

STORAGE/AUDIOVISUAL

SUMMARY

Both storage and the provision for using audiovisual equipment are crucial services for the well functioning elementary school. Expanding amounts of technical means for transmitting information and the use of sophisticated materials and other media have become conventional, even in elementary education.

Adequate storage is an important service in an elementary school. Very large amounts of material, of all sizes and shapes, are used throughout the school year. Access needs to storage also vary - some items are needed daily, some are used only once or twice a year. The performance requirements measured in our study were storage capacity, type and accessibility.

Supporting the use of audiovisual equipment is also critical in the schools studied. Performance requirements were storage and accessibility for audiovisual equipment, electrical connections and the ability to darken the room adequately for viewing projected images.

STORAGE CAPACITY

Performance required: Provide adequate storage for classroom and school needs.

Method: A comparison of the 'official' storage provided and the actual use of storage - both official and unofficial. A detailed storage 'inventory' of most classrooms was made, including photo documentation.

Analysis:

STORAGE CAPACITY

	STANDARD*	P	R	S	M
STORAGE CAPACITY PROVIDED PER CLASSROOM (cu.ft.)	250 (approx)	146	155	182	350

*standard developed through analysis of existing conditions

The originally specified storage capacity has increased for each new school. This wide range of alternatives is a good 'experiment' against which to test the performance of storage capacity.

'Overflow' storage was consistently and obviously evident at the Parkside, Richards and Smith Schools. Every cubic foot of storage space provided was brimfull as well as numerous other locations. Shelves in many cases were literally deflecting with the weight of their loads. Most shelf storage was multilayered - the objects being piled atop one another also creating problems in organization and disarray.

At the Parkside and Richards Schools overflow storage took place on the floor, in cardboard boxes and on folding tables. Occasionally a storage cabinet would be brought in from home by a teacher. At Smith most overflow storage occurred in the nodes in metal cabinets and steel shelving though the 3'x6' folding tables were again used in the classroom.

The Mt. Healthy School has sufficient built-in cabinetry and mobile cabinets, some of which went unused.

Findings: Based on these very consistent results we would recommend 250 cubic feet of storage area be provided for each classroom. Centralized storage needs would require an additional 50 cubic feet for each classroom.

SIZE OF STORAGE

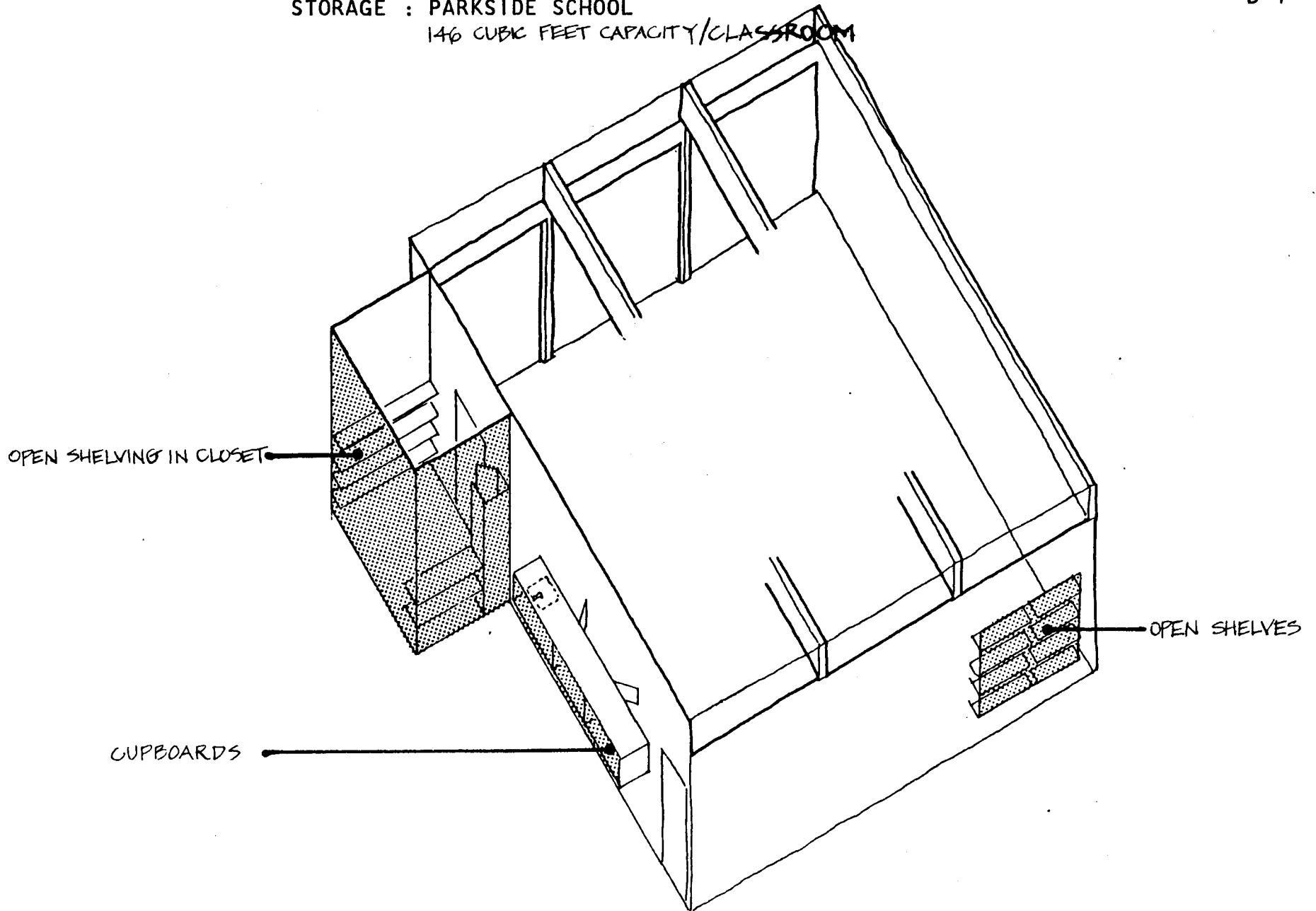
Performance required: Provide storage for objects of various sizes.

Method: See 'Storage Capacity'.

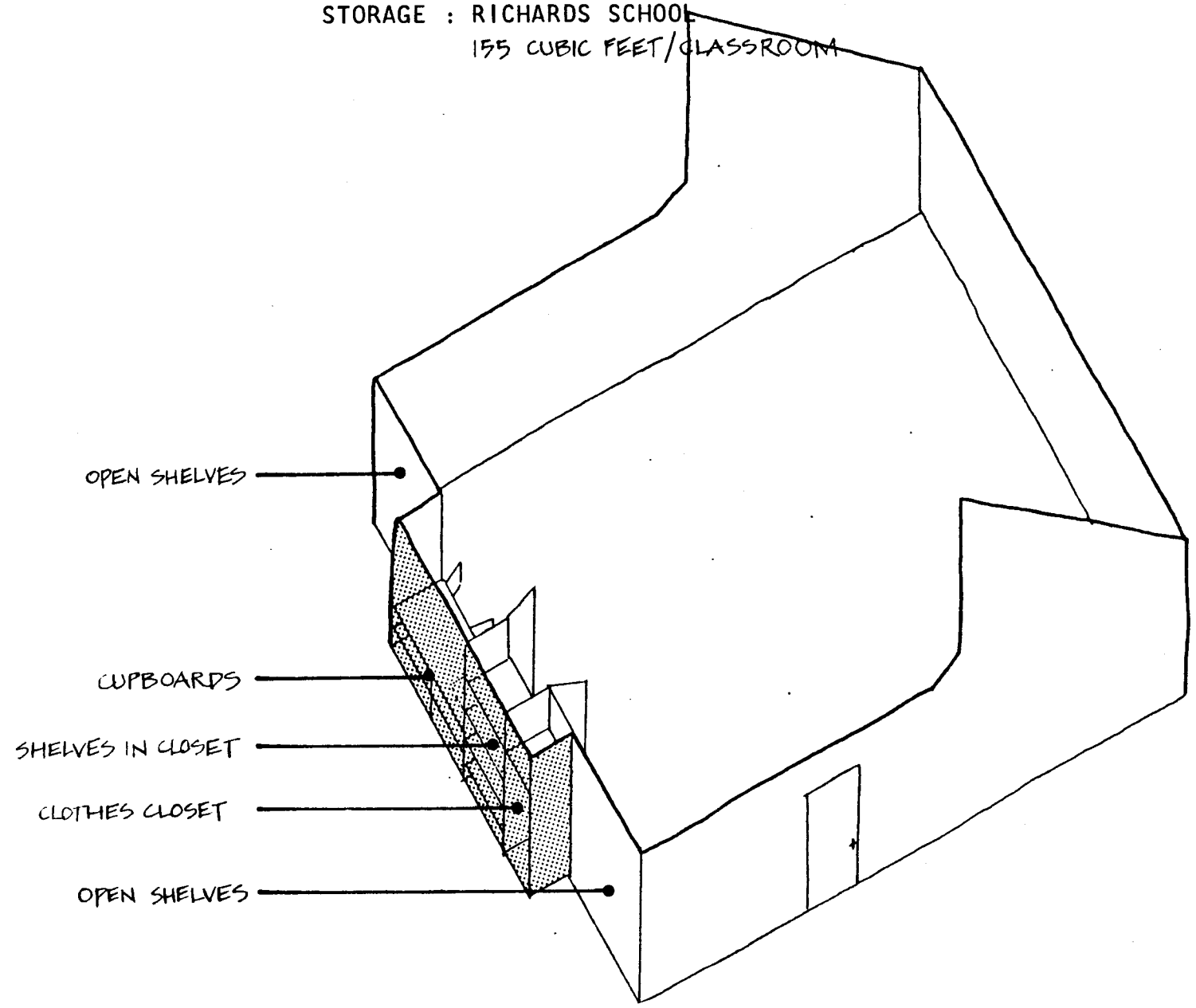
Analysis: There is a storage problem for all sizes of objects related to the lack of storage capacity. Universally displaced, however, are those large objects, say over 15 inches in all dimensions, for which the shelving systems and drawers make no provision. This includes:

- most audiovisual equipment
- screens and charts
- instructional media kits and sets
- globes
- recess equipment
- easels
- large models (eg. clockface, earth and moon)
- fish tanks
- plants
- fans
- cardboard boxes of miscellaneous objects

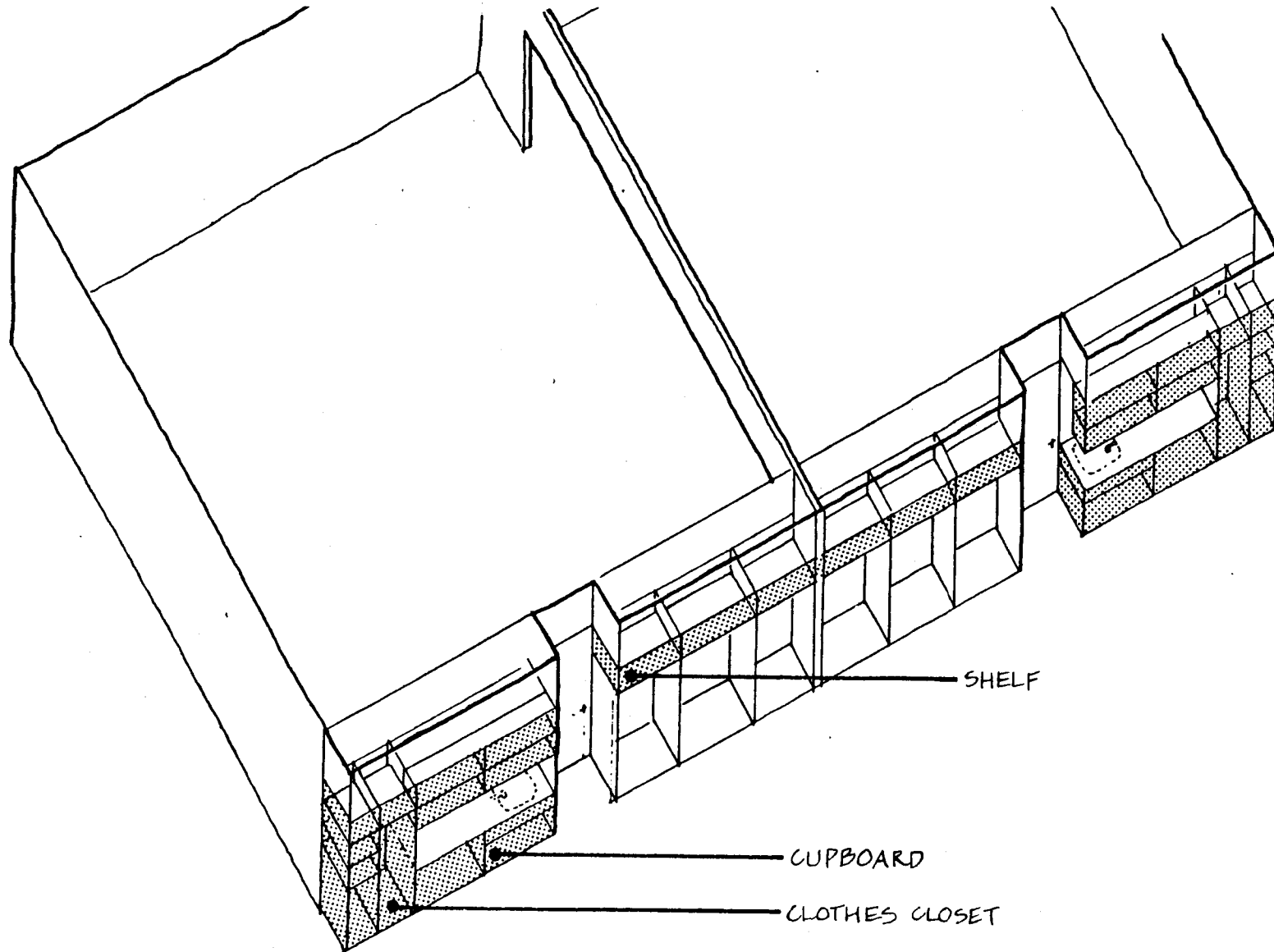
STORAGE : PARKSIDE SCHOOL
146 CUBIC FEET CAPACITY/CLASSROOM



STORAGE : RICHARDS SCHOOL
155 CUBIC FEET/CLASSROOM



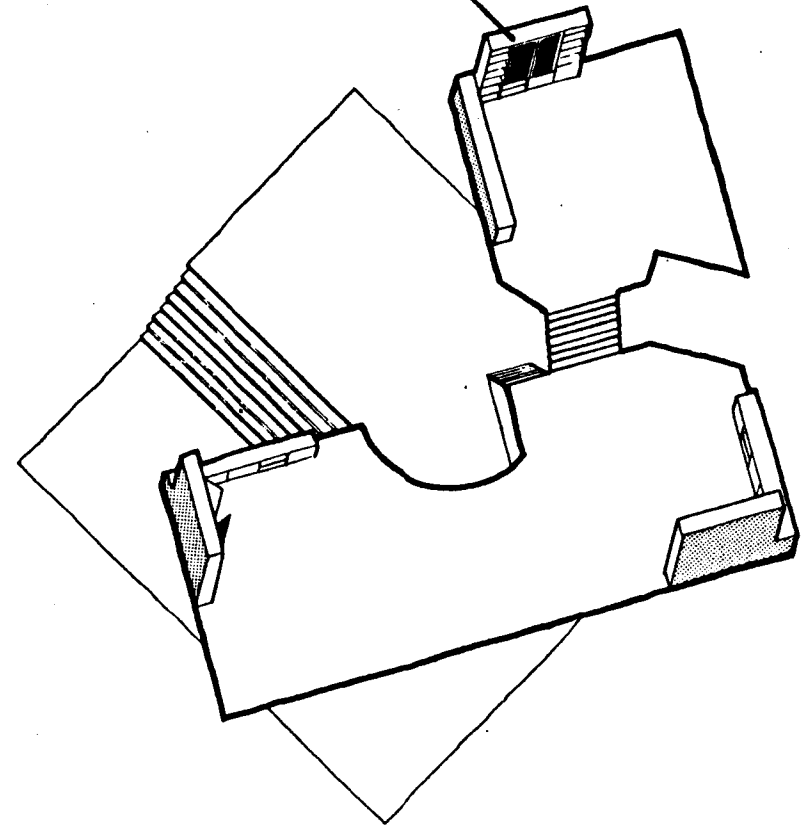
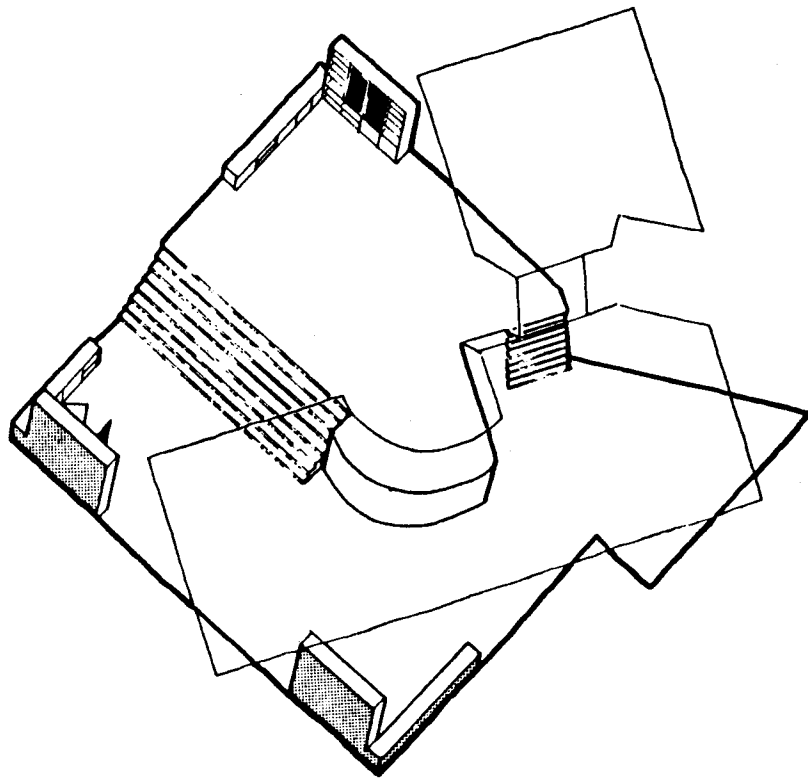
STORAGE : RICHARDS SCHOOL
182 CUBIC FEET/CLASSROOM (DOUBLE CLASSROOM SHOWN)



STORAGE : MT. HEALTHY SCHOOL

350 CUBIC FEET/CLASS AREA (6 SHOWN)

SHELVES BEHIND BLACKBOARD



At the Parkside and Richards School these are found on the floor or on tables. At Smith approximately one-third of the built-in coat closets have been appropriated for large object storage. At Mt. Healthy there is adequate capacity for objects of all sizes.

Findings: The mix of storage needed should change to include the accommodation of large space objects.

LENGTH OF STORAGE

Performance required: Provide short term and long term storage.

Method: See 'Storage Capacity'

Analysis: The need for accessibility to storage can be categorized as follows:

- immediately accessible storage. Items used almost daily includes crayons, chalk, paper or of all kinds, recess equipment, cleaning equipment books.
- short term storage. Items used regularly but not often. This category includes most audiovisual equipment, toys and games, educational media (flash cards, games), paints, books.
- long term storage. Infrequently used objects, included are Christmas decorations and equipment, globes, abacus, a fan, charts, decorations, textbooks.

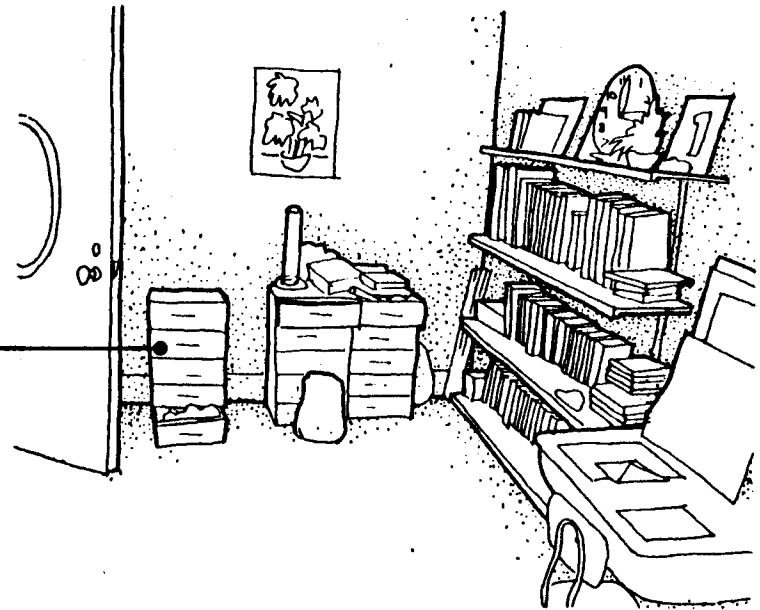
In the Parkside, Richards and Smith Schools there has been adequate provision for immediate and some short term storage by the type and location of storage provided. Storage is virtually all within the classroom and consists principally of shelves and

drawers. At Parkside and Richards long term storage and audio-visual equipment storage is present in the classroom and handled via various ad hoc solutions mentioned previously. At Smith the nodes have become 'opportunity spaces' where a variety of originally unprogrammed activities have occurred including area for a great amount of long term storage. Even at Mount Healthy there is some need for separate long term storage most of which is now stored in an ad hoc fashion in the team teaching room though there is still some capacity remaining in classroom storage.

Another need for shared immediately accessible storage exists at some of these schools. At the Richards and Smith Schools programmed instruction materials are shared by a few classes and the storage and accessibility of these materials presents a problem. In both schools these materials are stored on metal shelving in corridor areas outside of the classroom proper. At Richards the constraining, enclosing walls of the classroom does not encourage free flow to these materials. The corridor is not a suitable environment for them. At Smith the node/corridor where they are stored does present problems but the environment is enhanced by the presence of teachers aides and additional resources, study carrels, etc.

TYPICAL STORAGE
Parkside and Richards Schools

BOXED PROGRAMMED LEARNING
MATERIALS ON THE FLOOR.

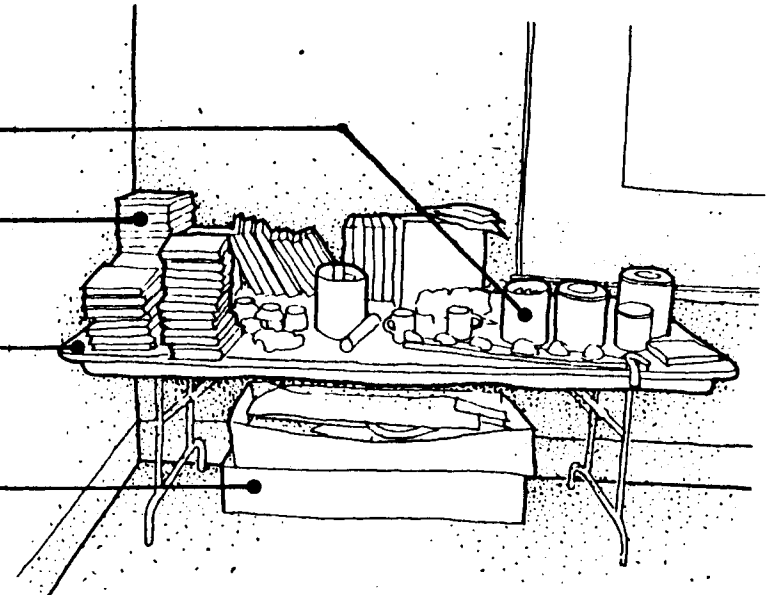


CONTAINERS

TEXT BOOKS

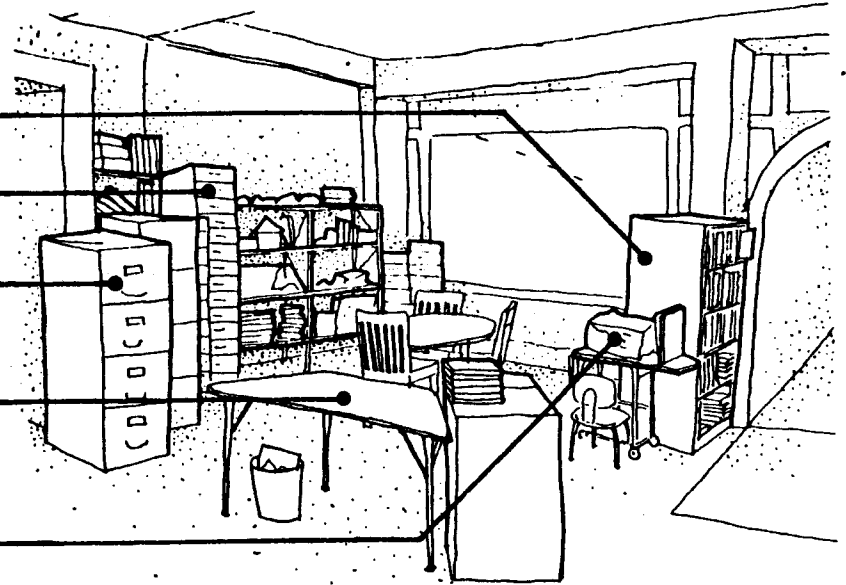
FOLDING TABLE OFTEN USED FOR STORAGE

BOX OF MATERIALS UNDER TABLE



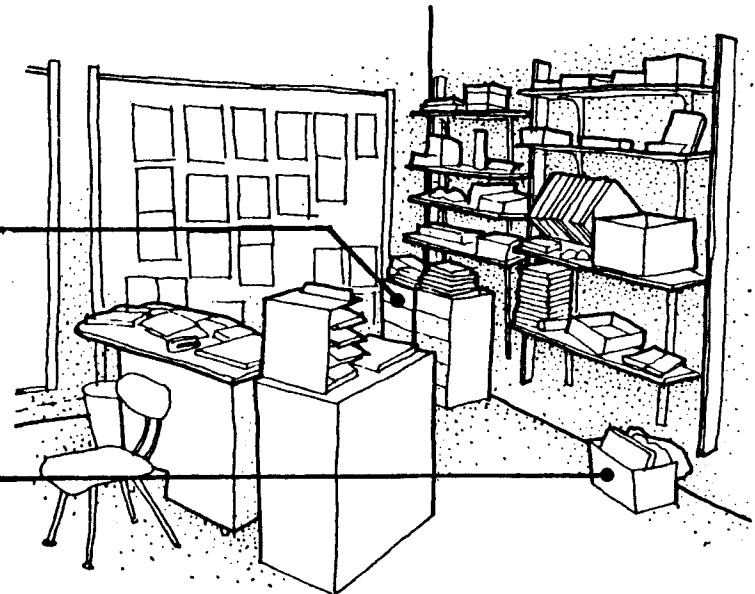
STORAGE : NODE AT SMITH SCHOOL

- BOOKCASE
- PROGRAMMED LEARNING KITS
- FILE CABINET
- DESK USED BY TEACHER'S AIDE
- A-V EQUIPMENT ON STAND



TYPICAL STORAGE

- PROGRAMMED LEARNING KITS
- CARDBOARD BOX ON FLOOR



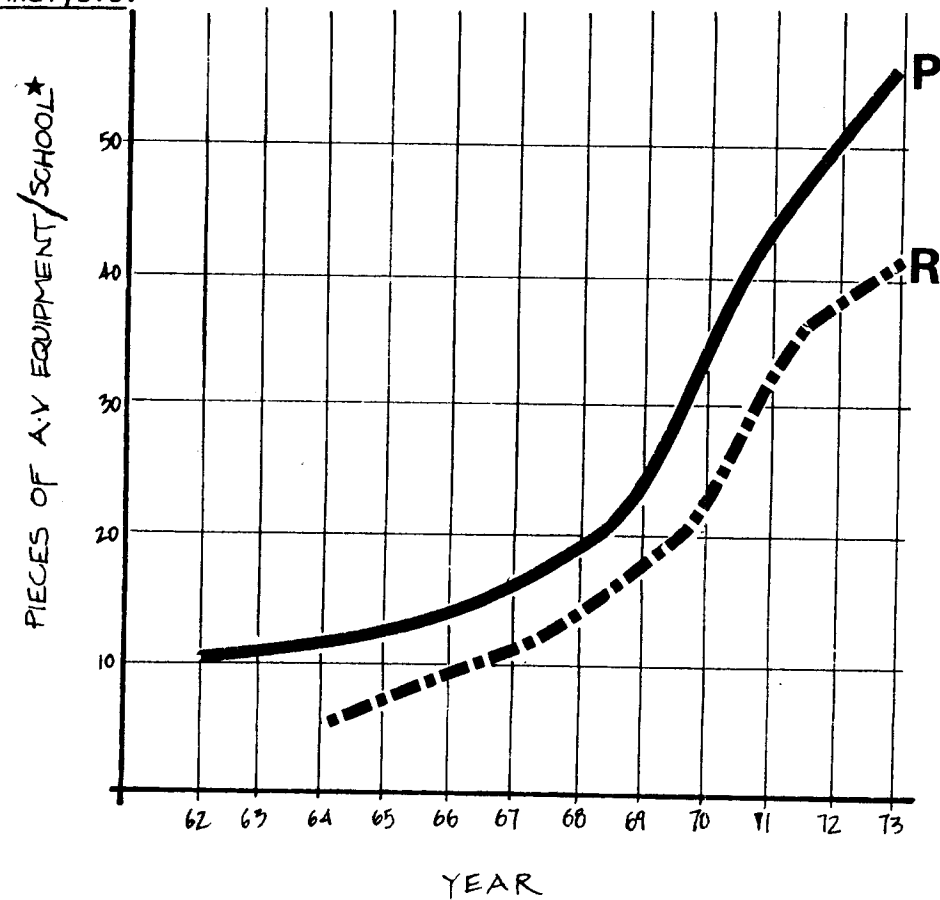
AUDIOVISUAL STORAGE

Performance required: Provide adequate storage for audiovisual equipment.

Method: See 'Storage Capacity'

Analysis:

A-V GROWTH



*INCLUDES: OVERHEAD, 16 MM. & FILMSTRIP PROJECTORS; RECORD PLAYERS, TAPE CASSETTE PLAYERS, CARTS

All the schools are fully equipped with a variety of audiovisual equipment; movie projectors, overhead projectors, filmstrip projectors, phonographs, tape and cassette recorders, etc. The school corporation has a central film library and TV studio and each school has videotape equipment for use by teachers and students. Students can even borrow cassette recorders and tape for home use.

The intensive use of audiovisual equipment is a recent phenomenon and schools planned a decade ago do not provide the activity support necessary. At the Parkside and Richards Schools this is evident in the lack of storage for such equipment. Equipment is in classrooms and in the library, taking up needed area in both places. Classroom storage of this equipment does make it immediately accessible thus encouraging its use; however, the way this accessibility is achieved is detrimental to other activities. Storage of this equipment in the library and conference rooms is a serious detriment in these schools.

At the Smith School, planned later than those just mentioned, storage is handled more adequately. The library is large and has sufficient area (about 300 sq.f.t) for central A-V storage. The nodes as unprogrammed 'opportunity areas' are used for A-V storage - a location close to the classroom providing immediate access.

Mt. Healthy School has a 'mini instructional media center' (I.M.C.) for each level (2 grades) in the school. This area, proximate to all classrooms and provided with adequate electrical outlets, is meant for the storage, accessibility and use of A-V equipment. In fact A-V equipment is found every place in the school including, but not especially in, the I.M.C. However, the open plan and large areas of this school do not hinder other

activities while still providing for A-V requirements.

Findings: Approximately 60 cubic feet of storage per classroom for audiovisual equipment should be provided in elementary schools. 20 cubic feet in a central location for storage and access of unique pieces of equipment and 40 cubic feet within or easily accessible from the classroom.

ROOM DARKENING

Performance required: Provide adequate visual environment for images projected by audiovisual equipment.

Method: Comparison with existing standards. Measures of illumination and illuminance were made in a sample of classrooms in each school. See section on lighting in the Field Test Manual for equipment and methods used.

Analysis: Recommendations (source: Time Saver Standards, I.E.S. Lighting Handbook, 4th ED.) are 0.1-0.2 footcandles. Task/surround ratios were not considered significant because of the short duration of presentations (unlike cinemas).

The Parkside School had from 4-11 footcandles in typical classrooms - unsatisfactory conditions for viewing projected images due to lack of contrast. Smith and Richards had satisfactory performance (0 footcandles). Because Mt. Healthy's overhead skylights are not shaded conditions are unsatisfactory for viewing projected images.

For all-school and large group film or slide presentations the gyms are satisfactory at the Smith and Mt. Healthy School. Parkside and Richards gyms have many unshaded windows in their multipurpose rooms and performance is unsatisfactory.

Findings: Classroom and assembly rooms should be provided with means for darkening them to the 0-1 footcandle level. The shades at the Parkside School are not opaque to light and their replacement would eliminate this problem. Because of the teaching flexibility at Mount Healthy an area in each 2 grade levels can be modified to ensure proper conditions.

ELECTRICAL OUTLETS

Performance Required: Provide sufficient quantity and accessibility of outlets.

Method: Comparison of standards with electrical outlets in schools. Comparison of existing outlets with needs.

Analysis:

	P	R	S	M
# OUTLETS/CLASSROOM	2	2	2	4
LOCATION	F,R	F,R	F,R,S,	VARIES

F - front of room
R - rear of room
S - side of room

There is now a great deal of audio visual equipment available in all the schools studied (see p.b12). Outlets are also needed for other purposes - aquariums, Christmas lights, electric fans, incubators, etc.

The number and location of outlets at the Parkside, Richards and Smith School is inadequate. Mount Healthy has an adequate number of outlets in satisfactory locations. In a questionnaire given to teachers at the Parkside and Richards school only one teacher (of 24) did not express dissatisfaction of the existing number and/or location of outlets.

Findings: Well placed outlets are more basic to successful activity support than the quantity provided. The schools cited above provide neither attribute. Few student groups can use outlets simultaneously and more should be provided (4/classroom can supply 7-8 groups of 4 students each) with the ability to add even more in the future to accommodate possible changes in teaching. (See Chapter 4 Growth and Change). Outlets should be placed where groups can use them (towards the sides and rear of the rooms) with only 1 up front at the board. A centrally located floor outlet would be useful for class audiovisual usage but many building codes necessitate a raised (non-flush) receptacle which would rule out this possibility. The use of a centrally located ceiling outlet or the newly developed 'power pole' are better solutions.