and dining areas	800	1. 00
f. Shops	1, 200	1. 00

⁴ M. M. Steen. *Formula for Estimating Custodial Work Loads. School Business Affairs.* Vol. 11, No. 11. November 1945. p. 1-3.

Duties	Area in square feet	Room equivalent
<i>Mopping</i>		
a. Toilet room floors	400	1.00
b. Shower rooms	1,200	1.00
c. Cafeteria and dining areas (if mopped daily)	400	1.00
<i>Washing</i>		
a. Toilet room fixtures	17	1.00
b. Swimming pools (daily)		3.50
c. Swimming pools with bleachers (daily)		4.00
d. Glass areas:		
1. Windows in large single lights	*70	1.00
2. Windows divided into small lights	*50	1.00
<i>Routine daily care of lawn and paved areas</i>	5,000	0.333

*NOTE: To get the daily workload for cleaning glass, divide the entire glass area by the proper coefficient and then divide that result by 24, the average working days per month.

Under this schedule, custodians in large high schools (8,000 or more pupils) were assigned an average of about 10 room equivalents per day each; in medium-size high schools (1,500 pupils), 8 room equivalents each; and in elementary schools, an average of 8.6 room equivalents per custodian. It should be noted that, on the basis of an 8-hour work day, custodians in large high schools were responsible for 1.25 room equivalents per hour; in medium size high schools, 1.0 per hour; in elementary schools, 1.075 per hour.

Overall Duties

Pattington,⁸ contending that methods of computing manpower requirements based on time-motion studies and complicated job analyses covering countless custodial tasks are too time-consuming and produce unlimited combinations, approached the problem from another angle. He considered the overall duties and assignments one custodian should be expected to perform during one day as a unit of measurement.

Admitting there will be cases where a maximum or minimum of extra work will make a difference in manpower requirements, Pattington believes that, as a general rule, a formula which takes into account the number of rooms, the number of pupils, the floor area, and the size of school grounds can be used in most cases, if allowances are made for lack of a power lawnmower, a snowplow, a stoker, and outside maintenance help.

Taking these factors into account, he determined that one custodian could perform satisfactory service in a certain small school containing

⁸ M. G. Pattington. *How Many Janitors?* *American School Board Journal*, 112: 49. May 1944.

11 rooms (including office, cafeteria, and a combination gymnasium-auditorium), having a total floor area of about 15,000 square feet, employing 8 teachers, enrolling 225 pupils, and having about two acres of ground. This school had a power lawnmower, employed a night man for 8 months each winter, secured the services of a woman one afternoon each week for window washing and extra work, and employed extra help for large painting projects during the summer months. In a school of similar size, where snowplow, vacuum cleaner, and stoker were provided, one man did satisfactory work. In both cases, extra help was found necessary to take care of night meetings.

In larger buildings where labor-saving equipment such as that described above is provided, the standard of one custodian to each 11 rooms, or to each 8 teachers, or to each 225 pupils, or to each 15,000 square feet of floor area, or to each two acres of school grounds, when used in combination to obtain an average, seems to provide a satisfactory minimum manpower for custodial services.

For example, in a large school of 80 rooms containing 185,000 square feet of floor space, employing 64 teachers, having an enrollment of 1,700 pupils, and occupying a site of 12 acres, the custodial requirements would be determined as follows:⁶

1. 80 rooms divided by 11 equals.....	7.3 custodians
2. 64 teachers divided by 8 equals.....	8.0 custodians
3. 1,700 pupils divided by 225 equals.....	7.6 custodians
4. 185,000 square feet divided by 15,000 equals.....	9.0 custodians
5. 12 acres divided by 2 equals.....	6.0 custodians

6. Add these five quotients.....	37.9
7. Dividing this total by 5, the number of factors, will result in a quotient of 7.6 which will be the number of custodians needed for the building.	

However, if hand-firing of furnaces is necessary in a large school, it is suggested that an extra man should be added, with an additional part-time man for winter months; and in smaller schools a night man for the winter months is suggested.

Berry,⁷ reporting for the Northern California Section Maintenance Committee of the California Association of Public School Business Officials, stated that an approach using a "factoring formula" to compensate for variables found in individual schools should be considered in determining custodial requirements for normal cleaning duties.

Except for some refinements, the formula developed by this committee is essentially the same as the one developed by Pattington.

Berry illustrates the application of the "factoring formula" as follows:

⁶ Ibid.

⁷ Edwin G. Berry. Custodial Work Load Formula. *The Nation's Schools*, 56: 84-88. July 1958.

1. *Given:* 1 custodian for each 8 teachers, find the teacher factor.

$$\frac{\text{Number of teachers}}{8} = \text{Teacher factor (correct to two decimal places)}$$

2. *Given:* 1 custodian for each 225 pupils, find the pupil factor.

$$\frac{\text{Number of pupils}}{225} = \text{Pupil factor (correct to two decimal places)}$$

3. *Given:* 1 custodian for every 11 rooms* to be cleaned, find the room factor.

$$\frac{\text{Number of rooms}}{11} = \text{Room factor (correct to two decimal places)}$$

4. *Given:* 1 custodian for every 15,000 square feet of building area, find the square foot factor.

$$\frac{\text{Total square feet of building}}{15,000} = \text{Square foot factor (correct to two decimal places)}$$

5. *Given:* 1 custodian for each 2 acres of upkeep grounds, find the grounds factor.

$$\frac{\text{Total acres of upkeep grounds}}{2} = \text{Grounds factor (correct to two decimal places)}$$

6. Add the five factors and divide the total by 5 to find the actual number of cleaning custodians needed.

$$\frac{\text{Total of 5 Factors}}{5} = \text{Cleaning custodians needed (correct to two decimal places)}$$

*All rooms to be cleaned by custodians are included: offices, storage rooms, toilets, classrooms, gymnasiums, etc. An average classroom was defined as one containing 1,000 square feet. This standard is used to break large area rooms, such as gymnasiums and multi-use rooms into equivalent classrooms.

Job Frequency and Worker Skill

In order to determine custodial manpower requirements for one or more buildings, a Committee of the Department of the Army² studied the frequency of various custodial tasks and the time required by skilled and unskilled men to perform them. Although especially prepared for use around military installations, certain procedures used in this study may be applied to school buildings for the purpose of determining the number of custodians needed.

It should be pointed out, however, that the time allowances assigned to various tasks by the Committee may not be suitable for school buildings. In this case, attainable units would have to be established for school situations. This could be done by an actual check of the time required to perform each desired operation under local conditions.

In brief, this plan lists the daily custodial tasks required to be performed, excluding duties connected with the care and operation of heating plants, and indicates the number of units of work expected

² Department of the Army. *Custodial Services Repairs and Utilities, TM 5-600.* (Prepared under the direction of C. O. Westby, et al.) Washington: U.S. Government Printing Office, June 1948.

to be completed per hour by skilled and by unskilled workers. These units of work are expressed in measurements applicable to the type of work. For example, units of work relating to various types of floor care are expressed in square feet; stair cleaning, in a specific number of stairs (each with a specific number of tread or steps); window washing, in terms of number of 1-light, 2-light, etc., windows; and toilet-bowl cleaning, in number of bowls.

The total monthly man-hour requirements are determined by multiplying the number of hours required per day for each operation by the number of times that operation is performed per month, and adding for all operations. This is done for both skilled and unskilled workers.

The manpower requirement is then determined for each type of worker by dividing the total hours required for all operations by 176, the average number of work hours per month.

Time Study Techniques

Michelson^o suggests that the custodial workload problem should be approached through time study techniques and efficiency ratings, pointing out that industry has improved production standards by the use of these methods. He also points out that, while time study provides a fair and objective basis for distributing workloads, it does not measure the total worth of a custodian to a school system.

In applying this method of determining custodial workloads to the Wyandotte, Mich., schools, basic workload units were determined from time studies and comparisons were made with similar methods used in large schools of the Detroit metropolitan area.

The first step consisted of an accurate description of existing workloads, time schedules, and conditions of building cleanliness. This was accomplished through a written description of the cleaning duties of each worker, including the number of rooms, the total floor area covered, and the efficiency of the work performed. Along with this basic information, other pertinent data, such as unusual building conditions affecting cleanliness, age of employees, seniority policies, and salary schedules, were collected.

The second step was the determination and adoption of basic time and area job units. This was accomplished by keeping an accurate record of the time required (time study) to accomplish each task performed by each custodian. On the basis of these time and area studies, the amount of time allotted for a complete house cleaning job of sweeping, dusting, cleaning chalk boards and windows for each classroom with a standard area unit of 700 square feet was 20 minutes.

^o E. S. Michelson. *Equalizing Work Loads for the School Janitors. The Nation's Schools*, 48: 92-96. October 1961.

Area units for spaces other than regular classrooms were established for gymnasiums, corridors and other large spaces not occupied by furniture, at 122 square feet per minute, or 2,400 square feet every 20 minutes; one normal flight of stairways 7 to 8 feet wide, at 10 minutes each; one average-size toilet room, at 20 minutes. In establishing area and time units for such facilities as auditoriums, shops, laboratories, libraries, and other large areas, adjustments were made on the basis of room size and use variations. Experience showed that it required about twice as much time to clean a shop area the size of one classroom, and that no difference in time allotments was required for rooms with fixed furniture as compared with similar rooms with movable furniture.

Other adjustments in time and area units were found to be necessary for different floor materials, for building size, and for building age. For instance, it was found that floors having cracks or subject to buckling required more cleaning time than terrazzo, asphalt tile, or linoleum floors.

On the basis of these studies and adjustments, it was found that theoretically one custodian could clean an equivalent of 24 classroom units per day. In practice, however, the workload assignment varied between 16 and 18 classroom units. This allowed 2 to 3 hours per day for each custodian to perform other duties, such as disposing of waste-paper, making minor repairs, answering emergency calls, policing grounds, and performing other miscellaneous duties. However, the amount of time allocated to these odd jobs varied with building and site size, with work shifts, and with other related factors.

A third step in the plan, as adopted by Wyandotte School officials, was a 2-month trial period for ironing out any difficulties that arose.

It should be pointed out that the time study plan, as described here, did not include engineering services in connection with heating, ventilating, or other mechanical systems. These could be included by following procedures similar to those employed in determining cleaning custodial workloads.

Measured Work Techniques

Fernald,¹⁰ expressing an opinion that most "rule-of-thumb yardsticks" used to determine the custodial requirements of a building are misleading, proposed an approach aimed at "a scientific evaluation through measured work techniques."

Using a typical grade room to illustrate the practical application of his procedures, Fernald first broke this room down into its various cleaning components, measuring the time required to accomplish each, as follows:

¹⁰ Otto K. Fernald. How Many Custodians Do You Need? *School Management*, 2: 62-68. October 1958.

CUSTODIAL PERSONNEL REQUIREMENTS

	Min- utes	Seconds		Min- utes	Seconds
A. Teacher's desk	---	43	L. Room door		
B. Pupil tables (11 @ 22 seconds)	4	2	(slab with long window)	1	
Pupil chairs (31 @ 22 seconds)	11	22	M. Cork display board (pupils maintain)		
C. Unit ventilators	2	24	N. Coat racks (dusted when needed)	1	40
D. Shelving			O. Wastebasket (empty daily and wipe out occasionally)		15
E. Asphalt tile floor (regular daily dust mop with yarn broom—heavily obstructed area—16 min. per 1,000 sq. ft.)	14		P. Paper towel disposal (empty daily and wipe out occasionally)		15
F. Ceramic tile lavatory floor (wet mop daily with detergent and germicide solution (25 sq. ft. @ 55 min. per 1,000 sq. ft.))	1	22	Q. Paper towel dispenser—wipe—reload	1	7
G. Teacher's chair		35	R. Water closet (clean daily)	2	
H. Counter (wipe top and sides)	3	32	S. Wash basin (clean daily)	2	
I. Sink	2		T. Ceramic tile wainscot (wash daily with detergent and germicide)	5	
J. Chalk board (when washed with clear water, sponge, and squeegee—30 sq. ft. per min.)	3	12	U. Cork square wall covering (dusted periodically—50 sq. ft. per min.)		
K. Toilet door (slab with small window)		40			
			Total	57	9

However, only items E, F, H, I, O, P, R, S, and T are handled daily. These combined tasks require 30 minutes and 24 seconds of work per day, which may be rounded to 31 minutes. It is assumed

that identical rooms will each require the same cleaning time. In this illustration, six identical rooms are located in one wing of the hypothetical building. At the rate of 31 minutes for cleaning one classroom, these would require 186 minutes.

In addition to the six classrooms, there would be approximately 1,600 square feet of corridor floors to be swept twice daily with a yarn broom, once after the pupils returned to their rooms following lunch and again at the close of the school day. A gymnasium or playroom, a library, and a vestibule may also constitute a logical part of the building to be cleaned by the same custodians handling the other cleaning duties in this wing. In this case, additional tasks and the computed time for their performance would be as follows:

	<i>Minutes</i>	<i>Seconds</i>
A. Corridor (sweep 1,600 sq. ft. twice daily @ 9 minutes per 1,000 sq. ft.)	28	48
B. Gymnasium or playroom (sweep 4,000 sq. ft. @ 9 minutes per 1,000 sq. ft.)	36	—
C. Gym toilets (computed for six water closets, partitions, urinals, wainscot, washbasins, and floor)	50	—
D. Library room (sweep 1,000 sq. ft. of unobstructed area @ 16 minutes per 1,000 sq. ft.)	16	—
E. Library chairs (dust 12 @ 48 seconds each, and 72 @ 22 seconds each)	36	—
F. Vestibule (wet mop and rinse 200 sq. ft. @ 35 minutes per 1,000 sq. ft.)	7	—
Total	178	48

Rounding this total to even minutes would give 174 minutes for these additional duties. When the time required for classroom cleaning (186 minutes) is added to the time required for these additional duties (174), the total is 360 minutes, the actual amount of working time required to perform the indicated operations in this particular wing of the given building.

Custodians do not, however, generally work a complete shift at 100-percent efficiency, nor do they work many shifts without doing some unscheduled tasks. Furthermore, in most cases, they are given two 10-minute breaks for rest, coffee, or smoking during the shift. Adding about 10 percent of the 360 minutes, or 36 minutes, for decreased efficiency or fatigue, 20 minutes per shift for the preparation of solutions, getting and replacing tools and equipment, 10 minutes for unscheduled tasks, and 20 minutes for rest breaks, the total typical daily work time per custodian is 446 minutes. If the work day is 8 hours (480 minutes), there will be 34 minutes of unscheduled time remaining in the day. This time can be allocated to special work of an unscheduled nature.

By using measured work techniques similar to those applied in the foregoing illustration, school officials can determine the custodial requirements for any building.

Local Adaptation

It is not suggested that each of the six custodial workload formulas described here may be used under all conditions. Although Viles,¹¹ Brainard,¹² and Linn¹³ each suggest the establishment of time unit measures as the basis for computing custodial manpower requirements, it seems probable that, under certain conditions, other methods may also be adapted to local use. In any event, it seems desirable that each local school system collect, analyze, and evaluate its own data on custodial work loads before adapting or adopting any ready-made formula or before developing one of its own.

¹¹ N. E. Viles. *The Custodian at Work*. New York: The University Publishing Co., 1941. p. 178-187.

¹² Alanson D. Brainard. *Handbook for School Custodians*. Lincoln, Nebr.: University of Nebraska Press, 1948. p. 36-51.

¹³ H. H. Linn, et al. *The School Custodian's Housekeeping Handbook*. New York: Bureau of Publications, Teachers College, Columbia University, 1948. p. 44-54.

CHAPTER III

Formulating Custodial Personnel Policies

IN MOST STATES, local boards of education are designated by law as control bodies for local public school systems. Composed of laymen who are not usually trained in school administration, these boards usually function as policy-making bodies. Details of school management are entrusted to an executive officer, generally designated as superintendent of schools, who is responsible to the board. Depending upon the size of the school district, available funds for administrative personnel, the organizational pattern, and other factors, the superintendent may delegate certain of his responsibilities to various other officials.

Realizing that it is not good business to make the investment that is now necessary to build, equip, operate, and maintain school buildings and then leave their operation, supervision, and care in the hands of untrained personnel, school officials are giving increased attention to the management of custodial programs. This is frequently accomplished by assigning major school-plant responsibilities to an assistant superintendent in charge of buildings and grounds, to a business manager, or to a director of maintenance and operations.

Regardless of local administrative patterns concerning school plant management, school boards, under the leadership of their executive officers, have an obligation to develop and adopt policies that contribute to the improvement of custodial services. Concerning the personnel who perform these services, there should be definite policies covering (1) lines of authority, (2) personnel selection, (3) salary schedule, (4) probationary period, (5) promotion and demotion, (6) leaves of absence, (7) insurance protection, (8) grievances, (9) dismissals, and (10) retirement.

LINES OF AUTHORITY

Lines of authority for supervisory control of school personnel should 'be so clearly defined and well established that each employee understands his relationship to all other employees.' This is particularly true for school custodians because their services may be demanded, supervised, and praised—or condemned—by all who have any interest, real or imagined, in the operation of school plants. For example, pupils, teachers, lunchroom workers, and even parents may exploit the generosity of some custodians to such an extent that the latter are unable to perform their regular duties in an efficient manner. A reasonable adherence to sound policies governing supervisory control should protect both the custodian and the school district against unjustified demands for custodial time.

Good administrative practice dictates that the executive officer of the board, the superintendent, be responsible to the board, and that all other school employees, regardless of rank, be responsible to him or to his designated assistant. In the case of the school custodian the line of authority should begin with the superintendent and extend through designated administrative heads to the school principal. There seems to be general agreement that, while the actual supervision of adequate performance and checking the work standards of custodians is the responsibility of either the superintendent or his designated assistant, all directions, procedures, and orders from the central office should be transmitted through the principal. Furthermore, it is essential that the principal of each school have immediate supervision over all custodial employees in his building.²

Various organizational patterns with their respective lines of authority for custodian personnel may be illustrated by the following flow charts.

¹ N. E. Viles. *Field Supervision of Operational Personnel. 1950 Proceedings. Association of School Business Officials. Kalamazoo, Mich.: The Association, 1950. p. 156-160.*

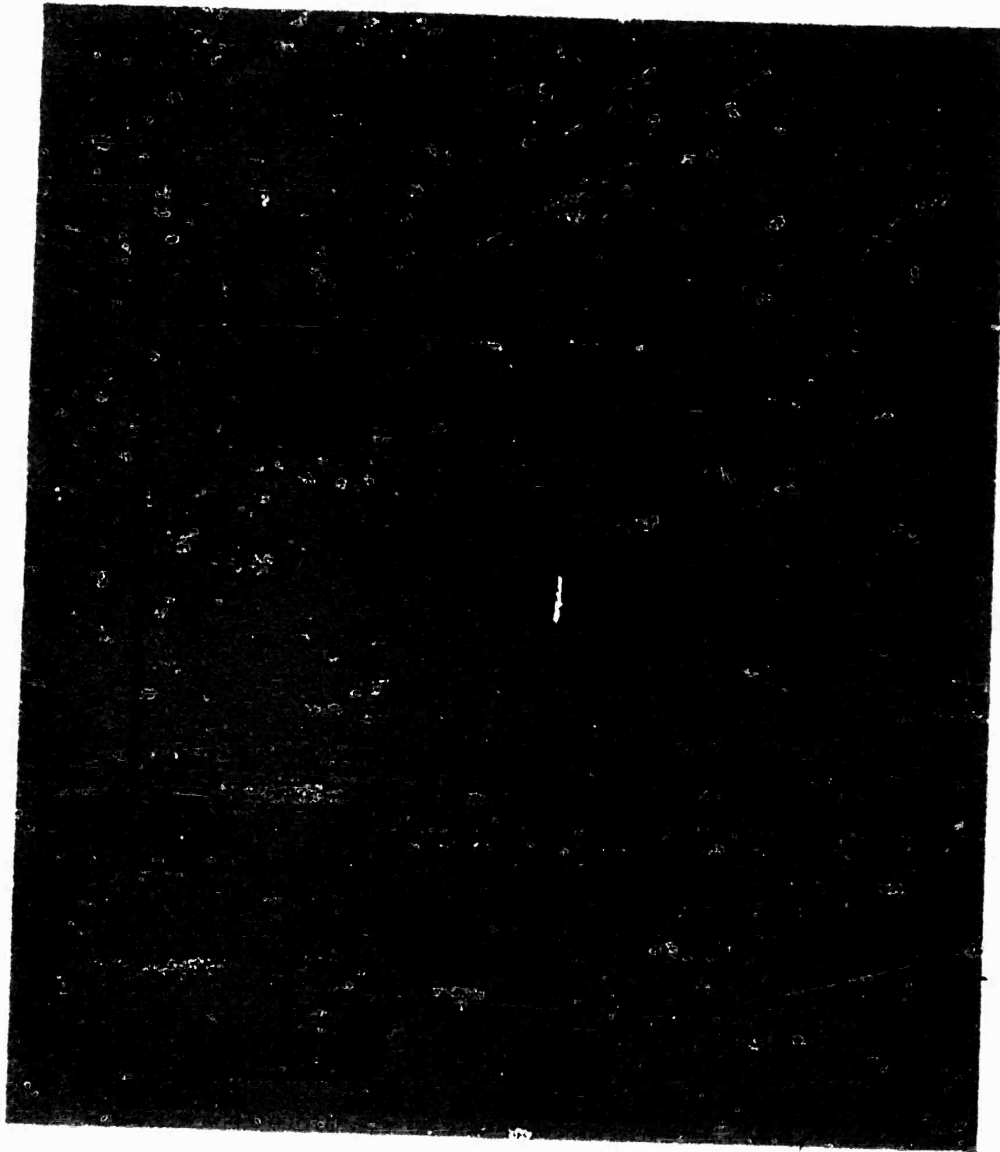
² Florida State Department of Education. *School Plant Operation and Maintenance in Southern States. Tallahassee, Fla.: The Department, 1940. p. 9.* Paul J. Harris. *Supervision of Operation and Maintenance. 1952 Proceedings. Association of School Business Officials. Kalamazoo, Mich.: The Association, 1952. p. 148-153.* Rufus A. Putnam. *Central Office Administration and Organization of Personnel. 1950 Proceedings. Association of School Business Officials. Kalamazoo, Mich.: The Association, 1950. p. 154-156.* Alanson D. Brainard. *op. cit.* p. 12.



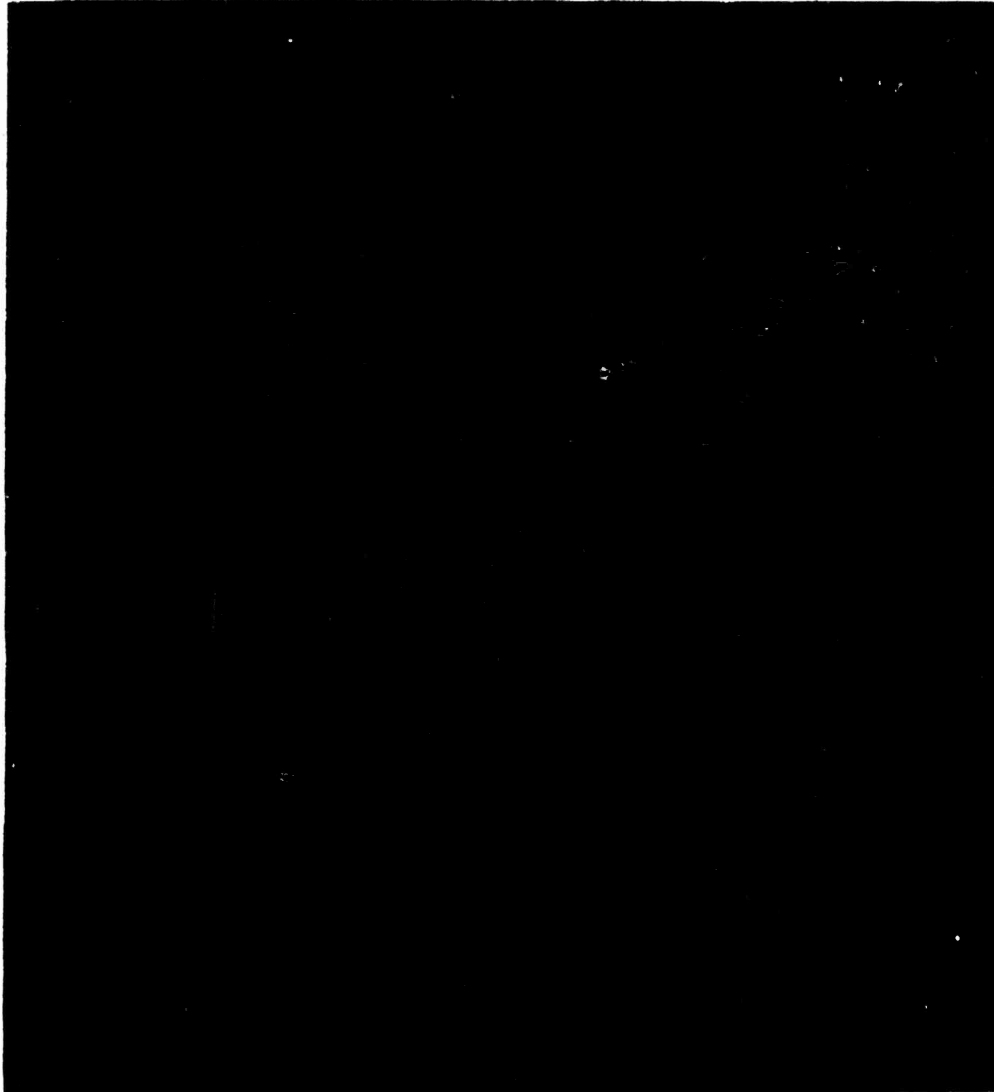
**Chart 1.—Organization for Custodial Services in
Small School Districts**



**Chart 2.—Organization for Custodial Services in
School Districts of Average Size**



**Chart 3.—Organization for Custodial Services in
Large School Districts**



**Chart 4.—Organization for Custodial Services in
Large School Districts (With Large Buildings)**

PERSONNEL SELECTION

In former years, some deserving man in the school community who could no longer secure regular work due to advanced age or other causes was employed as school janitor. In many instances, little attention was given to his knowledge of school plant operating procedures and techniques. Such knowledge was not looked upon as essential, since the janitor's major duties consisted of raising the flag each morning and taking it down at night, tending the furnace during the day and banking the fire at night, sweeping the floors with a corn broom, oiling the floors occasionally, and doing odd jobs around the building as occasion demanded.

Today, school buildings costing hundreds of thousands of dollars have complicated mechanical equipment, are more extensively used, and require the services of trained operating personnel. It is now recognized that in the modern school there is no place for the old-time janitor whose skills were limited and whose services contributed little to the educational program. On the contrary, there is a definite place for the trained custodian who, by the satisfactory performance of many duties and tasks, can contribute to the educational objectives of the school.

Since custodial personnel are so important to the school organization and to the educational program, adequate attention should be given to administrative policies regarding their selection and assignment. From the standpoint of cost, a community's investment in one custodian for a period of 10 years may be as much as \$42,000, depending on salary and fringe benefits.³ In addition to the investment in salary, the community spends large sums annually on custodial supplies and equipment. If sound administrative patterns for the selection of custodial personnel are adopted by local boards, these could account for worthwhile savings through high performance standards, through the economical use of supplies, and through the proper care of buildings and equipment.

Regardless of the importance attached to the selection of custodial personnel, local conditions often prevent the use of procedures which tend to insure the employment of people with desirable qualifications. Some such conditions are low salary schedules, limited labor supply, lack of personnel policies, unsatisfactory work schedules, poor maintenance practices, and lack of summer employment.

In general, when local conditions are such that good practices can be followed in selecting school custodians, the superintendent, or his designated officer, should develop a plan of positive recruitment.⁴ This may be accomplished by keeping present employees informed

³ Lyman H. Cosard. *Custodial Staff Selection. The American School and University*, 29th ed., 1: 278-279. New York: American School Publishing Co., 1957-58.
⁴ 1944.

of vacancies and requesting them to notify their friends and relatives of these openings, by purchasing space for classified and small display advertising in newspapers, and by enlisting the public-service cooperation of radio and TV stations to make some spot announcements about vacancies.

A standard application form, prepared by the school personnel office, or by the official in charge of personnel procurement, should be completed by all applicants, both recruited and unsolicited. A systematic record of all qualified applicants should be kept. This record can serve as a reservoir of information for future reference.

When applications have been filed with the appropriate official, a thorough investigation of each candidate should be made. This investigation may be made either by telephone or by letter and should cover such items as previous work experience, personal habits, home and family relations, health record, emotional stability, ability to deal amicably with children, and other related items.⁶

After the investigation has been completed, each applicant should be interviewed by a committee consisting of the principal under whom the work is to be performed, the assistant superintendent in charge of buildings and grounds, and the superintendent of schools, or his designated representative. The interview should be formal, pleasant, and designed to put the candidate at ease; and should cover points considered essential to proper selection. It may be feasible to develop an interview guide covering three or four basic points. This guide, or other document showing the items covered, should become a part of each applicant's file.

Following the interview, each candidate should be given three short tests: one written, one oral, and one performance. The written test will determine the applicant's ability to read, write, and follow instructions; the oral test, his ability to remember and follow oral instructions; the performance test, his proficiency and aptitude in relation to the work to be assigned.

Data obtained through investigation, interviews, and tests should be used to develop a list of eligible candidates. From this list, the principal concerned and other officials involved in the interview should select the candidate best qualified to do the job. If there are several acceptable candidates, these may be indicated in order of preference. The recommendations of this committee are then transmitted through the superintendent of schools to the board of education. The board, having legal authority to make all such appointments, can act upon the recommendations.

In school districts where local civil service commissions are given responsibility for recruiting, examining, and certifying nonprofes-

⁶ Lowell D. Jackson. *Selecting School Custodians and Maintenance Men.* *The American School Board Journal*, 120: 24. June 1955.

sional personnel to local government agencies (a procedure often followed in large metropolitan areas), school officials are relieved of all preliminary work incident to filling custodial vacancies. In some cities, the civil service commission has statutory powers not conferred on similar commissions in other cities. For example, the classification and salary schedules of all nonteaching personnel in the Chicago schools are under the jurisdiction of the commission, while in Milwaukee a cooperative arrangement between the Milwaukee school board and the city service commission prevails.⁶ This cooperative arrangement permits the school board to administer all matters pertaining to the classification and salary scales of all noninstructional school employees, while the commission administers examinations and certifies eligibility lists.

Variations in civil service procedures exist in other cities, but regardless of the plan in use, local boards have final authority to accept or reject candidates who have been certified by the local civil service commission.

Another method of employing custodians, once widely used in some large cities, and still in use on a limited scale, was the contract plan.⁷ This method provided that a custodian could be employed directly by the school board, or by the superintendent of buildings and grounds, and that he would be directly responsible to the board, not to the principal of the building in which he worked, nor to any other person to whom the principal was responsible. The contract was made with the custodian on a fixed fee basis. He was required to select, employ, and pay his assistants. In order to retain a large percentage of the fixed fee, the contract custodian often employed assistants who were willing to accept very low daily wages. This plan frequently resulted in poor performance standards, which often led to friction between the professional staff and the custodial staff, with only the board having authority to settle disputes.

Still other methods of selecting custodial personnel have been reported. In order to discover the principles and procedures used in Texas, Ezell and Sanders⁸ studied 188 school systems in cities ranging in population from 2,500 to more than 50,000. Their study revealed that in small and medium-size schools the custodian was appointed by the superintendent and was responsible to him; in large school systems, business managers, supervisors of custodians, or principals selected custodians, and in most cases they were directly responsible to the principal under whom they worked.

⁶ William A. Yeager. *Administration of the Non-Instructional Personnel and Services*. New York: Harper and Brothers, 1959. p. 67-68.

⁷ Charles Everand Reeves. *The Employment and Organization of School Plant Personnel*. *The American School Board Journal*, 12: 87. December 1950.

⁸ L. B. Esell and H. E. Sanders. *Custodial Employment Practices in Texas Schools*. *The School Executive*, 72: 71. September 1952.

Of the 133 systems studied, 180 required personal interviews; 118, character references; 39, written reports from previous employers; 124, information on physical condition; 37, health examinations; 9, written or oral tests concerning routine duties of custodial work; 34, statements of educational history; 6, previous experience in custodial work; 21, special application blanks; and one administered intelligence tests to all candidates. Other findings were concerned with appearance ratings, age limits, wages, retirement, and uniforms.

On the basis of these data, Ezell and Sanders concluded that standards for qualifications for custodians in Texas schools were only fair, and that there was little uniformity in the employment practices of the districts.

A recent study* on custodial employment standards, conducted by *The Nation's Schools* under the direction of a jury, surveyed 55 school systems in 44 States, the District of Columbia, and Canadian provinces. This study involved elementary school districts with enrollments ranging from 625 to 74,403 and secondary districts with enrollments ranging from 400 to 39,000. The number of full-time custodial employees per district ranged from 5 to 1,000, with an average of 125 and a median of 60.

Among other things, this study revealed that, in hiring custodians, the percentage of districts using each of the following methods to screen applicants was as follows:

<i>Method</i>	<i>Percent</i>
Oral interviews.....	96
Written applications, including records of previous experience.....	87
Reference concerning honesty, reliability, ability to get along with others.....	82
Medical certificates, or equivalent, including X-rays.....	56
Statements of citizenship and loyalty oaths.....	33
Aptitude tests.....	10

Methods which these districts considered most effective in screening applicants, according to the percentage of districts expressing a preference, were as follows:

<i>Method</i>	<i>Percent</i>
Oral interviews (with 24 percent of the districts willing to depend on oral interviews alone).....	71
References as to honesty and ability to get along with fellow employees.....	54
Written applications.....	25
Checking police records.....	4
Personal interview and references combined.....	40
Combination of interview and recommendations.....	38
Combination of interview and applications.....	38

* Better Ways to Hire Custodial Employees. *The Nation's Schools*, 63: 94-95. March 1959.

Fewer than 10 percent of the districts required no probationary period before permanent employment of custodians; 16 percent, 60 days or under; 33 percent, 3 months; and 29 percent, 6 months minimum.

A conclusion of this study is that, in hiring custodial employees, school districts use definite screening methods, with major emphasis on the oral interview and a combination of interviewing and careful checking of references.

However varied custodial selection and employment practices may be, it seems evident that only qualified personnel who are properly directed and supervised can perform the operational services required in the modern school plant.

Some desirable qualifications for those who perform custodial services are the following:

- Good health and vigor
- Absence of physical defects
- Average or better-than-average mental ability
- At least an 8th grade education, but preferably high school
- Superior character
- Cooperative attitude
- Sense of responsibility
- Neat, clean appearance
- Pleasing voice
- Acceptable language habits
- Proficiency in modern school plant operating techniques
- A knowledge of the fundamentals of :
 - school health and sanitation
 - heating
 - ventilation
 - plumbing
 - electricity
 - air conditioning
 - lighting
 - cleaning techniques and good housekeeping practices
- Love and respect for children
- Related experience, or willingness to be trained
- Age not under 21 nor over 45.

SALARY SCHEDULE

The ability of school districts to attract, develop, and hold competent school custodians is directly related to personnel policies, particularly those concerning salaries, emoluments, and working conditions. The initial salary paid these employees will play an important part in determining the types of qualifications they bring to the system. Districts paying relatively high beginning salaries may expect to attract more desirable people than districts paying relatively low

beginning salaries. Linn¹⁰ has pointed out that a liberal salary schedule for noncertified employees is a good investment. ("Non-certified" employees are those who are not required to obtain a license to work.) Such employees are entitled to know the salary schedule and the conditions under which they operate. Board policies covering salary schedules should be developed through discussions, studies, and investigations in which all affected employees participate.

One plan found to be successful in establishing salary schedules for noncertified personnel in large school districts involves a complete job classification study. A study of this type requires that each job be identified, defined, related to other jobs with respect to type and difficulty of performance, and described in terms of skills or competencies required for satisfactory performance.¹¹

In general, a job classification study may be accomplished by requesting each employee to complete a questionnaire covering such basic points as (a) duties and responsibilities of each position, (b) qualifications demanded, (c) nature and extent of supervision received and exercised by the person filling each position, (d) relationship of each position to all other positions, and (e) the working conditions of each position. The questionnaire should be preceded by a thorough indoctrination combined with a program of instruction for those who will be requested to complete the questionnaire. When the questionnaires have been completed, personal interviews and position audits may be used as supplementary techniques to obtain additional information.¹²

The classification groups should be such that those positions concerned with the same type of work and having common characteristics will be grouped together. At the same time, the classification plan should show both horizontal and vertical relationships among classes. In this way, the promotional line can be determined from the arrangement of class groups in a series as to kind; the difficulty relationships, by comparison of classes, with respect to relative worth, across departmental lines.

The system of designating class titles should be uniform for all non-certified services. Descriptive class titles, neither too long nor too restrictive, should be given to each class and to each position in the class. In determining the class to which a position should be allocated, the specifications for each class should be considered as a whole, these specifications giving attention to the general duties, responsibilities, specific tasks, and qualifications required for the class.¹³ The qualifi-

¹⁰ H. H. Linn, *Personnel Policies for Nonprofessional Employees*. *The Nation's Schools*, 56: 82-90. August 1955.

¹¹ E. M. Roelfs, *Job Classification Procedures for Non-Certified Personnel*. *The American School Board Journal*, 125: 53-55. November 1953.

¹² *Ibid.*

¹³ Compton Union High School District. *Classified Employee's Handbook*. Compton, Calif.: Personnel Commission, 1956. p. 16.

cations may cover such items as education, experience, skills, and personal and physical characteristics and capabilities.

The classification plan based on a survey of positions provides not only the framework for organization of positions and specifications for hiring, but also a basis for determining salaries. This plan also establishes an equitable and impartial manner of handling such problems as recruitment, selection, transfer, promotion, dismissal, and retirement. Furthermore, it improves budget procedures concerned with personnel and employee-management relations.

The Akron Plan, described by Roelfs,¹⁴ seems typical of the classification system used by several large cities. This plan, developed by the Municipal Civil Service Commissions under the authority of Ohio civil service laws, groups all noninstructional employees under three "services:" Professional and Allied Service; Clerical, Administrative, and Fiscal Service; and Maintenance and Custodial Service. Each of these services is subdivided into series, a series being two or more classes similar as to type of work and constituting steps in the usual line of promotion. For example, the Maintenance and Custodial Service classifies all positions in nine series:

Carpentry Series

Rough Carpenter
Carpenter
Carpentry Foreman

Cook's Series

School Cook
Senior School Cook

Custodial Series

Janitress
Assistant Custodian
Custodian
Supervising Custodian

Electric Series

Electrician
Electrician Foreman

Miscellaneous Series

Stockhandler (Supply Yard)
Stockholder (Warehouse)
Supervisor of Maintenance

Painting Series

Rough Painter
Painter
Painter Foreman

Plumbing Series

Plumber's Helper
Plumber
Repairman (Machine Shop)
Thermostat Mechanic
Plumber and Heating
Foreman

Transportation Series

Truck Driver
School Bus Driver
Automobile Mechanic
Supervisor, Fuel and Transportation

Utility Series

Utility Man
Lawn Maintenance Man
General Utility Man
Subforeman
Labor Foreman

This series arrangement groups the classes of positions within the service as to the kind of work. The classes of positions are arranged according to grades, ranging from the simplest work in the

¹⁴ R. M. Roelfs. *op. cit.*

service to the most difficult and most responsible. This permits comparison of classes as to importance, difficulty, and responsibility. For example, the Maintenance and Custodial Progressive Service contains 11 grade levels arranged in order of their relative progressive difficulty and worth to the school system, as follows:

Grade 1

School Cook
Janitress

Grade 2

Senior School Cook

Grade 3

Utility Man

Grade 4

Lawn Maintenance Man
Plumber's Helper
Rough Carpenter
Rough Painter
School Bus Driver (Regular)
Stockhandler (Supply Yard)
Subforeman (Labor)
Truck Driver

Grade 5

Assistant Custodian

Grade 6

General Utility Man
Labor Foreman
School Bus Driver (Special)
Stockhandler (Warehouse)

Grade 7

Automobile Mechanic
Carpenter
Electrician
Painter
Plumber
Repairman (Machine Shop
Thermostat Mechanic)

Grade 8

Custodian

Grade 9

Carpentry Foreman
Electrical Foreman
Painting Foreman
Plumbing and Heating Foreman

Grade 10

Supervising Foreman
Supervisor, Fuel and Transportation

Grade 11

Supervisor of Maintenance

Closely related to classification plans are merit plans. Some contend that classification itself implies the use of the merit system,¹⁸ pointing out that merit plans are especially important in governmental activities as a means of avoiding political influence on employment and pay status of nonclassified personnel. Under merit systems, employees understand that their employment security, pay, and promotion depend upon what they know rather than upon whom they know. This gives employees a feeling that they are members of the organization and that they have certain basic rights.

PROBATIONARY PERIOD

Regardless of local policies governing recruitment, selection, and payment of school custodians, school boards may find it desirable to

¹⁸ Arthur A. Knoll. Some Aspects of Merit Systems. *The Nation's Schools*, 39: 60-61. January 1947.

require new custodial employees to serve a probationary period of not less than 6 months nor more than 1 year before being eligible for a permanent position. During this time they will have an opportunity to become acquainted with their supervisors and fellow workers, to demonstrate their adaptability, and to show their competence in assigned work areas. Those who complete the probationary period with approval can be placed on permanent status; those who fail to perform satisfactorily may be transferred to more suitable jobs, or they may be discharged, at the discretion of the board or employment officer.

Typical of probationary regulations for classified employees in school districts having a policy on this topic is the regulation of the Long Beach Unified School District, Long Beach, Calif., which states:¹⁶

An appointment to a permanent position from an open competitive eligibility list or a probational eligibility list shall be for a probationary period of six months or 180 days of paid service, whichever is longer, except that the Commission¹⁷ may establish a probationary period not to exceed one year for appointment to positions in classes designated by the Commission as executive or administrative.

The probationary period shall not include time served under emergency, casual, substitute, or provisional appointment nor time while the employee is absent from his work 10 or more consecutive working days.

An employee who satisfactorily completes his probationary service in accordance with . . . this rule, shall acquire full-time status in the class if his work assignment during probation required service for 20 hours or more per week. A work assignment during probation requiring less than 20 hours of service per week, shall result in the probationer acquiring part-time status in the class.

An employee with part-time status, who is transferred or assigned to a position in the same class requiring 20 hours or more of service per week, shall complete an additional probationary period of six months before full-time status is attained.

If any probationer shall be found incompetent or unsatisfactory, the Board of Education may dismiss him from the service and will report the dismissal to the Commission in writing. No person dismissed from a position during probation shall again be certified to a position in the same class for a period of one year after the date of dismissal, except upon approval of the Department Head under whom service was rendered.

It shall be the duty of the Board of Education, or its proper agent, during the probationary period of each employee, to investigate thoroughly his conduct, competence, capacity, moral responsibility, and integrity, to determine if the employee is fully qualified for permanent status. A performance report shall be made to the Department Head of each probationer before the end of the sixth month of the probationary period, upon forms prescribed by the Commission. Ratings of employees attaining permanent status shall be filed with the Personnel Commission.

¹⁶ Long Beach Unified School District. *The Rules and Regulations of the Classified Services*. (Mimeographed) Long Beach, Calif.: The Board of Education, September 1959. p. 19.

¹⁷ An agency created by chapter 13, article 5, section 1407 of the Education Code of the State of California.

Should the work for which a probationer has been appointed prove temporary instead of permanent, as certified, and should the probationer be laid off without fault or delinquency on his part before the term of his probation is completed, his name shall be restored to the eligibility list and the time he has served shall be credited to him on his probationary period.

PROMOTIONS AND DEMOTIONS

Board policies relating to promotions and demotions should be such that efficient employees may reasonably expect elevation to better jobs when opportunities arise, and inefficient workers may anticipate demotion, even dismissal, when they fail to perform satisfactorily or when they commit acts which may subject them to disciplinary action. Such policies, if thoroughly understood by all employees and fairly administered by the board, contribute to good employee-management relationships.

In general, promotion should be based upon merit, which may be determined by competitive examinations, by superior qualifications shown by performance reports, or by a combination of the two. In some instances, seniority may be used as a basis of promotion, but usually this should be the determining factor only when two or more employees who are being considered for the same job have equal or near-equal examination and performance records.

Demotion, on the other hand, should be based on inefficiency, insubordination, indiscreet acts, or on the request of the employee himself. If inefficiency is the basis for demotion, the employee should be given ample warning by his superior that his performance is unsatisfactory. This warning will give him an opportunity to correct deficiencies and thus avoid being penalized. Insubordination or the commission of indiscreet acts may be deemed sufficient grounds for either temporary or permanent demotion and, in some cases, dismissal. Where these constitute the basis for demotion or dismissal, pertinent, carefully documented evidence should be available to support the charges. Some employees may request demotions for various reasons. These may include poor health, advanced age and physical deterioration, failing eyesight, or simply the desire to be relieved of certain responsibilities. Board policies should be broad enough to cover such requests.

LEAVES OF ABSENCE

Custodial employees, like other school personnel, are absent from work occasionally. Some absences are involuntary and unpredictable, being caused by natural circumstances; some, planned for rest, recreation, improvement, or other voluntary purposes, are usually scheduled at times convenient to both employer and employee; others, imposed

by citizenship obligations, may or may not be predetermined; and finally, some are caused by board action or by employee design.

Some States have statutes covering various types of leave for school employees, including custodians; others have no statutory leave provisions relating to noncertified school employees. In the interest of efficiency, harmony, and good administration, local boards should develop leave policies which can be implemented under local conditions. If there are no State laws within the framework of which such policies can be developed, there are necessarily implied powers under which local boards may make reasonable rules and regulations for the general management and government of schools.

Though not all-inclusive, the following types of situations are usually covered by leave policies of local boards: (a) sickness, (b) maternity, (c) family illness, (d) bereavement, (e) vacations, (f) holidays, (g) professional meetings, (h) jury duty, (i) military duty, (j) voting, (k) termination, (l) miscellaneous situations.

Sickness

Sick leave is the absence from duty of an employee because of personal injury, illness, or exposure to contagious disease. A fair custodial sick-leave policy will protect the school district, the employee, and in some instances, pupils and other employees. The school district is protected to the extent that custodial services need not be curtailed; the employee, to the extent that he can rest, have medical attention, and hopefully recover early; pupils and other employees, to the extent that they will not be exposed to any contagious disease causing the debility.

In practice, when sick-leave days are granted to custodians, the range is from 5 days per year of 12 months-employment to 13 or more days per year. The Iowa law, for example, establishes a schedule of sick-leave days, granting 5 days for the first year of employment, 6 for the second, 7 for the third, 8 for the fourth, and 9 for the fifth and subsequent years. This schedule is applied only to consecutive years of employment, and is cumulative to a total of 35 days.¹⁸ The law, however, does not prevent local districts from allowing a cumulative total of more than 35 days.

California statutes provide 13 sick-leave days per year of 12-months employment and 11 days per year of 11-months employment, with no limitation on cumulative sick leave.¹⁹

A reasonable sick leave allowance for custodial employees would seem to be 10 days per year of 12 months-employment, with a corresponding ratio of five-sixths of 1 day per month for employees who

¹⁸ State Department of Public Instruction. *Mr. Custodian* (Revised). Des Moines, Iowa: The Department, January 1960. p. 7.

¹⁹ Long Beach Unified School District. *op. cit.* p. 32.

work less than 12 months per year. It also seems practical to suggest that reasonable limitations should be imposed on total cumulative days.

The district may need to protect itself against absences attributable to trivial indispositions, and on the other hand, the worker may need to be protected against a relapse of his illness brought about by returning to work too soon. Both the district and the worker may be protected against these hazards if the board requires a doctor's certificate for all sick leaves of 5 days or more.

Maternity

Women who are employed as maids, janitresses, or in any other custodial capacity may need leave of absence for maternity. A common practice among school districts is to grant maternity leave without pay for not more than 1 year, each such leave to begin at least 4 months before the anticipated confinement. In most cases, termination of maternity leave is at the discretion of the board of education. Health of the mother and welfare of the child, as determined by the employee's doctor and verified by the Director of Public Health Service, are factors which influence board decision on this matter.

Job security for the employee, health protection for mother and child, and avoidance of criticism by school patrons are obvious reasons for granting maternity leave.

Family Illness

Some school boards apply the same leave policy to both family and employee illness. In this case, if an employee is allowed personal sick leave without loss of pay, he may also take sick leave when members of his family are seriously ill, the time being deducted from sick-leave days accumulated by the employee.

Other boards allow additional leave days for serious illnesses in the immediate family, the immediate family being defined as mother, father, sister, brother, husband, wife, child, or anyone who has the position of parent or child. The amount of additional time usually allowed for each occasion is 3 days, this being extended to 5 days if the stricken relative is at a distance requiring 1 day's travel.

Where additional leave time without loss of pay is granted for family illness, board policy should be definitive as to the relationship of the employee and the kinsman, as to the amount of leave allowed for each illness, and as to the total amount allowed during the year.

Bereavement

School board policies dealing with employee absences usually allow bereavement leave with regular pay for not more than 3 days for each

bereavement, this being extended to 5 days when it is necessary for an employee to travel beyond a 300-mile radius. This leave, usually charged to an employee's accumulated sick leave,²⁰ is allowed only at the death of members of the immediate family. Some boards modify this by allowing a 1-day absence without loss of pay for death of relatives by marriage (father-in-law, mother-in-law, brother-in-law, sister-in-law, son-in-law, daughter-in-law), or for any person who has been a member of the employee's household for 5 years or more before death.

Vacations

Local policies governing vacations for custodial employees have many variations. Some specify that the employee must be on a full-time basis and must have been employed for 1 calendar year to be eligible for 2 weeks' vacation with pay.²¹ Others indicate that each permanent, probationary, or limited-term civil service employee who has completed 6 months' service is entitled to vacation time with pay at the rate of 2 calendar weeks per year, credit starting with the first day of employment with the district.²² Others determine vacation allowances on the basis of "creditable months" of service completed, a creditable month being defined as any month in which an employee is compensated for 75 percent or more of the working days in that month. In this instance, no vacations are allowed or considered due until the employee has accumulated 7 creditable months. Employees who have accumulated the maximum number of creditable months during a fiscal year are entitled to 10 vacation days with pay.²³

Common to many district policies dealing with vacation leave is the provision that, after 10 years of service, each employee is allowed additional vacation time with pay. Some districts allow 5 additional days, beginning with the eleventh year of service; others allow 1 additional day per year for each additional year of service beyond 10, up to a maximum of 15 years and 15-vacation days. Other common provisions are that vacations must be taken at some time other than during the school term, or at a time when the efficiency of the service will be least affected; that vacation time can be cumulative over a period of not more than 2 years; that employees on less than a 12-month basis earn vacation time in the same manner, but not to the same extent, as employees on a 12-month basis; that employees whose work assignments do not consume the full work day, but who are

²⁰ Alpheus L. White. *Characteristics of School Board Policy Manuals* (Bulletin 1959, No. 14). U.S. Department of Health, Education, and Welfare, Office of Education. Washington: U.S. Government Printing Office, 1959. p. 24.

²¹ Kentucky State Department of Education. *Planning School Plant Operations* (Mimeographed). Frankfort: The Department, Division of Buildings and Grounds. (No date.) p. 12.

²² Compton Union High School District. *op. cit.* p. 28.

²³ Long Beach Unified School District. *op. cit.* p. 34-35.

employed on a continuous basis (with certain specified minimum work hours per month) earn vacation credit on the basis of their daily work assignment, excluding overtime, during the month such credit is earned; and that deductions are not made from vacation credit of an employee for holidays occurring during the assigned vacation period of the employee.

Holidays

Most school employees are granted some holidays with pay. Board policy should be specific as to the particular days allowed, if any, and if emergency situations make it necessary for an employee to work on any specified holiday, provision should be made for extra pay, either on a regular salary basis or on an overtime basis. Otherwise, equivalent time off should be allowed at some future date. A statement covering board policy on holidays and holiday assignments will prevent misunderstandings and contribute to harmonious employee-management relationships.

Holidays usually granted custodial and other school employees are New Year's Day, Washington's Birthday, Independence Day, Memorial Day, Labor Day, Veteran's Day (formerly Armistice Day), Thanksgiving Day, Christmas Day, and any other days set aside by State or local proclamation. In practice these legal holidays start at the close of the working day preceding the holiday and continue up to the starting time of the working day following the holiday. When any holiday usually granted school employees falls on a nonwork day such as Sunday, board policy should indicate whether or not the next regular work day can be observed as a holiday.

Professional Meetings

Absence for professional meetings may be infrequent and irregular, depending on individual and district circumstances. If opportunities for custodial growth and training exist within the school district, or within a reasonable distance outside the district, board policy should establish the conditions under which custodial employees may avail themselves of these opportunities. With an ever increasing emphasis upon efficiency in school plant operation, paid leave for custodial employees to attend professional meetings planned to improve both quality of work and worker morale seems justifiable.

In a recent study of various benefits granted classified school employees in 109 cities of 100,000 population or greater, Egly²⁴ reported the following concerning leave allowances for attendance, during

²⁴ Edgar C. Egly. *Fringe Benefits for Classified Employees in Cities of 100,000 Population or Greater* (Bulletin No. 19). Evanston, Ill.: Association of School Business Officials, 1959. p. 23.

work hours, at meetings or classes designed to improve the performance of these employees:

Type of meeting or class	Number of districts from the sample	Percent of the sample
Convention.....	68	62.88
College or university class.....	6	5.50
Employee association or union meetings.....	12	11.00
Inservice training classes.....	23	23.10

Jury Duty

School employees, like other citizens, are obligated to attend court when summoned for jury duty or when subpoenaed to appear as witnesses. Boards of education generally allow full pay to employees while in court attendance, either as jurors or as nonlitigant witnesses.²⁶ Some boards, however, require jury service fees and witness fees to be assigned to, and the summons, subpoena, or other court certification to be filed with, the board of education. Court reimbursements for transportation expenses are not regarded as jury service or witness fees. In some instances employees who are litigants in court are granted leave without pay.²⁶

Military Duty

Generally speaking, extended leaves of absence without pay are granted classified employees holding permanent positions when they enter the military service of the United States. Some States have statutory provisions, known as the Military and Veterans' Code, which guarantees job security for employees who, having been drafted into military service for a period of time, return with a discharge as evidence of their service.

Practices vary in regard to annual military reserve training. Egly²⁷ stated that 54 of 77 reporting districts permitted employees to attend annual military reserve training without loss of pay; and that 25 permitted them to charge their attendance to earned vacation time.

Voting

Custodial employees whose hours of work are in conflict with the hours polls are open in their precincts should be allowed reasonable time for voting. In general, supervisors or department heads may be given discretionary power to grant employees permission to be absent without loss of pay for voting and other casual reasons, provided such absences do not exceed one-half day.

²⁶ *Ibid.* p. 27.

²⁷ Compton Union High School District. *op. cit.* p. 30.

²⁸ Edgar C. Egly. *op. cit.* p. 28.

Termination

Termination allowance, if allowed for any employee who loses his job through no fault of his own, such as elimination of a position or reduction of force, should be commensurate with the period of employment, the job classification, and the possibility of reassignment.

Miscellaneous

There are other types of absences concerning which school boards should develop specific policies. These may be broadly classified as *absences without leave* and *leave without pay*. The former is an unauthorized absence and may be considered as cause for disciplinary action or dismissal. Board policy should indicate the kind of disciplinary action it has approved for unauthorized absences. For example, 5 days' absence without leave and without a satisfactory explanation may be looked upon as sufficient grounds for temporary suspension or demotion; 10 days, as justification for dismissal.

Leave without pay, on the other hand, signifies that an employee had permission to be absent from work, but receives no pay for days missed. An illness extending beyond the accumulated sick-leave days is an example of this type of absence. Some problems incident to leave-without-pay absences, particularly those of several weeks' or months' duration, are concerned with whether or not these absences constitute an interruption of continuous service, whether or not a medical statement should be required when an employee returns to work, whether or not sick leave and vacation credit shall be allowed during these absences; and the maximum time permitted.

INSURANCE PROTECTION

The social-legal concept that management has an obligation to promote the health and welfare of employees is giving impetus to plans for insurance protection for school personnel. This type of protection, designed to prevent loss of livelihood as a result of illness or accident, is of particular importance to school custodians whose counterparts in industry are frequently insured for the same purpose.

Coverages most often provided school custodial employees by boards of education consist of workmen's compensation, or some form of group health and accident insurance, and group life insurance. Workmen's compensation insurance, required for all employees in hazardous occupations in some States, is optional in others. Group health and accident insurance, sometimes provided instead of workmen's compensation, may also include death and dismemberment benefits. Group life insurance is generally on a term basis, is effective only

during employment as a member of a covered group, and builds no reserve for the employee.

Other types of insurance sometimes provided custodial employees are retirement, which will be discussed later in this bulletin, and personal liability.

Custodians, like other school employees, may be sued for damages caused, or alleged to have been caused, by negligence. Some school districts protect all school employees against liability claims originating with on-the-job responsibilities and attributed to negligence.

School officials who plan to use school funds for the purchase of insurance affording protection to their employees should first review pertinent State statutes and secure an opinion from the attorney general regarding the expenditure of public funds for this purpose. If the expenditure is legal, and if officials wish to provide any of the coverages allowed, board policies should be developed concerning types and amounts of coverage, extent of board participation in premium payments, cost to employees, method of collecting premiums from employees, benefits, and other pertinent policy matters.

GRIEVANCES

Differences of opinion, misunderstandings, and problems arising from unforeseen circumstances are often magnified to such an extent that they become grievances in the minds of many workers. If not resolved in their early stages, these grievances impair worker morale, reduce efficiency, and create management problems of great magnitude. Lack of grievance machinery is cited as a major reason for the increased incidence of strikes among public employees.²⁸

Fundamental to smooth administration of the school custodial program is the right of custodial employees to present their grievances without fear of losing their jobs. School board policies should provide for the establishment of appropriate grievance machinery. It is generally recognized that, in all grievance situations, provision should be made for appeals from first decisions.

DISMISSALS

Custodial employees who successfully complete probationary work periods and meet other requirements are usually considered eligible for permanent employment. It should be recognized, however, that permanent employment does not necessarily insure tenure for life. Most

²⁸ John E. Phay. *Custodial Personnel Administration*. (Reprinted from the March, April, May, June, July, and August, 1948, issues of *The American School Board Journal*). P. 15.

board policies indicate that tenure shall be during good behavior, and that any person who has been placed on permanent status may be dismissed, suspended, or otherwise disciplined for cause. Causes most frequently enumerated as grounds for dismissal, suspension, or other disciplinary measures are the following:

- ✦ Dishonesty, drunkenness, immoral conduct, or addiction to the use of narcotics
- ✦ Fraud in securing appointment
- ✦ Incompetency, inefficiency, physical or mental disability
- ✦ Conviction of a serious crime by a court of law
- ✦ Political activities during assigned hours of employment
- ✦ Frequent requests for casual absences, resulting in disruption of work and loss of efficiency in the operating unit to which the employee is assigned
- ✦ Sick leaves when habitually taken for trivial indispositions
- ✦ Insubordination, inattention to or dereliction of duty, discourteous treatment of the public or of fellow employees, or any other willful failure of good conduct tending to injure the service
- ✦ Membership in an organization advocating violent overthrow of the Government
- ✦ Contraction of some types of infectious diseases

In addition to enumerating grounds for dismissal, board policies should outline procedures to be followed in cases involving any of these grounds. These procedures should cover (a) method of filing charges, (b) particulars to be included in the charges, (c) serving papers upon the employee, (d) employee's right to answer charges, (e) time and procedure for conducting a hearing (if requested), (f) counsel and witnesses, (g) failure of an employee to answer charges, (h) judgments rendered, and (i) appeal.

State statutes generally authorize some particular agency, such as the civil service commission or the board of education, to conduct hearings of this nature. In most instances, courts are given appellate jurisdiction.

RETIREMENT

One tenet of the social security movement of recent years is that some form and some degree of economic security should be provided all workers upon retirement, regardless of whether caused by age, health, or disability. In several States, public school employees, both professional and nonprofessional, are covered by State retirement systems; in other States, retirement benefits for both groups are provided through an integrated plan, comprised of both the State retirement plan and Federal social security; in others, instructional personnel are protected by State retirement plans, while noninstructional personnel are covered by Federal social security; and in still others, local plans cover retirement of all district employees. There are also

variations of these to include other types of school employees, such as clerks, nurses, bus drivers, and cafeteria workers.

Regardless of the retirement plan used, however, there appears to be little justification for differentiation in benefits as between employee groups, except as there may be differences in length of service, employee contributions, age at retirement, and other factors generally used to determine benefits.

Clifford²⁹ suggests that advantages accrue to both the school system and employees when the retirement system is extended to cover all employees. He points out that the employee is afforded a degree of security in his old age, that school districts are relieved of responsibility for continuing persons in employment whose advanced age limits their usefulness, and that continued employment of these old people often results in unseen costs.

Where a local retirement system is affiliated with State retirement plans or Federal social security, the chief function of the local board is to collect contributions from employees, add its own contribution or matching funds, if required to do so, and transmit the entire amount to the appropriate agency. Operating details, regulations concerning eligibility for retirement, a schedule of benefits, including residual benefits to survivors, and other pertinent information are generally given in publications distributed by the State or the Federal government, depending upon the local system's affiliation.

On the other hand, if the retirement plan is local and is not affiliated with the State plan or with Federal social security, there should be definite policy statements concerning (a) prior service benefits; (b) current service benefits; (c) method of determining employee contributions; (d) method of determining school district contributions; (e) eligibility for membership; (f) elective provisions, if any; (g) optional methods of calculating retirement benefits; (h) conditions governing retirement, such as age, period of service, disability, and the like; (i) death benefits, if any; (j) refund of contributions; (k) credit for military service, if allowed; and (l) compulsory features, if any. Each employee covered by the local plan has a right to know, and the board has an obligation to supply, all pertinent details relating to the plan.

²⁹ J. M. Clifford. Extending the Retirement Umbrella. *The School Executive*, 67: 83-84. September 1947.

CHAPTER IV

Defining Custodial Duties and Establishing Work Schedules

IDENTIFICATION of major areas of custodial responsibility and duty is essential to efficient management of the custodial program. Custodians should be informed as to where their responsibilities start and where they end. Teachers and other school personnel who understand that custodians are usually responsible to the building principal can work effectively with them to provide a wholesome environment for learning. The building principal, having administrative responsibility for the overall program in his building, can plan cooperatively with all concerned to identify major areas of custodial responsibility and list the specific jobs to be performed by each custodian.

When individual responsibilities have been earmarked, specific work schedules should be established. Since school plants differ in size, shape, equipment, surroundings, and occupancy, the tasks of one custodian may not be the same as those of another. For this reason, each should have a specific schedule. However, time allocations should not be so rigid that they destroy individual initiative in performing additional tasks which may be necessary to improve the physical appearance or general operating conditions of the building.

The purpose of this chapter is to discuss some broad concepts relating to (1) custodial duties and (2) custodial work schedules.

CUSTODIAL DUTIES

Several excellent references¹ contain lists of many specific duties usually performed by custodians. Hopper² suggests that there are

¹ Alanson D. Brainard. *Handbook for School Custodians*. Lincoln, Nebr.: University of Nebraska Press, 1948. p. 36-51.

Henry H. Linn, et. al. *The School Custodian's Housekeeping Handbook*. New York: Bureau of Publications, Teachers College, Columbia University, 1948. p. 44-54.

Nelson E. Viles. *The Custodian at Work*. New York: The University Publishing Co., 1941. p. 42-347.

New England School Development Council. *Guide for School Custodial Service*. Cambridge, Mass.: The Council, 1948. p. 26-34.

² Willis O. Hopper. How to Attain Custodial Efficiency. *School Management*, 19: 26. December 1949.

more than 200 such duties. For the purpose of this publication it seems appropriate to describe eight broad work categories which cover most custodial duties. These categories are (1) housekeeping, (2) mechanical and engineering, (3) minor maintenance and repair, (4) grounds, (5) pest control, (6) fire prevention and school safety, (7) police and supervisory, and (8) records and reports.

Housekeeping

School housekeeping involves all activities concerned with cleanliness of surroundings; storage; and order and arrangement of operational equipment, supplies, educational material, and personal belongings. Responsibility for good housekeeping, though a prime duty of the custodian, is not his alone. This responsibility must be shared by all who occupy or use school facilities.

In addition to supervising closely all activities necessary in building care, principals should instruct school personnel and other users of school facilities as to their individual responsibilities for good housekeeping. Teachers, while not expected to perform custodial duties, should set up good housekeeping standards for their pupils. This can be accomplished both by example and by instruction—by example, through orderly arrangement and storage of instructional materials, books, and posters and through a general room atmosphere of neatness; by instruction, through development of individual responsibility in the care of wraps, textbooks, and other personal belongings, and through the cultivation of respect and pride in clean surroundings. Children can be taught to use the wastebasket, clean their shoes before entering the building, leave their desk tops free of books or other material, and refrain from marking on walls. Without imposing hardship on the pupils, instruction can cover many other things to lighten custodial tasks and to improve pupil acceptance of citizenship responsibilities.

Even though school housekeeping is a cooperative endeavor, in which each participant may assume his obligations to the fullest extent, certain housekeeping duties should be performed only by the custodian. These include (a) sweeping; (b) dusting; (c) damp mopping; (d) scrubbing; (e) washing, cleaning, and polishing; and (f) equipment and supply storage.

Sweeping

From the standpoint of cleanliness and sanitation, perhaps no duty of the school custodian is more important than that of sweeping and dusting. Not only is dirt brought into a building on children's feet, but a surprising amount of dust also infiltrates the premises via the atmosphere. This dust may originate from many sources and may

contain harmful ingredients. For example, an analysis of dust taken from the window ledges of buildings in large cities revealed that it contained ashes, sand, excreta of animals, plaster, soot, brick dust, clothing fibers, hair, steel, and microorganisms.³

Areas in the school plant having heavy traffic, such as entrances, stairs, and corridors, may need to be swept twice daily (after the children's arrival and after their dismissal); classrooms and other areas having normal use, once daily. Opinions differ as to the most satisfactory time to sweep classrooms. Some hold that the best time to sweep them is 2 or 3 hours before they are to be used; others prefer to have them swept soon after dismissal each day, pointing out that if they are left until the next morning, an emergency may arise, thus preventing the custodian from cleaning them at all. It is also suggested that afternoon sweeping will permit immediate attention to damaging liquids which may have been spilled during the day.

If custodians are expected to do an efficient job of sweeping, it is essential that they have appropriate tools, supplies, and equipment. A central vacuum system, to date installed in but few schools, is said to be the most efficient sweeping tool. Experiments show that a vacuum cleaner removes 57 percent more dirt than does a floor brush.⁴ If brushes are used, they should be of the right size and type for each task. They should be of good grade bristle, should be kept clean, and should never be stored in such a way that their weight rests on the bristles. If sweeping compounds are used, they should consist of ingredients not harmful to floors or floor covering. For example, when a sweeping compound having an oil base is used on asphalt tile, it will cause quick deterioration of the tile, thus resulting in an early and expensive maintenance problem; also, sweeping compounds having a high percentage of sand are harmful to almost all types of floors and floor covering.

When cotton dry mops are used for sweeping, they are usually treated with a chemical that will cause dust and dirt particles to adhere to them. This makes frequent cleaning necessary. For this reason, a supply of mop refills should always be available for replacement while others are being cleaned.

Dusting

From the standpoint of health, dusting is just as necessary as sweeping. Classrooms should be dusted daily, preferably in the morning before classes assemble. This procedure makes it possible to remove dust deposits resulting from sweeping and from normal atmospheric deposit during the night. Classroom items needing daily

³ W. S. Lefler. Practical Approach to Sweeping and Dusting. *School Management*, 18: 51. September 1948.

⁴ *Ibid.*

attention are baseboards, chalk board trim and rails, window ledges, lockers or wardrobes, shelving, desks, tables, and other types of furniture. Classroom walls and ceilings should be dusted regularly but less often than items requiring daily attention. Radiators should be cleaned often, perhaps weekly, during the heating season.

Offices, conference rooms, health suites, libraries, dining rooms, and other building areas regularly occupied should be dusted with the same care as are classrooms.

Corridor baseboards, door trim, doors, balustrades, transoms, breeze windows, mouldings, pictures, and lockers located in corridors may require daily or weekly dusting, depending on local conditions.

Custodial efficiency and performance standards relating to dusting duties are improved when appropriate tools, supplies, and equipment are provided. These should include vacuum cleaners with attachments; chemically-treated dusters, dust mops, and soft, clean dust cloths; long-handled wall brush with soft hair, nylon, or lamb's wool; and a corn broom covered with a soft, clean cloth.*

As in the case of sweeping equipment, tools and other items used in dusting should be kept clean and in good working order, and should be stored with care when not in use.

Damp Mopping

Damp-mopping of floors, generally considered an interim operation between refinishing jobs, may be necessary when floors become too soiled to be cleaned in the regular manner. Some types of deposits which require damp-mopping for removal are water, mud, and snow brought in from the outside; ink, paste, paint, glue, or other materials which have been spilled; and vomit discharged by children who become ill. Or, there may be a gradual build-up of dirt deposit over a period of several weeks. In any event, there is no established frequency pattern for this type of cleaning. It must be done as needed.

Most floors can be damp-mopped by applying small quantities of warm (not hot) water and a mild detergent. The usual method of application is by long-fibered cotton mops. When the offending deposit is dissolved, the same type mop, or a wet vacuum, may be used to remove the deposit and all moisture from the floor without damaging the wax or finish. After the floors are thoroughly dry, their original luster may be restored by buffing with a #0 steel-wool pad.

Scrubbing

Custodial management as it relates to floor scrubbing duties is primarily a supervisory activity, and requires some knowledge of floors

* Adolph Heindenschickle. How to Make Those Dusting Tasks Easier. *School and College Management*, 20: 11. January 1951.

and floor covering materials. In general, floors may be classified as wood, concrete, terrazo, travertine, marble, slate, ceramic tile, and quarry tile. Wood and concrete floors may be exposed (unfinished), sealed, painted, varnished, or waxed; or they may serve as an underlayment for either resilient or hard-surfaced floor covering materials.

The more common kinds of resilient coverings are cork, asphalt, rubber, vinyl, and linoleum. Some of these may be installed either as "roll goods" or as tile; others are manufactured only as tile. All are generally applied by the use of an adhesive.

Most hard-surfaced covering is referred to as tile, of which marble, slate, quarry, ceramic, and alundum are types frequently used in schools. Most of these require an underlayment of concrete, with a cushion of sand between the concrete and the tile.

Some types of floors and floor covering materials are extremely sensitive to cleaners containing abrasives, oils, or organic solvents, such as gasoline, turpentine, or carbon tetrachloride; others may be damaged by the use of strong soaps, detergents, or hot water. Marble may be damaged by the injudicious use of harsh grits, sodium carbonate, sodium bicarbonate, trisodium phosphate, or oxalic acid.

It is not feasible to describe here the types of cleaning agents which should be used to scrub various kinds of floors and floor covering materials. It is suggested, however, that those responsible for supervising scrubbing operations familiarize themselves with manufacturers' recommendations concerning cleaning and scrubbing procedures for various types of floors.

Scrubbing may be done by hand, using a deck scrub brush equipped with a long handle or a hand brush which requires the worker to be on his hands and knees; or it may be done by an electric scrubbing and polishing machine. Each has a place in the total operation, depending on area to be scrubbed and operating space. For example, stair treads and corners of rooms may be scrubbed more satisfactorily by the hand brush than by machine. The machine not only does a better job in scrubbing large areas but also saves enough man-hours to pay for itself in a year or so.

Another item required to complete the operation is a squeegee, a cotton mop with long fibers (together with a mop wringer and necessary buckets), or an electrically operated wet vacuum machine to pick up the water and dirt. The vacuum machine, like the scrubbing machine, will do better work and do it more economically.

Cleaning, Washing, Polishing

A number of other housekeeping duties not related to floor care must be considered by the custodian before establishing his work schedules. Concerned with cleanliness and health, operating efficiency, and ap-

pearance, these may be classified as cleaning, washing, and polishing duties.

Among the important items in the school plant that require cleaning, washing, and polishing are (a) glass, (b) light fixtures, (c) shades and blinds, (d) chalk boards, (e) chalk board erasers, (f) hardware, (g) walls and ceilings, (h) furniture, (i) drinking fountains, (j) toilet rooms and toilet fixtures, and (k) shower and locker rooms.

Glass is now used in so many places and for so many purposes in school buildings that the labor required to keep it clean accounts for much of the custodial workload. For example, a reasonably high standard of service requires monthly cleaning of window glass, both inside and out. Other items having glass that requires periodic cleaning are glass doors, transoms, breeze windows, cabinets and cases, picture frames, clocks, mirrors, entrance panels, and partition panels. These usually do not require as much attention as window glass, but glass doors, particularly main entrance doors, may be soiled by finger marks and may require daily cleaning with a damp cloth or damp chamois. Elsewhere glass may be similarly cleaned as required, usually on a weekly or monthly basis.

Light fixtures and artificial lighting are essential for proper visual conditions in school buildings. Good standards of illumination cannot be readily defined, since authoritative unanimity is lacking on the subject. However, there is agreement that clean fixtures, regardless of type of lighting system, improve both quantity and quality of artificial light. The fixtures may be of metal, glass, or some type of plastic. Some may be designed to direct varying quantities of light to ceilings and side walls, to be reflected from there to all parts of the room, with remaining quantities directed downward from the fixture. Other fixtures may be designed to direct most of the light downward, with little or no light directed to ceilings and upper side walls to be reflected from there to all parts of the room. Regardless of type, however, light fixtures require regular and frequent cleaning, perhaps once each month, depending on local atmospheric conditions, the season of the year, and other factors.

Shades and blinds are used to regulate the glare of strong natural light entering classrooms through windows, domes, or skylights, particularly when direct sunlight falls on pupils' desks, shines in their eyes, or is reflected from walls or furniture. Although both shades and venetian blinds are used to control natural light and prevent glare, the venetian blind permits more flexibility in adjustment, is used to greater advantage in some instances, and presents more complex cleaning problems than shades. In most sections of the country both shades and venetian blinds will need to be vacuum-cleaned (or given effective treatment) every 6 to 8 weeks. Blinds may need to

be thoroughly washed once each year; shades, dry cleaned or washed every 2 to 3 years. (Draw curtains and drapes usually require similar treatment.) Demounting, reassembling, and remounting are necessary phases of the washing or dry-cleaning process for shades, curtains, drapes, and blinds. This involves additional work, either by the operational staff or by the maintenance department, depending upon local policy. If such work is performed by custodians, provision must be made for it in the work schedule.

Chalk boards are of many types and are manufactured from numerous substances. The composition board is a combination of materials consisting of cement and one or more of the following: wood or paper pulp, gypsum, plaster, or asbestos fiber. These usually have a special coating on the writing surface. Slate boards are polished, natural stone. Glass boards are of polished plate glass and, more recently, polished tempered glass. Steel boards are of many varieties, including an abrasive paint on steel and porcelain enamel on steel. More recently, synthetics have been used in the manufacture of chalk boards.

Some of these boards may be washed without damage; others may have to be dry-cleaned with a dry eraser, soft cloth, or chamois skin. Cleaning instructions provided by the manufacturer should always be followed. If wet cleaning is permitted, boards should be thoroughly dusted before washing, and they should not be allowed to air-dry after washing. A recently developed, specially treated eraser is said to be highly satisfactory for cleaning all types of chalk boards.

The frequency of chalk board cleaning depends on the extent of use, the type of chalk used, and day-to-day care. For ordinary use, a weekly cleaning should be sufficient. Extensive use may require daily cleaning. The so-called "dustless" chalks contain some glue and wax as a binder and are difficult to erase. If not properly cleaned, boards on which this type of chalk is used may become slick and may require a special cleansing agent for its removal. If colored chalk is used and is permitted to remain on boards from day to day, its removal may be even more difficult than "dustless" chalk.

Regardless of manufacturers' recommendations for cleaning, the type of chalk used, or the day-to-day care given chalk boards, their cleaning should rarely be entrusted to children. This duty should be included in the work schedule of the custodian.

Chalk board erasers are generally one of the following four types: (a) felt strips cemented to a wood or felt hand clasp, (b) sponge rubber fastened to a stiff backing for rigid support and hand clasp, (c) the chamois skin, and (d) the leather eraser, previously mentioned. Each may do a satisfactory job if kept clean. When brushed over a chalk board surface to remove chalk marks, an eraser collects many chalk dust particles, some of which stick to the eraser surfaces

and some of which penetrate deeply into the eraser pores. Unless this dust is removed from the eraser at intervals, it will become so dust laden that it fails to function properly.

The frequency of cleaning chalk board erasers depends on (a) chalk board usage, (b) type and grade of chalk used, (c) type and condition of erasers, (d) day-to-day care of chalk rails, and (e) the cleaning standards of local schools. Local experience based on the foregoing factors can best determine the cycle for cleaning chalk board erasers in any given room.

Several methods of cleaning erasers have had varying degrees of success: (a) brushing with a stiff brush; (b) jarring, knocking, or pounding against each other or another object; (c) vacuum cleaning; or (d) a combination of these. Cleaning by vacuum (either a machine designed specifically for cleaning erasers, or a portable vacuum cleaner) or by a central vacuum system, is generally considered most efficient. The practice of pounding erasers against building walls, either inside or out, is undesirable. Washing should never be used except for sponge rubber and perhaps chamois skin. Necessary precautions should always be taken to prevent dust from entering the air when erasers are cleaned. It is desirable for each school to have two sets of erasers so that soiled ones can be cleaned at the convenience of custodians, imposing no inconvenience on any room because of any delay in cleaning them.

Hardware (a term which refers to metal fittings for school windows, doors, wardrobes, cabinets, and closets) includes some items that require periodic cleaning, and depending on the finish, polishing. These items are door pulls, locks and lock trim, checks, closers, bumpers and holders, kick and push plates, push and pull bars, exit devices, and occasionally metal thresholds. In the manufacture of school hardware many different metals and alloys are used, such as iron, steel, brass, copper, bronze, monel, and aluminum. Some hardware is solid; some, plated. All of this school hardware requires cleaning to remove soil marks; items with a bright surface and clear luster usually require frequent polishing to remove tarnish and to preserve luster. This is especially true at entrances where soiled and tarnished hardware may create the impression that custodial service standards are low. The cleaning process is not particularly difficult, requiring only a nominal amount of time, but polishing requires much time, is a tedious operation, and must be done with materials appropriate for the particular metal and finish. If hardware of this type is used in school buildings, ample custodial time should be allocated for its care.

Walls and ceilings of a type of material and finish that can withstand washing are usually washed once each year, but atmospheric conditions may make more frequent washing necessary. Usually a summer job, this work may be performed by custodians whose employ-

ment extends beyond the school year; or it may be done by the maintenance crew, sometimes augmented by custodial employees, in school systems where such work is considered a maintenance function. Some school systems may have special maintenance crews which perform this task on a rotating basis. If the work is done during the school term, and if custodians are expected to do it or are required to assist others while it is being done, their work schedules should make allowances.

Furniture for schools is generally manufactured from wood, metal, or products derived from these materials. It may be finished with paint, enamel, varnish, or plastic. All furniture should be dusted daily; some should be polished weekly with a type of polish or wax that neither darkens the finish nor leaves an oily residual. Plastic surfaces, on the other hand, require no special treatment other than dusting and washing. All furniture whose finish can withstand washing should be thoroughly cleaned with a mild detergent and dried immediately at least once each year. This may be done on a room-to-room basis throughout the school year or during the summer months when school is not in session. If it is done on a staggered basis during the school year, custodians can develop work schedules accordingly; if it is done during the summer months, the custodial schedule need not be disturbed.

Drinking fountains should be inspected two or three times each day. If inspection reveals the need for cleaning, they should be cleaned, usually with a brush and a small amount of soap and water, or a small amount of non-abrasive cleaning powder. They should then be rinsed with clear water from the tap and polished with a soft dry cloth. In localities where iron rust or chemicals deposited by water cause discoloration of drinking fountains, more thorough cleaning with stronger solutions may be required on a weekly or monthly basis. It should be remembered that abrasives or strong cleaning solutions should never be used on enamel; they may be used occasionally on porcelain or vitreous china, but soap and water should be applied immediately thereafter.

In addition to daily and weekly cleaning of drinking fountains, adjustments for water pressure are usually required once a week. Adjustments should be made more often if necessary to keep the stream high enough to permit use without contact of mouth or face with the fountain guard.

Toilet rooms and fixtures require meticulous care each day. Clean, orderly, ~~orderly~~ toilet rooms not only protect the health of pupils and teachers but also serve as a basis for evaluating the general efficiency of custodial services throughout the building.

Poor toilet room conditions, on the other hand, have an adverse effect on students and adults alike. Students seem to feel that toilet

room disorder invites mischief, vandalism, and further disorder; adults tend to downgrade the school, lose respect for the custodial staff, and criticize school officials generally.

Some custodial duties incident to proper toilet room care are emptying waste receptacles; servicing soap dispensers, toilet paper holders, and paper towel dispensers; dusting window sills, ledges, and grill work; cleaning tile walls, mirrors, shelves, dispensers, receptacles; washing stall partitions and doors; cleaning lavatories, water closets, and urinals; polishing metal work as needed; sweeping, mopping, or scrubbing floors; and adjusting or repairing valves, faucets, and fixtures. In addition to these duties, the custodian should maintain the toilet-room cleaning equipment assigned to him.

The minimum frequency for cleaning toilet rooms and fixtures is daily. Good practice dictates that extra attention should be given to toilet rooms which have heavy traffic. Perhaps they should be inspected after each recess period and after the noon intermission. Sweeping or mopping and fixture cleaning may be required after each period of heavy use. Furthermore, if fixtures become clogged, they can be opened to prevent further damage and messiness.

The daily custodial work schedule should provide ample time for the performance of both the regular and the extra duties required to keep toilet rooms in a sanitary condition.

Shower and locker rooms, usually regarded as complementary units and generally separated by drying areas with connecting passageways, require care similar to that accorded toilet rooms. Floors of shower and locker rooms require daily attention, and should be washed twice each week, and in many cases oftener, with a hot cleaning solution. Shower-stall partitions and the walls of gang showers may become coated with oily deposits from the bodies of bathers and with an insoluble soap curd, particularly in localities where the water is hard or where it has not been treated to remove minerals. The frequency of cleaning these partitions and walls can best be determined by experience. Water closets, urinals, lavatories, and dispensers located in shower or locker rooms should have the same treatment and care as those in toilet rooms.

In addition to these duties, the custodian may be expected to inspect, and clean if necessary, all shower heads once each week. If one of the modern types, the shower heads can be readily cleaned while in place; but if one of the older types, they will have to be removed for a thorough cleaning.

Other custodial duties associated with shower and locker rooms include dusting and cleaning lockers; washing benches; cleaning polished parts of shower heads, valves, and piping; checking ventilation; and adjusting mixing valves to prevent burns.

Supply and Equipment Storage

Assiduous care of all supplies and equipment entrusted to the custodian is one characteristic of a good workman. This involves a multiplicity of duties, such as maintaining a clean, orderly, hazard-free storage room; cleaning all tools and equipment before returning them to storage; storing each item in the proper manner and place; keeping an adequate inventory of supplies; and guarding against vermin of all kinds in the storage room.

These activities require time, but the amount of time required for each may prove negligible if compared with the amount usually consumed in locating supplies and equipment improperly stored, or allowed to deteriorate because of poor care. Furthermore, supplies that are in short inventory may cause expensive and needless delays in the performance of essential custodial services, thus creating discomfort, and often health hazards to building occupants.

Mechanical and Engineering Duties

Mechanical and engineering work includes the operation and care of such mechanical systems as heating, ventilating, air conditioning, and in some instances sewage disposal units. Schools whose mechanical systems are of such complexity and magnitude as to require specially trained engineers often employ full-time technicians. Small schools usually assign this work to one or more custodians.

Some components of mechanical systems which require attention are boilers, stokers, motors, pumps, fans, dampers, controls, compressors, water heaters, gauges, valves, traps, pressure tanks, and the electrical services necessary for their operation. Some of these require daily service, and others service at less frequent intervals.

The daily man-hour requirements to service the heating plant are estimated at one-half hour for an automatic gas fired boiler, 4 hours for a low pressure coal fired boiler, and 8 hours for a high pressure coal fired boiler.*

Oiling and greasing motors and other types of machinery, a task of much importance in holding repairs and replacements to a minimum, is an example of work which must be performed periodically. For example, the oil in electric motors should be changed every 2 months, particularly in motors that are exposed to dirt, soot, or water. The most satisfactory way to keep school plant machinery properly lubricated is for the custodian to devise a regular schedule for greasing and oiling and then stick to that schedule. Duties related to controls, water heaters, gauges, valves, traps, and pressure tanks may be con-

* Kentucky State Department of Education. School Plant Operations for Kentucky Schools. Frankfort: The Department, 1957-58. (Mimeographed) Topic 8.

fined to weekly inspections, with adjustments and other services being performed as required.

Minor Maintenance and Repair

In school districts where school plant operation and maintenance are regarded as interrelated functions, custodians may be expected to do minor maintenance and repair work as a part of their regular duties. Among other things, this work usually includes the repair of hardware, furniture, equipment, and plumbing fixtures; the replacement of window, door and cabinet glass; the application of seals and varnishes to floors; the resurfacing of chalk boards; the recharging of fire extinguishers; and in some instances, the repainting of interior surfaces. Other types of maintenance duties frequently assigned custodians relate to building electrical services, such as the testing and replacement of light bulbs, switches, and fuses; and to grounds care, such as the removal of dead, diseased, or fallen trees and shrubs.

Grounds

Regardless of whether grounds care does or does not include such maintenance as that mentioned in the preceding paragraph, certain other grounds duties are normally performed by custodians. It has been said that "the schoolyard and exterior of the buildings is the custodian's showcase."⁷ Since the public can easily evaluate the type of care given school grounds, and since attractive grounds generally enhance pupil appreciation of, and respect for, school property, the custodian should insist that a certain amount of his time be regularly allowed for grounds care.

Some of the normal custodial duties concerned with grounds care include picking up and removing litter; cleaning surfaced play areas; watering, fertilizing, and mowing lawns; trimming and pruning hedges, shrubs, and other plantings; reseeding bare spots in the lawn; removing trash and litter deposits from catch basins and covers; removing residue from incinerators; sweeping or cleaning roads, walkways, and driveways; and inspecting and repairing fences and play apparatus.

Pest Control

Greater utilization than formerly of school facilities by community and school groups, broader services through an expanded program, and the increased complexity of the modern school plant have compounded problems of sanitation and pest control. While pest control is one aspect of sanitation, it also has added significance for schools in

⁷ Alanson D. Brainard. *op. cit.* p. 252.

that it not only influences the health and environment of building occupants, but also plays a part in property preservation. The problem is often more acute in old buildings than in many modern (and some old) ones, where design and construction hold pest infestation to a minimum. Yet the problem persists in varying degrees for all buildings.

Pest control can be divided into two general categories, one dealing with insects and the other with rodents.* The most common types of insects to invade school premises are cockroaches, silver fish, flies, ants, and termites. *Cockroaches*, frequently brought in with food deliveries, carry germs and destroy food; *silver fish*, sometimes brought in on clothing, destroy rugs, books, starched fabrics, and other items; *flies* enter through windows, doors, and other opening, create distinct health hazards, and often cause food wastage; *ants* gain access to interiors through any opening, minute or large, and may contaminate food, creating health hazards and causing economic loss; *termites* infest wood by gaining entrance through cracks or breaks in foundations, concrete floors, and protective coverings. If not controlled, all these insects can cause extensive property damage.

Rodents have access to the plant through unscreened vents, floor and wall openings, louvers, and cracks. They have been known to attack children, and are a constant menace to foods and food service facilities; they frequently damage books, fabrics, custodial supplies, and instructional materials in storage. Continuous effort and constant vigilance are usually required to keep them under control.

Some schools enter into contracts with outside firms for pest-control services. Others assign this responsibility to their custodians. School custodians, confronted with the problem of pest control, need special help and assistance from sanitary engineers, should be given adequate tools and equipment to cope with the problem, and should be allowed ample time to do a satisfactory job on a recurring basis.

Fire Prevention and Safety

Fire prevention and safety are two problems of great concern to all who are interested in the education of our children. The former conserves property, saves lives, and forestalls suffering; the latter seeks to prevent accidents, particularly those causing disablement, dismemberment, and death.

During the 3 years from 1956 through 1958, school fires occurred at a rate of more than 4,000 a year and caused property losses of \$30 million annually.^o Of greater concern from the standpoint of life

^o James M. McDonald. Pest Control in Public Buildings. 1959 Proceedings, Association of School Business Officials. Kalamazoo, Mich.: The Association. p. 170-172.

^o Paul William Kearney. How Fire Safe Is Your Child's School? *National Parent Teacher*, 54: 10-12. September 1959.

is the fact that one of these fires, now referred to as the "Chicago School Fire," cost the lives of 90 pupils and 3 nuns.¹⁰ These losses across the Nation seem to justify the statement that "there are no fully fireproof structures, no foolproof system of evacuation, no panic-proof group of people."¹¹

Despite the facts cited in the preceding paragraph, improvements have been and are being made in providing school buildings that are safe from fire. According to a recent survey conducted by the National Fire Protection Association, more than 16,500 schools made major improvements in 1959 to decrease fire hazards. A total of about 63,500 public schools now meet minimum standards for life safety from fire.¹² On the other hand, about 66,000 public schools, housing an estimated 18 million children, have fire hazards which remain uncorrected.¹³

It has been said that improper maintenance causes about 85 percent of school fires.¹⁴ This being true, custodians have grave responsibilities in the matter of school fire prevention. Although they are not able to alter construction details and some maintenance factors outside their work assignments, they can plan work schedules which will include services designed to eliminate, or at least minimize, fire hazards. Furthermore, they can alert proper authorities concerning existing dangerous conditions involving alteration of structure or major maintenance problems.

Some precautions which should be observed by custodians in an effort to prevent holocausts as well as minor fires are the following:

- ✦ Check all fire alarm and fire fighting equipment periodically to see that it is in working condition
- ✦ Suggest an approved fire door between the boiler room and the passage to other parts of the building, and keep it closed at all times when not in use
- ✦ If there are exposed wood joists and floors or subfloors above boilers, see that they are protected by fire resistive materials
- ✦ Insulate steam and hot water pipes that have close proximity to combustible materials
- ✦ Store all flammable liquids and materials in safety containers
- ✦ See that all electric wiring and wiring repair is done in accordance with approved codes
- ✦ Use only those extension cords that are U.L.-approved for the load to be carried, and avoid hanging them over nails, pipes, or other metal projections

¹⁰ National Fire Protection Association. *The Chicago School Fire*. Boston, Mass.: The Association, 1959. p. 3.

¹¹ American Association of School Administrators. *Safety, Sanity, and the Schools*. Washington: The Association, 1959. p. 5.

¹² National Fire Protection Association. *Fire News*. Boston, Mass.: The Association, December 1959.

¹³ *Ibid.*

¹⁴ Alanson D. Brainard. *op. cit.* p. 193.

- ✦ Check electric circuits for overloads, avoid oversized electric fuses, and make necessary corrections
- ✦ Inspect and clean lockers at frequent intervals
- ✦ See that flammable decorations are never used, particularly near flames, electric lights, or other heated objects
- ✦ Keep boiler breechings, flues, and chimneys clean at all times, and make repairs when needed
- ✦ Keep all machinery clean
- ✦ See that all storage spaces are properly ventilated
- ✦ Do not use attics, some basements, or understair areas for storage of any kind
- ✦ Avoid the possibility of spontaneous combustion by either discarding oily rags and mops or by storing them where there is ample ventilation
- ✦ Remove ashes, clinkers, and refuse from heating plants in metal containers and never place them in wooden boxes or other burnable containers
- ✦ Remove all waste paper, trash, and shop refuse from the building daily, or observe other safety precautions
- ✦ Check all electric unit heaters and electric irons before leaving the building, giving attention to those requiring it
- ✦ See that all exit doors are unlocked when the building is occupied, and keep all panic exit devices in an operable condition
- ✦ Never permit chairs, tables, or other obstructions to occupy corridors and escape routes when the building is in use
- ✦ Keep all fire doors at stairwells and shafts closed except when in use

Custodial responsibility for school safety from the standpoint of accident prevention involves many duties in numerous areas of the school plant. Other than in organized sports, school accidents on the premises seem to occur most often, on a descending order of frequency, in auditoriums, in classrooms, around playground equipment, and on stairs and stairways.¹⁵

One type of accident that frequently results in serious injury is the fall. Some of the numerous causes of falls are slippery floors; stair tread with slick or worn surfaces and poor nosings; loose handrails; improperly maintained gymnasium and playground equipment; obstructions in traffic lanes, on stair landings, and on playgrounds; holes and bumps in walks; and snow or ice on walks and steps. Custodians should be alert to these situations through routine inspections, and should correct them before they imperil the safety of children and school personnel.

Accidents on playgrounds involving collision with fixed objects and equipment have plagued school officials for many years. Opinions differ as to the educational value of some types of fixed playground equipment. Some authorities insist that the dangers are too great and the educational returns too small to justify the continued use of it. Others point out that its removal does not solve the prob-

¹⁵ National Safety Council. *Accident Facts, 1958* Chicago, Ill.: The Council, 1958.

lem of serious collision accidents, but rather results in a rise in accident rate on some surfaced playground areas. This is attributed to the fact that on these surfaces children run more, fall more, and collide with each other more frequently.¹⁶

If there are fixed objects on playgrounds, collision accidents can be reduced, according to an experiment conducted at Durham, N.C., by painting these objects with a bright orange-colored enamel.¹⁷ This coloring makes all objects recognizable at a fleeting glance, thus permitting the child to avoid contact and injury. Since general maintenance of most playground equipment is a duty of custodians, they can combine maintenance and principles of safety to reduce playground accidents.

Custodial duties relating to safety in washroom, shower rooms, and locker rooms are numerous. A few of these duties are keeping all cleaning acids and disinfectants where they will not be accessible for unauthorized use; maintaining non-skid floors; checking and adjusting hot-cold water mixing valves to prevent scalds and burns; being sure that all lockers and benches are properly secured to prevent tilting or falling; and being sure that electrical appliances, such as heaters, dryers, and the like, are not permitted in shower rooms.

In addition to these and other obligations concerning the safety of others, custodians have responsibilities for the safety of themselves and of their fellow workers. These are too numerous to catalog here, but may be broadly categorized in relation to work habits; to the use of safety devices, machinery and equipment, insecticides or other poisons, cleaning compounds, paint removers and paint thinners, and other agents which may damage body tissues; and to the lifting of heavy objects.

Police and Supervisory Duties

Authorities in school administration generally agree that power to police and supervise students should not be delegated to school plant personnel, yet it is not uncommon for some principals to assign such duties to them. Prevalent in some schools is the practice of designating maids to supervise girls' washrooms, custodians to supervise boys' washrooms, and both to assist in policing entrances, corridors, playgrounds, and lunchrooms during rush hours. This discussion is not intended to imply approval of such assignments, but to suggest that, if they are made, time must be allowed for them in the work schedule.

¹⁶ Robert Diantolo and N. Dean Evans. *How To Have Safer Playgrounds. School Management.* 8: 68-71. April 1959.

¹⁷ Delmar D. Owens. *Reducing Playground Accidents. American School and University.* New York: American School Publishing Co. Vol. I, 28th ed., 1956-57. p. 428-429.

Records and Reports

The amount of record keeping and the number and types of reports required of custodians should be held to a minimum. Some types of information which they may need to record and report are jobs performed and jobs needing attention; quantity and cost of materials and supplies used, on hand, and needed; damage caused by vandalism and accidental breakage; requests for repairs; amount of fuel, water, and electricity consumed; maintenance needs, as discovered; and in some instances, the names of persons to whom keys have been issued.

If custodians are required to keep records and make reports, they should be provided with standard forms developed to fit local requirements. These forms should be brief, uniform in size according to type of report, easy to complete; and they should be printed. If local administrative practice requires multiple copies of any report form, these copies should each be a different color. For example, the original may be white; the first carbon, blue; the second carbon, yellow, and so on. This facilitates routing and delivery of copies to people who need or require them. All copies retained by the custodian should be filed in chronological order for each form.

WORK SCHEDULES

Having been assigned specific duties and responsibilities by the school principal, each custodian, working cooperatively with his supervisor, should develop his own work schedule. He can accomplish this by listing all his duties under appropriate headings to indicate frequency of performance. Examples of headings and tasks which may be listed under each of them are the following: *Twice daily*—cleaning entrances and corridors, drinking fountains, and washrooms; *daily*—sweeping classrooms and lunchroom, dusting furniture and equipment, refilling toilet and washroom dispensers, and carrying out ashes and clinkers; *weekly*—washing or cleaning chalk boards, cleaning erasers, mopping certain floor areas, and attending to minor repairs; *monthly*—washing window glass, cleaning bulletin boards, cleaning and polishing hardware, and cleaning light fixtures; *periodically*—scrubbing, waxing, and buffing certain floor areas, cleaning boilers, trimming shrubs, checking inventories, and making records and reports.

After all jobs and responsibilities have been listed according to frequency of performance, the approximate amount of time required to perform each task—sometimes referred to as a “unit time measure”—should be indicated. This can be established by the actual performance records of each custodian. Since all tasks having weekly, monthly, and periodic frequencies must be worked into the daily work schedule on a staggered basis, regular daily jobs cannot be permitted

to consume the total amount of time constituting each work day. Furthermore, some daily time allowance should be provided for emergencies and for rest periods. If the total amount of time required for all of these is in excess of the number of hours in the work day and work week, this indicates that additional custodial help is needed, or that custodians will have to work overtime.

When time units have been established for each task, the custodian can then prepare his daily work schedule. However, he should recognize that there are certain jobs that must be done during given periods of the day. For example, during the heating season, the first job of the day may be concerned with the heating plant, doing whatever duties are necessary to provide a comfortable thermal environment for pupils and teachers when they arrive. The next job may be that of sweeping sidewalks and outside entrances and unlocking outside doors. The schedule may be developed in this manner for the entire day, but adjustments may be found desirable after a trial period.

For purposes of illustration, Linn¹⁰ has suggested the following:

A Daily Schedule

7:00-7:30	.....	Firing boiler
7:30-8:00	.....	Unlocking doors, sweeping entrances, filling soap dispensers, towel holders, and toilet paper holders
8:00-8:30	.....	Dusting rooms
8:30-9:00	.....	Supervising corridors and running errands for teachers
9:00-9:30	.....	Looking after boiler room
9:30-10:00	.....	Sweeping stairs and dusting corridors
10:00-10:30	.....	Cleaning glass
10:30-11:00	.....	Doing odd jobs
11:00-11:30	.....	Firing boiler
11:30-12:30	.....	LUNCH
12:30-1:00	.....	Supervising corridors
1:00-1:30	.....	Firing boiler
1:30-2:00	.....	Cleaning boys' toilets
2:00-2:30	.....	Doing odd jobs
2:30-3:00	.....	Firing boiler
3:00-3:30	.....	Cleaning vacant classrooms
3:30-4:00	.....	Cleaning classrooms
4:00-4:30	.....	Cleaning classrooms and corridors
4:30-5:00	.....	Cleaning toilets, banking fire, locking up.

Except for time allotted to "odd jobs," this schedule does not provide for such tasks as washing light fixtures and windows, polishing hardware, and other jobs which do not require daily attention. In order that these may not be overlooked, it seems that they should not only be included in the schedule on a staggered basis, but that a check list should be developed to show when such duties were last performed and when they are to be repeated.

¹⁰ Henry H. Linn, et. al. *The School Custodian's Housekeeping Handbook*. New York: Bureau of Publications, Teachers College, Columbia University, 1948. p. 45.

CHAPTER V

Organizing and Conducting Custodial Training Programs

THE PRECEDING CHAPTER has shown that school custodians are expected to do many types of jobs, some of which require a variety of skills, abilities, and knowledges. These competencies may be acquired through preservice training or through related non-school work experiences, but since neither is usually a prerequisite to employment, custodians must learn through trial and error or through an inservice training program. School officials, in the realization that the trial-and-error method is both inefficient and troublesome, are now turning to inservice training to improve custodial services.

This chapter deals with four areas having major problems related to the administration of custodial training programs: (1) types of programs, (2) financing, (3) instructional areas, and (4) instructors and consultants.

TYPES OF PROGRAMS

There are several types of training programs for school custodians. From the standpoint of sponsorship, these programs may be classified as (1) local school district; (2) State department of education; (3) university, college, or technical school; and (4) cooperative. Some of the organizational patterns for custodial training will be discussed in relation to the type of sponsorship with which they are most frequently associated.

Local School District

In local school districts where inservice training is provided for custodians, several organizational patterns have been employed with varying degrees of success. Used separately, or in combination, these are (a) Apprenticeship training, (b) evening or night school, (c) periodic conferences, (d) summer workshops, and (e) central custodial school.

Apprenticeship Training

The procedure of assigning new custodial personnel to work with, and under the direct supervision of, experienced employees for a time before assuming their own duties is called apprenticeship training. This process may be slow, but can produce excellent results if good work procedures are taught. It has been suggested that better results can be achieved if this plan is coupled with supplementary courses in adult education programs, with extension or correspondence courses,¹ with special group sessions in cooperation with various manufacturers, or with special institutes or short courses.² However, when this type of training program is offered, local leadership should set up goals which may be achieved through sequential steps.

Evening or Night School

In some local school districts, successful custodial training programs have been given through weekly classes in evening or night schools under the supervision of the districts. The Ithaca School System, Ithaca, N.Y., began a custodial training program by the use of this plan in 1949.³

A schedule was set up for a class of two 50-minute periods between the hours of 7 and 9 p.m. every Monday from January 1 to March 31. The purpose was to familiarize new custodians with such equipment as valves, radiators, thermostats, brushes, and paints. Instruction, consisting of lectures, demonstrations, charts, motion pictures, and actual work by the student himself, was carried on under the direction of one teacher, assisted by representatives of various engineering and maintenance organizations. A question-and-answer period constituted an essential part of each session. It was reported that results were gratifying.

Periodic Conferences

Periodic conferences and workshops, sometimes held at a central location within the district and sometimes rotated among the schools, are reported to be an effective means of training custodial personnel. In Fulton County, Ga.,⁴ a 3-phase program of this type was established.

The first phase consisted of appropriate training at each specific school location for custodians, pupils, teachers, and the principal as-

¹ Frances B. Scherer. *The Era of the Engineer*. *The Nation's Schools*, 51: 100-102. January 1958.

² Thomas A. Linton. *Training and Supervision of Custodians in Racine, Wisconsin*. *American School and University*. New York: American School Publishing Co. Vol. I. 80th edition, 1958-59. p. 298-299.

³ J. M. Crone. *Custodian's Night School*. *The Nation's Schools*, 48: 62. May 1949.

⁴ E. H. Moldenhauer. *Training and Supervision of Custodians*. *The American School and University*. New York: American School Publishing Co. Vol. I 28th edition, 1956-57. p. 426-428.

signed to the particular school. The purpose of this phase was to develop custodial ability to utilize tools and materials and to promote the concept that custodians are essential members of the school team.

The second phase, planned to give work experiences to both old and new employees in almost every situation, was conducted at two school centers. New custodians took this training before being assigned to a permanent location; experienced personnel took it as a refresher course to learn about new tools and materials.

The third phase, conducted at general meetings held regularly in different areas of the county, was concerned with problems affecting all custodial personnel or problems affecting special groups.

Visual aids, manufacturers' demonstrations, and panel discussions—with students, teachers, principals, and supervisors participating—were used at group meetings.

Similar to periodic custodial training conferences is the workshop conducted during the school year at various localities within the school district. This is illustrated by the workshop program of San Mateo County, Calif.⁵ Here, workshops provide instruction concerning jobs which custodians regularly encounter in the performance of their duties. The program consists of 12 weekly sessions, each for 2 hours, at each center. Classes are open to custodians and administrators alike. Attendance is voluntary, and recognition is given in the form of certificates bearing the seal of the board of education.

Class members are encouraged to bring their special problems to class for discussion or for reporting solutions to unusual problems. The general approach to instruction is based on the assumption that no one person is qualified to cover all facets of the total custodial work area. For this reason, specialists in many areas of work are used as instructors.

This plan is reported to have an important influence on the efficiency of the total school program.

Summer Workshops

Another form of locally sponsored custodial training is the summer workshop, an arrangement which creates little interference with school-year work schedules. This type of program, successful in many localities, is praised by writers who report its use in three large school districts.

Colmey,⁶ reporting on summer workshops in Dade County, Fla., indicates that nine 1-day sessions are held each summer, and that four

⁵ A. J. Glantz. In-service Custodial Training. *The American School Board Journal*, 131: 42. July 1955.

⁶ James W. Colmey. Training School for Custodial Employees. *The American School and University*. New York: American School Publishing Co. Vol. I, 29th ed. 1957-58. p. 275-277.

basically different programs are planned for all men, all maids, head men, and new men. New employees and head men attend two programs, while all others attend one.

The program for all men is general in nature, presenting various subject areas. The men are encouraged to ask and answer questions, and to express their views on pertinent topics.

Maids also have a 1-day, 6-hour program similar to the general program for custodians.

Learning-by-doing is the procedure used in special sessions for head custodians. Their 6-hour programs are each divided into six 50-minute learning periods, with rest periods between. Thirty men are divided into groups of five, each group rotating from instructor to instructor for training in various job skills. The program is changed each year, with from 20 to 25 job subjects covered annually.

The special program for new men is largely confined to orientation concerning work schedules, procedures, and policies related to custodial services. Some instruction is given in elementary cleaning skills. Instructional periods vary in length from 30 minutes to an hour.

Wolfe⁷ reports that in Omaha, Nebr., the summer workshop idea is employed to good advantage, using the motto, "Telling, Showing, Doing." Sponsored by the department of vocational and adult education and trade and industrial education of the Omaha public schools in cooperation with the trade and industrial education division of the Nebraska State Department of Education, the 2-day workshop covers such topics as the following:

- The importance of school building service
- Dress and appearance of custodial employees
- Relation of custodians to principals, teachers, and pupils
- Supervision of custodial employees
- Setting up a vacation cleaning schedule
- Scheduling work assignments
- Personnel management
- Selecting sanitary assignments.

Instructors and speakers include a city plumbing engineer, a city smoke engineer, an electrical contractor, a city boiler inspector, a landscape architect, a lighting engineer, members of the fire department, and other specialists.

In the Chicago metropolitan area, a committee of the Suburban School Business Officials' Association recommended a short, intensive summer workshop-type conference as an initial step in developing and upgrading the school custodial program. As reported by Swan and

⁷J. Wilbur Wolfe. Workshops for School Custodians. *The Nation's Schools*, 57: 104-108. January 1956.

Ball,⁸ this program, limited to 3 days, followed a pattern of one general session each day, followed by 22 one-hour sectional meetings, each dealing with a separate topic of interest to the group. Sectional meetings were devoted primarily to demonstrations, lectures and discussions being held to a minimum.

Some topics receiving attention were floor care, boiler operation, general cleaning of buildings, care of lighting fixtures, care of school grounds, care of fire protection equipment, and operation and care of ventilating systems.

Instructional personnel were chosen on the basis of their ability to deal with selected topics.

Central Custodial Program

A number of large school systems have developed central custodial training programs, generally operating them on a year-round basis, and usually employing full-time instructors. Some of these are conducted by district vocational schools, as is the case in Denver, Colo., where custodial training is a part of the instructional program of the Emily Griffith Opportunity School. Others are operated as sections of local divisions of plant operations and maintenance. Examples of those operated in this manner are found in New York City and in Minneapolis, Minn.

The Denver plan follows the 4-point program of vocational education; namely, guidance and selection, instruction, testing, and certification. It provides individual instruction for each student, permitting him to advance through the various levels of training as rapidly as he can and resulting in eventual placement or advancement in areas in which he shows proficiency.⁹

The Denver training program is developed around units of instruction, such as school housekeeping; plumbing; carpentry; repair and maintenance of electrical motors, fixtures, and controls; painting; firemanship; heat and air control; and hardware. Some units are subdivided into two or more parts, each describing a number of specific job operations. These specific operations are further defined by indicating the tools and materials needed, describing the steps in the operation breakdown, showing sketches (if any), listing safety precautions, and asking key questions related to the particular operation.

In New York City, a permanent, well-staffed center, located in a reconditioned school building, has been set up for custodial training.¹⁰

⁸ Fred W. Swan and Lester F. Ball. Training School-Maintenance Personnel. *The American School Board Journal*, 125: 76. October 1952.

⁹ Denver Public Schools. *Custodial Training*. Denver, Colorado: Department of Vocational Education, September 1950.

¹⁰ Harold D. Hynda. For Successful Custodial Relations Make the Work Vital and Meaningful. *School Management*, 17: 12-13. August 1947.

This center is administered by the Bureau of Plant Operation and Maintenance under the authority of the board of education.

Boiler rooms at the Center are equipped with both high-pressure and low-pressure boilers, which are used for instructional purposes. There is a workshop fully equipped to demonstrate procedures in making minor repairs. Also, fully equipped classrooms and toilet rooms are used for giving instruction in general housekeeping, electrical services, heating, ventilating, and sanitary equipment operation. In addition, there is a laboratory where materials and equipment may be tested.

A somewhat similar situation exists in Minneapolis, except that the central custodial training school, along with all maintenance shops, is located in the main school administration building. This training center has two full-time instructors who teach courses in housekeeping and elementary engineering. The purpose of this training program is to provide assistance to all custodians, whether new or experienced, in acquiring the necessary skills to carry out their work assignments properly.

The instructors conduct two 2-hour courses per day, 4 days a week, 36 weeks each year. Procedure used in this training school include formal class work, field demonstrations, and practice. When the students have completed the courses, they take examinations given by plant instructors and by State officers, who issue appropriate licenses to successful candidates.

A field instructor, who serves as assistant supervisor of custodians, maintains constant 2-way communication between the custodial teaching and supervisory staff and the building custodians.¹¹

State Department of Education

Many States promote training programs and summer conferences for school custodians. Although these programs are usually sponsored by State departments of education, there are some instances where direction and sponsorship is provided by associations of State school boards. Some of the States which provide leadership for custodial training under one or the other of these sponsors are Arkansas, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Ohio, Tennessee, and Texas.¹²

State-sponsored custodial training programs may take place at the local, regional, or statewide level.

¹¹ Thomas B. Kent. *Basic Helps the Administration Owes the Custodial Force.* *The Nation's Schools*, 50: 106-110. October 1952.

¹² Julius Barbour. *The Custodian Makes the School Team.* *The Nation's Schools*, 43: 66-68. February 1949. (The information also comes from correspondence which the author of this bulletin has had with personnel in State departments of education.)

Local Programs

Local custodial schools, institutes or conferences, under the sponsorship of State departments of education, or other State agencies, are usually held in many school districts throughout a State, with participation restricted to these and adjacent districts. The programs generally emphasize practical demonstrations and are generally conducted in a manner that will encourage free interchange of ideas concerning the solution of common problems. They vary in length from one to three sessions and may be held on consecutive days, if conducted during the summer. Administrative details are handled at the State level, but demonstrations and areas of instruction may be cooperatively determined by State and participating district personnel.

Regional Programs

State-sponsored custodial training schools, conducted on a regional basis, are similar to local schools, but are usually held at 3 or 4 locations in the State, and include several participating districts each. Regional conferences usually require more extensive facilities, are organized more minutely according to areas of interest, and are often more formal than local conferences. In most States, these conferences are held during the summer on college campuses conveniently located for each region. A 2- or 3-day conference may require special arrangements for housing and feeding the conferees. If so, low-cost housing and feeding can usually be provided at college dormitories and cafeterias.

The regional conference should be organized to give intensive and complete training in certain work areas, enough time being allotted to each area for thorough coverage. For example, a course in the fundamentals of heating and ventilating may require the full time of the conference. Other areas may require equally as much time. Under this arrangement, enrollees could complete only one course each year, but other courses of interest to them could be scheduled and completed in successive years.

Where intensive training is given, class size should be limited to 20 or 30 enrollees, and each should be offered opportunities to discuss, and receive help on, individual problems.

Statewide Programs

The statewide custodial training school, usually a 2- or 3-day affair, is also most often held on a college campus. Giving attention to rather broad areas of general interest, the statewide school is attended by custodians from the entire State. Aimed at an improved status of custodians, who often feel they are a forgotten group of-

school employees, these conferences consider such topics as the custodian's place in the educational program; job analysis; work schedules; relations with the teaching staff and with the public; and a number of personal problems, such as appearance, discipline, uniforms, responsibility for after-school use of buildings, extra pay for extra work, obligations to teachers, and organizing professional associations for school custodians.¹³

Other topics often considered at these State conferences are modernizing seating equipment, repairing audiovisual equipment, caring for lawns and shrubbery, and maintaining fluorescent lighting equipment. Also, at many of these conferences representatives of manufacturing concerns are given an opportunity to acquaint participants with new equipment, materials, supplies, furniture, and custodial tools. If this is permitted, however, the representatives should be cautioned not to commercialize their presentations.

Because of the large number of enrollees and the small amount of time, State conferences do not usually give intensive technical training in specific job areas. Instruction of this nature is generally provided at the local or regional conferences.

From the standpoint of managing the local custodial program, it is essential that local school officials—board members, principals, superintendents, business managers, and directors of school plant operations—give full support to, and cooperate with, State-sponsored programs for training custodians.

College, University, and Technical School

Custodial training programs sponsored, by colleges, universities, and technical or vocational schools have done much in recent years to upgrade and improve the work of school plant operating personnel. Some of the institutions offering such training are Columbia University (Teachers College), Dunwoody Industrial Institute, Florida State University, Michigan State University (College of Education), The Ohio State University, Purdue University, Stanford University (School of Education), the University of Buffalo (in cooperation with the Western New York School Study Council), and the University of Michigan (School of Education). Many other colleges and universities offer school building service courses through their extension departments.

In general, custodial training programs sponsored by these institutions are of two types—short workshops and extension classes.

¹³ E. B. Sessions. *In-Service Training for Custodians. The American School and University*. New York: American School Publishing Co. 22nd edition, 1950-51. p. 386-389.

Short Workshops

Short workshops (sometimes referred to as institutes) for building-service supervisors, housekeepers, custodians, janitors, engineers, and administrators are usually held during the summer for about 5 days on the campuses of sponsoring institutions. Open to school plant and administrative personnel at all levels, these workshops are planned to provide enrollees with the latest developments relating to building care and management, special emphasis being given to improving their ability to operate and maintain school plants and equipment efficiently, safely, and economically. In most instances, properly qualified enrollees may earn college credit for satisfactory completion of courses; the others are usually awarded certificates indicating completion of courses. All candidates are usually required to pay tuition, whether or not academic credit is to be given; but when they register for credit, they are usually charged an additional fee.

Extension Classes

Extension divisions of some colleges and universities offer off-campus courses for people interested in school plant operation and maintenance. Typical practice is to organize classes in any town, city, community, or county where a specified minimum number of people wish to enroll in any one of the units of instruction offered by the sponsoring institution. Organized in about 10 lessons each, typical units are administration and public relations, heating and ventilating, housekeeping, care of grounds, school safety and fire prevention, maintenance and repairs, floor care, and planning the work program.

Either of two commonly used operating plans may be employed in these extension programs. One plan calls for a class session of from 1 to 3 hours once each week (or at other mutually agreeable intervals) for as many weeks as there are lessons in the unit. The other plan is made up of 1- to 3-hour daily sessions for 2 weeks (or for as many weeks as may be required to complete the unit at the rate of one lesson daily). Class sessions are usually held during the late afternoon or early evening.

As in the case of on-campus courses, participants who qualify for college credits may earn them in the extension courses. Participants who do not qualify may be awarded certificates. In some States, enrollees who successfully complete certain prescribed units, whether for credit or not, are given engineering licenses to operate buildings. Tuition and fees for extension courses are usually charged on about the same basis as for on-campus courses.

Cooperative Programs

In States and communities where it does not seem feasible to operate custodial training programs similar to those previously described, it may be desirable to explore the cooperative approach, as suggested by Sherer.¹⁴ Under this plan, schools could band together on a county or regional basis and arrange for periodic group or seminar sessions, meeting at each of the member schools in turn to discuss common problems of maintenance and custodial care. Outside speakers and specialists could be brought in to discuss complicated technical problems.

Another type of cooperative approach is used by the Minnesota State Department of Education. In this case, the Dunwoody Industrial Institute, cooperating with the School Plant Planning Division of the Department, conducts an annual training program for school plant maintenance technicians. Generally, three areas of instruction are covered, one each week for 3 successive weeks. These areas may be changed from year to year. The 1960 program was scheduled to cover heating-ventilating controls and electric systems, heating and ventilating systems, and plumbing systems; and was planned to teach the technical and practical phases of service and maintenance procedures of school plant equipment. Much of the instruction is done using actual equipment.

Another type of cooperative approach is the Virginia plan reported by the Van Oot.¹⁵ Briefly stated, this plan is based on a thorough analysis of custodial jobs to determine what knowledge and skills are needed by custodians and engineers. Using this analysis, four expert custodians, employed by the Virginia State Board of Education, serve as itinerant custodian trainers, each assigned to a different section of the State.

These men first went into counties where the greatest need existed. In these counties they explained the program to the superintendent, who called all school custodians of the county to a central point where they were taught as a group by the itinerant custodian trainer. After these sessions, the custodian trainer visited each school to give further instruction on an individual basis.

This program has proved so popular with local school officials that requests for the services of custodian trainers exceed the amount of manpower available for the services.

During the summer months these custodian trainers conduct zone schools for custodians, principals, superintendents, school board mem-

¹⁴ Frances R. Sherer. *The Era of the Engineer. The Nation's Schools*, 51: 190-102. January 1953.

¹⁵ B. H. Van Oot. *Training School Maintenance Men and Custodians in Virginia. The American School Board Journal*, 121: 24-25. September 1950.

bers, interested citizens, and city and town officials. These zone schools, like the first phase of the program, have been very popular, resulting in a high degree of cooperation between State and local school officials.

The illustrations above of the cooperative approach to inservice custodial training could be augmented, no doubt, by other cases which have worked with equal success, but which have not been reported through channels known to the author of this bulletin.

FINANCING

Financing custodial training schools is composed of costs chargeable to the sponsoring agency, on the one hand, and to the enrollees, on the other. Costs for which the sponsoring agency is responsible include expenditures for such items as planning, supervising, and administering the program; salaries of instructional personnel; instructional materials, supplies, and equipment; facilities for housing the school, including plant operating costs and fixed charges; and in some instances, travel expenses of instructional personnel. Costs chargeable to enrollees include expenditures for such items as fees and tuition, transportation, room and board, and incidental items. Of course, the type, location, and plan of operation will determine which costs are applicable in any given situation.

Operating costs which must be borne by the sponsoring agency are generally obtained from one or more sources; namely, legislative appropriations for budgets of State educational agencies, State and Federal vocational funds, contributions by participating school systems, contributions by cooperating agencies and organizations, and tuition and fees.

In some States, educational agency budgets include funds appropriated by their legislatures for inservice training of school personnel. Unless specifically earmarked for purposes other than custodial training, some of these funds may be used to promote inservice training for school plant personnel.

In most States, Federal and State vocational funds may be used to pay the salaries of teachers in custodial training schools if the schools are organized as part-time or special schools. In a few States, where only certified teachers may be paid from these funds, the State departments of education have granted special or temporary certificates to approved instructors.

Since efficient custodial services are reflected in reduced operating costs and in improved protection and care of public school property, the expenditure of local school funds for the promotion of custodial

training may reasonably be considered legitimate. These expenditures could be used to promote any desirable training program, whether local, regional, statewide, or cooperative, regardless of sponsoring agency.

Another source of funds may be the cooperating organizations. In some instances, State school boards associations and State associations of school employees make contributions to these training schools.

Where custodial training programs are sponsored by colleges, universities, and technical schools, charges for tuition and fees collected for supplemental services constitute an important source of income.

Costs chargeable to enrollees must be borne either by them or by the school districts which employ them. Hopper,¹⁶ pointing out that custodians could hardly afford the time and expense necessary to attend training schools, suggests that local school boards might establish a "Custodial Improvement Fund," setting apart a fixed amount each year to be used to send a part of the custodial force to such a school for one week annually. However, this and other proposals suggesting that local boards pay the necessary expenses of custodial employees who attend training schools might be contrary to some State school laws which make certain types of expenditure illegal.

INSTRUCTIONAL AREAS

The type of custodial training program will largely determine the scope of instruction. It is not feasible to describe and outline here the instructional areas that might be covered by each type.

A pattern of course organization used successfully in many overall custodial schools is one in which a series of 10 lessons is arranged under each of 10 to 12 large units. Each unit would require from 25 to 30 clock hours of class instruction for completion. The units should be arranged in sequence so that, over a period of 2 or 3 years, custodians desiring to do so could complete all units.

Certificates might awarded upon the completion of each unit, and when certain prescribed units have been completed, a diploma might be awarded. This would make it possible for the men to receive some recognition for their progress.

Viles¹⁷ suggests 11 broad units of instruction as follows:

¹⁶ Willis O. Hopper. How to Attain Custodial Efficiency. *School Management*, 19: 26. December 1949.

¹⁷ N. E. Viles. Custodial Training Programs. *The American School Board Journal*, 117: 15-17. August 1948.

<i>Unit Number</i>	<i>Instruction Area</i>
1.	The Custodial Program, Organization, and Administration
2.	Housekeeping I (General Housekeeping Problems)
3.	Housekeeping II (Floor and Special Area Cleaning)
4.	Heating and Ventilation I (Heating and Ventilating Systems, Fuels, and Combustion)
5.	Heating and Ventilation II (Operation and Care of Heating and Ventilating Plants)
6.	School Plant Safety and Fire Protection
7.	Special Problems in Plant Care
8.	School Floors, Treatment, Rejuvenation
9.	Planning the Work Program
10.	Maintenance and Repairs I (Interior Repairs)
11.	Maintenance and Repairs II (Exterior, Mechanical Repairs, Shop Controls)

Each of these 11 units is subdivided into 10 lessons, with a sequential development of topics pertinent to each unit. Other authorities in this field have developed similar patterns, but there are no significant differences among the patterns.

INSTRUCTORS AND CONSULTANTS

Instructional and consultative personnel for custodial training schools should be experts in their fields, should be practical, and should use an abundance of instructional materials. The materials should include printed matter; blue prints and building drawings; graphs, charts, and diagrams; manufacturers' specifications and maintenance instructions; audiovisual materials; equipment, building materials, supplies, and products; and, wherever practical, live demonstrations.

People who can fill the requirements and are willing to serve as instructors and consultants can usually be recruited from among the following groups:

- ✦ Custodians with recognized competencies
- ✦ Supervisors of school plants
- ✦ Directors of school plant services
- ✦ Construction, heating, plumbing, and electrical contractors
- ✦ Shop instructors
- ✦ School principals
- ✦ School superintendents
- ✦ Architects
- ✦ Engineers
- ✦ State department of education personnel
- ✦ Representatives of manufacturing concerns

- ◆ College, university and technical school teachers
- ◆ Fire department personnel
- ◆ Public health department personnel
- ◆ Insurance specialists
- ◆ Sanitation engineers
- ◆ Specialists in industrial management
- ◆ School business officials

CHAPTER VI

Procuring, Storing, and Distributing Supplies and Equipment

SCHOOL BOARD which expect uniformity and high standards of performance in the care of buildings, grounds, and equipment have an obligation to provide custodians with necessary supplies and tools. Administrative details regarding these supplies and tools should be handled by officials responsible for managing the custodial program.

This chapter is concerned with three major problems in management responsibilities for custodial supplies and equipment: (1) procurement, (2) storage, and (3) distribution.

PROCUREMENT

Procurement of satisfactory custodial supplies and equipment for a school system is not a responsibility that can be discharged lightly. Persons concerned with procuring supplies and equipment should be able to determine which will serve schools economically and efficiently. They should consider purchase procedures and practices which will insure continuity of services, obtain maximum quality at minimum cost, protect the school district against pressure sales tactics, develop and maintain harmonious relationships with reputable jobbers and suppliers, and provide safeguards against possible charges of fraud, collusion, or conflict of interests.

These objectives may be achieved through the development of (1) a testing laboratory, (2) specifications, (3) competitive bidding, and (4) satisfactory delivery schedules.

Testing

There are few short cuts in the matter of determining which products and what types of equipment can render the best service under varying local conditions. This problem becomes more complicated

each year as advertisers and salesmen in the custodial supply field constantly remind the school superintendent, business manager, or purchasing agent that particular products are "the latest and best" in their field.

Some school officials have done much to determine for themselves which products have highest performance standards for their respective districts. This has been accomplished by testing these products under local conditions. Testing facilities may vary with the size and wealth of the school district. Small districts may not find it practical to establish elaborate laboratories for this purpose. Larger districts whose needs for custodial supplies and equipment are enormous find it advantageous to do so.

Barbour¹ suggests a number of ways by which small districts might test materials and products. The high school chemistry teacher could analyze certain products for chemical content. For example, the percentage of water in floor wax could be determined by a simple evaporation test. Samples of floor seal could be applied to wooden blocks and subjected to standard abrasive materials for uniform lengths of time to determine resistance to wear by various products.

Another way of testing floor seals is to divide a corridor in which there is uniform traffic into sections and apply one kind of seal to each section. This kind of test may also be done with waxes, and in separate buildings of the district. Differences in playground surfacing, the presence or lack of walks, and the type of soil carried in on the children's feet affect the wearing qualities of both seals and waxes to such an extent that one product may be more satisfactory than another for a given building.

The elasticity of seals may be determined by applying a coat of seal to cheesecloth attached to a wooden frame. After each of three successive applications has dried, the cheesecloth can be slowly flexed to determine the chipping or scuffing quality of the particular seal.

The durability of paint may be determined by painting a piece of wood, or other material, and placing it under a slow-running faucet, and then directing a strong fan on it to simulate the action of blowing rain. In climates where freezing is a factor, the painted board should be placed in the freezing compartment of a refrigerator for several hours.

Other equally ingenious ways may be found to test numerous products without expensive laboratory facilities. Palmer² suggests that an eye dropper and a little water can be used to determine the relative absorbency of paper towels. He points out that a drop of water will

¹ Julius Barbour. *Stretching the School Dollar. The Nation's Schools*, 44: 58-60. August 1949.

² D. H. Palmer. *Simple Tests Save Dollars. The Nation's Schools*, 47: 82. February 1951.

disappear on a good paper towel in 1 minute, while a poor towel will require 3 minutes or longer. He also points out that the relative strength of one paper towel over another can be determined roughly by pulling apart the samples of different towels after they have been dipped in water.

In some large school systems, special laboratories have been established for testing materials and products. For example, the school systems of Dade County, Fla., Fulton County, Ga., and Minneapolis, Minn., operate testing laboratories in connection with, and as a part of, their administrative sections for school plant operations and maintenance. New York City has a more elaborate arrangement whereby certain existing schools are designated as "laboratory schools". In these schools, materials, products, furniture, and equipment are tested under live conditions in actual school situations. As reported by Price,³ this plan enables school officials and technical experts to make spot checks from time to time. The cost of the plan is reported as "very modest."

The American Society for Testing Materials (ASTM) issues reports, available to school systems, covering various types of products and equipment.

Specifications

Local school officials may prepare their own specifications for products and equipment or they may use those prepared by the National Bureau of Standards. Whatever their origin, the specifications should describe precisely what is expected. They should be brief, yet broad enough to permit wide competition, and they may be established by brand, trade name, "or equal." They may describe physical or chemical characteristics and in addition may describe methods of sampling and testing which will be used, and may contain instructions for inspection, marking, packing, and delivery. In some instances they include provisions for settling disputes.

School districts in which testing is not feasible or contemplated should require manufacturers to certify that the materials supplied are guaranteed to comply with the requirements and tests stated in the specifications. When this procedure is followed, performance bonds should be required.

Competitive Bidding

Safeguarding the financial interests of the school district makes mandatory a careful consideration of the assignment of school board procurement responsibilities. The board should clearly define the

³ M. Price. How New York Tests New School Equipment. *The American School Board Journal*, 122; 52. April 1951.

duties of the individual to whom these responsibilities are assigned. Yerge,⁴ along with others, suggests that both time and money can be saved by centralized purchasing. In any case, those responsible for managing the custodial program should furnish the purchasing officer necessary information concerning custodial supplies and equipment which are to be purchased.

In addition to this information, the purchasing officer must have a thorough knowledge of the legal provisions contained in board regulations and in State and Federal laws governing purchases by school districts.

Competitive bidding, a process by which legitimate dealers and suppliers of custodial supplies and equipment are given an opportunity to bid on items they can supply, is usually done on bid forms prepared by the responsible school officials. These forms should contain four essential elements; namely, *bidder's agreement*, which obligates the bidder to furnish all materials on which he submits bids in accordance with certain stipulated conditions; *general conditions*, which contain legal provisions, board regulations, and general instructions to be followed by all bidders; *instructions to bidders*, which tell when and how bids are to be submitted, give delivery instructions, indicate when bids are to be opened and how contracts are to be awarded; and *bid items*, which is a list of materials, supplies, and equipment desired, giving specifications, and quantities of each, and providing definite spaces for unit and extension prices of each.

All bids submitted according to instructions are opened at a specified time; bids improperly submitted are rejected. All opened bids found to meet legal and board requirements are reviewed and bid prices are tabulated. Tabulations may be made on the basis of like items and on the basis of total bids. In practice, a contract is usually awarded to the lowest responsible bidder and/or bidders. Contracts may be awarded on the basis of like items or on the basis of total bids, depending on board policy as outlined in *instructions to bidders*. The findings of the bid review and the bid tabulations should be available for inspection by the bidders and by the public. This procedure protects school officials against unwarranted criticism regarding purchasing practices, complies with State statutes where competitive bidding is required, establishes good rapport with suppliers and jobbers, and generally saves school funds.

Delivery Schedules

The procurement of custodial supplies and equipment of maximum quality and at minimum cost with continuity of services may depend,

⁴ Clyde S. Yerge. Purchasing Supplies and Equipment. *The School Executive*, 67: 38-39. July 1948.

in part, on delivery schedules. From the manufacturer's viewpoint, an even flow of finished materials from the production line to the consumer reduces production costs. These costs are reduced for the following reasons: The employment of skilled men is steady, with no peaks requiring extra unskilled help at additional cost; expensive warehousing, often requiring bank loans to carry heavy inventories, is eliminated; and producers of raw materials have reliable markets and can plan accordingly, thus preventing premium prices for emergency supplies.

If delivery schedules for school supplies are arranged so that extra burdens are not thrown on the manufacturers and distributors, the savings attributed to lower production costs can be passed on to the school districts. This would mean that distributors should be given some leeway in the matter of deliveries. In practice, however, no leeway seems to be offered. There is evidence that most school orders are placed between June 1 and September 1, and that deliveries are requested between August 1 and October 1, thus creating peak production and delivery periods for the manufacturers and distributors.⁵

STORAGE

Proper space for storing custodial supplies and equipment is essential if the school plant operating program is to be administered effectively and efficiently. Amount of space, its location, and types of storage equipment required will vary with the size of the school system. Small school districts usually locate the storage facilities in individual school buildings; large districts not only provide storage space in individual schools but also establish additional storage facilities, such as a central warehouse or receiving and distributing depot, which serves all schools in the district.

Individual Buildings

Storage facilities in individual school buildings are generally inadequate. Recognizing this inadequacy, the National Council on School House Construction recommends that, in addition to the usual custodial service closets, each school should have a fire-safe custodial supply and equipment storeroom located near, or in connection with, a central receiving center for school deliveries; a masonry vault with a fire-resistive door and with sprinkler protection for storage of oils and other flammable materials used in building care; a room of substantial size, not combined with the custodial work room, for storage of bulky furniture, equipment, and supplies held in reserve for intermittent

⁵L. E. Parmenter. How to Keep Down the Cost of School Supplies. *The School Executive*, 70: 54. October 1950.

or later use; and a separate space, located outside the building, for storage of tools and equipment used on grounds and the exterior of the plant.⁶

Storage space in individual buildings, whether the buildings are operated by large or small school districts, should be located close to those areas in the building where the stored equipment and supplies are to be used. This will improve custodial efficiency by eliminating wasted time in running to remote parts of the building to obtain equipment and supplies and, later, to replace them.

Another aspect of management in relation to supplies and equipment concerns the prevention of storage losses. Whether supplies and equipment are stored in individual buildings or in central warehouses, management should take precautions to prevent losses. Fair⁷ suggests certain short cuts to prevent them. In brief, these are the following:

- ✦ Store each item so that it is readily accessible
- ✦ Provide flexibility in storage arrangements
- ✦ Arrange stored items for ease in counting to facilitate inventory control
- ✦ Keep stored items in neat, regular, uniform stacks or piles
- ✦ Arrange stored items so that they will not have to be moved until needed
- ✦ Prevent stock exposure to damaging elements
- ✦ Provide dividing space between groups of items and keep this space wide enough to accommodate handling
- ✦ Label all stock and make labels visible
- ✦ Keep old stock in front; use it first
- ✦ Standardize shelving and bins, but keep them flexible for expansion
- ✦ Utilize available space to the maximum
- ✦ Enforce maximum safety precautions, both for stored items and for employees
- ✦ Ask insurance authorities to check storage procedures
- ✦ Provide adequate fire protective equipment in all storage rooms
- ✦ Practice good housekeeping; maintain cleanliness; prevent vermin
- ✦ Keep stock off floors, away from walls, and free from ceilings
- ✦ Provide space for unpacking and inspecting new merchandise
- ✦ Take necessary precautions to prevent spontaneous combustion
- ✦ Store all easily damaged goods in protective containers

Custodial supplies and equipment purchased by school districts and stored in individual schools or central warehouses often represent a substantial investment. The purchase and storage of items not wanted, needed, or used can account for much waste of school funds. Management has an obligation to prevent this waste by keeping

⁶ National Council on Schoolhouse Construction. *Guide for Planning School Plants*, 1958 edition. Nashville, Tenn.: The Council. (W. D. McClurkin, Peabody College, Secretary-Treasurer). p. 200.

⁷ Ernest W. Fair. "Twenty-four Short Cuts That Will Help to Reduce Storage Losses." *School Management*, 19: 18-19. November 1949.

careful records of all stocks received and distributed. These records should be as simple as possible, yet detailed enough to assure adequate control of stock.

Essential to the maintenance of records which will contribute to good management and eliminate waste is a satisfactory inventory system. Physical inventories should be made in all school buildings and in central warehouses at frequent intervals, certainly at least annually.⁸ A very common type of inventory record is the Kardex system, a system by which additions and changes relating to supply quantity are posted by hand. Individual cards are used to post such data as location, item number, description, minimum and maximum quantities, materials received, vendors, materials issued, requisitioners, item cost, average cost for inventory purposes, and total inventory value.⁹ Another type of inventory record system, now employed by only a few school districts, is the electronic machine process. This process, designed to improve accuracy and speed up accounting procedures by the elimination of hand posting, is said to be capable of revealing the status of physical inventories almost instantaneously.

Central Warehouses

Officials of large school systems find that central warehouses usually provide the most economical solution to school supply storage problems. Economies resulting from quantity and opportune purchasing of all types of school supplies and equipment are made possible when adequate central storage is available. Eaton¹⁰ suggests that warehouse sites should be centrally located, should be integrated into the overall service facilities of the school system, and should be large enough to provide for parking and for future expansion.

Unless the cost of land is relatively high, warehouse structures are usually of the 1-level type. Persons responsible for warehouse layout planning should consider such factors as ease in handling stock, satisfactory heating for both office and warehouse space, adequate lighting, appropriate office space for warehouse personnel, toilet facilities for male and female employees, and adequate space for both bin and bulk storage.

Since lift forks, dollies, trucks, and other types of equipment are essential to efficient warehouse operation, all grading, both inside and outside warehouses, should be such that these vehicles can be used without difficulty. Also, dock areas should be planned to accommo-

⁸ J. J. Murray and W. F. Holzappel. Management of Supplies and Repairs. *The School Executive*, 67: 40-42. July 1948.

⁹ R. B. Eaton. Putting a Central Warehouse into Operation. (Part II). *The American School Board Journal*, 121: 25-26. November 1950.

¹⁰ R. B. Eaton. Putting a Central Warehouse into Operation (Part I). *The American School Board Journal*, 121: 33-34. October 1950.

date these vehicles and, wherever unusually heavy objects are to be handled, track-mounted hoists should be provided.

Details concerning management of supplies and equipment stored in warehouses, though on a broader scale, are similar to those relating to individual building storage, and need not be repeated here.

DISTRIBUTION

Another management responsibility concerning custodial supplies and equipment is to see that all materials needed for school plant operation are available when and where needed. In districts where these materials are stored at individual schools, the matter of distribution is largely solved when deliveries are made to each school by the suppliers. However, if several custodians and maids are assigned to one of these buildings, the head custodian should be responsible for supervising the storage room, maintaining inventory records, requisitioning new supplies *before* stocks on hand are exhausted, and issuing supplies to assistant custodians and maids.

The problem of distribution is more complex in districts that operate central storage facilities. In those districts all items except fuel, and perhaps a few other things specifically assigned to individual buildings, should pass through the central warehouse and should be distributed to individual schools on a monthly, quarterly, or semi-annual basis, depending upon storage facilities within schools. To do otherwise might encourage hoarding and could contribute to the deterioration of supplies.

This plan of storage and distribution covers all types of materials, supplies, and equipment required by all schools in the district. Under such a plan the warehouse should be staffed by people who have a thorough knowledge of the various types of stock, are familiar with efficient warehouse procedures, and are able to maintain the services with maximum efficiency. Staff requirements will depend on the volume of stock turnover. If the value of the annual turnover is as much as \$50,000, it is probable that staff requirements will be a warehouse manager, a stock clerk, a part-time records clerk, and a part-time delivery man.¹¹ For reasons of security, it seems obvious that only warehouse personnel and their supervisors and superior officers should have access to warehouse storage and record rooms.

The final step in distributing supplies which have been purchased, accounted for, and stored in the central warehouse is releasing them when needed by individual schools. This is usually accomplished through a system of requisitions. For custodial supplies, maintenance materials, and transportation operating needs, a job-materials requisi-

¹¹ 1966.

tion form may be developed and used. The requisition for custodial supplies should indicate stock number, standard unit, quantity desired, quantity delivered, average cost, actual total cost, date of requisition, and date of delivery.

Each school's head custodian should be responsible for initiating the requisition by filling in the stock number, standard unit, quantity desired, and requisition date. Other items on the requisition form should be filled in at the warehouse when the order is completed. The document, in triplicate copies, should go directly from the school to the warehouse. When the order is delivered, all three copies should be returned to the individual school. All should be signed by the person accepting delivery, one copy being retained at the school, one transmitted to the business office, and one returned to the warehouse office. This procedure enables the school, the central office, and the warehouse to keep accurate records and, because the signed receipt establishes responsibility of the last person to handle the order, contributes to a rapid recovery of misplaced or lost items.

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