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Suggestions for Developing Educational Specifications.
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In the preparation of written educational specifications, the content, organization and method of presentation of materials are far from standardized with no one pattern being advocated. There are, however, certain standards or criteria which are desirable for guidance. The educational specifications should provide the architect with all of the essential information which he must have to understand the architectural problem to be solved and the limitations under which he must work. Included should be --(1) a list of desired facilities, (2) qualitative requirements, (3) limitations, and (4) background information. Various recommendations, a suggested outline for developing educational specifications, and a suggested time schedule are topics discussed in detail. (RK)

PREPARATION OF WRITTEN EDUCATIONAL SPECIFICATIONS

To accomplish a functional and economical school design, facts are needed concerning the school program during the initial planning stage. The proposed procedure is, in essence, a fact-finding process -- a cooperative task of educators, students, and lay people to analyze, describe, and interpret the program so that it can become the base for the architects' decisions.

We are well aware of the fact that a pleasant, comfortable environment generally promotes a higher level of learning. The way we live and learn is effected by the kind of school structure we have created. Our school buildings should be designed to provide an environment which enhances the learning process. School buildings therefore should be designed to fit the school district's specific educational program. Flexibility should be built into the design to permit modification of the structure as the curriculum and the population adjust to change.

The educational specifications should be a clearly written directive to the architect and his staff describing the teaching techniques and appropriate space requirements. The educational specifications become a written translation of the curriculum into required spaces for learning, including the necessary heating, lighting, acoustical, electrical, plumbing, ventilation requirements, storage spaces, and affinities to other areas.

The development of the educational specifications may involve the efforts of several individuals and groups. Who else is better qualified to identify the educational requirements than those professional members of the school system? Either with or without outside assistance, depending upon the nature of the local situation, educational planning should be the task of the school personnel. The document thus formulated becomes the written guide for the architect and his corps of engineers, draftsmen, and technicians who develop the preliminary and final school building design.

The content, organization, and method of presentation of materials in educational specifications is far from standardized, and no one pattern is being advocated. There are, however, certain standards or criteria which are desirable for guidance in the preparation of educational specifications. These have to do with the content, organization and style of the written document, and the extent which the architect is challenged to do his best creative work.

Content

The educational specifications should provide the architect with all of the essential information which he must have to understand the architectural problem to be solved and the limitations under which he must work.

List of Desired Facilities. First of all, the information included in the educational specifications must include a list of the required facilities. This list should encompass all kinds of rooms and spaces to be provided in the building and on the site. It should not be limited to classrooms alone. Indications should be given of numbers of lockers required; the seating capacities of auditoriums, dining rooms, and similar spaces; the number of meals to be prepared in the kitchen or the kitchen equipment desired; number of automobiles to be

accommodated in the parking area; and similar information which will tell the architect "how many" and "how much" of each type of facility is needed. It should not be necessary for the architect to look beyond the written educational specifications for the answer to any question regarding the quantitative needs.

In addition to listing the immediate quantitative requirements, the educational specifications should point out definitely the numbers and types of rooms and spaces that are likely to be needed in future additions, and should require the architect to show these additions in outline form on his preliminary drawings. Clear indication should also be given of any room or space in the original building which might need to be enlarged later by remodeling. Such information regarding possible additions and remodeling is essential if the architect is to design the building to permit such changes to be made with a minimum of cost and maximum of functionality.

Qualitative Requirements. Beyond these listings of the quantitative requirements, the educational specifications should describe the qualities desired in each type of room or space. Mention should be made of any special requirements as to heating, ventilation, electrical outlets, lighting, and plumbing; the types and amounts of chalkboard and tackboard; the types of seating and other equipment; the types of storage space and the quantities and sizes of the materials to be stored; the work counters, construction areas, or other special activity areas needed; and other similar information which will enable the architect to design the details of each room and space so as to satisfy the functional needs of the program to be carried on in it.

Another type of content to be included in the educational specifications is a statement of any preferences or requirements of the educational planner with respect to the locations of different facilities or groups of facilities. Mention should be made, for example, of the need for locating a shop near a service drive, if the problem of delivery of supplies requires it. A different type of example would be the listing of facilities that will be used frequently and at night and a statement that they should be so placed and possibly grouped as to facilitate such use. Other considerations which might be the basis for suggestions in regard to location are noise isolation, segregation of different ages of pupils, and grouping of facilities which need to be close together for proper functioning.

Limitations. Still another type of information which the educational specifications should include involves the limitations under which the architect must work. He must be advised of any financial limitations on the cost of the project, any restrictions on the utilization of the site, fixed deadline dates of any kind, and any other mandatory requirements of the board of education. He needs to know, also, the expected relationships between himself and the educational planner and the procedures in regard to checking and approval of plans by the educational planner. Some or all of these limitations may be made known to the architect in some other way, or they may be included in the educational specifications. The advantage of the latter is that more of the instructions to the architect are thus to be found in one place.

Background Information. A final type of material to be included in the educational specifications is information designed to enable the architect to gain a sound understanding of the activities to be carried on in the building as a whole and in each part. It is difficult to generalize with respect to how much

of this type of information to include. The better the architect, the more of such background information he wants. In fact, the truly great school architect will not only ask for extensive materials of this kind in the educational specifications, but will visit classes, confer with teachers, and engage in other activities on his own initiative to gain the understanding which he needs. The less able architect, on the other hand, would make less use of such background information in the educational specifications, and would prefer more specific suggestions as to the size, shape, and other features of the various rooms. The educational specifications should include a description of the major types of activities that will be carried on in each room or space and the number of people who will be involved, except in cases where these facts can be easily inferred. Thus it would be important to describe the types of activities that would occur in a classroom but not in a storage room. The written descriptions of activities can at best give only partial understanding and should be supplemented by direct observation by the architect in the classrooms of the school district in question.

Beyond the descriptions of activities, the background information might include statements about the nature and problems of the community, the school's role in the community, other aspects of the purposes and objectives of the schools, and the underlying point of view with respect to methods of teaching. All of these would contribute to better understanding of the total problem which the architect must solve, but again the effectiveness of their inclusion in the educational specifications depends upon the architect as well as upon the manner of presentation. As a minimum, these materials should be included in brief and simple form in the educational specifications, and should be supplemented by conferences with and observations by the architect. Whatever the means, it is essential that the architect acquire understanding of these background facts if he is to do a creative piece of work.

Organization and Style

The written educational specifications will be used primarily by the architect and his staff. If they are to be used most effectively, they must be logically organized and arranged so that the architect and his designers can readily locate specific information needed at any stage in the planning process. An analytical table of contents, an index, topical headings in the margin, and frequent cross references are all helpful devices, but writing from a logical outline is a basic requirement.

A direct, clear-cut style of writing, free of excess verbiage and vague or ambiguous statements, will facilitate the use of the document and prevent misunderstandings in many instances. If the architect has to guess what is wanted, or has to wade through a sea of words including unfamiliar pedagogical terms to find the answers, he is apt to substitute his own judgment for the wishes of the educational planner, and he would not be without some justification in doing so.

Challenge to the Architect

The most valuable thing which the board of education buys in employing an architect is his creativity--his ability to comprehend a complex problem and then create an architectural solution that satisfies in an imaginative way the many and varied aesthetic, technical, functional, legal, and financial requirements of the project. This creativity is most likely to emerge when the educational

specifications are restricted to a statement of needs, without prescribing how these needs should be met. Rigid requirements as to size of room, details of room layout, or style and arrangement of buildings tend to stifle creativity and to reduce the architect to the status of draftsman and specification writer. Thus, they deprive the board of education of the architect's most valuable contribution to the project.

Cooperation with the Architect

The writing of the educational specifications which has been described up to this point can be done by the educational planner alone and then presented to the architect through the board of education. It is probable, however, that a better document would be produced with close cooperation during the preparation of the educational specifications. Certainly, as a minimum the architect should be present at meetings of the staff and others as they discuss what they need in the new building. This will contribute more to his later understanding of the written educational specifications than anything that can be written in the document.

Be that as it may, the architectural planning stage of the project is one in which close cooperation between architect and educational planner is essential. The best building will result when each feels free to go to the other with questions, criticisms, and suggestions to be considered together in a common effort to find the best solution. Mutual respect and confidence are the keynote.

One area of consultation will be the interpretation of the educational specifications. Even though every reasonable effort has been made to produce a perfect set of educational specifications, questions will arise regarding their meaning, and the architect will think of alternatives that will ease his problem or result in a building which he thinks will be better. There should be free and easy communication among the architect, the educational planner, and the superintendent on all questions and suggestions that arise in the architect's mind as he works with the educational specifications.

A second area of consultation has to do with the emerging plans of the architect. As he proceeds with his work on the problem, he will consider many possible solutions which he will express verbally or in the form of sketches or drawings. Time can be saved and a better building is likely if these tentative solutions are discussed with the educational planner before they are put into the form of drawings and specifications for formal presentation. This sort of informal consultation makes partners of the educational planner and the architect with each bringing his own special talents to bear on the problem.

Checking and Approval of Drawings and Specifications

It is the position of the authors that the educational planning of a school building is as important as the architectural planning. If this be true, the board of education should not approve any drawings or specifications of any kind submitted by the architect without consulting the educational planner, whether the approval is an informal agreement with the architect's suggestion on some one aspect of the building or the formal acceptance of a complete set of drawings and specifications. It follows then, that the educational planner should meet with the board of education when it meets with the architect, and that the educational planner should have adequate opportunity to examine in advance any

proposals to be made by the architect. It follows, also, that any written proposals sent to the board of education by the architect should be referred to the educational planner for analysis and report before any action is taken.

In all of this work in checking and approving drawings and specifications, the educational planner must function as an educator and not as an architect or quasi-architect. While he may go somewhat farther in private conferences with the architect, he must confine his formal checking and approval of plans and his reports to the board of education to the educational adequacy of the plans.

If educational planning has the importance that the authors have ascribed to it, and which it deserves, it would be well for the board of education to require the signature of the educational planner, as well as of the architect, on all drawings which it is asked to approve. This would give the board of education written endorsement of the plans as educationally sound.

Part II

The greatest expectations for the future generations of the community should be reflected in the educational planning of school buildings. This planning should be based upon a sound working philosophy of education which is stated in the educational policy of the school district. Competent school administrators, working closely with interested personnel, should be capable of translating the philosophy, teaching methods, functions, and space requirements of the educational program into the educational specifications for the proposed project.

The success of educational planning depends, in part, upon the quality of communication and the atmosphere of cooperation which exists between school district personnel and the architect. This relationship becomes, in effect, a partnership of educator and architect working to provide efficient and economical spaces for learning.

Recommendations

1. Well written educational specifications are basic to a sound program for good school plant construction. Such specifications must be carefully prepared, with functional statements, which implement the stated educational policy of the school district. They should incorporate the best planning contributions of good teachers, curriculum specialists and others employed in the school district. They are the foundations upon which the competent architect bases the school building design.

2. Boards of education should, as a matter of policy, require the preparation of written educational specifications for all proposed school building projects.

3. Usually a minimum of six months should be spent in the educational planning of elementary schools and a minimum of one year for secondary school plants. Sufficient time should be scheduled for the entire activity to insure satisfactory consideration of all aspects of the problem. If necessary, released time should be granted to planning personnel.

5. School districts should be willing to provide any necessary in-service training to insure a high quality of representative contributions from planning participants.

6. There is merit in group planning because it permits the knowledge and experience of individuals to focus on the planning problem under study.

7. Such planning should, when practicable, reflect the cooperative action of the best employees of the school district under capable educational planning leadership. If properly qualified planning directors are not available among district personnel, the services of an outside planning director should be secured. Duties and responsibilities of the director should be clearly defined in writing, as a matter of board policy.

8. The area of responsibility of planning committees should be clearly defined in writing by the administration and approved by the board of education before planning activity is initiated.

9. Lines of communication between planning groups and educational planning directors should be short and the number of personnel responsible for making final planning decisions should be reduced to a minimum.

10. School administrators or planning directors should follow up committee recommendations with reports so that participants may know what action has been taken on their recommendations. This will tend to reduce a lack of confidence sometimes shown by participants in the cooperative planning process.

11. Participants should be organized only for the duration of the specific building project.

12. Educational specifications, properly prepared, should provide the architect with confidence that his translations into spaces and flow patterns are founded on the most reliable criteria obtainable.

13. Administrators' responsibilities: Procedures for preparing a set of educational specifications becomes a framework for discovering wishes and needs of teachers, pupils and others who use the building. In this concept of school building planning as a cooperative venture, the chief administrator becomes a dominant factor -- not as mechanical administrator, but as a creative educator. This concept also implies that if educational consultants are retained, they should be responsible to the administrator and the planning committee.

14. Approvals: Before any planning steps are taken, school board should endorse officially the kind of planning organization and procedures to be used. Before finished educational specifications are turned over to architects, they should be submitted to board for careful reading and approval.

Board approval gives educator official endorsement of his proposed educational program. It gives architect reasonable expectation that if he draws his plans in accordance with educational specifications they will be accepted by board.

Part III

A Suggested Outline for Developing Educational Specifications[1]

I. General Considerations

A. Brief Description of Educational Plan

1. Program considerations
   a. General statement of philosophy
   b. General characteristics of the community
   c. General characteristics of the student body
   d. General characteristics of the curriculum
   e. General relationships of this school to the school system

2. Administrative considerations
   a. Description of attendance area
   b. Description of grades and groups to be accommodated
   c. Anticipated enrollments by (1) grades, (2) years, and (3) courses
   d. Personnel requirements

B. Brief Description of Physical Plan

1. General character of the building
   a. Architectural style
   b. General type of construction
   c. General atmosphere to be created by the building
   d. Major sections or units of the building
   e. Preferred number of stories

2. General facilities required in the building: instructional, noninstructional and community use areas

3. General characteristics of the site: location, size and dimensions, physical description (topography, soil, and so forth), and available public utilities

II. Detailed Statements of Desired Spaces and Educational Program

A. Instructional Spaces

1. Required numbers and kinds of rooms

2. Descriptions of the program, functions and facilities for each room

[1]Nation's Schools

a. Sizes and kinds of groups to be accommodated
b. Teaching methods
c. Types of class activities
d. Location and relationship to other facilities
e. Physical arrangements and features
f. Descriptions and lists of the equipment, furniture and materials

B. Noninstructional Spaces

1. Required numbers and kinds of rooms

2. Descriptions of the functions and facilities for each room
   a. Sizes and kinds of groups to be accommodated
   b. Types of activities to be provided for
   c. Location and relationship to other facilities
   d. Physical arrangements and features
   e. Descriptions and lists of the equipment, furniture and materials

III. Detailed Statement of Desired Site Arrangements and Development

A. Instruction and Recreation Facilities: outdoor, class areas, free play areas, organized game areas, and equipment requirements

B. Arrangements for Service Facilities and Beautifications: landscaping requirements, service drives, parking requirements, sidewalks and approaches, and pupil transportation requirements

IV. Detailed Statements Regarding Physical Details of Building

A. Structural Details: lighting, acoustical, hardware and lock systems, floor, and wall surface

B. Mechanical Systems: ventilation, plumbing and heating

C. Utility Services: electrical power systems, fire alarm systems, gas service, sewage systems, communication systems, clock and program systems, and water supply

V. Detailed Statements Regarding Financial Plan for Project

A. Bond Raising Program

B. Allocations of Monies

1. Professional fees and services

2. Site acquisition and development

3. Furniture, equipment, and materials

4. Construction contracts

Part IV

Educational specifications assure more efficient use of new school buildings by involving in the planning people who will use the building. It should be evident that teachers who help plan classrooms will be able to make better use of these rooms. Similarly, if engineers and custodians help plan the heating plants, they will be able to operate it more efficiently.

A Suggested Time Schedule[2]

Many benefits of educational specifications can be inferred from the following hypothetical time schedule for building of a school:

1. Project begins when school officials begin to think about need for new school -- may be several years before actual new school will be occupied -- this is time for school administrator to start file of ideas on new educational programs and thoughts about new building.

2. Perhaps months later, committees will be formed to begin actual planning. Each committee may be given written charge or responsibility which might well be to produce a particular section of educational specifications -- such committees will then have a recognizable and definable goal.

3. Meanwhile, usual staff curriculum committees will be working on curriculum revision and improvement -- these committees should gain added impetus from knowledge that their efforts will be implemented in a new building -- findings and recommendations of curriculum committees will fit naturally into contents of final educational specifications.

4. Board of education meetings, public assemblies and finance committees will consider problems caused by contemplated new building -- educational specification data being accumulated can be used as basis for discussions and publications centered on new building.

5. Teachers will be scheduled to examine new buildings and to appraise promising new educational programs -- expanding file of data for educational specifications becomes logical place to record observations, suggestions and acceptable ideas for new school.

6. Architect selected to plan new building will be asked for preliminary cost estimates -- developing educational specifications can be of use to him as basis for estimates (ed: but architect must have sole responsibility for budget -- he cannot add desirable features urged by educational consultant or others without regard to budget).

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[2]A.I.A. School Plant Studies
1952-1962

7. At some time official board action must be taken, establishing scope of school buildings to be built -- educational specifications can be adopted as official description of projected educational program and building.

8. Preliminary building plans must be drawn and architectural specifications must be written -- educational specifications, by now in the hands of architect, can supply body of working knowledge stating need of client and defining planning task.

9. Architect will be asked to present preliminary plans and specifications for official board of education approval -- later, after several meetings and plan revisions, process will be repeated in approval of final plans and specifications -- educational specifications can be used as reference points to check and appraise work of architect.

10. State agencies will want to review and appraise proposed plans and specifications -- educational specifications can be submitted along with architect's documents for they will help interpret blueprints.

11. During construction of new building, it can be expected that both lay people and staff members will raise questions about details -- information taken from educational specifications will in many instances be more understandable to interested parties than would be impressions gained thru inspection of blueprints or of building when it has been partially completed.

12. Other related problems will arise -- personnel will have to be hired, furniture and equipment purchased, and supplies ordered -- information needed to perform these tasks can be taken directly from educational specifications.

13. When building is finally occupied, new staff will have to learn how to use this most expensive item of instructional equipment -- building itself -- new building and un-indoctrinated teachers are a bad combination -- educational specifications can be used as in-service training manual on purposes and operation of new building but should be supplemented by personal attention to those who prepared educational specifications.