DOCUMENT RESUME

ED 426 574 EF 005 150

AUTHOR Wohlers, Art
TITLE Gross Square Feet Per Student. IssueTrak: A CEFPI Brief on Educational Facility Issues.
INSTITUTION Council of Educational Facility Planners, International, Scottsdale, AZ.
PUB DATE 1995-11-00
NOTE 7p.
AVAILABLE FROM Web site: http://www.cefpi.com/cefpi/issue/issue2.html
PUB TYPE Guides - Non-Classroom (055) -- Reports - Descriptive (141)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Class Size; Educational Facilities Design; *Educational Facilities Planning; Elementary Secondary Education; *Interior Space; *Public Schools; *School Space

ABSTRACT

The Council of Educational Facility Planners International regularly provides the recommended number of gross square feet (gsf) per student figures. This report provides revised numbers based on responses from its Design Portfolio winners over the past 5 years. Average national averages of square footage space per student for Canada and the continental United States reveal the following ranges: 70.1 to 111.5 gsf for elementary schools buildings; 81.2 to 154.4 gsf for middle schools buildings; and 101.9 to 160.7 gsf for high schools buildings. It also discusses issues about the importance of class size and the implications for educational facility planners; and the factors influencing the area per student, including program characteristics, number of students, and student characteristics. (GR)

CEFPI
ISSUETRAK
A CEFPI Brief on Educational Facility Issues

Gross Square Feet per Student

ED 426 574

Date Filed: November 1995
Issue Tracker: Dr. Art Wohlers

INTRODUCTION

Requests for a recommended number of gross square feet per student are a common occurrence at CEFPI Headquarters. Based on responses from its Design Portfolio winners over the past five years, the following revised square footage numbers per pupil are those we currently provide upon request, noting, however, that these averaged numbers do not reflect the type and scope of the educational programs those buildings house—a distinct missing link. These averages and ranges are now reported by geographic areas to take into account differences in square footage caused, primarily, by temperature and weather influences.

NATIONAL AVERAGES	AVERAGE	RANGE
Elementary School Buildings		
Canada	104.2	74 - 133
Southern Tier of States	70.1	46 - 107
Remaining 48 states	111.5	77 - 147
Middle School Buildings		
Canada	96.5	77 - 116
Southern Tier of States	81.2	77 - 90
Remaining 48 states	154.4	114- 212
High School Buildings		
Canada	130.4	91 - 166
Southern Tier of States	101.9	70 - 158
Remaining 48 states	160.7	123- 211

ONE SIZE DOES NOT FIT ALL

Having a set of national averages can be a helpful starting point in planning or as a means of assessing total space. Making estimates based on these numbers alone is NOT a guarantee that you will have a good working facility, however. What is most important is to have a clear understanding of the educational specifications, the programs to be housed in the facility, and the impact they may have on the instructional space. To quote CEFPI member, Dr. Harold L. Hawkins, "A school building does not merely house the instructional program, it is part of the program."

FLEXIBILITY AND MODERNIZATION

The importance of flexible instructional space has been discussed for some time. Educational programs change, different teachers want different room configurations, new instructional methods create new tasks, student numbers rise and fall, technology changes, budgets shrink,

districts merge—these are but a few of the factors which impact the instructional space. In the private sector corporate environment, it is common practice to reconfigure 30% of the workspace annually. These space changes are made to accommodate changes in the tasks being performed and to enhance both productivity and the overall work environment. In the educational environment, however, few teachers and students have an opportunity to experience a reconfiguring of the instructional space, to have an opportunity to enhance their productivity and working/learning environment. If such changes are important in a corporate setting to assist productivity, and if one of corporate America's major concerns is the school-to-work transition, then it seems appropriate to maintain flexible instructional space.

CLASS SIZE DOES MAKE A DIFFERENCE

Educational facility planners also should be aware of a recent article raising, once again, the issue of class size. In the July 12, 1995 issue of Education Week (pp 33-35), a research article by Debra Viadero, entitled "Less is More," argues for smaller class sizes by citing the conclusions of a two-phase longitudinal study on class size begun in 1985. Conducted in Tennessee, the four-year Project STAR (Student/Teacher Achievement Ratio) and its follow-up project, Lasting Benefits Study, tracked the effect of class size on elementary students and concluded that:

- students in early grades learn more in smaller classes
- they continue to have an edge over classmates when returned to normal-sized classrooms
- every time a student is added, learning for the rest of the class diminishes
- inner-city students appeared to make the greatest gains but gains were also made by their peers in rural and suburban schools.

Although challenged by some critics, the results of both studies were sufficient to warrant the Tennessee legislature in 1989 to set aside funds to reduce class sizes in K-3 in 17 of the state's 138 school districts with the highest levels of low-income students. This, of course, begs the question, should classroom size be reduced if the number of students to be accommodated is to be reduced? The Tennessee studies never address this issue. CEFPI's recommendation is that, based on the issues of flexibility and modernization addressed above, school districts are better served overall when they do not reduce classroom size.

IMPLICATIONS FOR EDUCATIONAL FACILITY PLANNERS

Results from these and other studies on class size are likely to be debated for years to come. The real question for educational facility planners is how to respond to the often conflicting demands placed on instructional space—how to satisfy both district and taxpayer demands for quality instruction on ever-shrinking budgets. There are, it seems, two important implications for educational facility planners:

1. Have a clear understanding of both the current as well as the anticipated or future educational programming to be used in the facility you are getting ready to build or renovate.
2. Keep your space flexible, ready to accommodate changes in educational programming, the number and characteristics of the students to be served, and any of the other factors impacting instructional space.

APPROACH

The initial consideration, whether building new or renovating an existing building, is the development of a vision statement of the nature of the educational programs to be used in the facility. The vision statement should contain a view to the future, both a short-range and long-range plan, and anticipated steps to achieve those instructional goals. Then planners, using an "average" building and the suggested average square feet per student listed above, can begin to make adjustments based on inquiries about the ed specs, adding or subtracting space as necessary. In fact, responses to these inquiries may suggest features which would not be required or even desired in the building originally envisioned. It is clear that this is not a quick, easy approach for the planner who wants immediate answers to set up a financial plan for construction. The point is—there are no quick, easy answers—not even when preliminary estimates of space needs are found to be inadequate once actual planning begins. This process is time consuming but it is time well spent!

FACTORS INFLUENCING AREA PER STUDENT

Of the many factors which can influence the number of gross square feet needed per student, the following three merit special attention:

- characteristics of the educational programs to be housed
- number of students to be accommodated
- characteristics of those students to be accommodated.

Program Characteristics

While there are numerous program characteristics that can influence the space per pupil, listed below are some broad topics planners should consider when making program inquiries: *

- Instructional Methods & Activities
- Technology/Information Management Issues
- Human/Social Interactions & Needs
- Community Involvement/Integration
- Governmental Regulations
- Environmental & Climatic Conditions

After the programs have been defined, if not before, it is an important planning technique to ask the question: "What conditions in our present structure(s) inhibit the delivery of the instructional program, inhibit learning, cause operational problems, or create problems related to the economy of the operation?"

Number of Students

A building needs the capacity for future expansion or modification to meet fluctuating student numbers. The following factors are likely to have initial cost implications for planners:

- Corridors—Since these are virtually impossible to expand, strong consideration needs to be given to planning adequate corridor widths for student movement throughout the building for the potential ultimate building capacity. Another concern is the design of the intersections with other corridors and with stairwells. Since the public may not understand the additional cost of potentially adequate corridors (the relatively large

corridors appearing more massive than their actual additional cost), this may be an item to include in a public education campaign.

- Large Group Spaces—Building arrangement should make it possible for the large group spaces, in particular, to serve both the ultimate capacity and the interim population most effectively. Or, appropriate potential locations for these facilities need to be established initially for construction at a later date. It may be necessary in some instances to plan for a given use initially that can be easily modified when expansion takes place. Some service or large group spaces may be similar for a range of enrollments to be housed and not affected by a given enrollment. For example, spectator seating in an auditorium, food preparation area, health service, administrative offices, and mechanical systems spaces.
- Subject Area Spaces—Depending upon the nature of the program, arrangement of subject area spaces may need to provide for additional spaces to maintain the subject area relationships. On the other hand, and possibly more important, if integrated instructional programs are envisioned, the building expansion should be related to addition of a pod or "school within a school" unit housing all the integrated subjects.
- Site Size—Site size must be related to the building's ultimate capacity. Initial planning should consider all factors relating to ultimate building capacity and all its anticipated features.

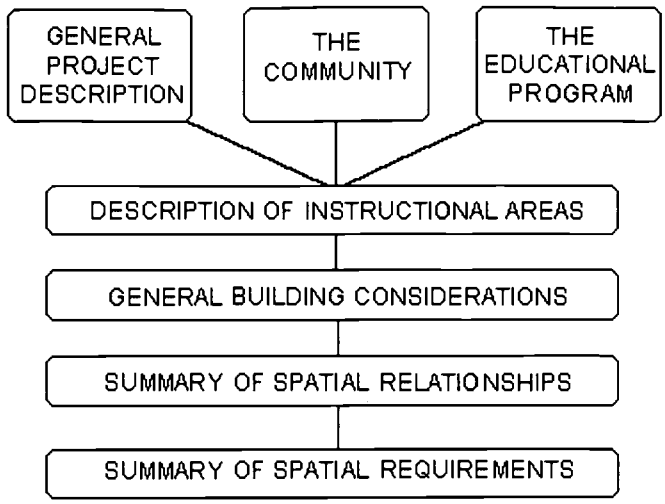
Student Characteristics

Characteristics of the students occupying a given structure require attention to size and location of equipment, toilets, furnishings, wall-mounted writing and display surfaces, cabinets, and the size of building features, in general. While there is no guarantee that a specific building will always be used for a given group of students, it is better to plan for a given group of students rather than trying to make most features convertible and then never experience a change.

DEVELOPING EDUCATIONAL SPECIFICATIONS

The initial phase of any planning process should be the development of educational specifications with the involvement of the staff. In reality, ed specs, when approved by the governing board, become the educational facilities problem to be solved by designers or architects. They become the instrument used by staff and the board of education to analyze architectural proposals. And while response to initial inquiries and the development of ed specs takes time up front, it is time well spent!

EDUCATIONAL SPECIFICATION COMPONENTS



PARTICIPATORY PROCESS
PLANNING OF EDUCATIONAL SPECIFICATIONS

CLOSED PROCESS---A---B---C---D---E---OPEN PROCESS

A. Architect/Administrator

Input and decision making primarily in the hands of two or three professionals. Only token efforts to solicit ideas from the direct user group.

B. Small Team

Expertise carefully solicited from individuals with established knowledge and experience. Consensus decision making tends to be highly centralized.

C. Select Group

Differs from large group in that there is broad representation by a few people with recognized expertise. Group brought together for intensive, carefully organized decision making.

D. Large Team

Includes designated central administrators, building level administrators, teachers, staff, students, board representatives, community representatives, consultants and architects. Emphasis is on broad-based input consensus development. Work of large teams may extend over weeks or months. Decisions are usually conventional and user supported.

E. Open Team

Technique stresses participation of the diverse components of the community affected by the building program. Community involvement is aided by professionals. Brainstorming often serves as a catalyst for change. Public support is generally enhanced.

ISSUETRAK is prepared by The Council of Educational Facility Planners, International as a service to its membership. CEFPI wishes to thank Dr. Arthur Wohlers of Planning Advocates, Inc., Delaware, Ohio, for his invaluable time and expertise in preparing this brief.

Council of Educational Facility Planners International
9180 East Desert Cove Ave.
Suite 104
Scottsdale, AZ 85260
602-948-2337

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☒ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").