DOCUMENT RESUME

ED 060 560 EA 004 149

AUTHOR	Molloy, Laurence; And Others
TITLE	Places and Things for Experimental Schools.
INSTITUTION	Educational Facilities Labs., Inc., New York, N.Y.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Feb 72
NOTE	268p.
AVAILABLE FROM	EFL, 477 Madison Avenue, New York, N.Y. 10022 ($2.00)
EDRS PRICE	MF-$0.65 HC-$9.87
DESCRIPTORS	Air Structures; Auditoriums; Building Conversion; *Classroom Furniture; *Community Schools; Construction Costs; Early Childhood Education; Educational Parks; *Experimental Schools; Flexible Facilities; Food Service; Furniture Design; Instructional Technology; *Open Plan Schools; Playgrounds; Resource Centers; *Space Utilization
IDENTIFIERS	Fastracking; Found Space; Joint Occupancy; Relocatable Facilities; Rescheduling

ABSTRACT

The information available on current developments in the planning and use of educational facilities is dispersed among many resources. This publication gathers up the scattered information on all the lively facilities topics and complements it with the names and addresses of prime information sources for interested public officials, planners, educators, students, and citizens. The document is intended to give access to the latest developments in educational facilities and their relationship to educational experimentation. (Photographs may reproduce poorly.) (Author)

Places and Things for Experimental Schools

Library of Congress Catalog Number: 72-075056
First Printing: February, 1972
Copies of this publication
are available at $2.00 from EFL
477 Madison Avenue, New York, N.Y. 10022

The color of the paper in the first seven chapters varies because it is recycled paper.

Places and Things for Experimental Schools Places and Things for Exper
Things for Experimental Schools Places and Things for Experimental Sch
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places **PLACES AND THINGS FOR EXPERIMENTAL SCHOO**
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimental
Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things f
and Things for Experimental Schools Places and Things for Experimenta
Experimental Schools Places and Things for Experimental Schools Place
Schools Places and Things for Experimental Schools Places and Things
and Things for Experimental Schools Places and Things for Experimenta
Experimental Schools Places and Things for Experimental Schools Place
Schools Places and Things for Experimental Schools Places and Things
and Things for Experimental Schools Places and Things for Experimenta
Experimental Schools Places and Things for Experimental Schools Place
Schools Places and Things for Experimental Schools Places and Things
and Things for Experimental Schools Places and Things for Experimenta
Experimental Schools Places and Things for Experimental Schools Place
Schools Places and Things for Experimental Schools Places and Things

A JOINT REPORT FROM: EDUCATIONAL FACILITIES LABORATORIES, INC.

mental Schools Places and Things for Experimental Schools Places and Thi
ols Places and Things for Experimental Schools Places and Things for Exp
and Things for Experimental Schools Places and Things for Experimental S
r Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
r Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
r Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
or Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
or Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
or Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
PLACES AND THINGS FOR EXPERIMENTAL SCHOOLS and Things for Experimental
or Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
or Experimental Schools Places and Things for Experimental Schools Places
Schools Places and Things for Experimental Schools Places and Things for
and Things for Experimental Schools Places and Things for Experimental S
or Experimental Schools Places and Things for Experimental Schools Places
l Schools Places and Things for Experimental Schools Places and Things for
s and Things for Experimental Schools Places and Things for Experimental S
for Experimental Schools Places and Things for Experimental Schools Places
l Schools Places and Things for Experimental Schools Places and Things for
s and Things for Experimental Schools Places and Things for Experimental S
for Experimental Schools Places and Things for Experimental Schools Places
l Schools Places and Things for Experimental Schools Places and Things for
s and Things for Experimental Schools Places and Things for Experimental S
for Experimental Schools Places and Things for Experimental Schools Places

M: EDUCATIONAL FACILITIES LABORATORIES, INC. AND EXPERIMENTAL SCHOOLS

CONTENTS

FOREWORD

Although information is available on current developments in the planning and use of educational facilities, it is dispersed among so many resources that it is difficult and time consuming for a citizen, whether student, public official, planner or educator to find out what is going on. This publication gathers up the scattered information on all the lively facilities topics and complements it with names and addresses of prime information sources so that readers can pursue their particular needs and interests.

Places and Things for Experimental Schools is a joint effort of the new Experimental Schools program of the U. S. Office of Education, and the Educational Facilities Laboratories. The Experimental Schools program was introduced by President Nixon to bridge the gap between basic educational research and its actual practice in schools. It is designed to support a small number of nationally significant, comprehensive, kindergarten through grade 12 experiments with a major focus on documentation and evaluation.

Each Experimental Schools site is a coherent, integrated, mutually reinforcing set of operational variables in such areas as curriculum, staff selection, staff training, administration, organizational structure, and length of school day and year. Three Experimental Schools sites have been in operation since September, 1971, and three more will be in operation by September, 1972. Each site combines a variety of promising practices into a comprehensive program for 2,000 to 5,000 students principally from low-income families, who have not previously achieved educational success.

Educational Facilities Laboratories, a nonprofit corporation, was established 14 years ago by The Ford Foundation to support research and experimentation in the housing and equipping of education. Through grants and projects, it operates as an agent for change by generating and publicizing constructive innovation in school and college facilities. EFL knows the places where important facilities innovation is happening, the people who are doing it, and the purposes of the effort.

Together, EFL and the Experimental Schools program appreciate the importance of the imaginative planning and use of facilities in educational experimentation. Facilities profoundly influence instructional methods, student/teacher relationships, and the breadth and flexibility of programs. Poor facilities can get in the way of a good

administration, organizational structure, and length of school day and year. Three Experimental Schools sites have been in operation since September, 1971, and three more will be in operation by September, 1972. Each site combines a variety of promising practices into a comprehensive program for 2,000 to 5,000 students principally from low-income families, who have not previously achieved educational success.

Educational Facilities Laboratories, a nonprofit corporation, was established 14 years ago by The Ford Foundation to support research and experimentation in the housing and equipping of education. Through grants and projects, it operates as an agent for change by generating and publicizing constructive innovation in school and college facilities. EFL knows the places where important facilities innovation is happening, the people who are doing it, and the purposes of the effort.

Together, EFL and the Experimental Schools program appreciate the importance of the imaginative planning and use of facilities in educational experimentation. Facilities profoundly influence instructional methods, student/teacher relationships, and the breadth and flexibility of programs. Poor facilities can get in the way of a good experiment, while good facilities can provide essential support.

An increasing number of parents are interested in new educational ideas. So are students, community groups, teachers, administrators, educational researchers, local, state, and federal officials, architects, planners and builders. This publication is intended to serve them all; to give access to the latest developments in the things of education and their relationship to educational experimentation.

Places and Things for Experimental Schools was produced by a team led by Laurence Molloy, an EFL project director. Molloy, an architect, developed the form and content of the publication and designed many of the illustrations. We wish to thank the hundreds of educators, architects, planners and manufacturers who helped gather material and permitted us to publish their names and addresses as sources for further information.

Experimental Schools
U. S. Office of Education

Educational Facilities
Laboratories

1. FOUND SPACE

Schools do not always need buildings originally designed for education. To avoid the problems of time and cost of new construction, imaginative people are turning barns, bathhouses and mattress factories into day care centers, nurseries and schools. It's found space, it's quick, and it's relatively inexpensive.

Some buildings, however, aren't fit for schools -- some don't even meet factory codes, much less educational codes. The location is important, too -- how far is it from the children, the city, museums and other potential resources? Who you are and how you get an old building are also considerations. Look into the merits of private or semi-private ownership, parent cooperative ownership or incorporation; and outright purchase, temporary lease, lease with option to buy, or other title arrangements. Don't forget that with a lease arrangement, an investment in found space can be easy to retrieve. If the school is no longer needed, drop the lease and remove your equipment. Though these considerations may sound complicated, the advantages of found space over conventional construction are many.

TEN PRINCIPLES FOR FINDING

1. ZONING - What are the zo
an appeal for a zoning vari
and/or impossible.

2. HEALTH CODES - Can an am
How many plumbing and toile

3. FIRE CODES - Fire exits?
fire escapes. Basement spa
and floors have poor fire r
surfaces?

4. CONDITION - Is it safe?
until there's a professiona
electrical, plumbing, and a

5. DIMENSIONS - What kind o
in there? Don't buy a lot
skin. Get the longest colu

6. WINDOWS - Is there any i
artificial lighting will be
out some walls just for lig

7. THE LOT - Got any left-o
Exterior circulation?

8. SERVICE - Can you get th
Loading-unloading?

9. SHARING - What kind of l
change the walls? Floors?
can't modify it.

10. AESTHETICS - Talk to an
take to make the building b

ldings
ion. To
cost of
people
and
re centers,
ound
latively

t fit for
t factory
odes. The
now far is
, museums
Who you
lding are
o the merits
ership,
r incorpor-
temporary
y, or other
get that
nvestment in
rieve. If
, drop the
t. Though
complicated,
over conven-

TEN PRINCIPLES FOR FINDING SPACE

1. ZONING - What are the zoning restrictions? Sometimes an appeal for a zoning variance is clumsy, time-consuming and/or impossible.

2. HEALTH CODES - Can an ambulance get to the front door? How many plumbing and toilet facilities are needed?

3. FIRE CODES - Fire exits? You'll have to enclose those fire escapes. Basement space is usually out. Do walls and floors have poor fire ratings and/or inflammable surfaces?

4. CONDITION - Is it safe? Don't make any commitments until there's a professional examination of the structural, electrical, plumbing, and architectural condition.

5. DIMENSIONS - What kind of educational activity can go on in there? Don't buy a lot of boxes covered with a brick skin. Get the longest column span you can.

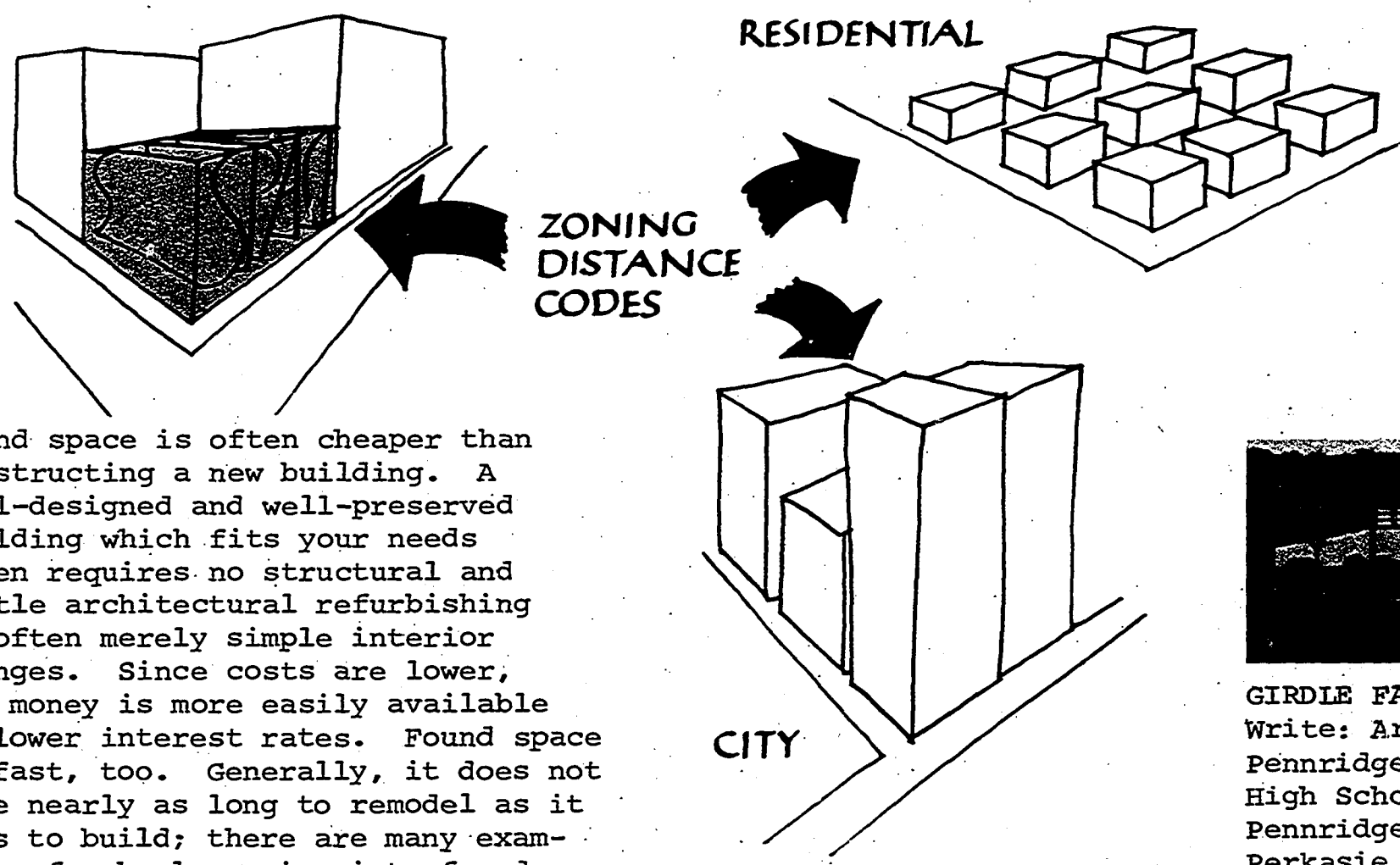
6. WINDOWS - Is there any indoor-outdoor contact? How much artificial lighting will be needed? You may have to knock out some walls just for light.

7. THE LOT - Got any left-over land for parking? Playground? Exterior circulation?

8. SERVICE - Can you get there? Bus lines? Service access? Loading-unloading?

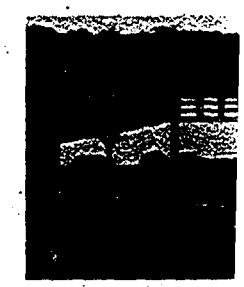
9. SHARING - What kind of landlord do you have? Can you change the walls? Floors? Space is seldom good if you can't modify it.

10. AESTHETICS - Talk to an architect. What's it going to take to make the building beautiful?

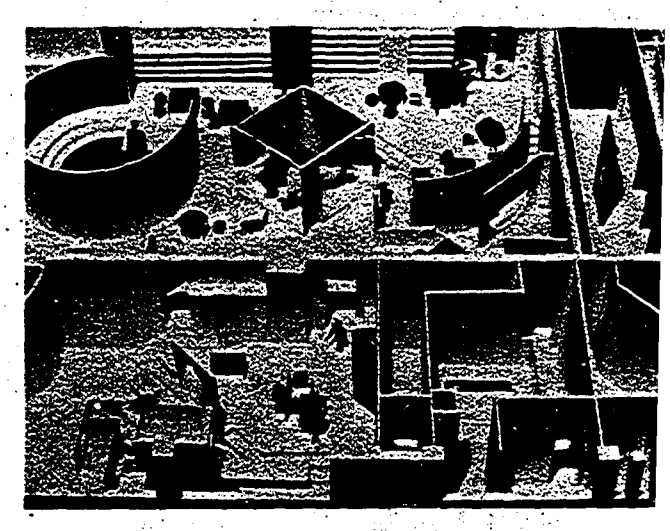


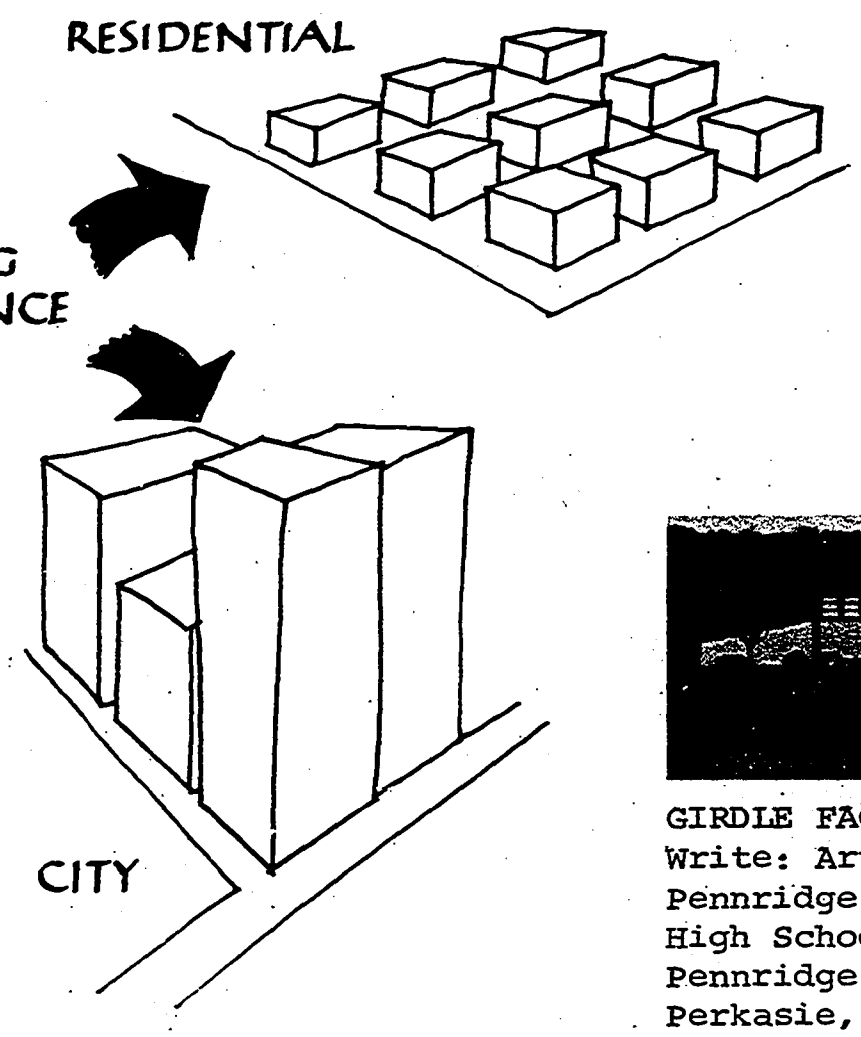
Found space is often cheaper than constructing a new building. A well-designed and well-preserved building which fits your needs often requires no structural and little architectural refurbishing -- often merely simple interior changes. Since costs are lower, the money is more easily available at lower interest rates. Found space is fast, too. Generally, it does not take nearly as long to remodel as it does to build; there are many examples of schools moving into found space in lightning time. In addition, it might be useful to expand an overcrowded school by obtaining space in a nearby building. Found space can be fun! Interest in an old building can generate enthusiastic community response -- a participation bringing a variety of talents and resources to the aid of a project, thus involving community members in renovation and educational innovation. So, found space is not just the unnoticed space in a neighborhood made attractive, but a process as well -- a process in which people, education and things come together for the benefit of all.*

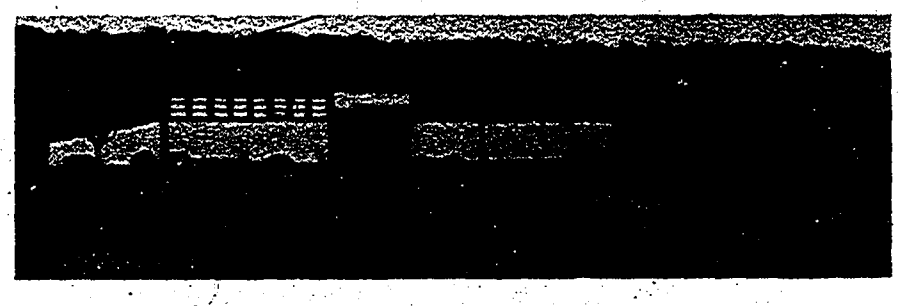
*See: 5.COMMUNITY/SCHOOLS,p. 64



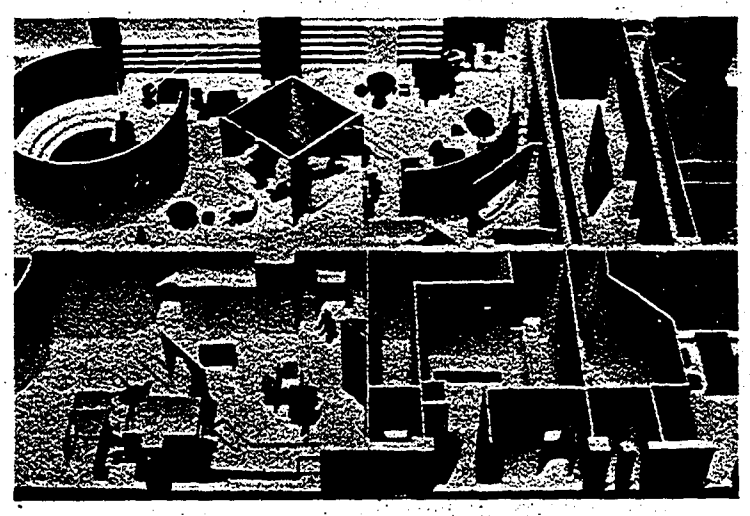
GIRDLE FAC
Write: Art
Pennridge
High Schoc
Pennridge
Perkasie,







GIRDLE FACTORY
Write: Arthur W. Crouthamel, Principal
Pennridge Central Junior
High School Annex
Pennridge School District
Perkasie, Pa. 18944



SYNAGOGUE
Write: Carol Harris
Director
Block School for
Preschool Children
1062 Winthrop Street
Brooklyn, N.Y. 11203

Found Space for Early Learning

The first schools in found space probably were early learning centers and day care nurseries. The Hilltop Center, a Head Start project in Dorchester, Mass., remodeled an old supermarket into a successful early education center -- a storefront school. Serving 90 children three to five years old, Hilltop was converted by using volunteer community labor to revamp the mechanical services, install windows, replace old toilet facilities, rip out shelving, and brick up all of the front except a large display window. That display window is Hilltop's major asset. People passing by see children sitting in the window and come in to see what's going on. Some stayed and are now members of the staff.

Write: Olga Scott, Social
Hilltop Center
344 Blue Hill Avenue
Roxbury, Mass. 02121

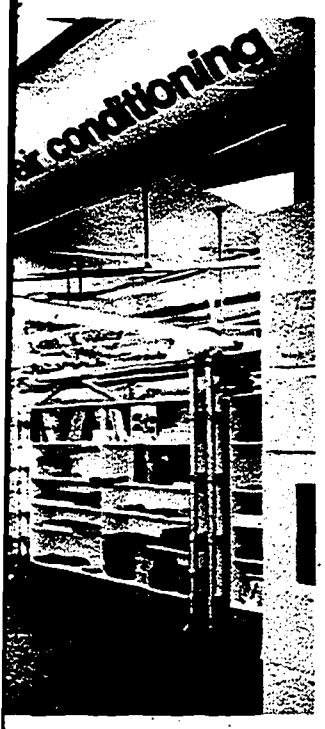
USE OF INDUSTRIAL OBJECTS BRIGHTENS THIS FOUND SPACE

Write: Doris Schwartz, Director
Acorn Montessori School
330 East 26th Street
New York, N.Y. 10010

The Acorn School, a Montessori sch
Manhattan, found space on the grou
middle-income apartment building.
placed convention: the architects
room for a dropped ceiling, so the
pipes and labeled each according t
Industrial scaffolding and playful
an otherwise oppressive ground flo
exciting and infinitely variable s

obably were
nurseries. The
in Dorchester,
into a
a storefront
o five years
volunteer
nical services,
facilities, rip
ne front except
ay window is
ing by see
come in to see
re now members

Write: Olga Scott, Social Supervisor
Hilltop Center
344 Blue Hill Avenue
Roxbury, Mass. 02121



USE OF INDUSTRIAL OBJECTS
BRIGHTENS THIS FOUND SPACE

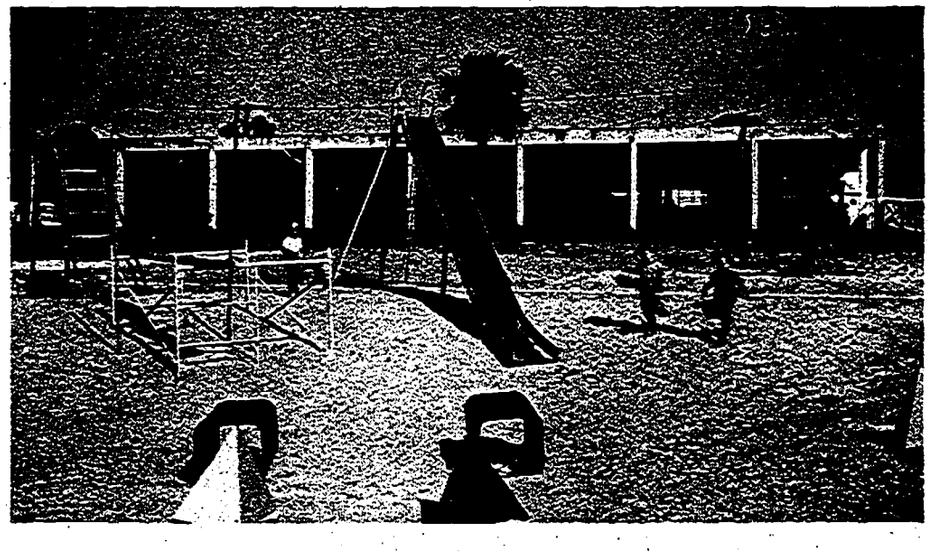
Write: Doris Schwartz, Director
Acorn Montessori School
330 East 26th Street
New York, N.Y. 10010

The Acorn School, a Montessori school in Manhattan, found space on the ground floor of a middle-income apartment building. Novelty replaced convention: the architects didn't have room for a dropped ceiling, so they painted the pipes and labeled each according to its function. Industrial scaffolding and playful furniture turn an otherwise oppressive ground floor into an exciting and infinitely variable school.

In South Carolina, the Sea Pines Montessori School found a former souvenir shop on the edge of the ocean with a spectacular location and a year-round beach-front play yard. Workers remodeled the concrete post and beam construction in two weeks. Plumbing and airconditioning, liberal amounts of paint, carpet, asphalt tile, and sand for the play yard completed the school. In effect, for a minimum amount of time and money, a blighted, rundown old store was changed into a bright, airconditioned, partially carpeted early learning center.

USE FOUND SPACE AND MOVE IN FASTER

Write: Sally Cook, Director
Sea Pines Montessori School
Hilton Head Island, S.C. 29928



REFRIGERATOR WAREHOUS
Write: Julia Haddad,
KLH Child Developmen
38 Landsdowne Street

SUPERMARKET
Write: Helen Lewis, I
Community Learning C
2503 Good Hope Road,
Washington, D.C. 200

tessori
on the edge
tion and a
orkers
construc-
conditioning,
sphalt tile,
the school.
ime and
was changed
ially carpeted

REFRIGERATOR WAREHOUSE
Write: Julia Haddad, Director
KLH Child Development Center
38 Landsdowne Street, Cambridge, Mass. 02139

SUPERMARKET
Write: Helen Lewis, Director
Community Learning Center
2503 Good Hope Road, S.E.
Washington, D.C. 20020

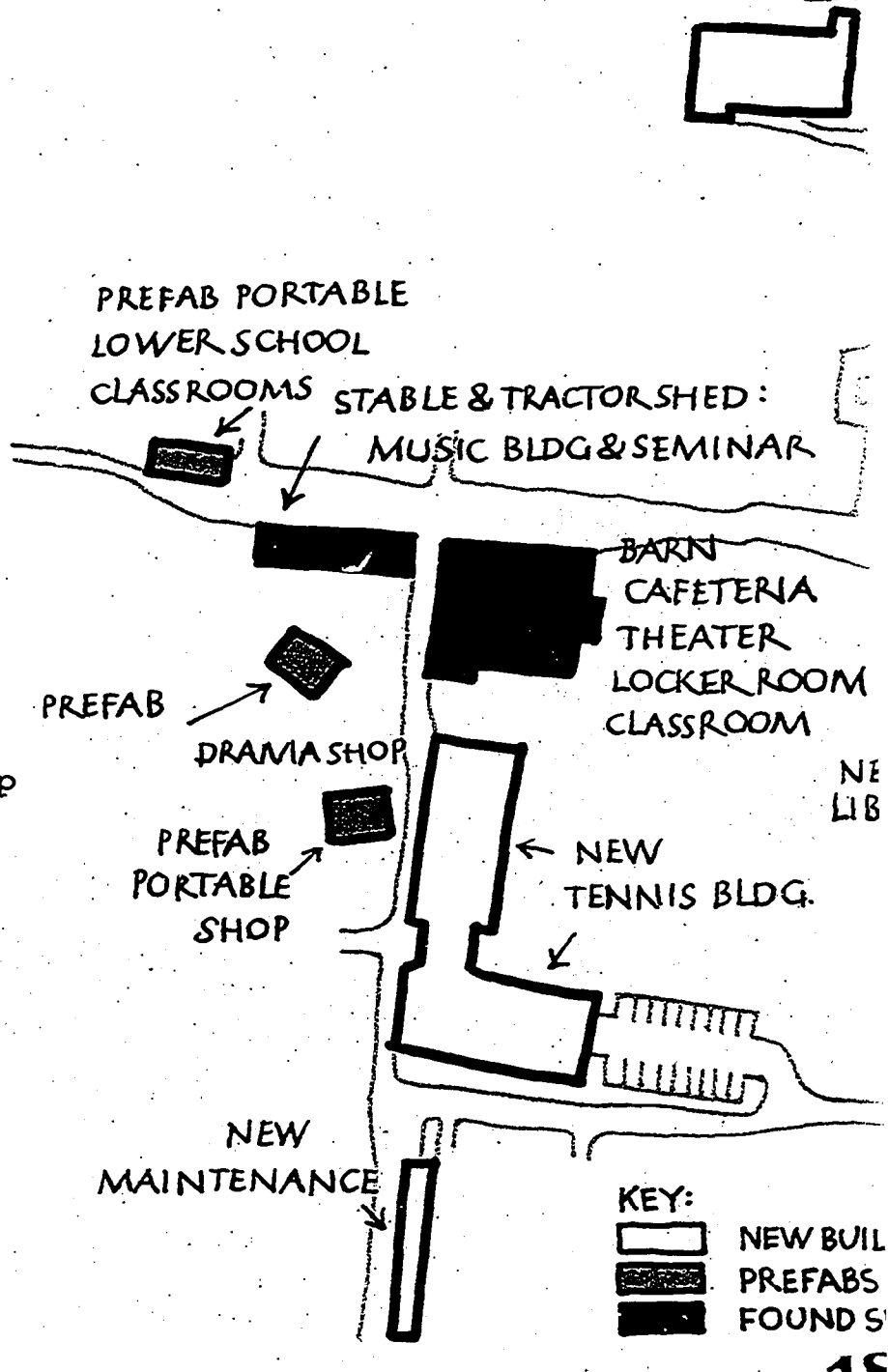
Found Space for Elementary Schools

The Catlin Gabel School, a K-12 private school for 500 students, moved onto an entire farm just outside Portland, Ore., in 1958. The Honey Hollow Farm already had a number of farm buildings with spaces easily modified to suit the objectives of the prospective school. A tractor shed, for example, made an excellent seminar room, while a basement storage area was converted into an open plan arts and crafts assembly. The main house was an architectural gold mine with nuggets of found space along every hall. Studies were converted to office space, dining rooms turned into student centers, utility rooms were restored as lounges, and bedrooms became classrooms. Even the barn was regarded as potential school space; the architects designed a new roof beam so that the center columns could be removed. The resulting column-free area was converted into additional classrooms and a cafetorium - ideal for theater, eating and large group instruction.

FOUND SPACE CAN BE MORE THAN ONE BI
THIS SCHOOL FOUND A WHOLE FARM

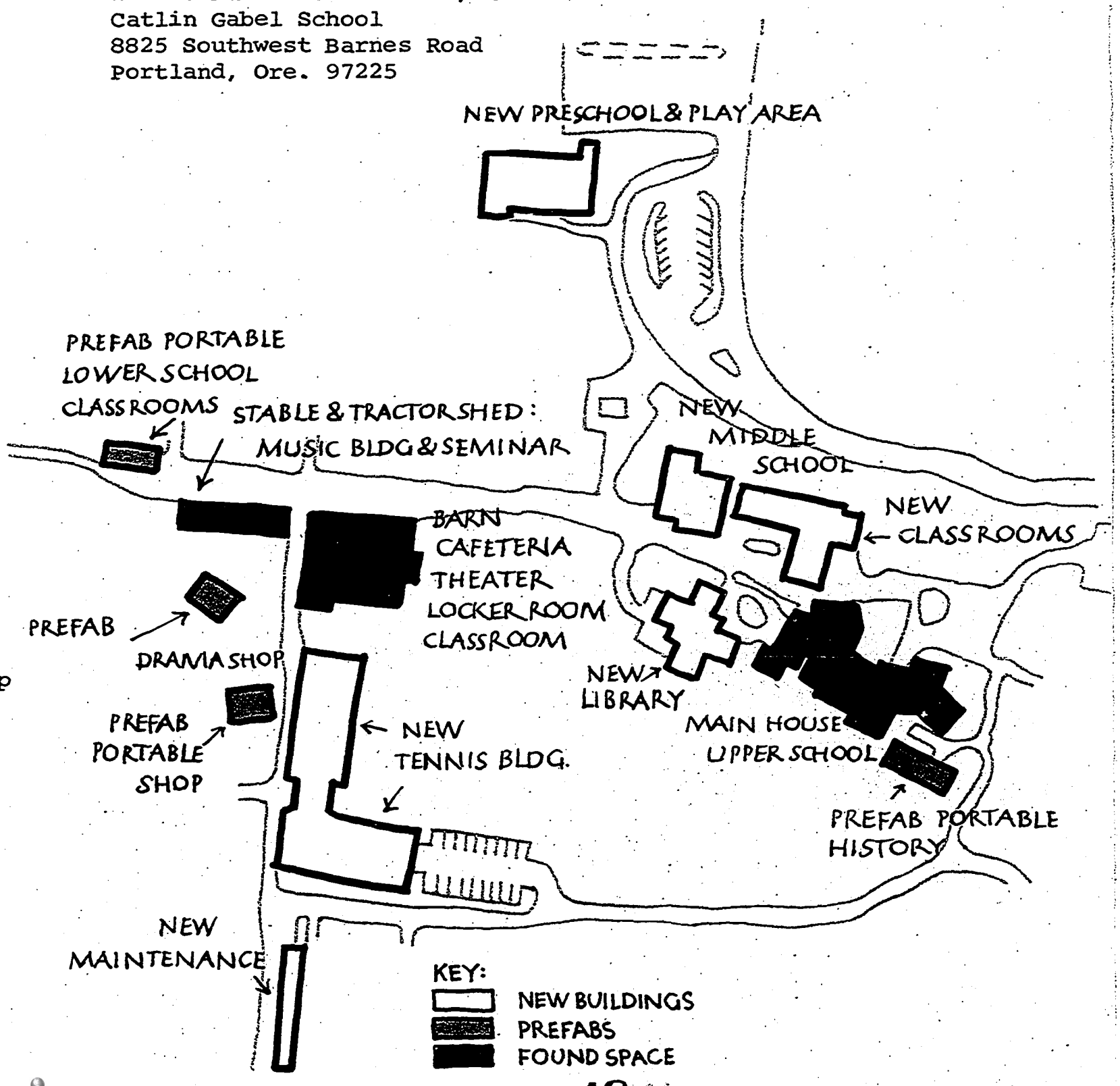
Write: Manvel Schauffler, Headmaste
Catlin Gabel School
8825 Southwest Barnes Road
Portland, Ore. 97225

NEW PRESCH



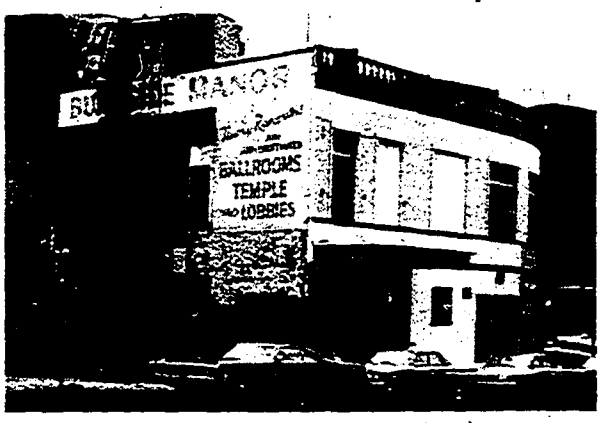
FOUND SPACE CAN BE MORE THAN ONE BUILDING --
THIS SCHOOL FOUND A WHOLE FARM

Write: Manvel Schauffler, Headmaster
Catlin Gabel School
8825 Southwest Barnes Road
Portland, Ore. 97225



CATERING HOUSE MAKES UNUSUAL SCHOOL

Write: Della Lee, Principal
Burnside Manor Elementary School
85 West Burnside Avenue
Bronx, N.Y. 10453



The New York City Board of Education, ever pressed for space, found a catering establishment for rent in the Bronx. Usually, the landlord converts a space for the tenant and adds the charges onto the rent, but in this case, the school board decided not to change anything. They carpeted the ballroom and added lights, toilets, panic hardware (axes and fire extinguishers), and alarm and security devices, but these were insignificant compared to the usual costs of a conversion. Perhaps what they left is more important. The architecture was undisturbed, the vaulting (with chandeliers) was repainted, and even the bar remains intact -- it makes a unique art and storage table. A kit-of-parts of furniture* was developed so the design of classrooms could be handled with storage definers, seats, and teaching stations. In short, Burnside Manor is a school; but it's a school today in a space which could be a catering house again tomorrow.

OLD MANSION AND BARN
Write: David S. Badger
Headmaster
The Key School (K-12)
534 Hillsmere Drive
Annapolis, Md. 21403

MATTRESS FACTORY
Write: Carmen Rivera
Principal
Public School 211
560 East 179th Street
Bronx, N.Y. 10457

SARDINE FACTORY
Write: Susan Tureen
Director, Our School
Robbinston, Me. 04671

*See: 4.FURNITURE, p.61

OLD MANSION AND BARN
Write: David S. Badger
Headmaster
The Key School (K-12)
534 Hillsmere Drive
Annapolis, Md. 21403

OLD HOUSE
Write: Lynn Raphael
Director
Shady Lane School
6319 Walnut Street
Pittsburgh, Pa. 15206

MATTRESS FACTORY
Write: Carmen Rivera
Principal
Public School 211
560 East 179th Street
Bronx, N.Y. 10457

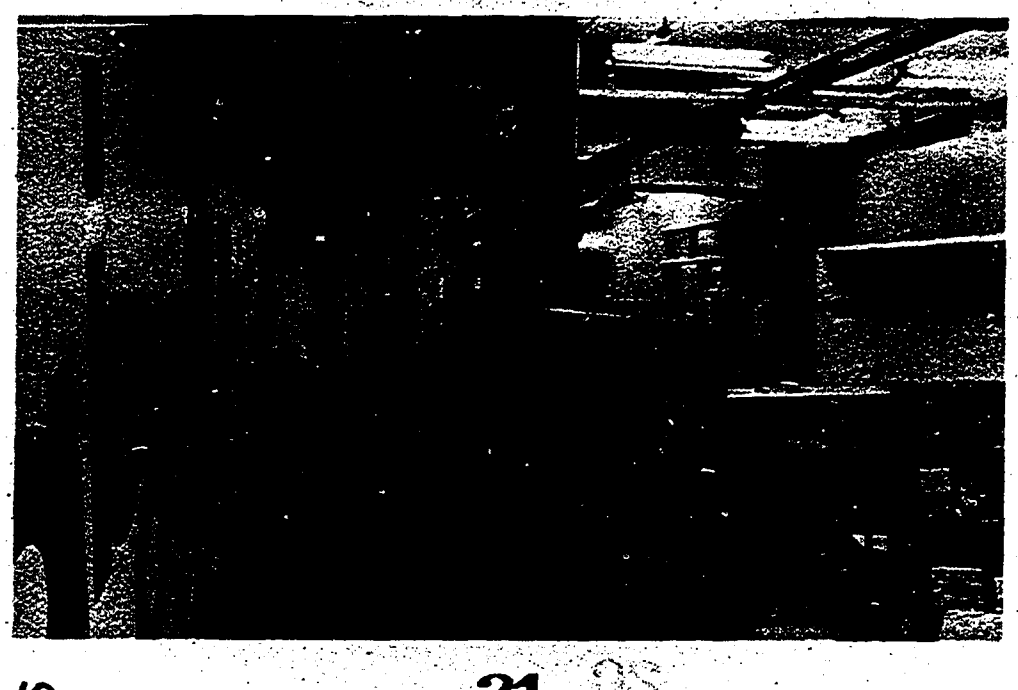
SARDINE FACTORY
Write: Susan Tureen
Director, Our School
Robbinston, Me. 04671

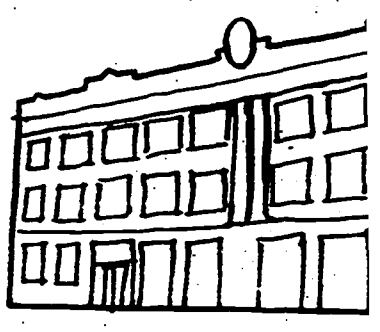
ever
stablish-
the
ant and
n this
change
and
(axes
id
gnificant
ersion.
ant. The
ilting (with
the bar
art and
niture*
ooms
s, seats,
nside
today in
se again

Found Space for Secondary Education

Some of the better ideas in education (found space among them) are coming out of the Midwest. Parents in St. Paul, Minn., for example, saw the need for an alternative to conventional education. So they went to the board of education and asked for an alternative K-12 school. They leased a warehouse with three of its five floors already airconditioned, and enough space for 500 kids. Partially funded by the school district, the parents got together and renovated the building into an exciting series of spaces. Some school furniture donated by the district appeared out of place among the large assortment scrounged from the neighborhood. This made the directors realize that the design of a school is not a static but a dynamic thing needing continual change and constant rearrangement.

Write: Nancy Mason, Chairman
St. Paul Open School Alternatives, Inc.
931 Fairmount Avenue, St. Paul, Minn. 55105



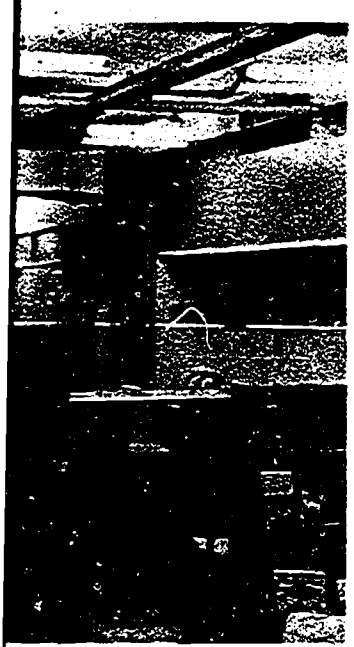


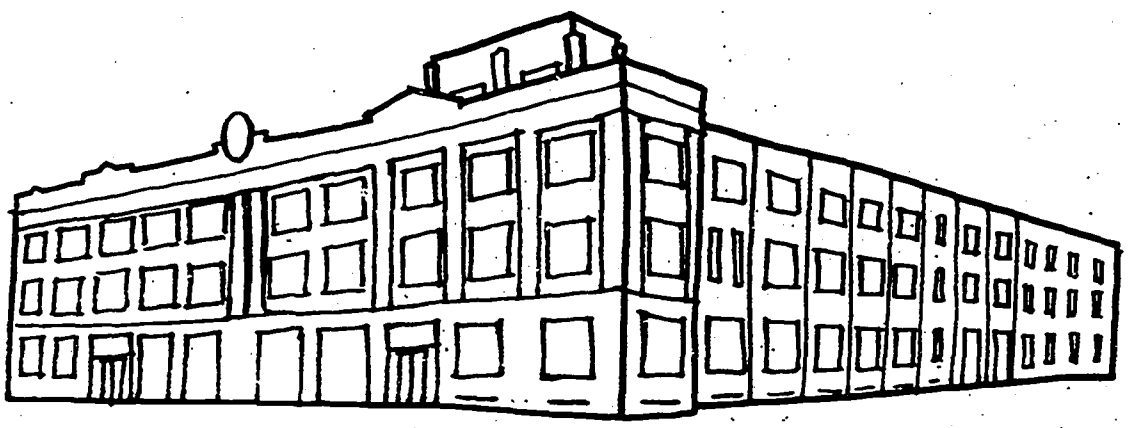
Write: Albert Cun
Woodland Job Cent
4966 Woodland Ave
Cleveland, Ohio 4

In Cleveland, the
Board of Educatio
4½ acres of usable
building, called t
a youth training p
vocational school
able on all four l
Education leases s
hires the students
training and exper
The Ohio Bureau of
offices there, and
lease additional s
to join the progra
Center is a joint
program operation
community with the

ation (found space
e Midwest. Parents
saw the need for
ducation. So they
nd asked for an
eased a warehouse
ready airconditioned,
Partially funded by
got together and
xciting series of
onated by the
mong the large assort-
hood. This made the
n of a school is not
ding continual change

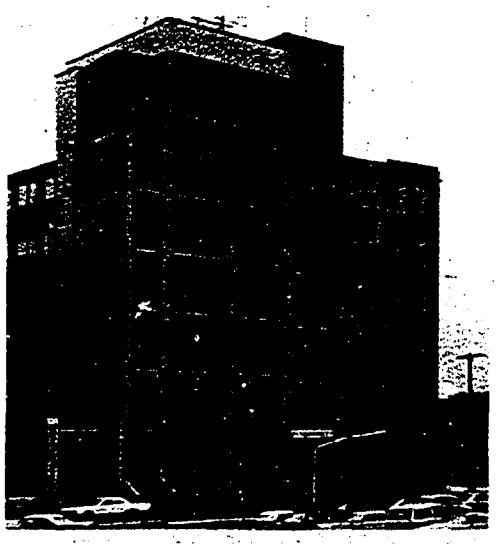
es, Inc.
Minn. 55105



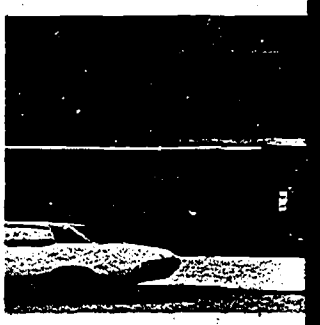


Write: Albert Cunningham, Director
Woodland Job Center
4966 Woodland Avenue
Cleveland, Ohio 44104

In Cleveland, the General Electric Company gave the Board of Education a four-story lamp factory with 4½ acres of usable floor space. The $5-million building, called the Woodland Job Center, now houses a youth training program. An entire heavy industry vocational school occupies the large bay areas available on all four levels. In return, the Board of Education leases space to General Electric; GE then hires the students at minimum wages for on-the-job training and experience in its lamp production line. The Ohio Bureau of Employment Services also has its offices there, and the Board of Education hopes to lease additional space to other industries who want to join the program. In short, the Woodland Job Center is a joint use, joint maintenance, joint program operation which blends the resources of the community with the capability of industry.

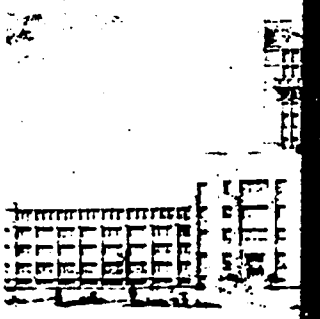


FACTORY LOFT
Write: Tom Minter, Director
Philadelphia Advancement School
5th and Luzerne Street
Philadelphia, Pa. 19140



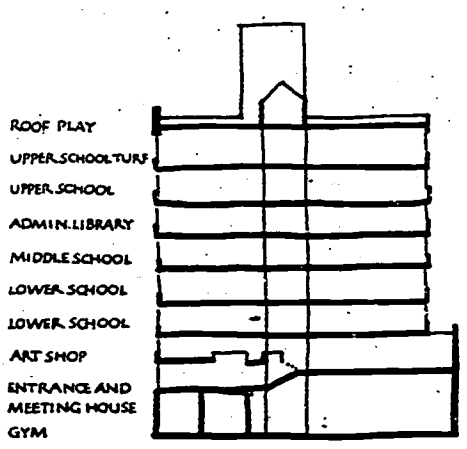
SUPERMARKET
Write: Edward
Harlem Prep Hi
2535 Eighth Av

BATHHOUSE
Write: Leo McCormack, Principal
South Boston High School
L Street Annex
1663 Day Boulevard
South Boston, Mass. 02127



CANDY FACTORY
Write: Raphael
George Westing
3301 West Fran

GREEN STAMP DISPLAY ROOM
Write: Ronald L. Thurston
Director
Vocational Village
Portland Public Schools
725 S.E. Powell Boulevard
Portland, Ore. 97302

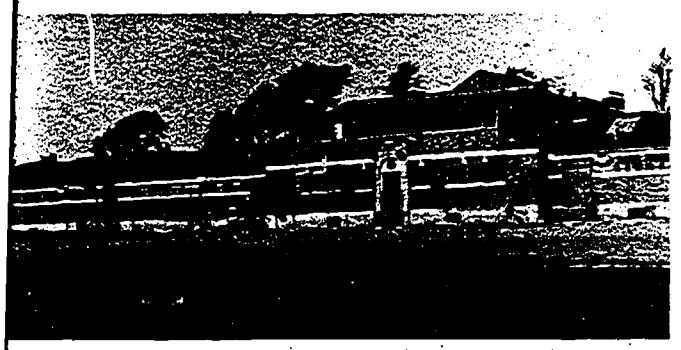


OFFICE Building
Write: Stuart P. Smith
Principal
Brooklyn Friends School
112 Schermerhorn Street, Brooklyn, N.Y. 11201

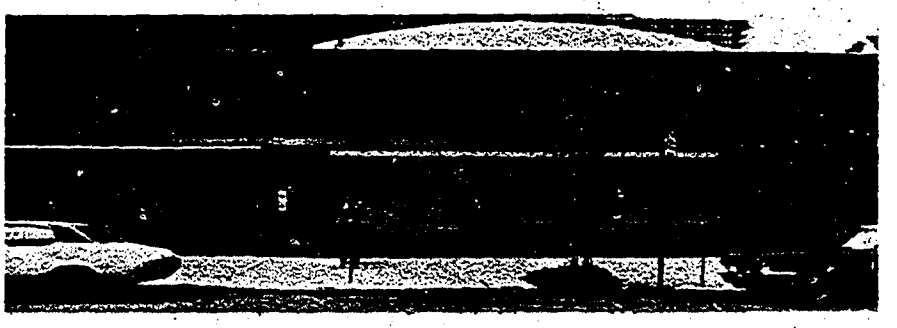
WAREHOUSE
Write: Howard J. Sl
Neal Simeon Vocatio
8235 South Vincenne

FRANCISCAN SEMINARY
HOTEL (Victoria Hal
PRIVATE JUNIOR COLL
Write: Richard D. B
Portland Residentia
(Job Core Centers)
Portland Public Sch
1022 Southwest Salm

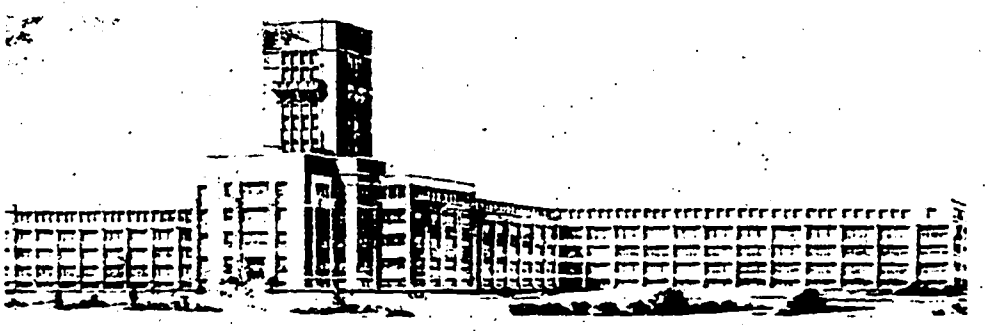
CTORY LOFT
ite: Tom Minter, Director
iladelphia Advancement School
h and Luzerne Street
iladelphia, Pa. 19140



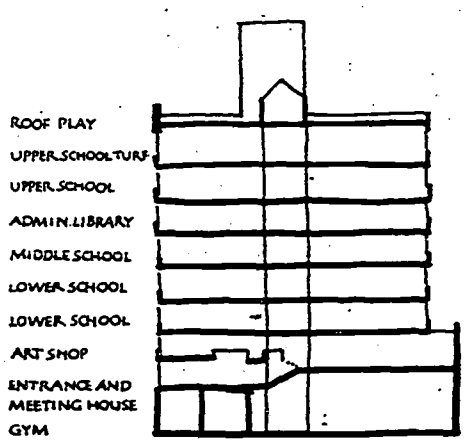
ATHHOUSE
rite: Leo McCormack, Principal
outh Boston High School
Street Annex
663 Day Boulevard
outh Boston, Mass. 02127



SUPERMARKET
Write: Edward F. Carpenter, Headmaster
Harlem Prep High School
2535 Eighth Avenue, New York, N.Y. 10030



CANDY FACTORY
Write: Raphael Sullivan, Principal
George Westinghouse Vocational High School
3301 West Franklin Blvd., Chicago, Ill.60624



Brooklyn, N.Y. 11201

WAREHOUSE
Write: Howard J. Sloan, Principal
Neal Simeon Vocational High School
8235 South Vincennes Avenue, Chicago, Ill. 60620

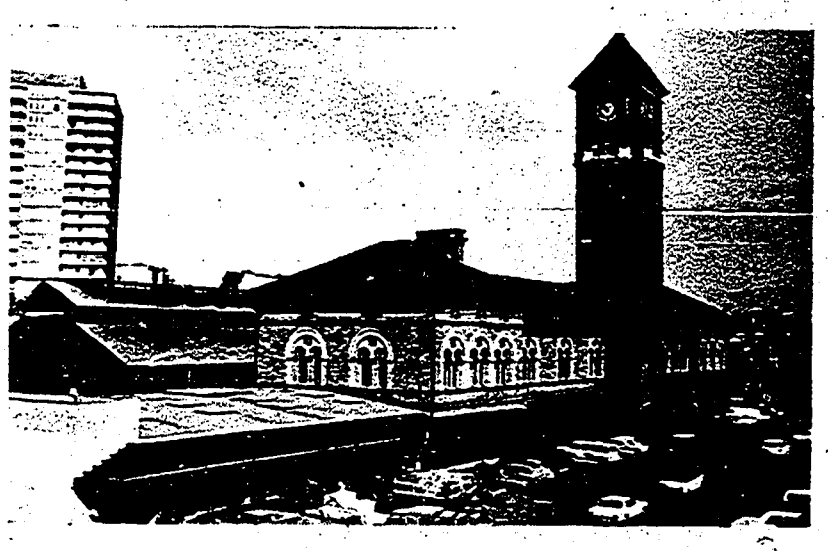
FRANCISCAN SEMINARY (Springdale campus)
HOTEL (Victoria Hall dormitory)
PRIVATE JUNIOR COLLEGE (Administration Bldg.)
Write: Richard D. Boss, Director
Portland Residential Manpower Center
(Job Core Centers)
Portland Public Schools
1022 Southwest Salmon, Portland, Ore. 97205

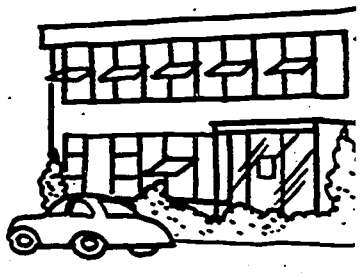
Found Space for the Special School

Found space is for everybody -- witness special schools which seem to be popping up with great frequency these days. The Maryland Institute College of Art put its sculpture and art studio into an abandoned train station. Railroad officials sold the station, its 3 3/4-acre site and air rights over the tracks for $250,000, cheap even for found space. The architects did very little to the Renaissance exterior, and increased the building's area from 22,500 to 47,000 sq ft by adding a second floor at the balcony level and an addition at the rear. Total cost of renovation was $600,000, including fees and furnishings.

PRESERVE A 65-YEAR-OLD LANDMARK -- TURN IT INTO A SCHOOL

Write: Eugene Leake, President
Maryland Institute
College of Art
1300 West Mount Royal Avenue
Baltimore, Md. 21217



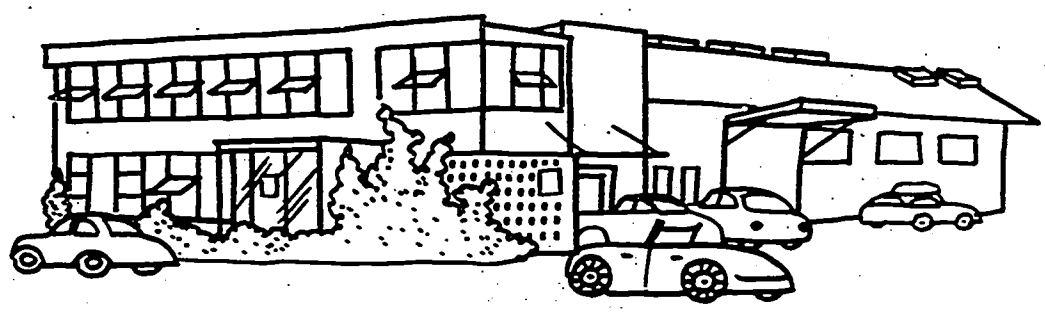


Write: Joan Levi
Bay High School
805 Gilman Stree
Berkeley, Calif.

A free school in
rent in a wareho
students and 12
an unusually ind
students and tea
the school's pro
Santana was made
to science and e
was rehabilitate
shops, recording
classrooms and 1
building their o
this one is avai
Switchboard run

SANTANA SPEAKER
IN THE BAY HIGH

ness
pping
The
ut its
andoned
sold the
r rights
even for
ry little
creased
47,000
he
e rear.
00,



Write: Joan Levinson, Director
Bay High School
805 Gilman Street
Berkeley, Calif. 94707

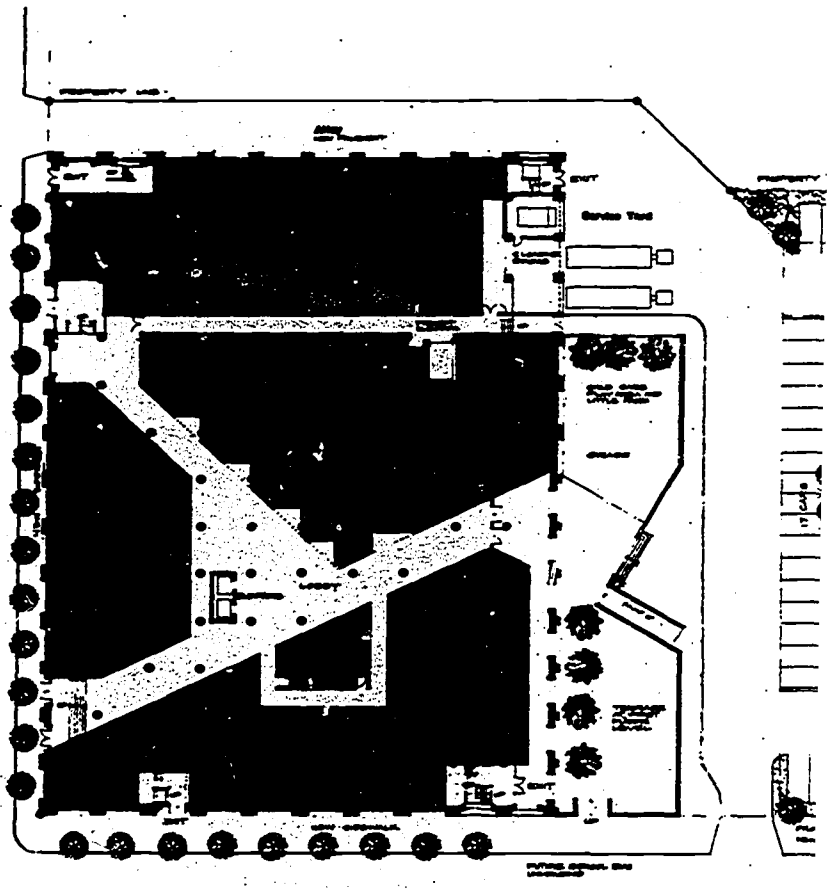
A free school in Berkeley found space for rent in a warehouse. With between 60 and 70 students and 12 teachers, Bay High School has an unusually independent economic base: students and teachers work to support and sell the school's products -- the sound system of Santana was made here. Curriculum is oriented to science and electronics, and the building was rehabilitated for auto body and repair shops, recording studios, cabinetry shops, classrooms and libraries. The kids are even building their own theater. Information on this one is available from the Education Switchboard run by the school: 415/526-0550.

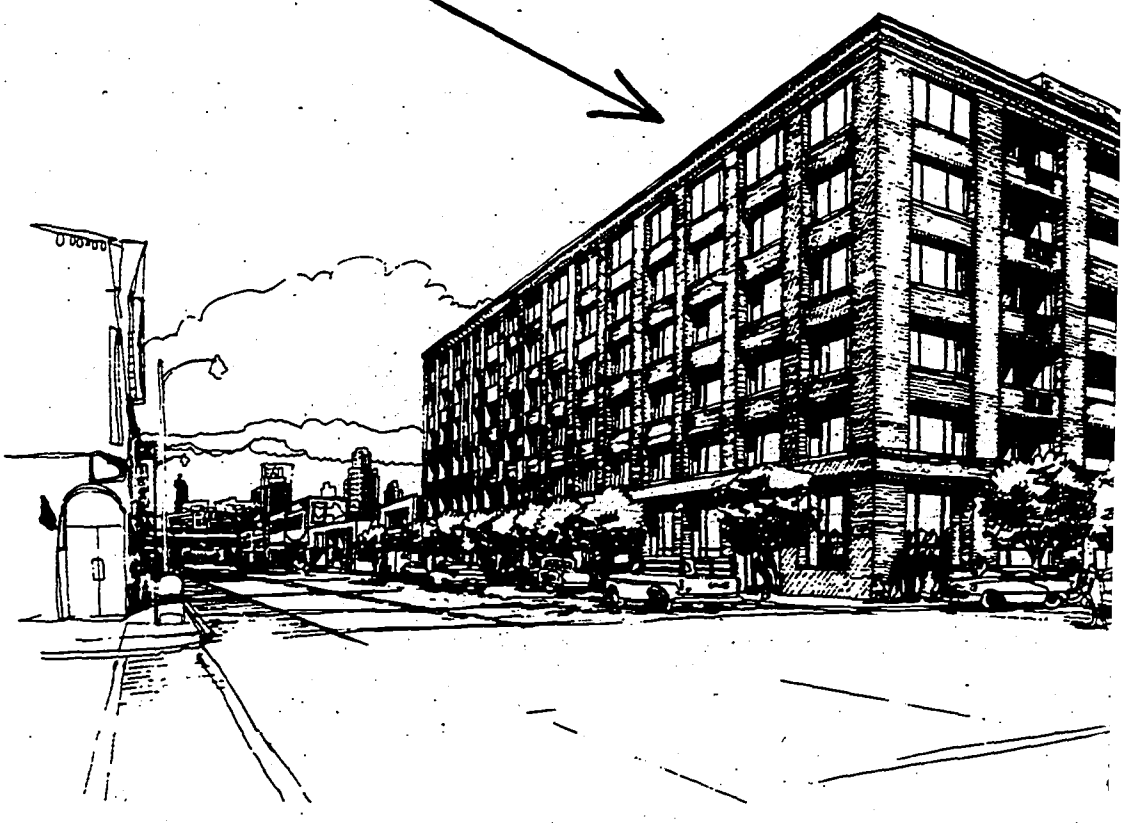
SANTANA SPEAKER CABINETS ARE PRODUCED IN THE BAY HIGH SCHOOL WOODSHOP.

EARTHQUAKE-PROOF!

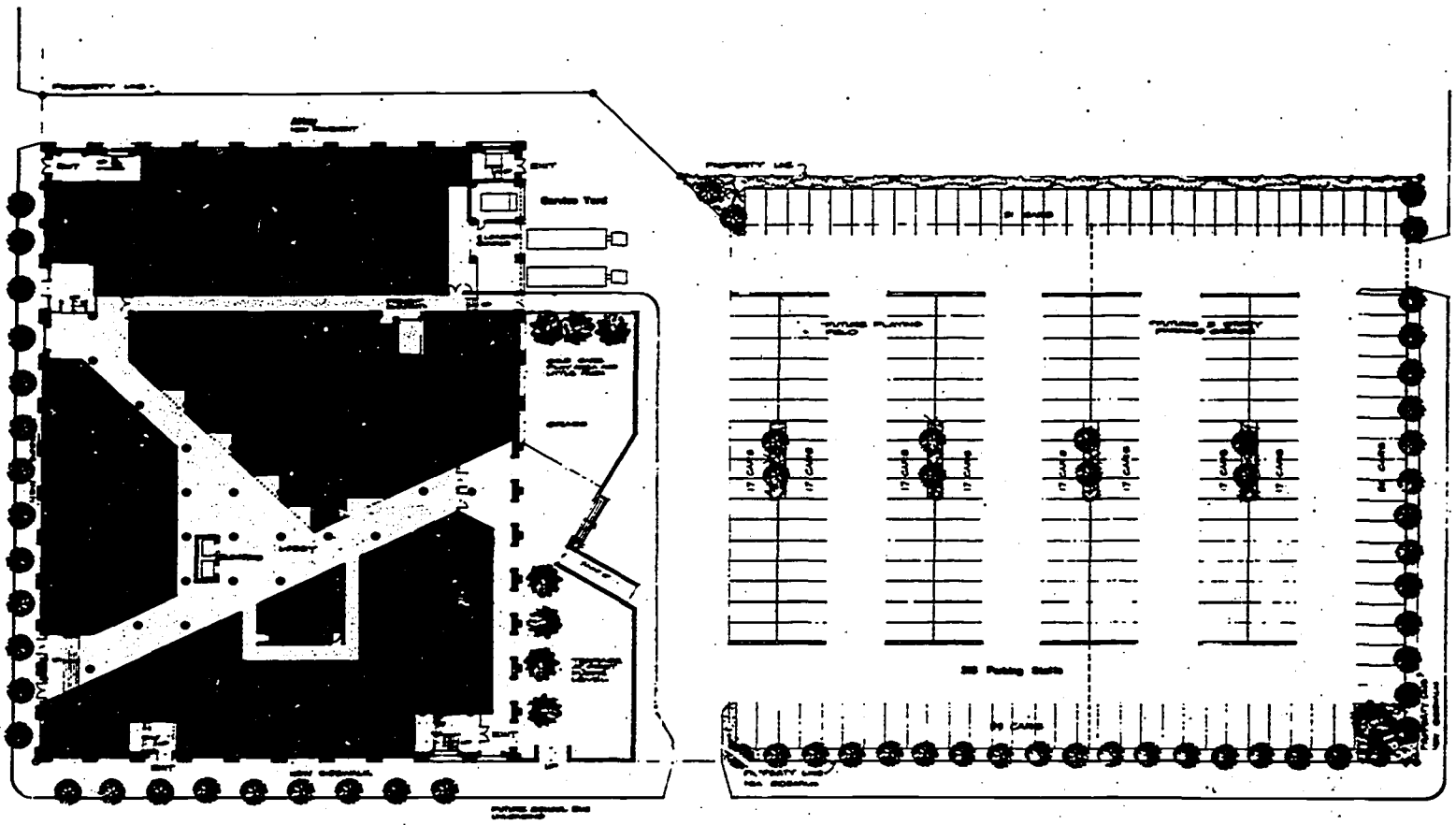
Write: George Rusteika
Associate Laboratory Director
Far West Laboratory for Educational
Research and Development
1 Garden Circle
Hotel Claremont
Berkeley, Calif. 94705

The Far West Laboratory for Educational Research and Development needed space and found it in an old warehouse in San Francisco. Partial structural and architectural renovation is now underway. Eventually, the building will have 300,000 gross sq ft of earthquake-proof, easily rentable space. As the Far West Lab needs only one-third of the space, other community-oriented programs may rent space in the building with a community group itself acting as the renting agent for the entire building. The San Francisco Board of Education, for example, is interested in putting an experimental community school in it; an alternative school called Opportunity Junior High is already on the site. An interesting mix of laboratories, schools and local agencies should result.



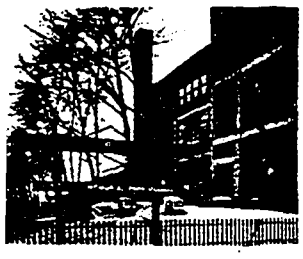


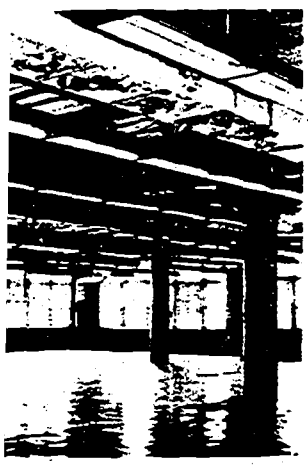
ional



Found Space Cost Analysis

Write: Glen Earthman
Executive Director, School Facilities
School District of Philadelphia
Parkway at 21st St., Room 903
Philadelphia, Pa. 19103





n
School Facilities
Philadelphia
, Room 903
9103

The Olney High School Annex in Philadelphia is located in a former government testing laboratory. While planning the renovation of this building, the architects, engineers, and the staff of the School District of Philadelphia developed a simple numerical guide for estimating the cost advantages in a found space project. It works like this: if the exterior walls in your found building are about 70% acceptable, you multiply 70% by the average acceptability of walls in all schools, which is 10%, to get a value of 7%. After you do this for each of the building's systems (with an architect's or engineer's help), you simply add up the values to get what percent of the cost of an equivalent new school your found building represents. In this case, the testing laboratory was 55% of building a new plant. Therefore, 45% of the estimated new school cost can be spent refurbishing the found space to bring it up to current school standards. This computation does not include the purchase or lease cost of the found building which, of course, should not exceed the 55% cost figure.

Cost Analysis Data	Average % Acceptability in All Schools	Olney's Average	
Exterior Walls	10%	70%	
Roofing	3	100	
Flooring	4	0	(
Ceilings	3	20	
Partitioning	9	10	
Wall Finishes	2	0	(
Fixed Equipment	5	0	(
Miscellaneous Items	4	0	(
Total	40%		1]
Excavation & Substructure	5%	100%	5
Vertical Frame	2	100	2
Horizontal Frame	18	90	16
Total	25%		23
Heating, Ventilation & Airconditioning	20%	50%	10
Plumbing	5	75	3
Electrical	10	65	6
Total	35%		20
Total	100%	--	55

Average % Acceptability in All Schools	Olney's Average	Actual Value
II	I	III
10%	70%	7.0%
3	100	3.0
4	0	0.0
3	20	.6
9	10	.9
2	0	0.0
5	0	0.0
4	0	0.0
40%		11.5%
5%	100%	5.0%
2	100	2.0
18	90	16.2
25%		23.2%
20%	50%	10.0%
5	75	3.8
10	65	6.5
35%		20.3%
100%	--	55.0%
		IV

Found space is the judicious use of society's unwanted architecture. It often carries an additional bonus for the user, since it can be leased on a "pay-as-you-go" plan with funds from an operating budget instead of from capital expenditures. Found space can be acquired fast, too. More often than not, it is only a matter of months between finding an old building and moving into it. But the process of planning and constructing a new building can take years. Found space is relatively inexpensive; it recycles the urban environment; it shoots life and activity into old neighborhoods; and it is applicable to a variety of needs for a variety of clients.

2. MODERNIZATION

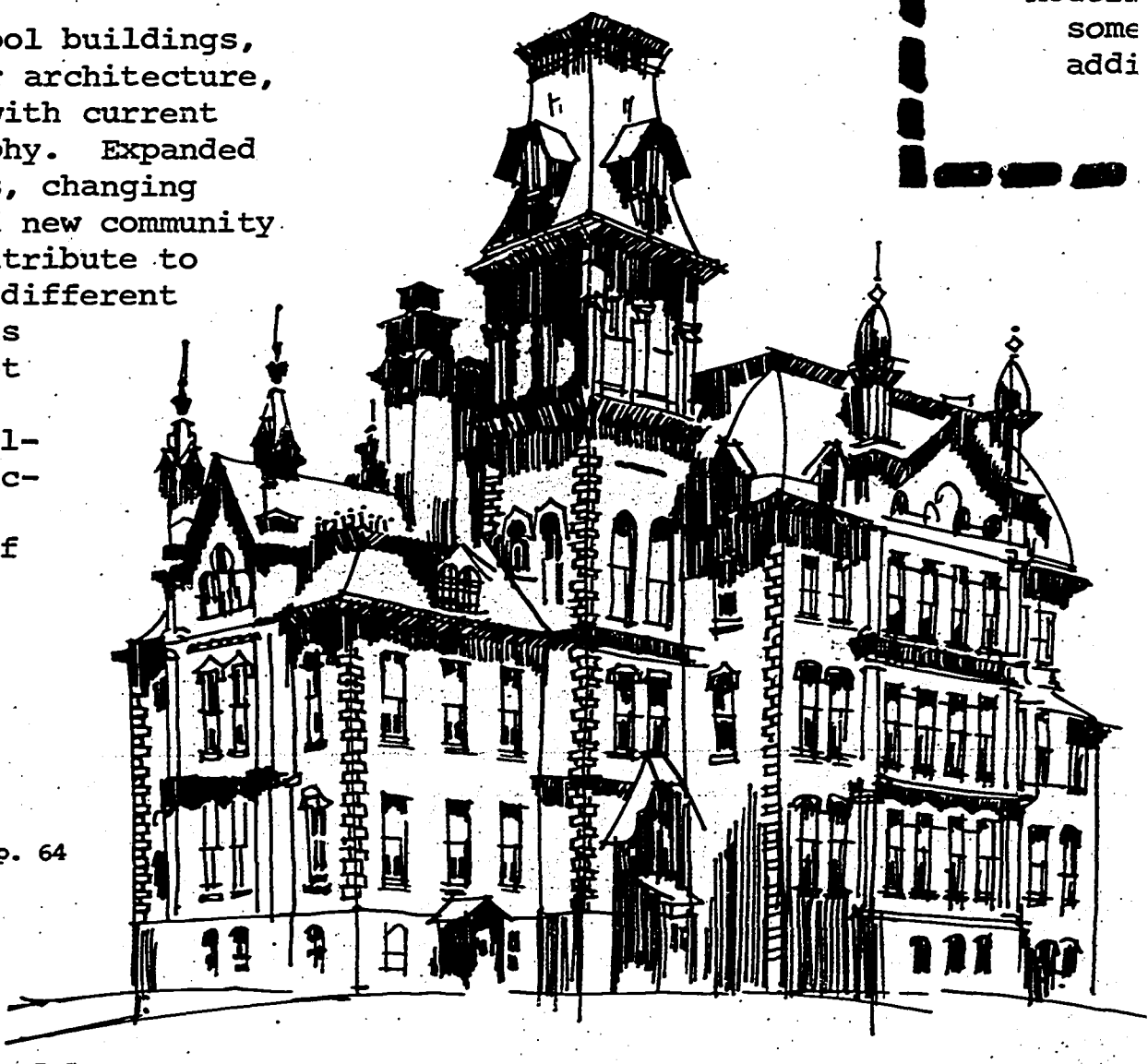
The word "rehabilitation" usually means a paint-up, clean-up, fix-up job which results in a building that is as good as the day it opened. Unfortunately, the way a school was designed yesterday is not good enough to accommodate today's changing standards to tomorrow's changing needs. Therefore, we will use the word "modernization" because it expresses something more than rehabilitation. In this report, modernization denotes the process which preserves all that is good in old schools while, at the same time, adding to and altering them to fit modern requirements and future needs.

Remoda

Rehabi
of t
sect

Moderr
some
addi

The majority of school buildings, regardless of age or architecture, are not compatible with current educational philosophy. Expanded educational programs, changing teaching methods and new community involvement* all contribute to a need for more and different kinds of space. This need, however, is not in keeping with the amount of money available for new construction. Therefore, increasing numbers of school districts are recycling old school buildings -- giving them a new lease on life through modernization.

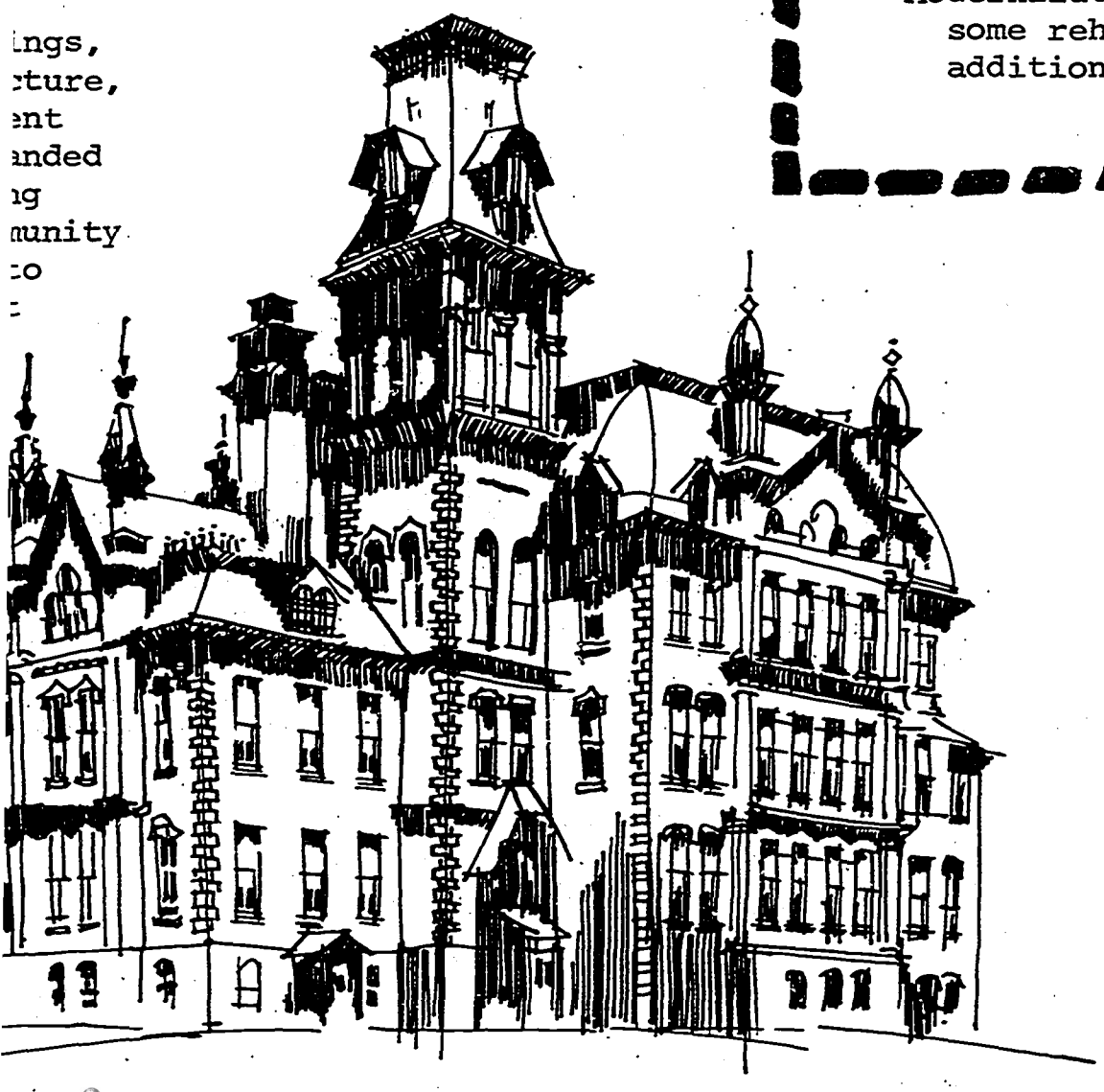


* See: 5.COMMUNITY/SCHOOL, p. 64

RNIZATION

ıally means a paint-up, clean-up,
ı building that is as good as the
, the way a school was designed
to accommodate today's changing
ging needs. Therefore, we will
because it expresses something
ı this report, modernization
serves all that is good in old
me, adding to and altering them
ıd future needs.

ings,
cture,
ent
anded
ıg
munity
co
:



Definition of Terms

Remodeling - a change in structure.

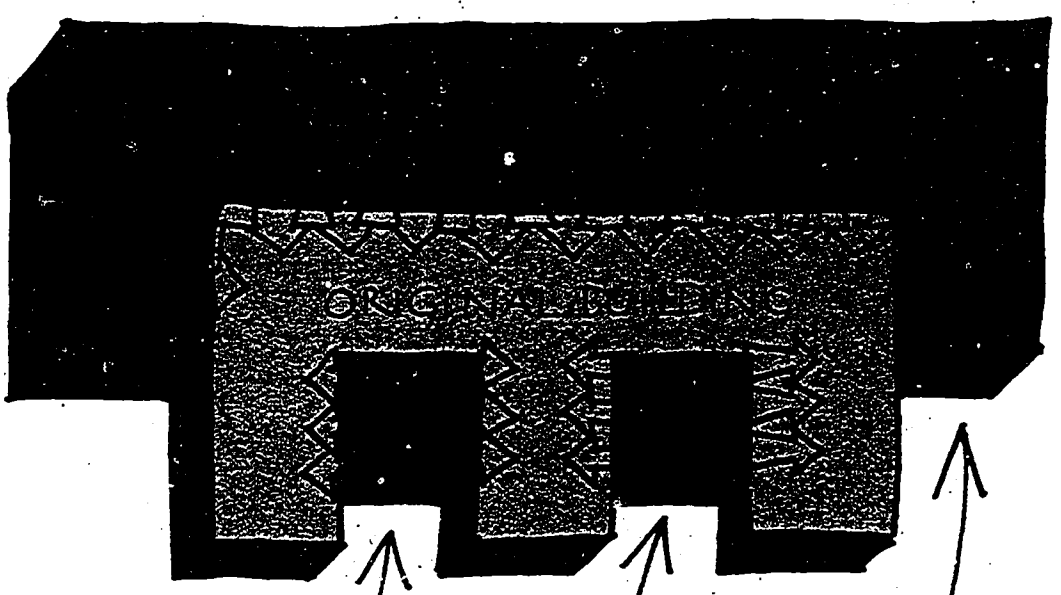
Rehabilitation - general overhauling of the complete building or a major section of it to improve its use.

Modernization - some remodeling and some rehabilitation, often involving additional construction.

The Changing Need for Space

KEY

- Additions to original building
- Interior modification of existing building



There are many different ways of adding space to an old building, and most modernization projects include some kind of new construction. Typical "finger-plan" buildings (brown) are often filled between the wings of their double-loaded corridors (halls with classrooms on both sides) or given a new face with a wrap-around addition. Additions to old school buildings, however, ultimately change the character and the function of older, adjacent spaces. Circulation patterns, the relationship of educational space to storage and service, the provision of "wet" space and toilets require a close look at the old construction as a supplement or adjunct to the addition. In essence, a modernization project means that users and architects alike have to regard a building and its addition as a single continuous space -- not as a series of individual, loosely connected areas.

SPACES N
IN OLD B

Professi
faculty:
office s
rooms, p
librarie

Faculty

Student

Guidance

Spaces f

Spaces f

Library-

Science

Art stud

Music ro

Individu

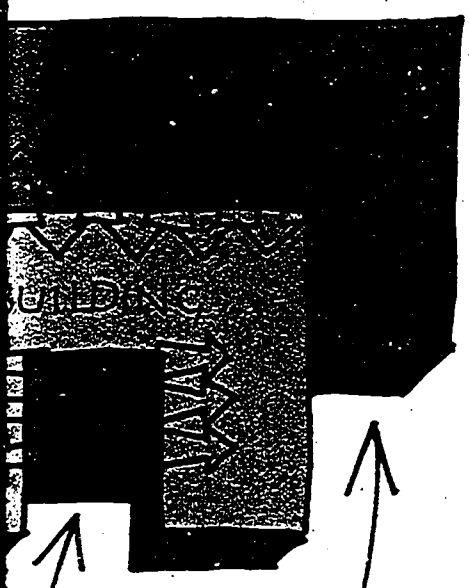
Storage

Physical

KEY

Additions to original building

Interior modification of existing building



adding
t modern-
d of new
an" build-
ween the
idors
des) or
nd addi-
ildings,
aracter
nt spaces.
nship of
service,
toilets
onstruc-
o the
ation
itects
nd its
pace --
osely

SPACES NEEDED, BUT NOT OFTEN FOUND, IN OLD BUILDINGS

Professional facilities for the faculty: team planning areas, office space, clerical space, work-rooms, professional development libraries, etc.

Faculty dining rooms

Student conference areas

Guidance and pupil services

Spaces for large group instruction

Spaces for instructional media

Library-resource centers

Science facilities

Art studios

Music rooms

Individual study spaces

Storage spaces

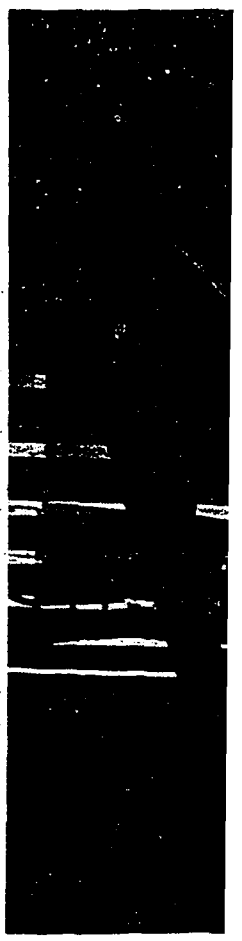
Physical education facilities

The Changing Need for Space

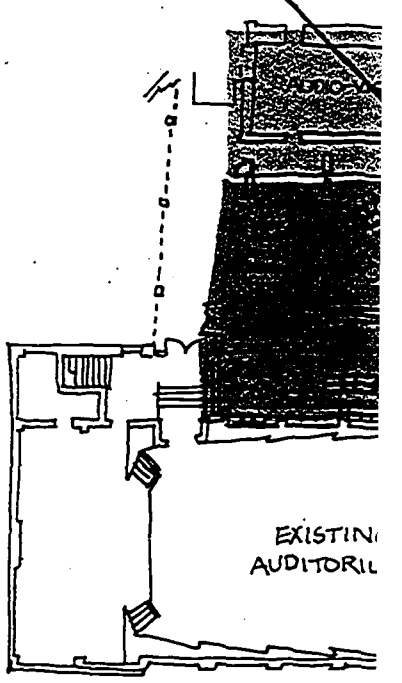
Write:
James A. Hopson
Superintendent
School District of
University City
725 Kingsland Avenue
University City, Mo. 63130

One method of fulfilling the need for space is to modernize an underused element of an existing school. Gymnasiums, cafeterias, corridors, auditoriums and storage spaces are natural targets for conversion into more efficient spaces. For example, change in the educational program in the 40-year-old University City (Missouri) High School called for the addition of a centrally located Learning Resource Center. The architect determined that the school's little-used, four-story open court would be the ideal location, if the courtyard were roofed over at the third-floor level and the former exterior walls removed. The result was a large, two-level study area around which the various auxiliary elements could be easily grouped. Thinking of "space" not "spaces," the design called for the removal of partitions from three existing classrooms to create reference rooms, audio-visual areas and the circulation desk. The two levels are connected by a slightly tapered open stairway designed to give students entering the main reading area an immediate sense that the library is the real center of the school -- the place where things are happening.*

* See also Resource Centers

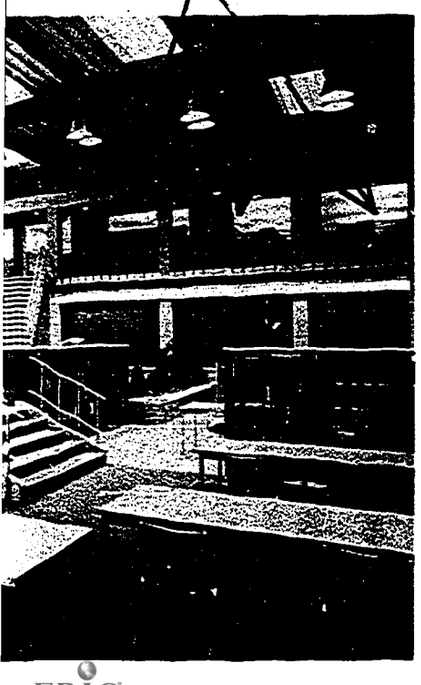


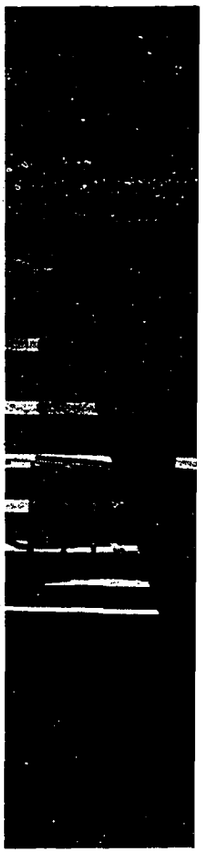
University
center has
the possibi
in the futu
rooms now h



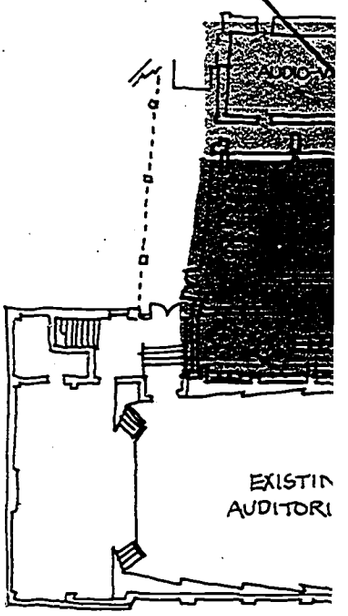
Write:
James A. Hopson
Superintendent
School District of
University City
725 Kingsland Avenue
University City, Mo. 63130

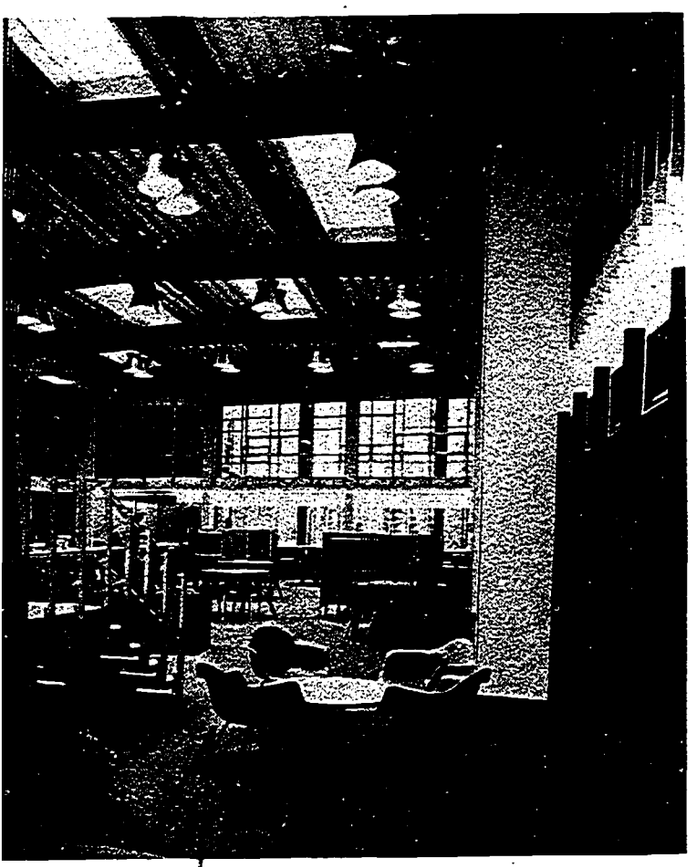
need for space is to modernize an
ting school. Gymnasiums, cafeterias,
torage spaces are natural targets for
nt spaces. For example, change in
he 40-year-old University City
d for the addition of a centrally
nter. The architect determined that
ur-story open court would be the
yard were roofed over at the third-
xterior walls removed. The result
area around which the various
easily grouped. Thinking of "space"
led for the removal of partitions
ms to create reference rooms, audio-
tion desk. The two levels are
red open stairway designed to give
eading area an immediate sense that
er of the school -- the place where



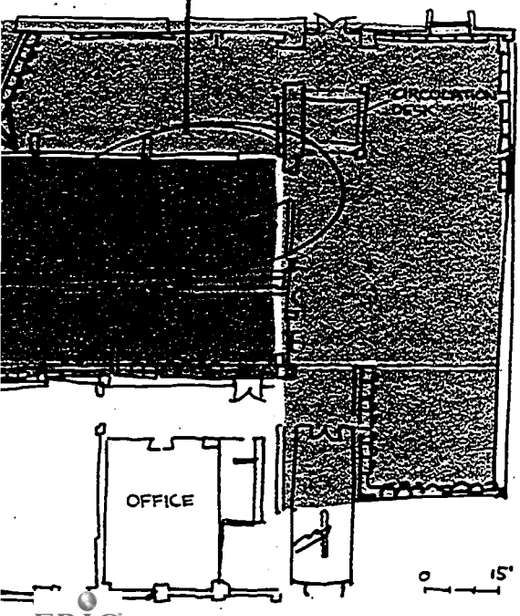


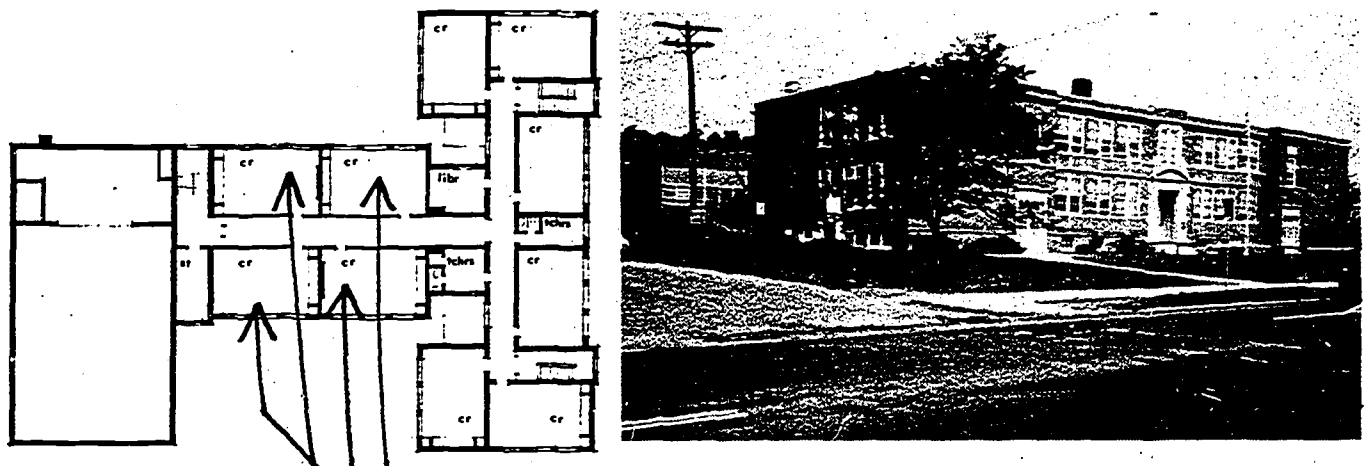
University
center has
the possib
in the fut
rooms now



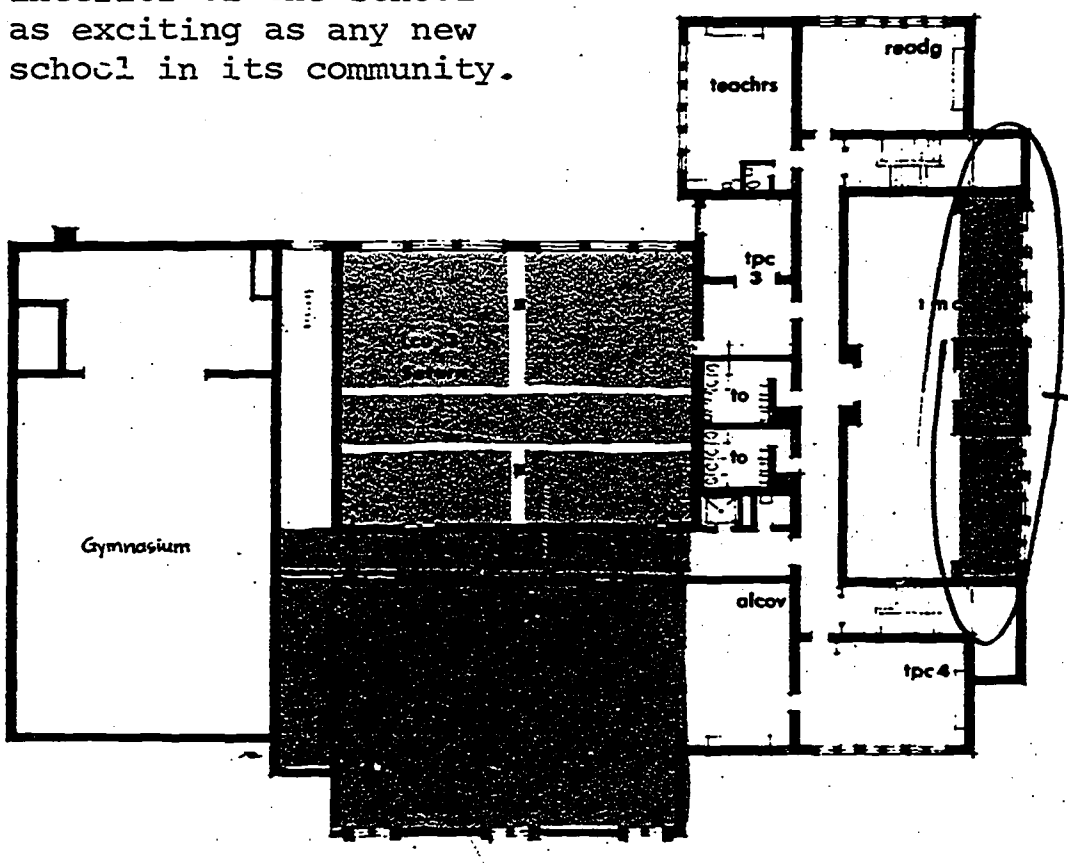


ty High School's new resource
capacity of 400 students with
ty of increasing this to 600
by removing one wall to open
ng used for classrooms.

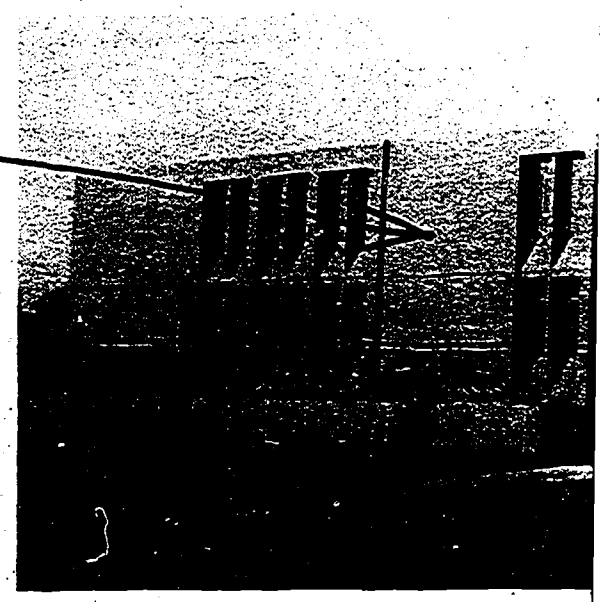


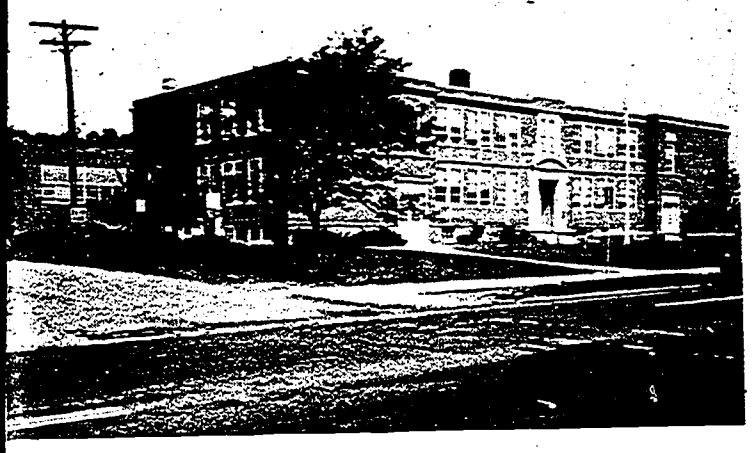


Another economical method to gain space is the capture of space already partially enclosed by the wings of a building. "Finger-plan" schools with multiple wings of single- or double-loaded corridors are often modernized in this manner, but with intelligent design, other types of schools can also be filled in. The Spring Glen School in Hamden, Conn., filled in the 3-story space between classrooms and the gymnasium. The open plan addition was also coordinated with an interior modification program which knocked out the walls of four existing classrooms on each floor to gain an additional 800 sq ft of open plan learning space. An addition at the entrance of the building also changed traditional classrooms to open learning centers and makes the entire interior of the school as exciting as any new school in its community.

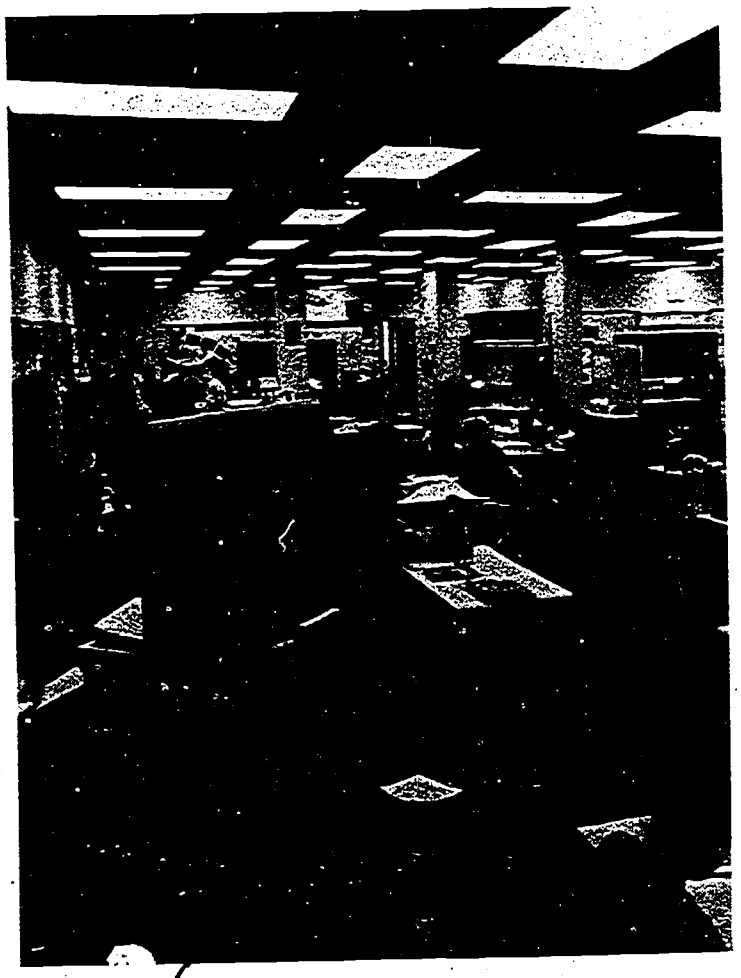


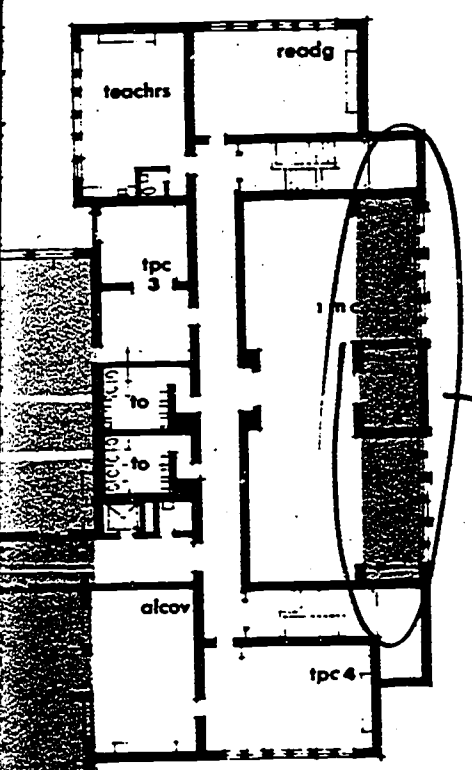
The Spring Glen modernizatic
(GREY) with modification of
resulting in two new open le
Yulo, Superintendent, Hamder
Avenue, Hamden, Conn. 06517.



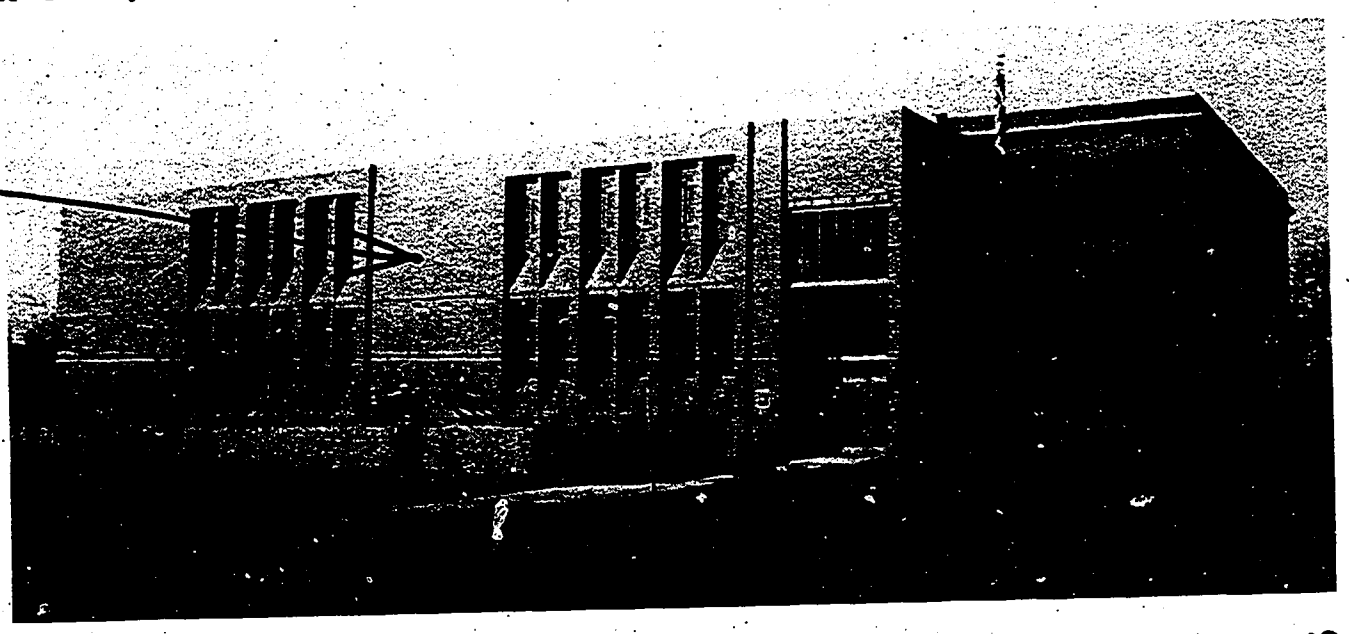


gain space is the capture of space
the wings of a building. "Finger-
ings of single- or double-loaded
d in this manner, but with intelli-
schools can also be filled in. The
Conn., filled in the 3-story space
mnasium. The open plan addition
interior modification program which
existing classrooms on each floor
ft of open plan learning space. An
he building also changed traditional
enters and makes the entire

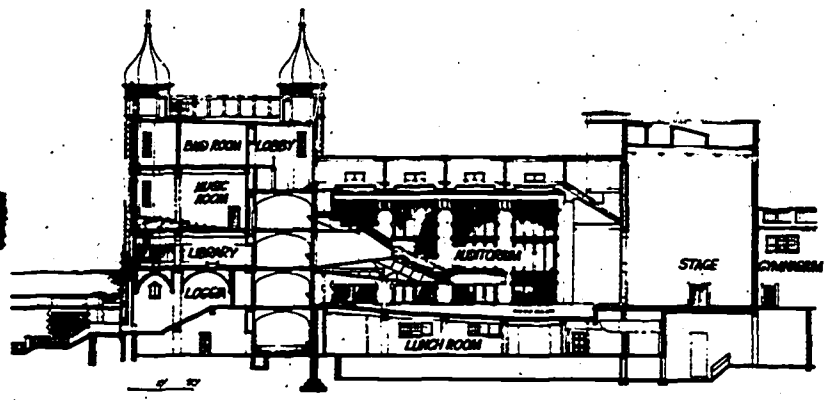




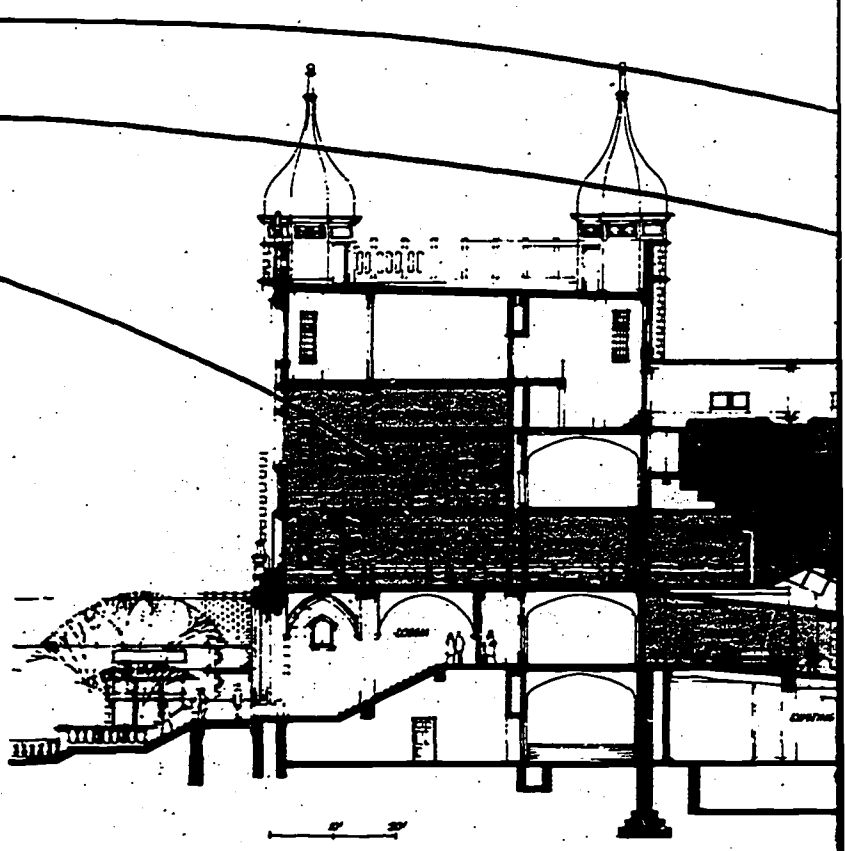
The Spring Glen modernization project coordinated the additions (GREY) with modification of original interior spaces (BROWN), resulting in two new open learning centers. Write: Frank R. Yulo, Superintendent, Hamden Public Schools, 1450 Whitney Avenue, Hamden, Conn. 06517.

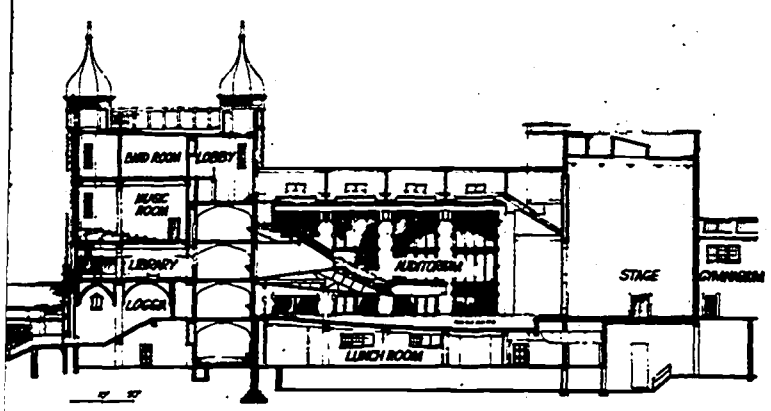


The Changing Need for Space



When there is neither ground space to build on nor open areas between wings, space can also be captured within a building by constructing an extra floor inside a large room. This method normally applies to old school buildings with high interiors, but could also be used in large-volume spaces, such as gymnasiums, that are under-used. One such school, the Roosevelt High School in St. Louis, Mo., planned a complete new life for its 2,104-seat, 42-ft-high auditorium. A bold design proposal advocated dividing the auditorium horizontally at balcony height. The balcony area was to become the new auditorium, while the space underneath would become a commons area and large group instruction rooms. The plan also reallocated space in the remaining sections of the building in order to expand overcrowded areas and use space more efficiently. For example, the huge 55-ft flyloft of the original stage was to be divided into three levels: the lower a gymnasium, the upper 3,200 sq ft for future development, and the center, a music room. The vacated space would become the upper level of the library, which would have been subdivided for book repair and storage. Without a single square foot of exterior addition, the 42-year-old gothic high school would have increased its student capacity by 480 places, turned a little-used but handsome auditorium into a highly active group of spaces and retained the dignity of an architectural classic. The district's financial difficulties were so pressing that the plan was not built, even though estimates indicated that modernization would cost less than half the amount of an equivalent new addition.



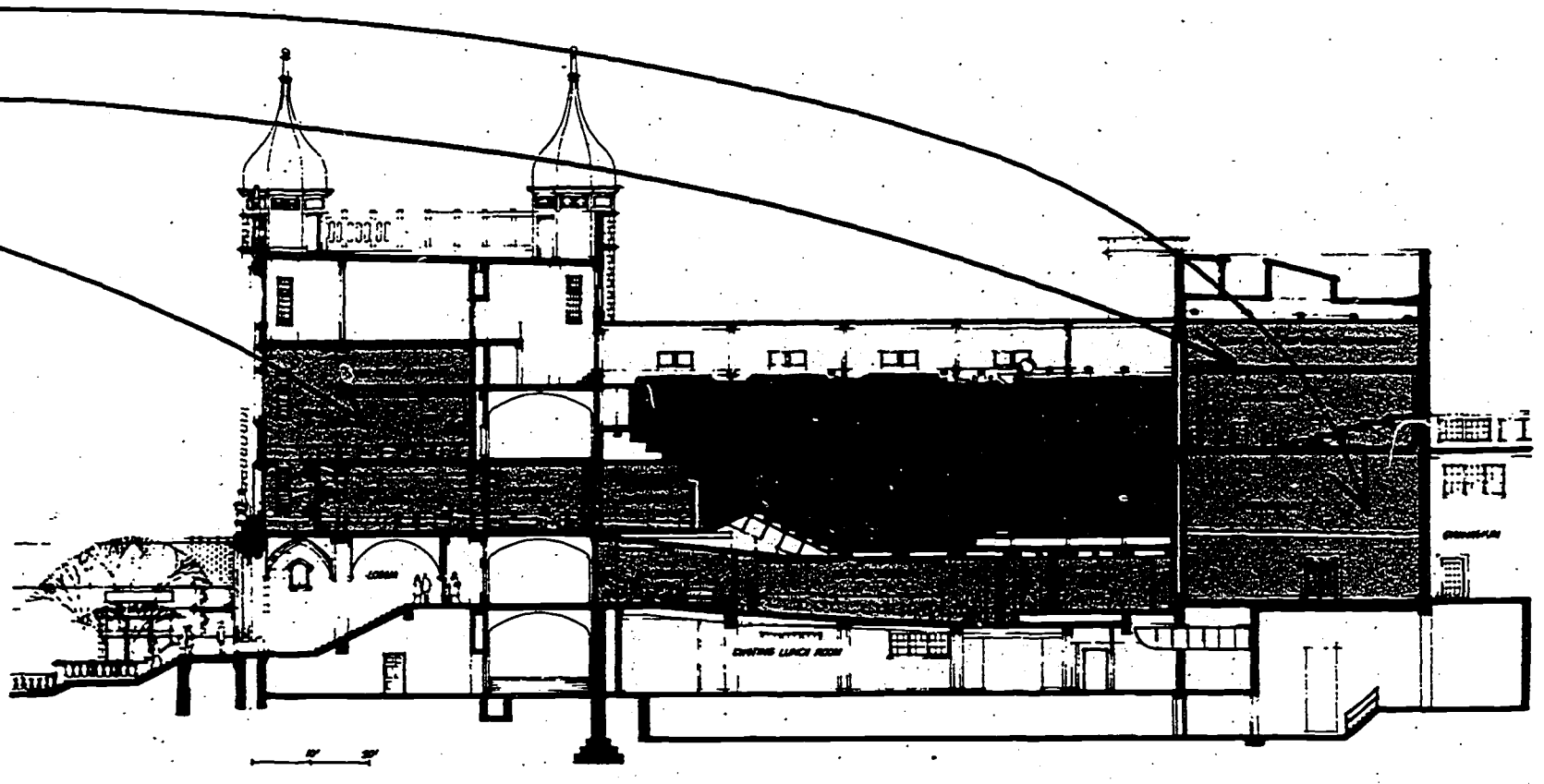


pace to build on nor open areas between
red within a building by constructing an
h. This method normally applies to old
eriors, but could also be used in large-
ums, that are under-used. One such school,
t. Louis, Mo., planned a complete new life
auditorium. A bold design proposal
ium horizontally at balcony height. The
new auditorium, while the space under-
rea and large group instruction rooms.
e in the remaining sections of the build-
wded areas and use space more efficiently.
yloft of the original stage was to be

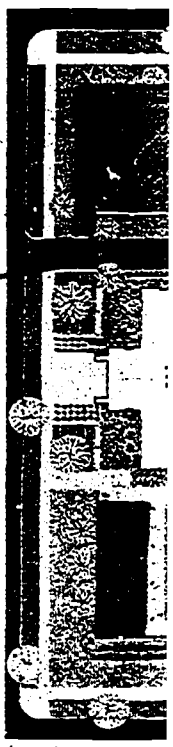
Although not yet a reality, the Roosevelt modernization plan retains a majority of the original auditorium (GREY). The plan also calls for extensive interior modification (BROWN) which reallocates much-needed space to resource centers, large group instruction and the gymnasium.

Write: Ben Graves
Project Director
New Life for Old Schools Project
20 North Wacker Drive, Suite 1734
Chicago, Ill. 60606

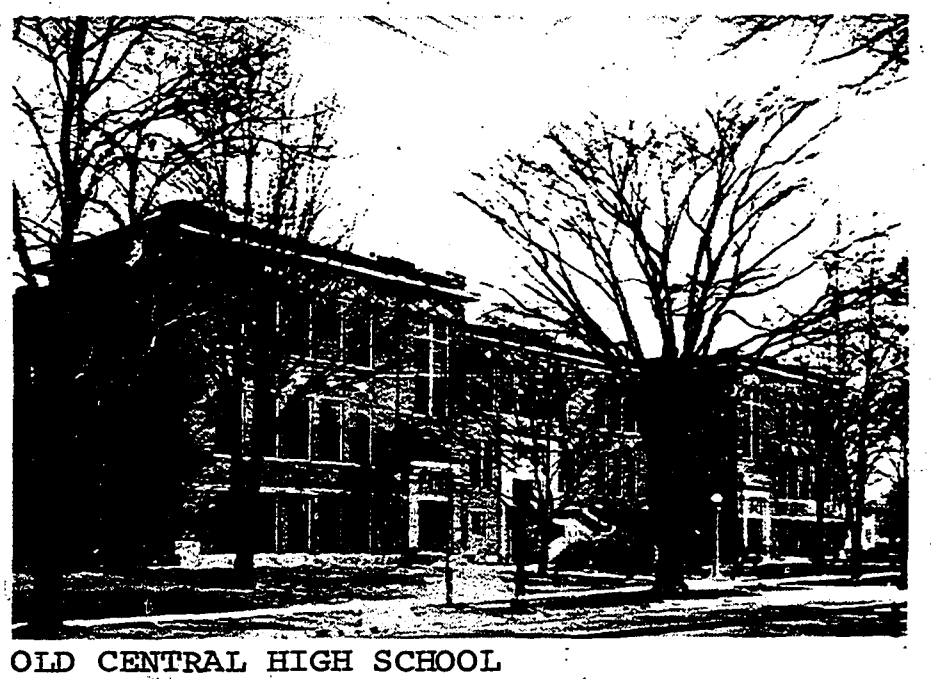
,200
and
va-
pper
uld
re-
ingle
on,
hool
nt
l a
o-
up
nity
The
ies
was
es
would
of



When a district abandons one type of school, for example a high school, it can gain space by modernizing the building to fit the needs and spatial requirements of another type, such as an elementary school.* Schools are often abandoned because the space available on the site and in the building is far too small to modernize for programs and enrollments. Very often, however, those same buildings may be just the right size for another age group. The main advantage of this sort of modernization is that the empty school can be converted before the new school students move in. In Lansing, Mich., the Old Central High School, located in a downtown area where its student population had left, was converted into a business and technology building, the first of several facilities on the new campus of Lansing Community College. While the remodeling included extensive new construction in the form of wrap-around additions, large portions of the building were modified and converted for the building trades department. An old gymnasium with a running track at the balcony level was converted into a library on the lower floor and the running track became study cubicles. Many other school districts (Portland, Ore., and Montclair, N. J.) are also taking a close look at the feasibility of conversions. In Chalmers, Ind., the Frontier School Corporation is renovating a high school into a K-4 elementary school for less than a third of the time and money needed to build a new one. Write: Dale T. Sheets, Superintendent, Frontier School Corporation, Chalmers, Ind. 47929.



Lansing
former h
School D
version
to conti
pansion
structic
Presider
419 Nort
Mich. 48

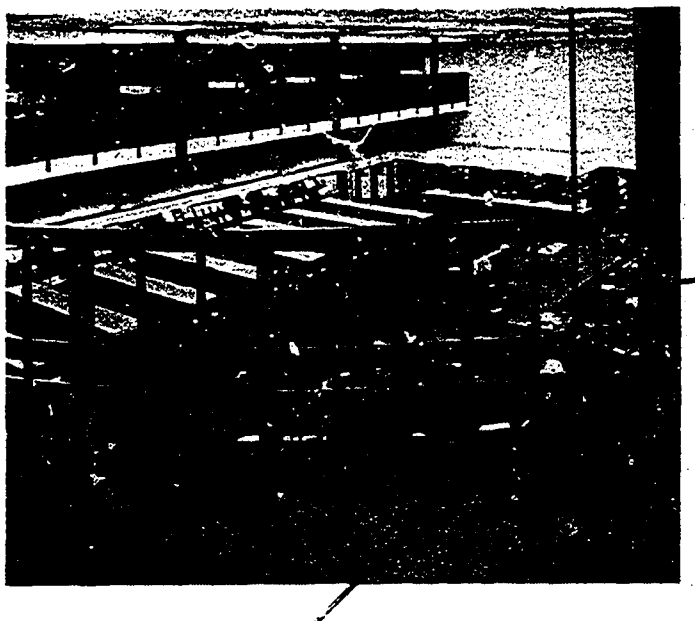


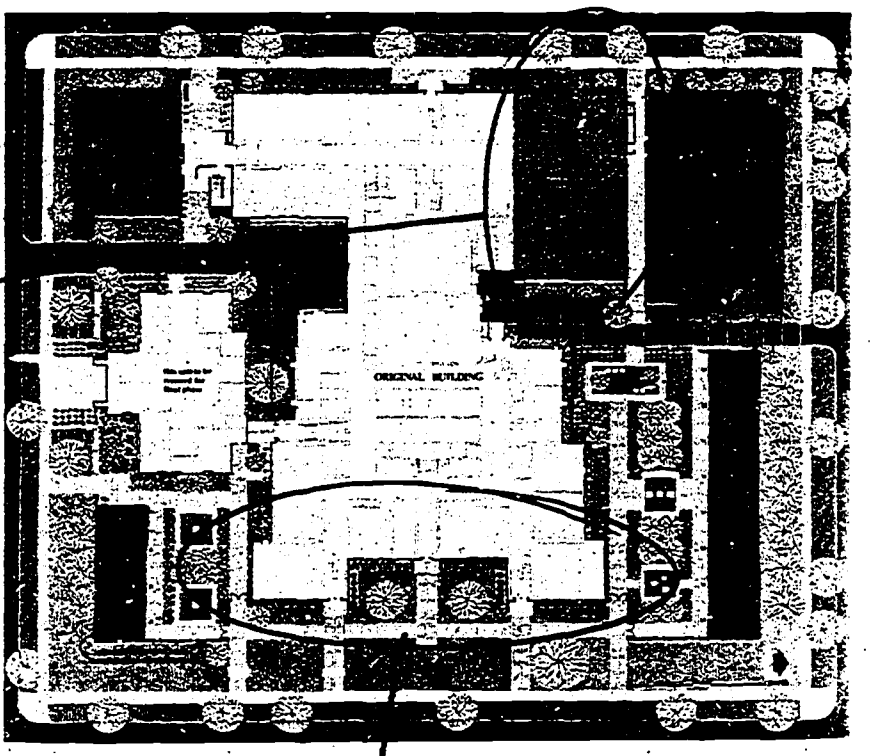
OLD CENTRAL HIGH SCHOOL

LANSING COMMU

* See: 1.FOUND SPACE, p. 4

ype of
ool,
ng the
spatial
such as
s are
ace
he build-
ize for
y often,
may be
r age
this sort
mpty
the new
ansing,
hool, located in a down-
pulation had left, was
technology building, the
the new campus of Lansing
remodeling included exten-
form of wrap-around additions,
were modified and converted
tment. An old gymnasium with
level was converted into a
the running track became
chool districts (Portland, Ore.,
taking a close look at the





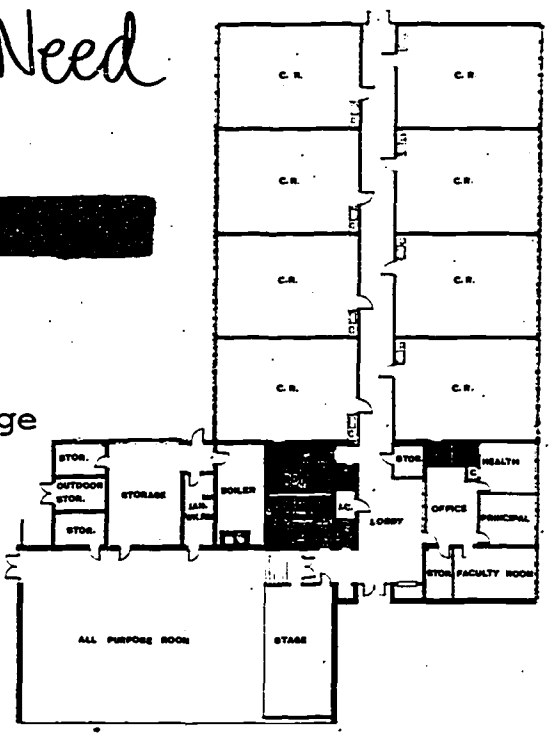
Lansing Community College purchased the former high school from the Lansing School District for $600,000. The conversion made it possible for the college to continue program and enrollment expansion before the finish of new construction. Write: Philip J. Gannon, President, Lansing Community College, 419 North Capitol Avenue, Lansing, Mich. 48914

CE L HIGH SCHOOL

LANSING COMMUNITY COLLEGE

The Changing Need for Space

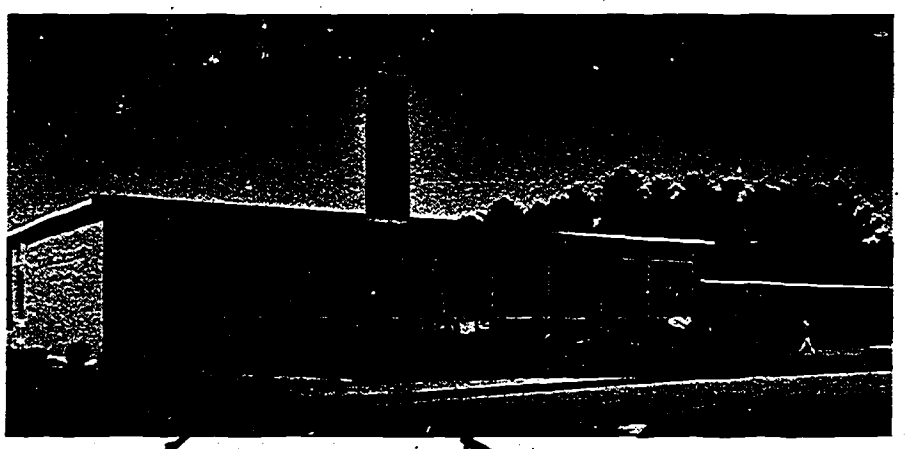
Schools can also gain space by opening up existing areas to change traditional classrooms into open plan. Generally, when modernization moves to open plan, space that was originally allocated to corridors, walls, and corners becomes useful instructional area and so increases the amount of usable space. When the Seymour Elementary School in East Granby, Conn., needed space for 175 additional pupils, it built the equivalent area of four new classrooms onto the west side of a double-loaded corridor. Through modernization of the entire interior of the original eight classrooms, the design was able to change 3,400 sq ft of traditional classroom space into 4,479 sq ft of open plan space, a net gain of 1,079 sq ft of "free" space once used only as corridors and walls. By remodeling the school during school hours, school officials report that the construction was turned to advantage by using it as a class learning experience. During construction, half the pupils at a time were housed in the original all-purpose room, which enabled the staff to try out the open plan concepts before moving into the new quarters.

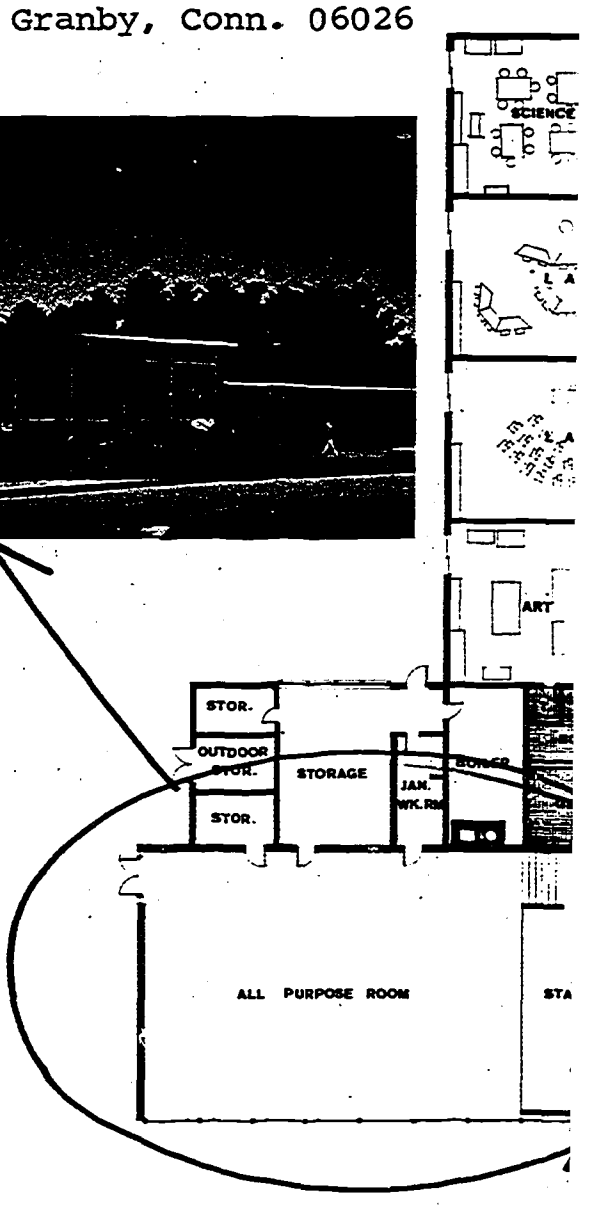


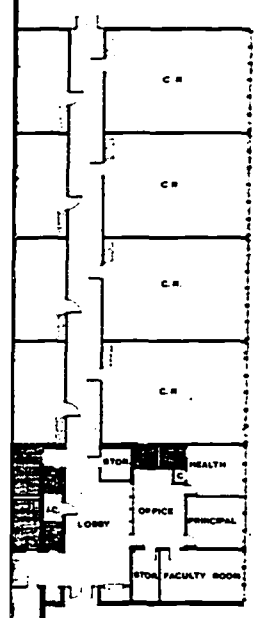
ORIGINAL SEYMOUR SCHOOL

Modernization of the R. D. Seymour Elementary school incorporated 7,100 sq ft of addition (GREY) with rehabilitation of traditional classroom area. The gain of "free" space (BROWN) increased the ratio of net usable area to gross square feet by 41%.

Write: James J. Johnson
Principal
R. D. Seymour Elementary School
185 Hartford Avenue
East Granby, Conn. 06026



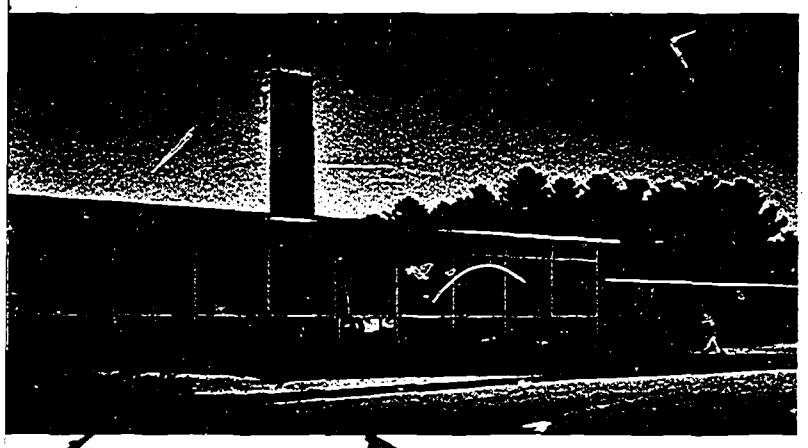


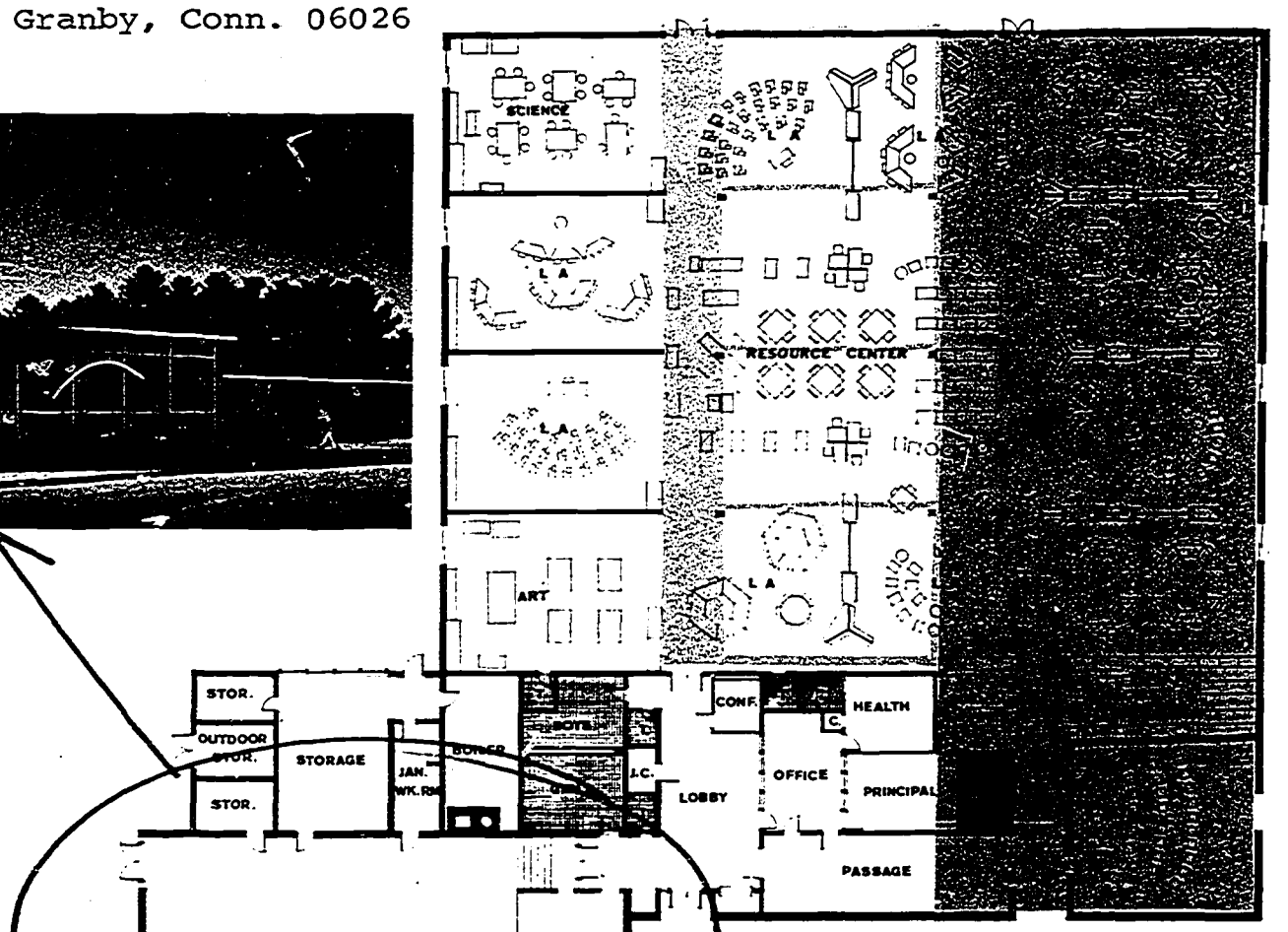


Modernization of the R. D. Seymour Elementary school incorporated 7,100 sq ft of addition (GREY) with rehabilitation of traditional classroom area. The gain of "free" space (BROWN) increased the ratio of net usable area to gross square feet by 41%.

Write: James J. Johnson
Principal
R. D. Seymour Elementary School
185 Hartford Avenue
East Granby, Conn. 06026

UR SCHOOL



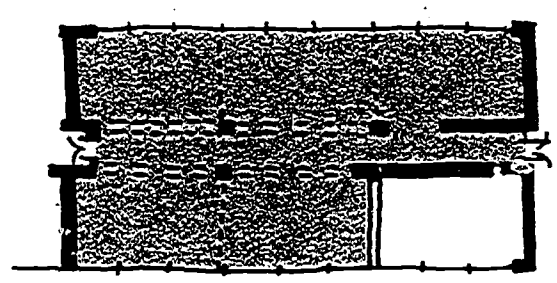


SEYMOUR ELEMENTARY SCHOOL
WITH ALTERATIONS
AND ADDITIONS

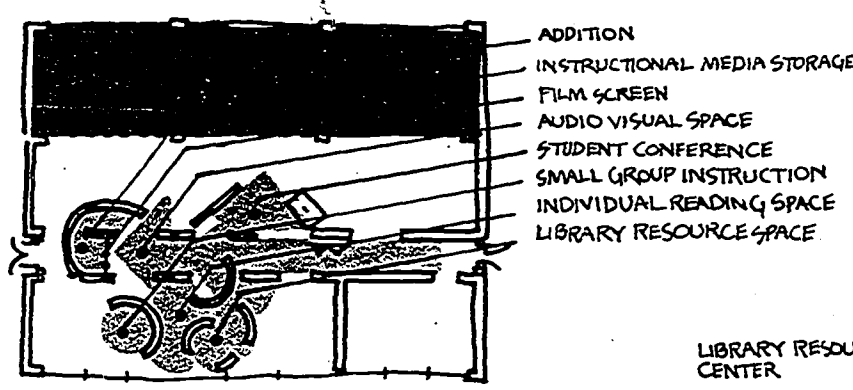
The foregoing examples show that the real foundation of a modernization program is not simply to tack on space to an old building but to upgrade use of the existing space adjacent to the addition. While many schools built before World War II still exist, countless more were constructed in the double-loaded corridor pattern popular after the 1940's. So it would seem that it is not the really old schools but the ubiquitous "old-new" schools that get in the way of dynamic modernization proposals. Educators and school planners maintain that self-contained classrooms limit the vitality and mobility of modern educational techniques. Therefore, designers seek to restructure the typical elementary and secondary school class of 30 to 35 students into variable groupings to broaden their learning experience.

Want to break the box? There are several ways to make constrictive space more exciting. Methods range from the ideal of removing all interior obstructions (which is expensive) to finding alternative uses for existing structures.

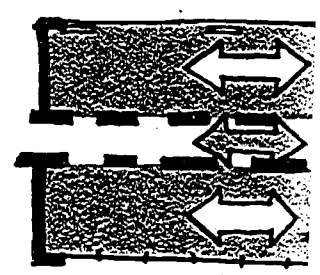
Perhaps the most desirable change in the double-loaded corridor plan is to open the space entirely. This, however, requires the construction of new columns and beams to replace the load-bearing walls, often an expensive alternative. A relatively inexpensive example is the Will Rogers Elementary School.
Write: George A. Knight
Assistant Superintendent
School Design and Construction
Houston Independent School District
3830 Richmond Avenue
Houston, Texas 77027



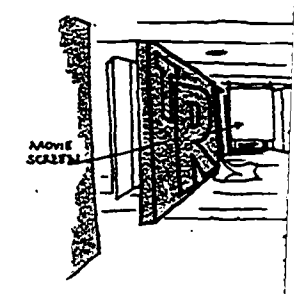
If an addition (GREY) is added to a school building, the existing exterior wall can be removed to create an open space between the new and old buildings. The original loadbearing corridor walls can be left and the corridor used as a resource center (BROWN). Arroyo Elementary School followed this approach.
Write: W. Tracy Gaffy
Superintendent
Tustin Elementary School
300 South "C" Street
Tustin, Calif. 92680

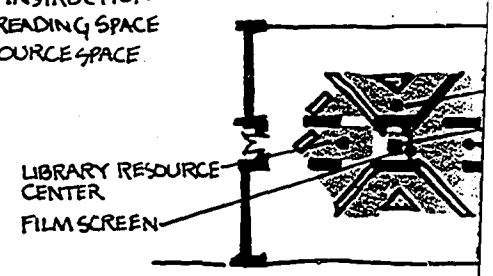


Tearing out par
ing the loadbea
far less expens
a double-loaded
former corridor
purpose area.
become very lin
flexible throug
treatment. Eas
followed this p
Write: Edward
Superintendent
Cherry Creek Sc
4700 South Yose
Englewood, Colc

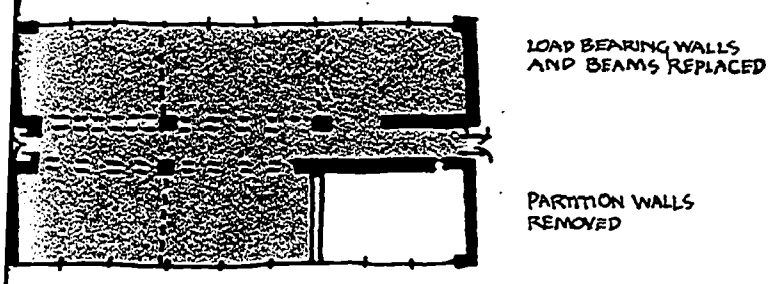


Retaining one
all other non-
makes fuller u
corridor as an
center. A scr
furniture and
10-ft wide cor
and useful acc
See: 4.FURNITU
See also Resou

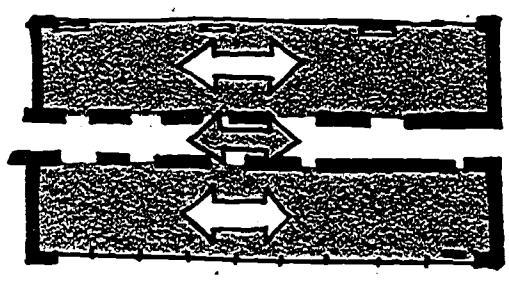




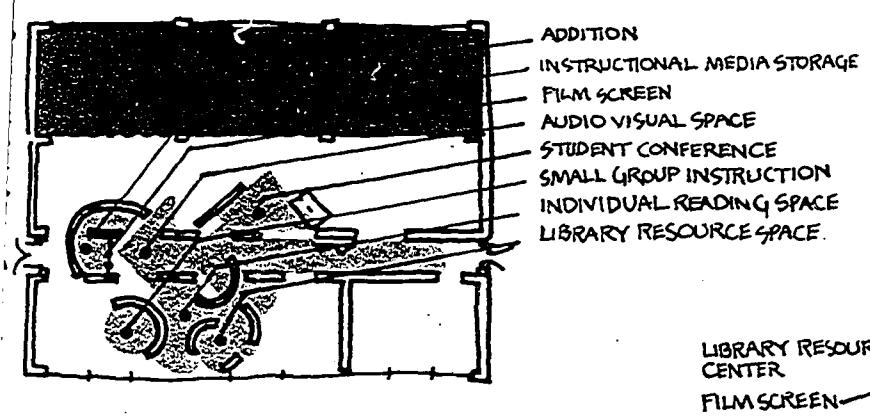
rhaps the most desirable change in e double-loaded corridor plan is to en the space entirely. This, how-er, requires the construction of new lumns and beams to replace the load-aring walls, often an expensive ternative. A relatively inexpensive kample is the Will Rogers Elementary chool.
rite: George A. Knight
ssistant Superintendent
chool Design and Construction
ouston Independent School District
830 Richmond Avenue
ouston, Texas 77027



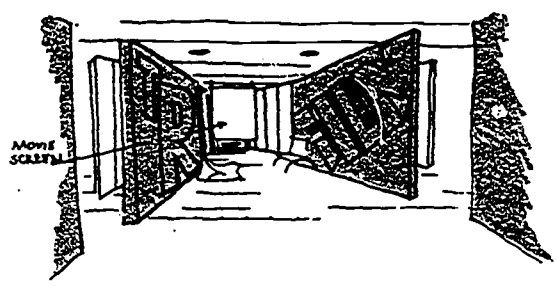
Tearing out partitions while retaining the loadbearing structure is a far less expensive method of modifying a double-loaded corridor plan. The former corridor can become a special purpose area. Although the spaces become very linear, they can be made flexible through proper architectural treatment. Eastridge Elementary School followed this plan.
Write: Edward C. Pino
Superintendent
Cherry Creek Schools
4700 South Yosemite Street
Englewood, Colo. 80110

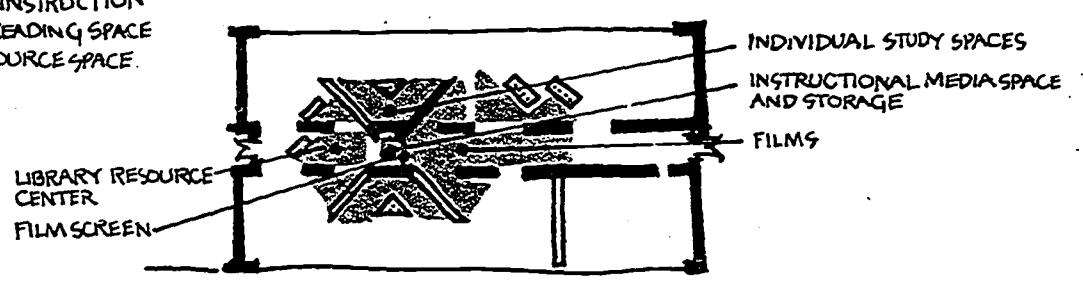


If an addition (GREY) is added to a school building, the existing exterior wall can be removed to create an open space between the new and old buildings. The original loadbearing corridor walls can be left and the corridor used as a resource center (BROWN). Arroyo Elementary School followed this approach.
Write: W. Tracy Gaffy
Superintendent
Tustin Elementary School
300 South "C" Street
Tustin, Calif. 92680



Retaining one classroom and removing all other non-loadbearing partitions makes fuller use of the remaining corridor as an audio-visual resource center. A screen with the proper furniture and equipment can turn a 10-ft wide corridor into an exciting and useful access area (BROWN).
See: 4.FURNITURE, p. 48
See also Resource Centers

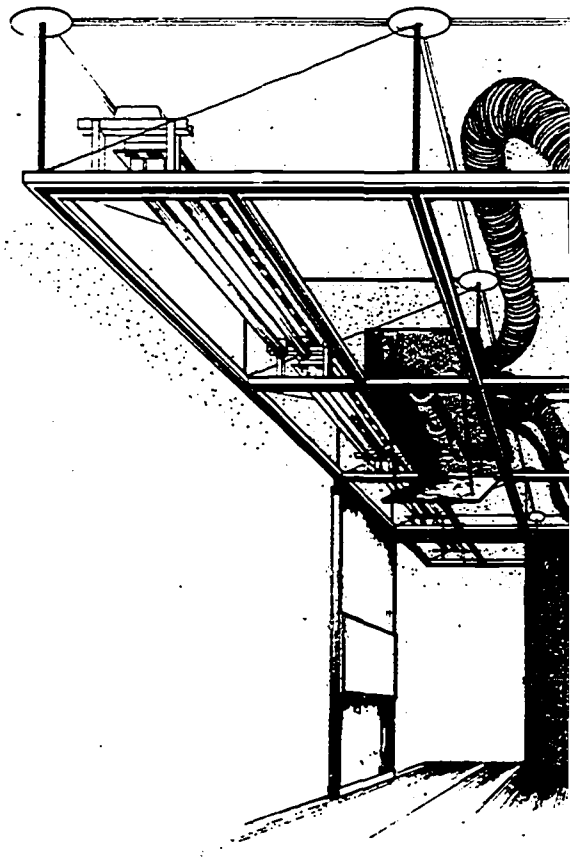




The Cost of Modernization

It is almost impossible to say precisely what a modernization project will or should cost...there are just too many variables. Community support, for example, is a variable that can either make or break almost any proposal. The significance of history or antiquity in a landmark building is of increasing emotional importance and is also without a price tag. The cost of some modernization projects are combined with other considerations, such as meeting earthquake safety codes in San Francisco. A commonly used rule-of-thumb states that if modernization cost exceeds 50% of the cost of replacing the building, the project should be reconsidered.* However, enrollment pressure or double sessions often force districts to exceed this rough formula.

* See: 1.FOUND SPACE, p. 15



Modernization in the Future

There are some promising new developments in store for people with old buildings. Basically, it can be expected that the renewal of old school buildings will go in two directions. The development of modernization on a large scale, district-wide for example, is one. The other is systems, i.e., application of the components of systems building to revitalize old spaces.

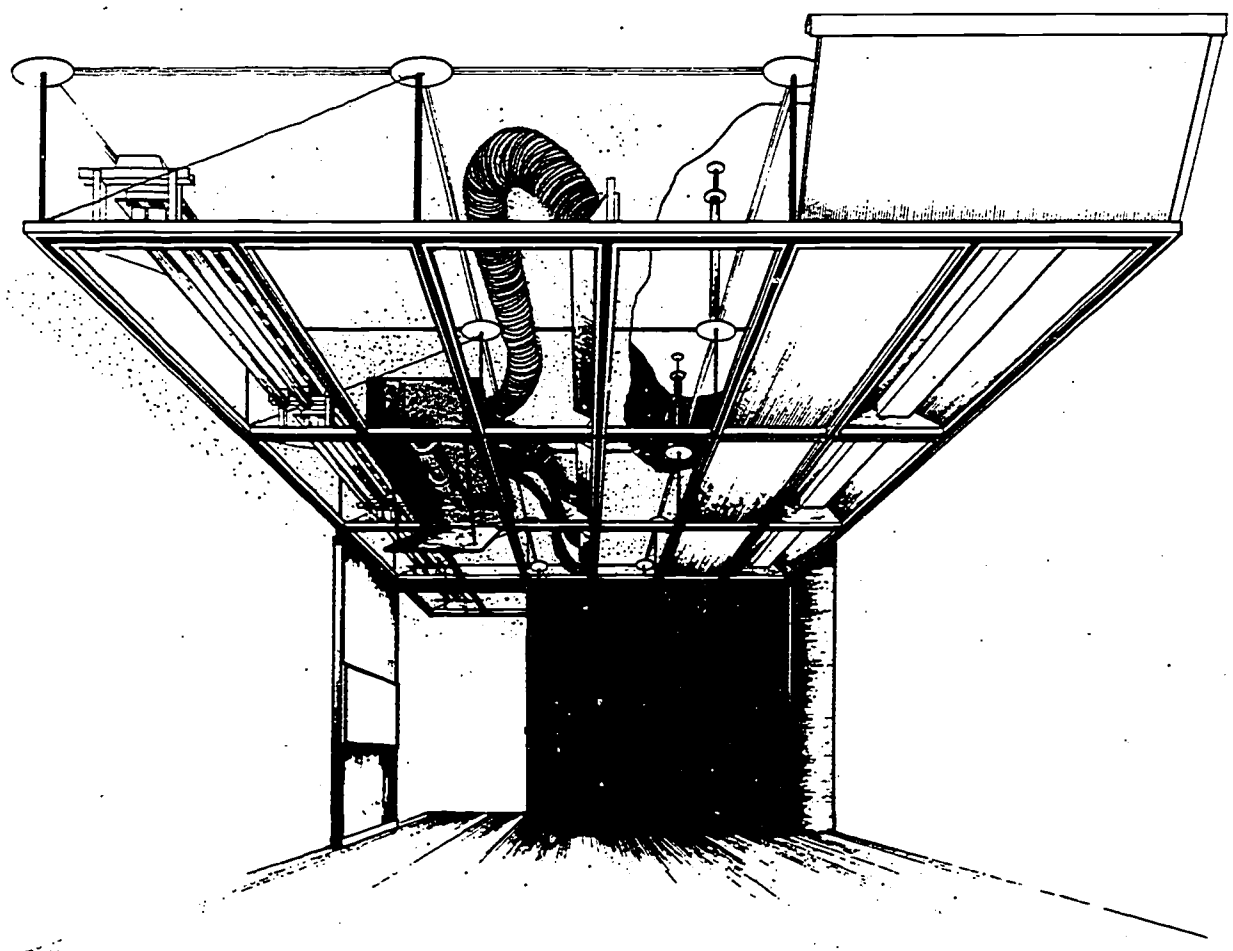
CEILING/LIGHTING, A
AND PARTITIONS (GRE
Write: Phillip Cal
Director
Facilities
San Francis
135 Van Nes
San Francis

ization

say precisely
t will or
t too many
rt, for ex-
an either make
l. The sig-
iquity in a
reasing emo-
so without a
e modern-
ed with other
ting earth-
ranc:sco. A
states that
ds 50% of the
ing, the proj-
* However,
le sessions
ceed this

e Future

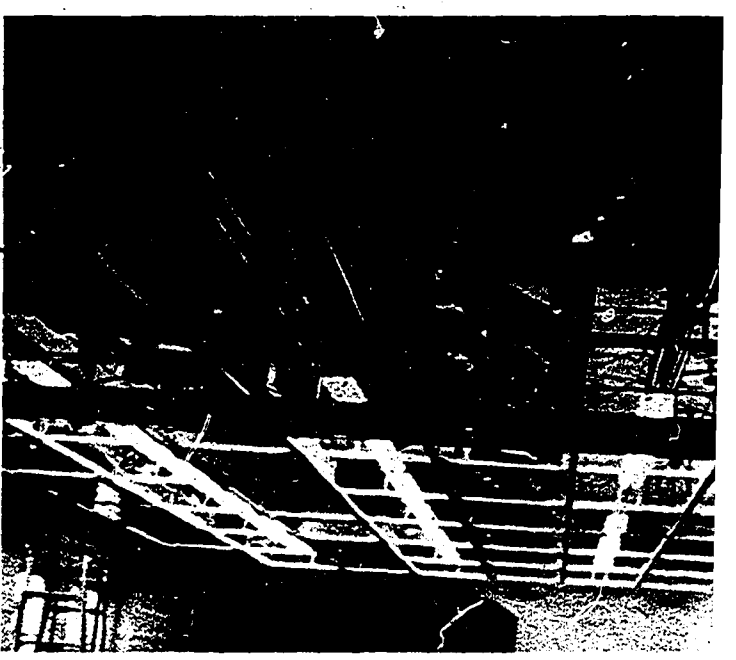
w develop-
ith old
an be ex-
old school
rections.
ation on a
for example,
ms, i.e.,
ts of sys-
cld spaces.



CEILING/LIGHTING, AIRCONDITIONING (BROWN)
AND PARTITIONS (GREY). THE PAUL REVERE SCHOOL
Write: Phillip Cali
Director
Facilities Planning and Construction
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, Calif. 94102

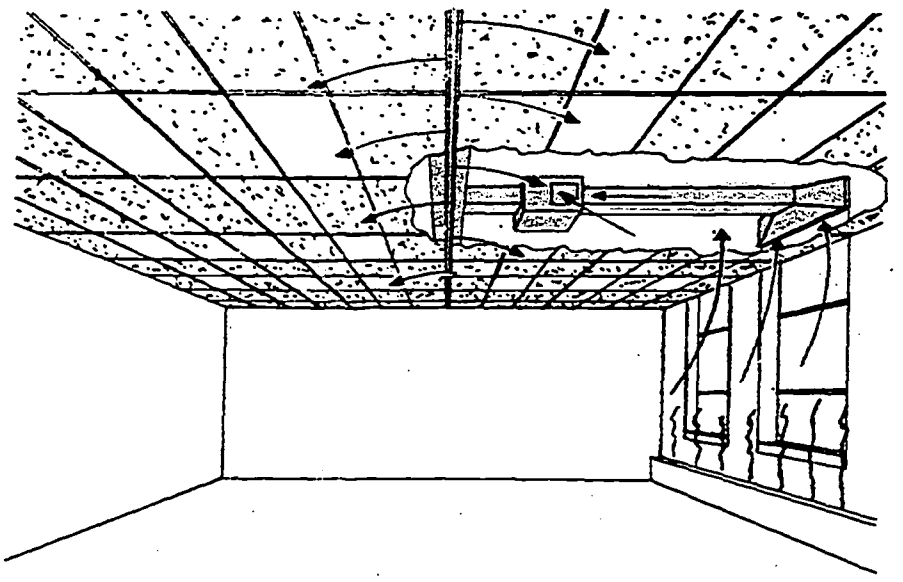
SYSTEMS

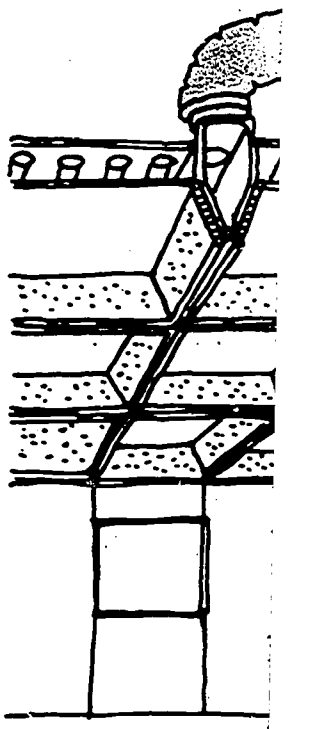
The building systems approach to school modernization uses components that are designed to fit together.* Modernization systems are basically a suspended ceiling with integrated lighting and airconditioning. These components can also be designed to provide support for partitions on a grid pattern and provide access for electronics communications equipment. At this writing, few school modernization systems have been installed, but bids have been taken for a project in San Francisco. Manufacturers of these systems offer an installed price for the complete package. Installation can be made room by room, floor by floor, or for the entire building. For information on systems modernization techniques, write: John Boice, Director, BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025



* See also Systems Building

CEILING/LIGHTING AND AIRCONDITIONING (BROWN).
THE HAWTHORNE SCHOOL
Write: J. F. Calta, Superintendent
Lorain Public Schools
1020 Seventh Street
Lorain, Ohio 44052



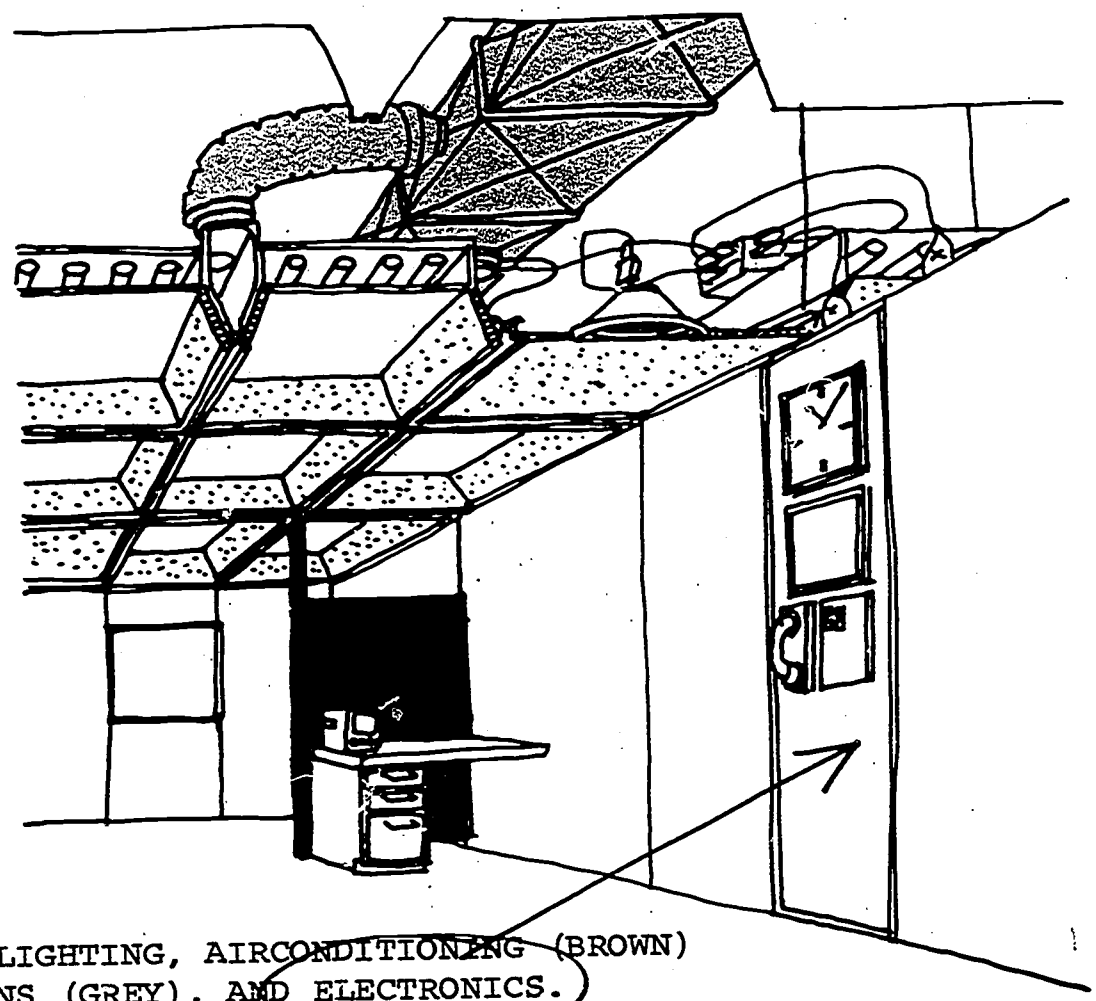


CEILING/LIGHTING, AIRC
PARTITIONS (GREY), AN
Write: John Boice, Di
3000 Sand Hill Road, M

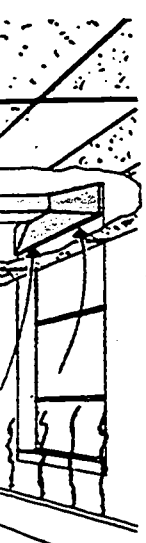
hool
are

-
ting
nts
port
d
u-
ng,
ve been
for a
urers
price
tion
floor,
for-
hniques,
EFL,
lif. 94025

G (BROWN).



CEILING/LIGHTING, AIRCONDITIONING (BROWN)
PARTITIONS (GREY), AND ELECTRONICS.
Write: John Boice, Director, BSIC/EFL,
3000 Sand Hill Road, Menlo Park, Calif. 94025



Modernization in the Future

LARGE-SCALE MODERNIZATION PROGRAMS

Not all modernization programs are confined to single schools; sometimes a school district needs to update several or all of its buildings. In these circumstances it is prudent to survey all the spaces so that the budget can be allocated in the most economical way. However, a district-wide survey becomes more manageable if the information is stored on computer tapes so that any small detail can be recalled instantly.

With a foundation grant, the city of San Francisco developed a method for making a Computerized Facilities Inventory (C.F.I. in brown) of its school buildings. When the inventory was completed, the city was able to figure its modernization options for any given budget. For instance, if consultants say that all learning spaces should have a certain lighting level, the computer can call out how many spaces fall below standard and by how much. By applying unit cost figures, the city can estimate the total cost. If that cost exceeds available funds, it would be a simple computation to find how much renovation could be accomplished within the budget. The developers of this process call it Deficit Reduction Planning Procedures.*

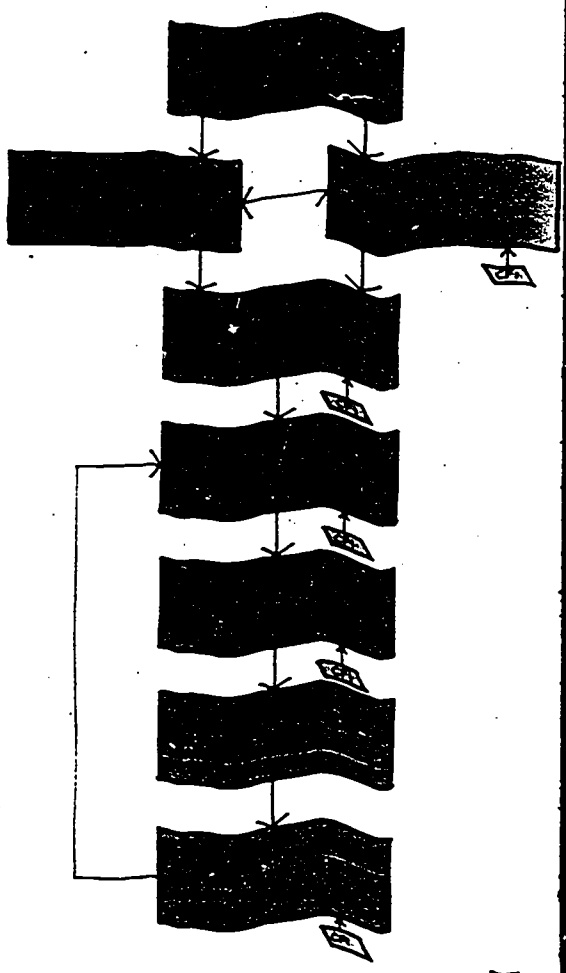
* See: 7.PLANNING/PROCEDURES, p. 100

San Francisco has started
program using a methodolog
It takes eight steps, incl
solve a problem.

1. Identify areas of conc
   lighting, acoustics, e
2. Develop standards for
3. Survey the existing fa
   and compare standards.
4. Document resulting def
5. Tabulate the cost of c
6. Complete cost benefit
7. Initiate specific proj
8. Analyze the cost of th
   benefit tables so that

Write: Phillip Cali, Dire
Construction, San
135 Van Ness Avenu

DEFICIT REDUCTION PLANNING PROCESS



uture

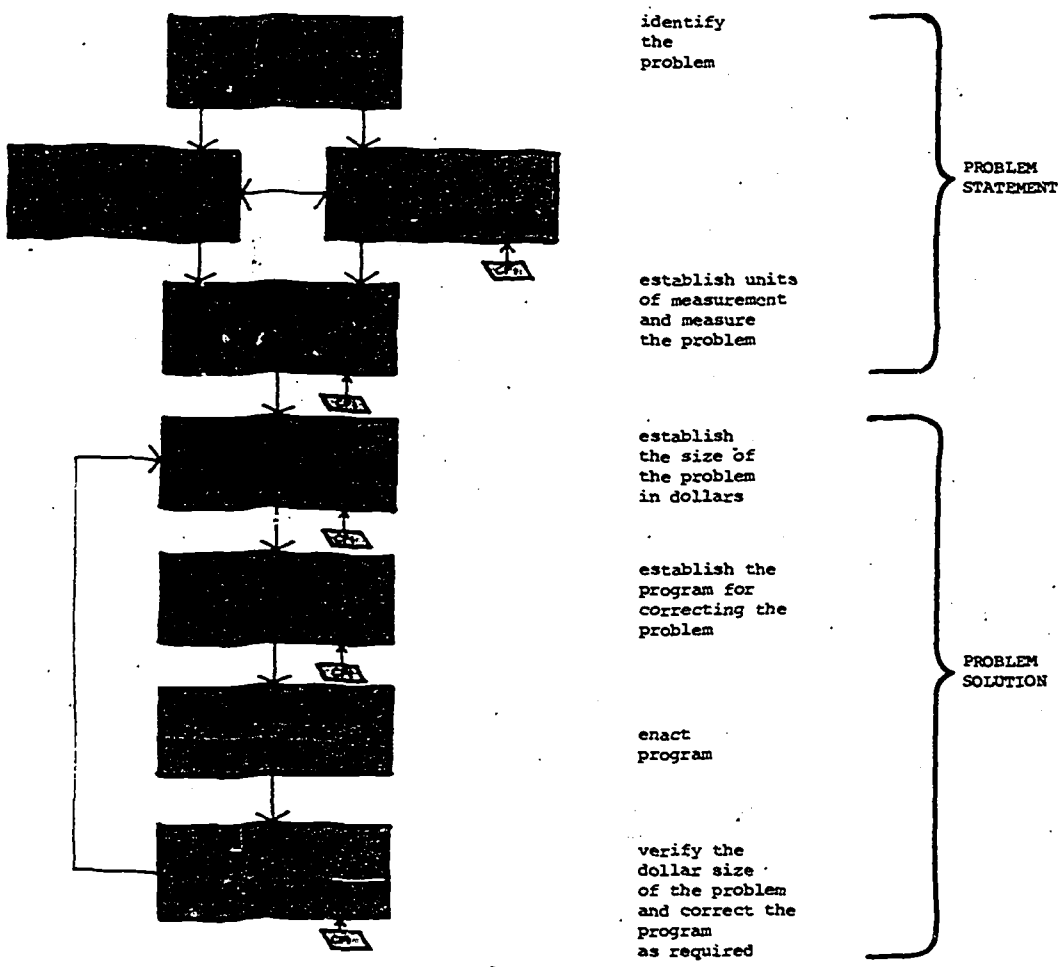
AMS

San Francisco has started a large-scale systematic renovation program using a methodology called the Deficit Reduction Process. It takes eight steps, including computer assistance, to state and solve a problem.

1. Identify areas of concern, such as structural stability, lighting, acoustics, etc.
2. Develop standards for identified items.
3. Survey the existing facilities with the computer (CFI) and compare standards.
4. Document resulting deficit.
5. Tabulate the cost of corrective action.
6. Complete cost benefit tables.
7. Initiate specific projects.
8. Analyze the cost of these projects and recycle into the cost benefit tables so that program budgeting can be evaluated.

Write: Phillip Cali, Director of Facilities Planning and Construction, San Francisco Unified School District, 135 Van Ness Avenue, San Francisco, Calif. 94102

DEFICIT REDUCTION PLANNING PROCESS



ly.

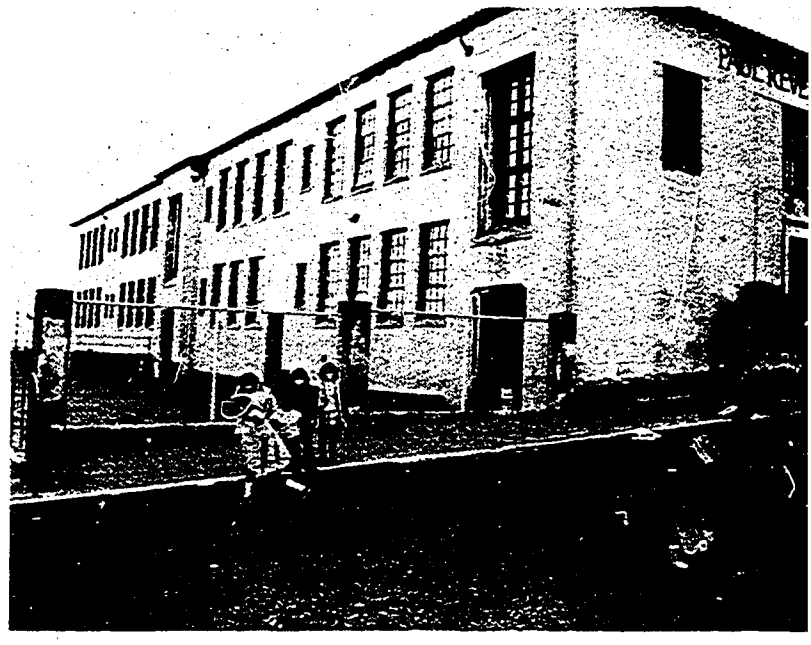
ity
eth-
acil-
wn)
the
ity
zation.
For
hat
e a
m-
aces
much.
the
st.
funds,
on to
be
. The
l it
cedures.*

San Francisco has also prepared for a city-wide modernization program by installing a prototype in a two-room space in the Le Conte School. This model differs from traditional remodeling projects, because a package of components and equipment was installed by a group of manufacturers which guarantees the total performance of the package. The components can, of course, be bought separately -- airconditioning, partitions, lighting, etc. -- but when bid together as a system, the architect knows exactly what the installed price will be.

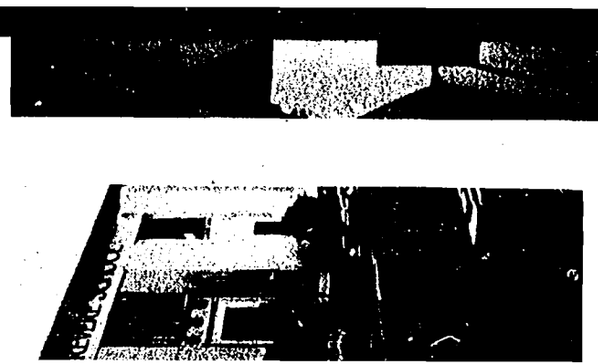
LE CONTE ELEMENTARY SCHOOL

Write: Leonard Flynn, Principal
3125 Army Street
San Francisco, Calif. 94110

To test the practical application of this systems model and verify costs, the City of San Francisco now plans to renovate two floors of the Paul Revere Elementary School Annex. Five contractors responded to an invitation to bid and subsequently proved that systems modernization is, in fact, competitive. The low bidder has received a letter of intent and the architect is completing renovation plans to suit the particular systems components.



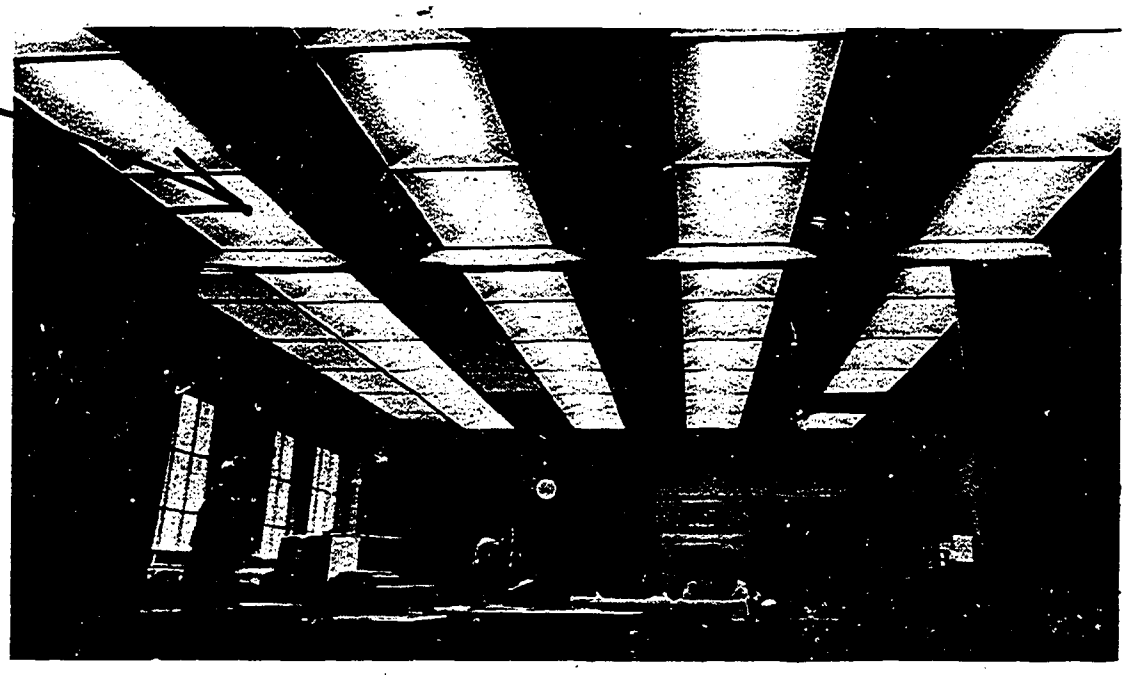
Write: Dale Stancliff
School Coordinating Architect
Facilities Planning and Construction Division
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, Calif. 94102

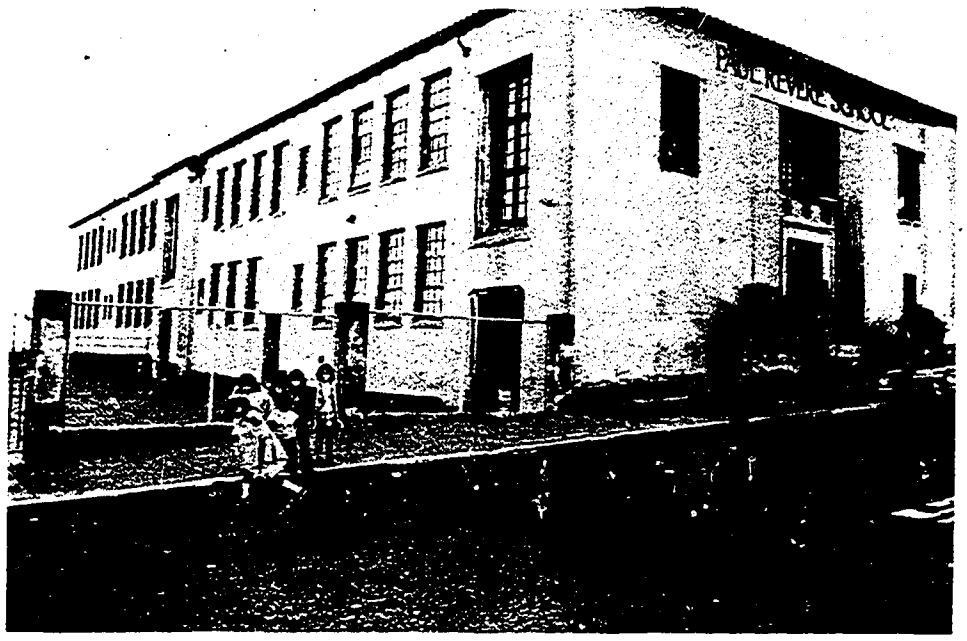


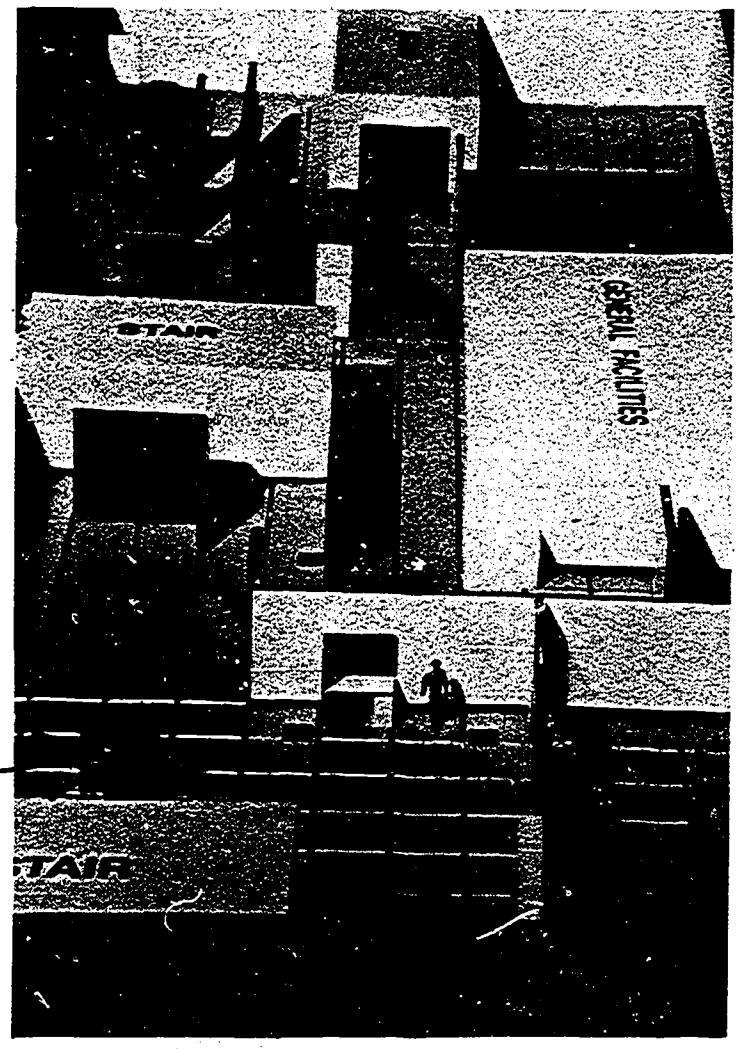
~~for a city-wide~~ modern
prototype in a two-room
This model ~~differs from~~
, because a package of
stalled by a group of
the total performance of
n, of course, be bought
partitions, lighting,
s a system, the architect
d price will be.

ELEMENTARY SCHOOL

eonard Flynn, Principal
125 Army Street
an Francisco, Calif. 94110



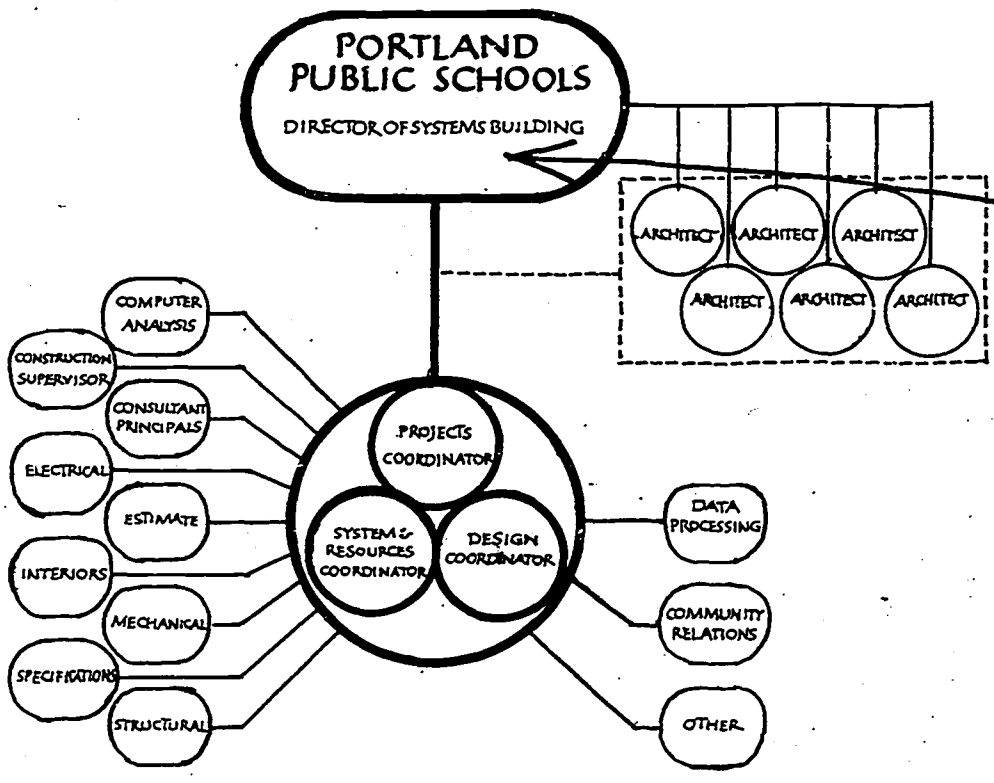




Modernization in the Future

Portland, Ore., installed a similar model and is inviting the public to inspect it to see the quality available for a wide-scale remodeling. For more information: E. C. Wundram, Director of Building Systems, Portland Public Schools, 631 Northeast Clackamas Street, Portland, Ore. 97208

ARCHITECTURAL RESEARCH TEAM ORGANIZATION



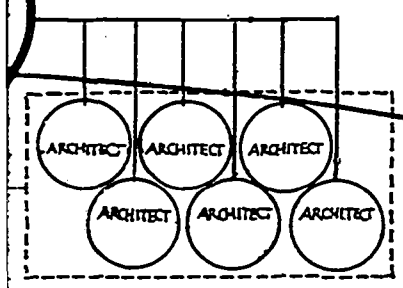
If a school district does not have a staff capable of planning and supervising a large-scale modernization project, it can either hire experienced staff for the project or retain consultants to do the work. Portland, Ore., hired a director for its systems project with the understanding that the job would terminate with completion of the district-wide modernization. The director's task is to coordinate the district's personnel for the city-wide project and private architectural firms hired for individual schools.

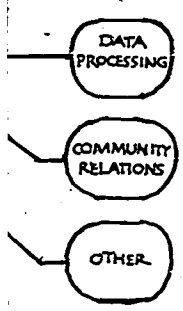
Kansas City chose to retain an architectural firm to coordinate a city-wide modernization program. The consultant's staff extends the resources of the school district's facilities division until the particular project is completed. If the voters should reject a bond issue, the city can terminate the consultant's contract.

he Future

similar model and is inviting the
the quality available for a wide-
information: E. C. Wundram,
s, Portland Public Schools, 631
Portland, Ore. 97208

M ORGANIZATION

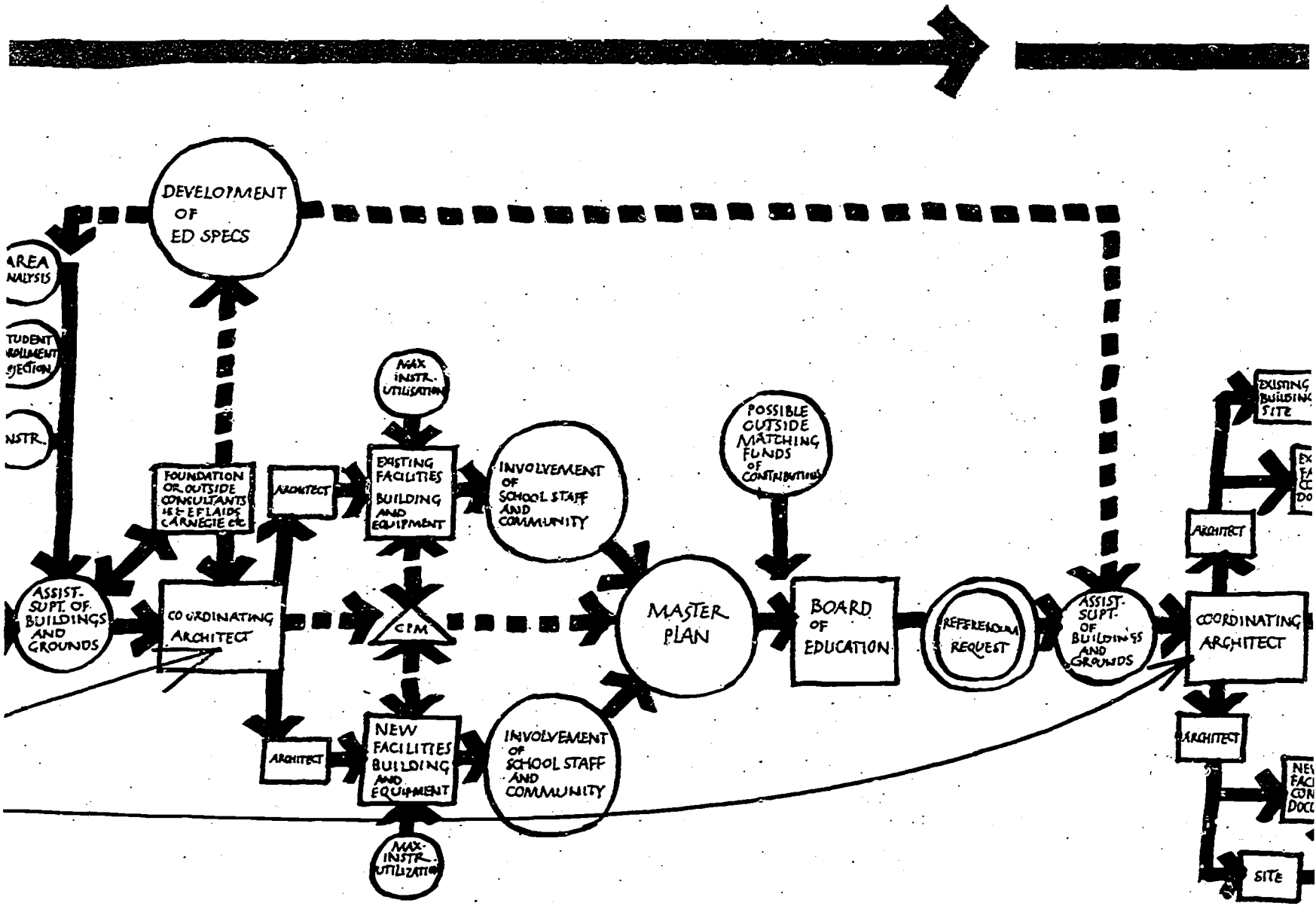




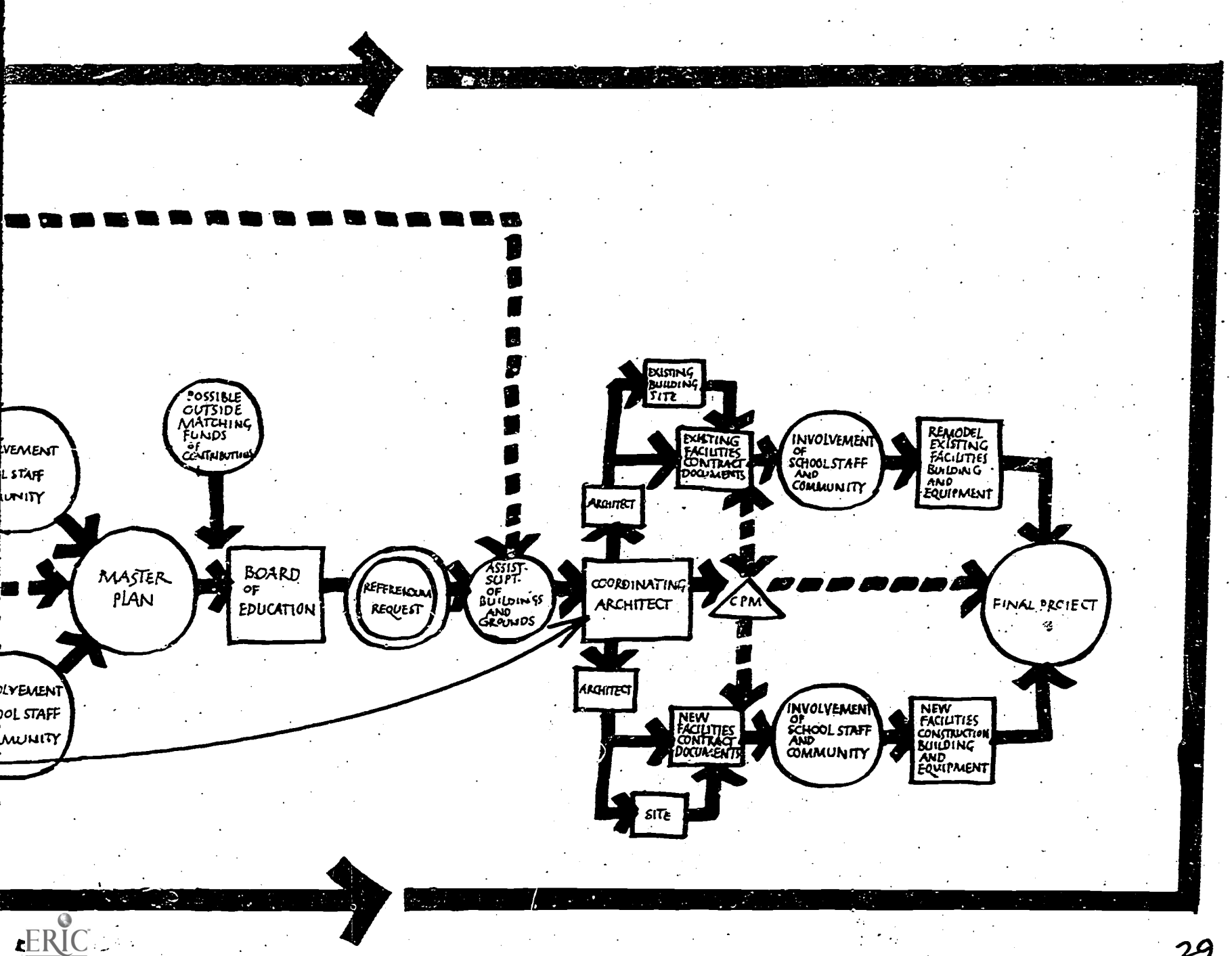
If a school district does not have a staff capable of planning and supervising a large-scale modernization project, it can either hire experienced staff for the project or retain consultants to do the work. Portland, Ore., hired a director for its systems project with the understanding that the job would terminate with completion of the district-wide modernization. The director's task is to coordinate the district's personnel for the city-wide project and private architectural firms hired for individual schools.

Kansas City chose to retain an architectural firm to coordinate a city-wide modernization program. The consultant's staff extends the resources of the school district's facilities division until the particular project is completed. If the voters should reject a bond issue, the city can terminate the consultant's contract.

Kansas City is also organizing for a possible district-wide modernization program. For information on its educational and building program, contact: James W. Newell, Assistant Superintendent, Buildings and Grounds Division, School District of Kansas City, 1211 McGee Street, Kansas City, Mo. 64106



for a possible district-wide
information on its educational and
James W. Newell, Assistant
Grounds Division, School District
Street, Kansas City, Mo. 64106



Modernization in the Future

DELBERT E. ROBERTS ADDITION TO THE COOLEY HIGH SCHOOL
Write: John Lansing, Director, Building Program Coordination, School Housing Division, Detroit Public Schools, 5057 Woodward Avenue, Detroit, Mich. 48202

Detroit needed multistory additions to several schools, and because of the complexity and size of the program, it called for completely integrated systems rather than piecemeal construction. These systems include the structure, lighting/ceiling, heating/ventilating and airconditioning, interior partitions and exterior walls. Each of these systems is designed to fit and complement the others and share the burden of providing a specified high quality environment. Together, the systems comprise 44% of a $8.5-million contract for four schools totaling 280,000 sq ft. The non-systems part of the contract includes foundations, plumbing, roofing, flooring, etc.

The contract was awarded in March, 1971, and the Board of Education is documenting progress so that the program can be evaluated in terms of future modernization programs. For information, write: Wallace Cleland, Technical Director, Detroit Public Schools Construction, Systems Program, 51 West Hancock Avenue, Detroit, Mich. 48201

West Hartford hired an architectural firm to determine what work would be necessary to put the city's 22 schools into shape for a proposed revitalized educational program. The report, "School Renewal", may serve as a guide to other districts contemplating new programs. Write: Charles Richter, Superintendent, West Hartford Public Schools, 7 Whiting Lane, West Hartford, Conn. 06119

Watch for develo
that are still i
of their program

Burris Laborato
redesigned for e
Write: Marvin H
Ball State Unive
College of Archi
Muncie, Ind. 473

East High Schoo
(two big schools
modernization)
Write: Charles
Assistant Super
Planning & Engi
Denver Public Sc
414 - 14th Stree

Phillips Junior
building to be
a community cent
Write: Marvin
School Plant Pla
Minneapolis Publ
807 Northeast Br
Minneapolis, Mi

Fairfax County
(a systems appro
integrated with
Write: Edward
Design, Construc
Fairfax County
10700 Page Aven

For information
ization project
Director, New L
20 North Wacker
Chicago, Ill. 6(

ture

DELBERT E. ROBERTS
ADDITION TO THE
COOLEY HIGH SCHOOL
Write: John Lansing,
Director, Building
Program Coordination,
School Housing Division,
Detroit Public Schools,
5057 Woodward Avenue,
Detroit, Mich. 48202

s to several schools,
size of the program,
d systems rather than
tems include the
ng/ventilating and
ns and exterior walls.
to fit and complement
providing a specified
r, the systems comprise
four schools totaling
rt of the contract
ofing, flooring, etc.

1971, and the Board
ss so that the program
e modernization pro-
allace Cleland, Techni-
ls Construction, Systems
etroit, Mich. 48201

al firm to determine
it the city's 22
revitalized educa-
ol Renewal", may serve
emplating new pro-
uperintendent,
iting Lane,

Watch for developments on these four projects that are still in the preliminary stages of their programs:

Burris Laboratory School (a 1920's building redesigned for experimentation)
Write: Marvin E. Rosenman, Associate Professor
Ball State University
College of Architecture & Planning
Muncie, Ind. 47306

East High School and West High School
(two big schools to be phased for long-range modernization)
Write: Charles E. Armstrong
Assistant Superintendent
Planning & Engineering Services
Denver Public Schools
414 - 14th Street, Denver, Colo. 80202

Phillips Junior High School (an old 3-story building to be converted into a community center)
Write: Marvin L. Tenhoff, Director
School Plant Planning Services
Minneapolis Public Schools
807 Northeast Broadway
Minneapolis, Minn. 55413

Fairfax County Schools
(a systems approach to modernization, integrated with a new building program)
Write: Edward Stephan, Assistant Superintendent
Design, Construction & Site Acquisition
Fairfax County Public Schools
10700 Page Avenue, Fairfax, Va. 22030

For information about these and other modernization projects, write: Ben Graves, Project Director, New Life for Old Schools Project, 20 North Wacker Drive, Suite 1734, Chicago, Ill. 60606

Here are a few articles on modernization:

1. "Modernization," by Ben Graves. Nation's Schools, April, 1971. Reprints available from Educational Facilities Laboratories, 477 Madison Avenue, New York, N. Y. 10022 (no charge).

2. A Who-Does-What & How-To-Get-Started article by Ben Graves to appear in American School Board Journal, April, 1972. Available from American School Board Journal, State National Bank Plaza, Evanston, Ill. 60201 ($1.25).

3. Special Section on Remodeling in American School & University, July, 1971. Available from American School & University, 134 North 13th Street, Philadelphia, Pa. 19107 ($2.00).

4. The Loft Building as a School House: A Study for the School District of Philadelphia, by Murphy Levy Wurman. Educational Facilities Laboratories. Available from Educational Facilities Laboratories, 477 Madison Avenue, New York, N. Y. 10022 (no charge).

5. New Life for Old Schools, newsletter available from Ben Graves, New Life for Old Schools, 20 North Wacker Drive, Chicago, Ill. 60606 (no charge).

6. Thirty-one Old San Francisco Schools Updated. Prepared for the San Francisco Unified School District by Corlett & Spackman, architects. Available from Educational Facilities Laboratories, 477 Madison Avenue, New York, N. Y. 10022 (no charge).

7. A variety of publications on modernization is available from the Council of the Great City Schools, 1819 H. Street, N. W., Washington, D.C. 20006 (no charge).

Despite an im
enrollments,
curriculum ma
need for diff
An inventory
undoubtedly r
patible with
philosophy.
judicious rec
will become a
design in thi

nization:

es. Nation's Schools,
able from Educational
Madison Avenue, New
).

-Started article by
ican School Board
able from American
National Bank Plaza,
.

ng in American School
vailable from American
th 13th Street,
00).

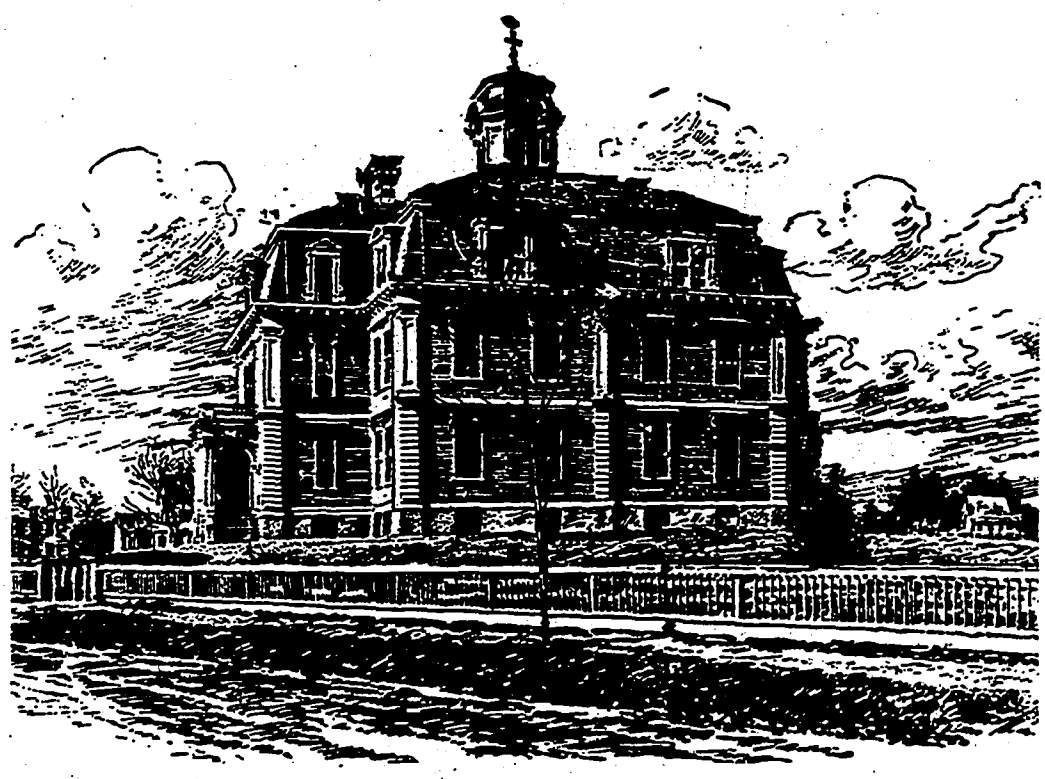
l House: A Study for
adelphia, by Murphy
cilities Laboratories.
Facilities Laboratories,
k, N. Y. 10022 (no

ewsletter available
or Old Schools, 20
, Ill. 60606 (no

o Schools Updated.
sco Unified School
man, architects.
Facilities
venue, New York, N. Y.

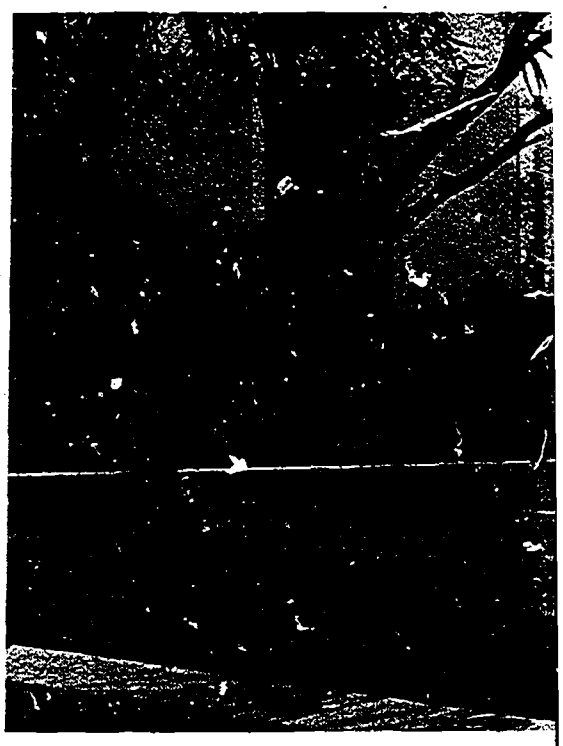
n modernization is
of the Great City
W., Washington, D.C.

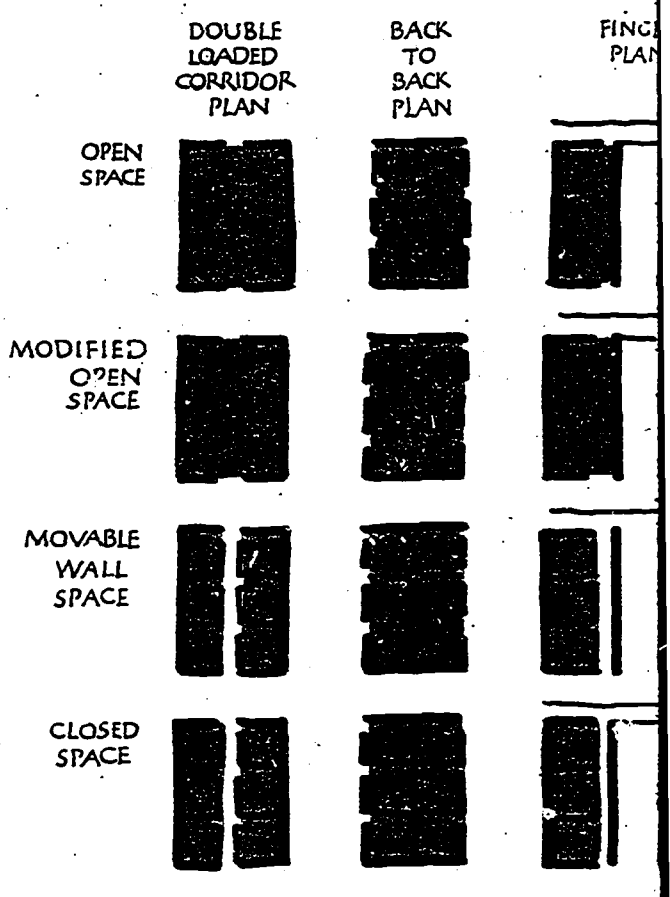
Despite an impending national decline in school enrollments, the trend toward an enlarging curriculum makes it unlikely that a school's need for different kinds of spaces will diminish. An inventory of American school spaces would undoubtedly reveal that much of it is incompatible with changing educational needs and philosophy. Therefore, modernization and the judicious reclamation of other building types will become a major concern of schoolhouse design in this decade.



3. OPEN PLAN

Open plan schools are simply composed of broad expanses of enclosed space unbroken by walls. Their clear-span interiors, usually carpeted and airconditioned, are subdivided into smaller, discrete areas by the use of movable panels and screens, plants, or rolling casework. As activities and group sizes shift throughout the day, these space-definers move with them to create new spatial relationships. Gone are the frozen rows of classrooms containing rows of desks, which in turn freeze class sizes and activities and prevent communication and interaction among the school's occupants. In essence, the physical plant is simply space with potential...in the short run, potential for quick physical response to changing daily requirements, and in the long run, the potential to yield to unpredictable changes in educational philosophy and methods.

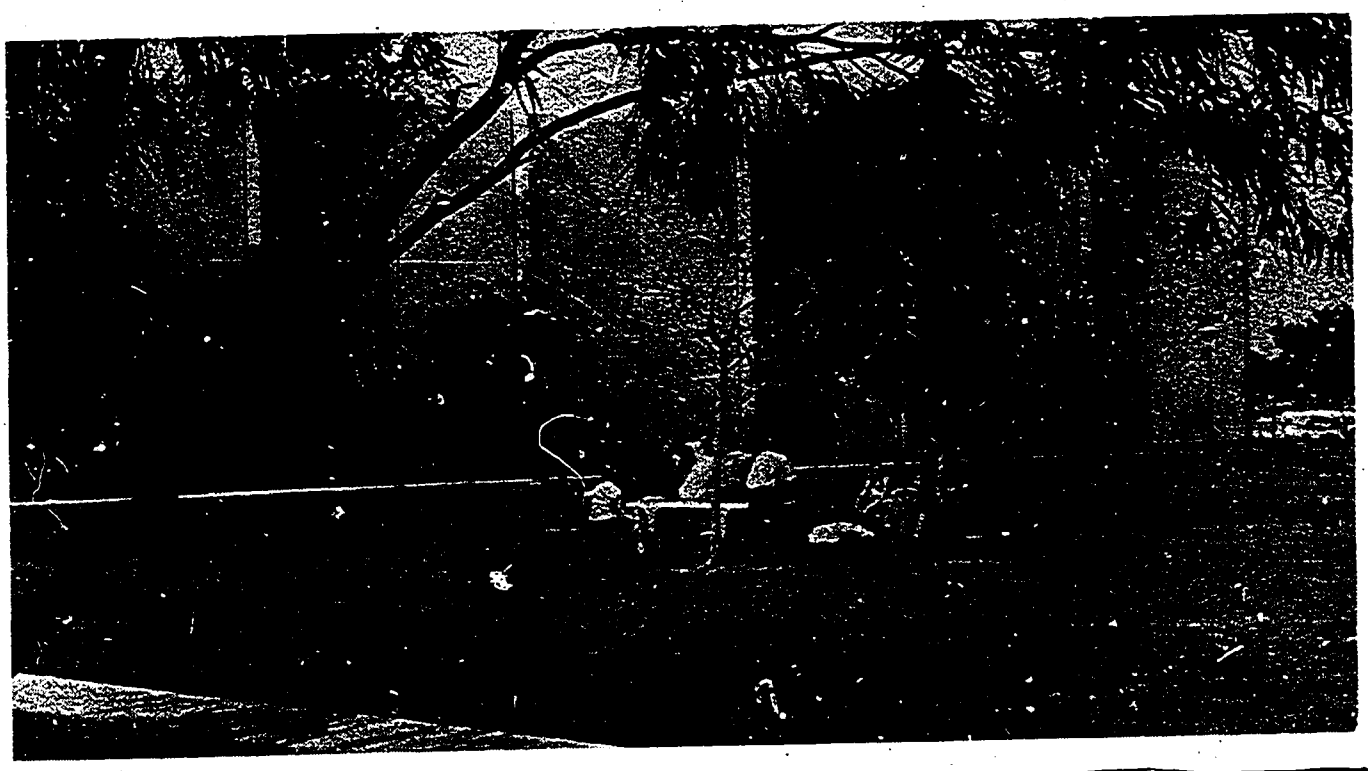




OPEN PLAN MEANS DIFFERENT THINGS TO DIFFERENT PEOPLE

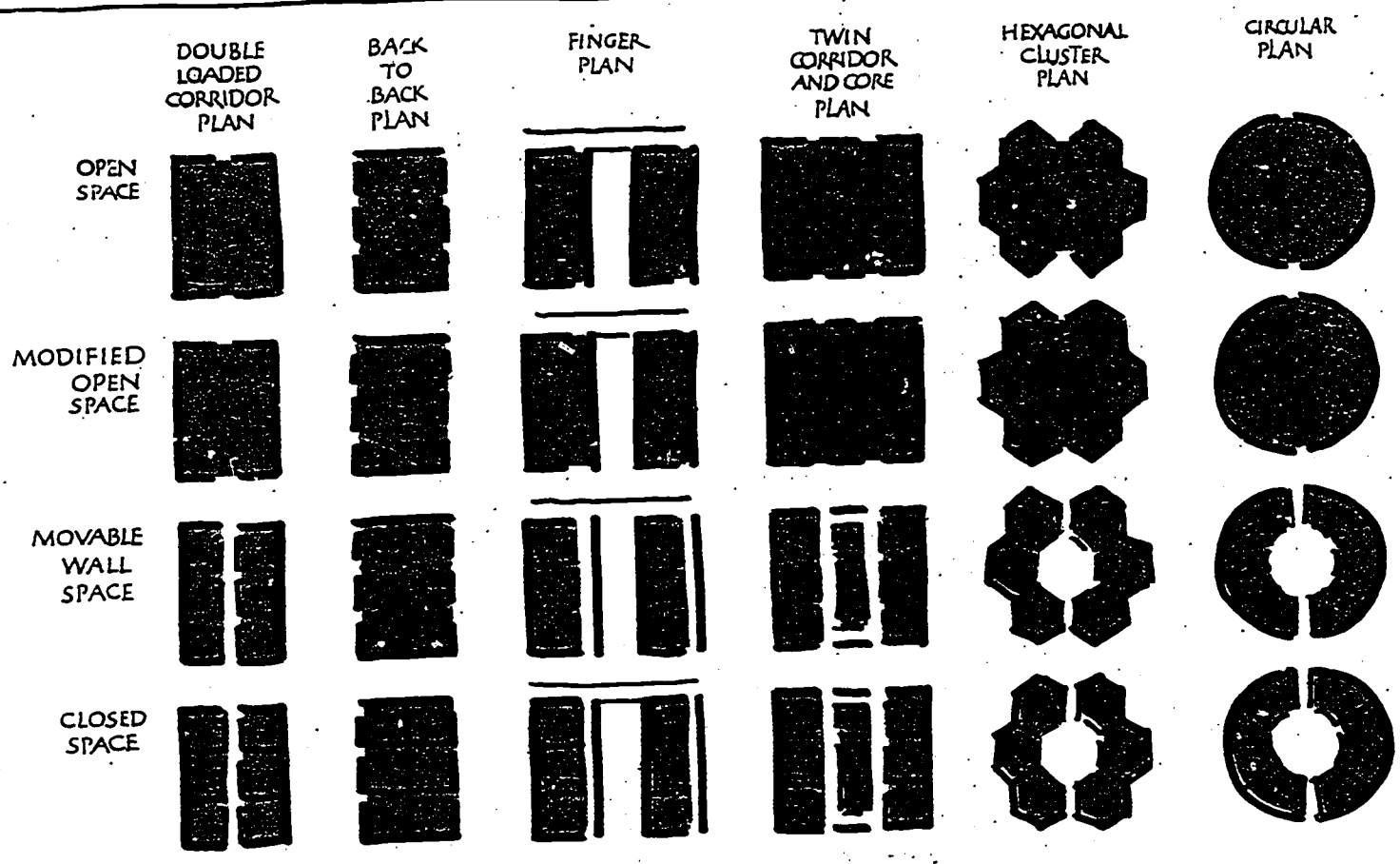
Open plan schools often appear in a variety of imaginative shapes that reflect the fluid activities and functions within them -- circles, hexagons, polyhedrons and spirals. But whatever the shape, the old monumental buildings with fixed walls are now replaced by simple shells containing varied furniture of the most flexible kind. This is not to say that spatial separations cannot accommodate conventional types of rooms for teacher-planning sessions, offices, etc. The final use of the school depends on the furniture and equipment that goes into the space and how it is arranged and rearranged.

LAN



mposed of broad
oken by walls.
ally carpeted
ded into smaller,
vable panels and
ework. As
t throughout the
with them to
s. Gone are the
ining rows of
ss sizes and
ation and inter-
ants. In
simply space
un, potential
changing daily
un, the
able changes in
ods.

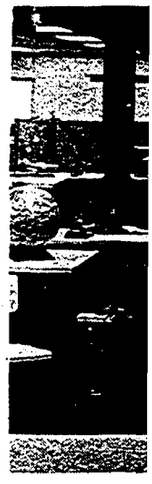
in a variety
lect the fluid
n them --
and spirals.
d monumental
now replaced
ried furniture
is is not to
annot accommo-
ms for teacher-
c. The final
he furniture and
pace and how it



Flexibility in open plan makes it applicable to a wide variety of teaching techniques. In the Sidney Primary School there are many different kinds of learning taking place at the same time.

Write: Howard S. Dunbar
Principal
Sidney Primary School
Pearl Street
Sidney, N. Y. 13838

Large g



Access

The reason for the popular thrust of open plan schools is that they increase the options and alternatives in education. The unconstricting space allows a traditional teaching approach and also allows for differentiated staffing, team teaching, programmed learning, non-graded arrangements, instructional media for individual users, British Infant School programs, and endless leeway for experimentation with promising methods and techniques. The children in open plan schools have more choices, too. There are more varied spaces to be active in, more teachers to relate to, older and younger classmates to work with, an array of accessible materials on hand, and a rich sensory landscape to stimulate and challenge them.

Audiovi

ion

Sma

Ind

ion

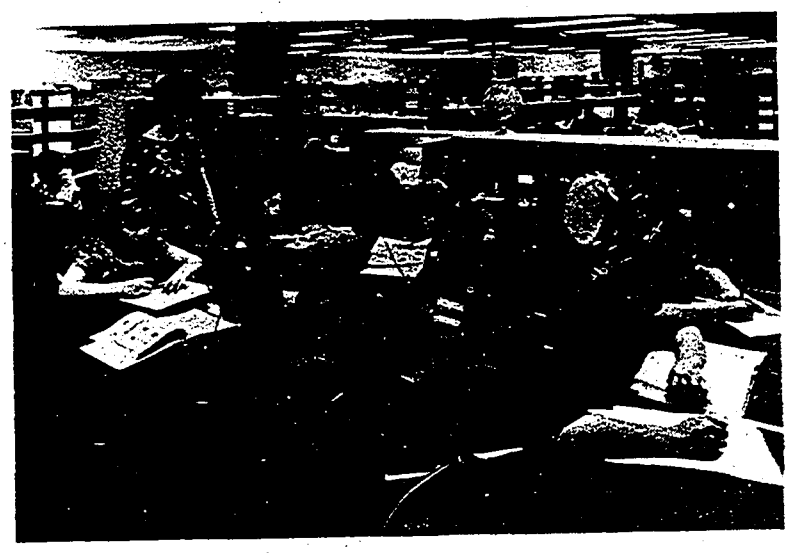
Tra

Large group instruction

Small group instruction

Access to resources

Individualized learning

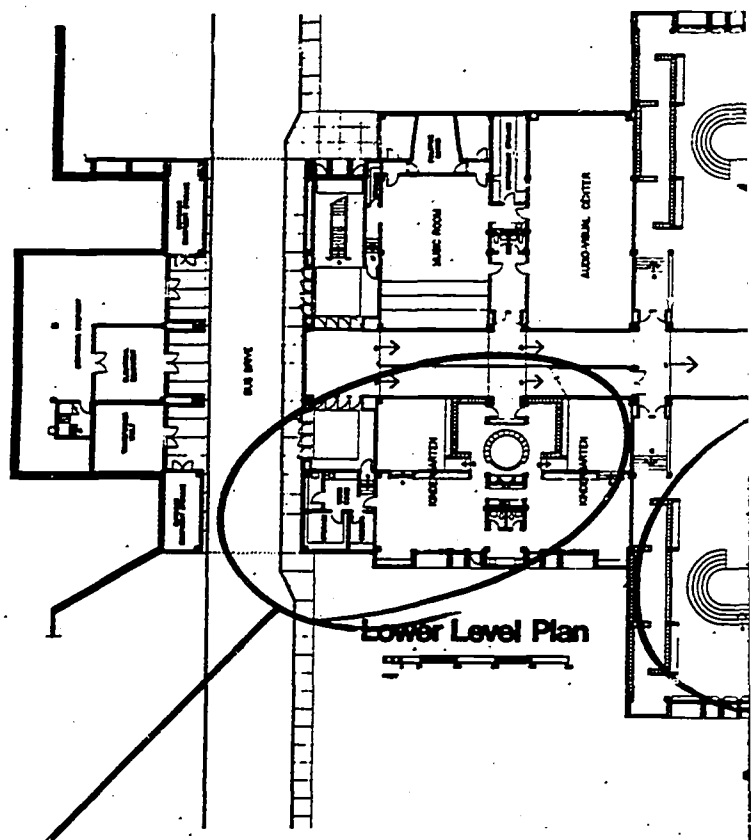


Audiovisual instruction

Traditional classroom

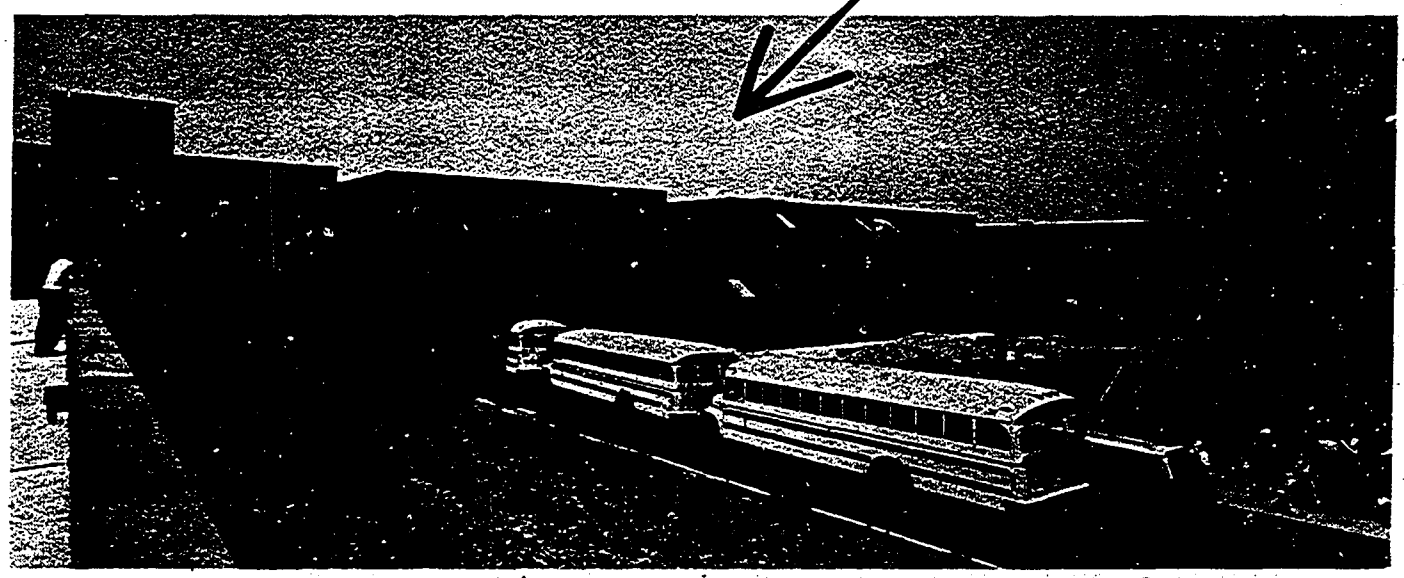
An Environment with Options

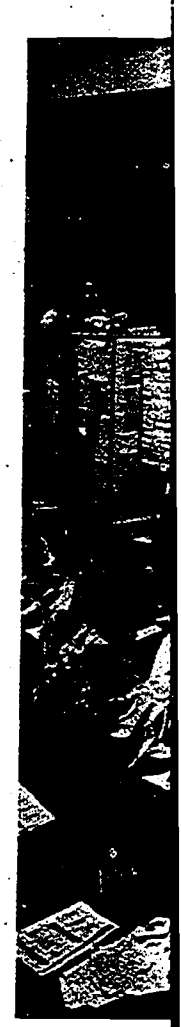
With all their virtues, open plan schools can be overwhelming and confusing, unless they are properly understood and carefully executed. Not surprisingly, some of them have worked extremely well, others less so.



RIDGE HILL SCHOOL (K-6) IS ONE OF THE OPEN PLAN SCHOOLS WHICH WORKS WELL.

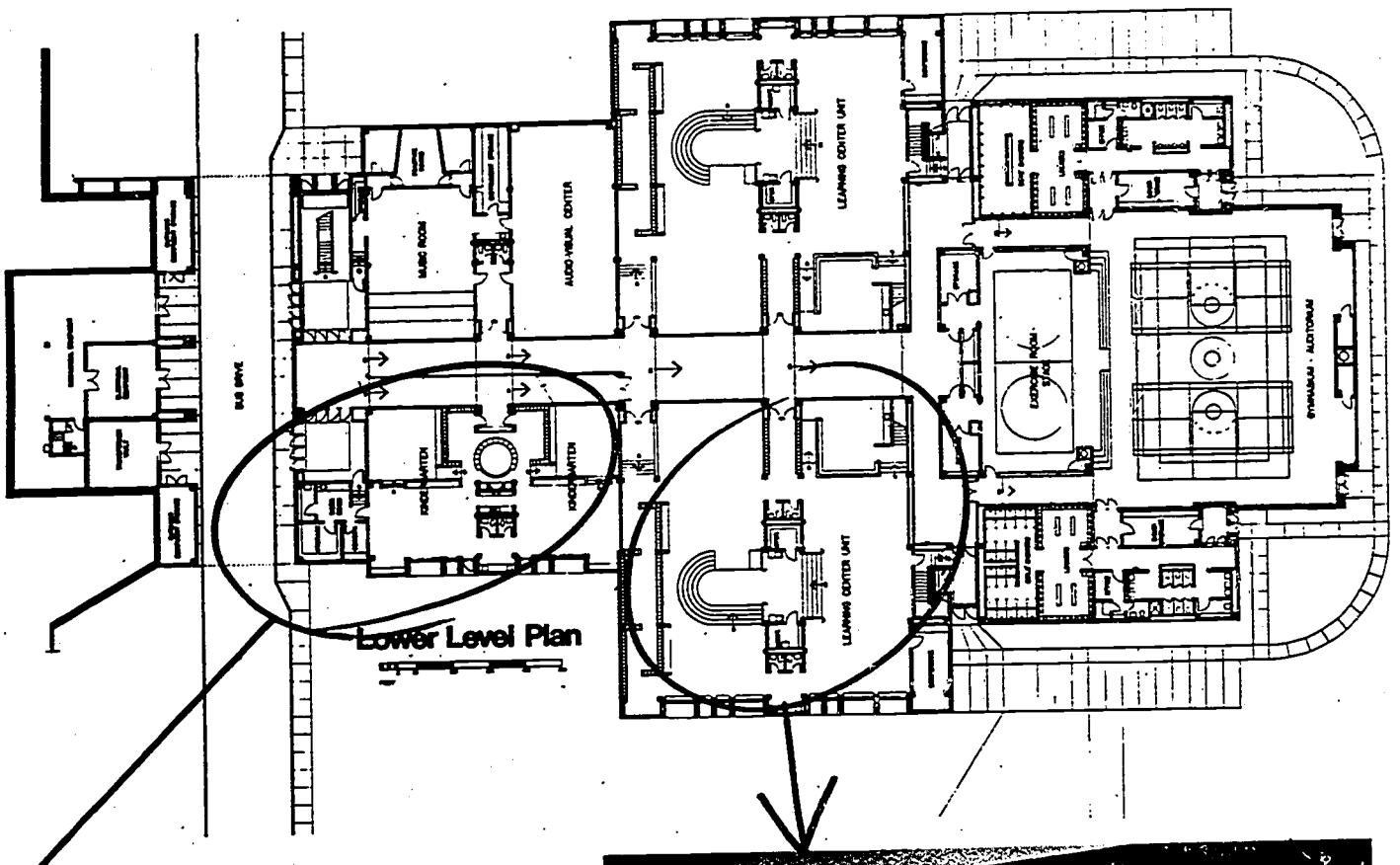
Write: Val Bernardoni
Principal
Ridge Hill School
120 Carew Road
Hamden, Conn. 06517

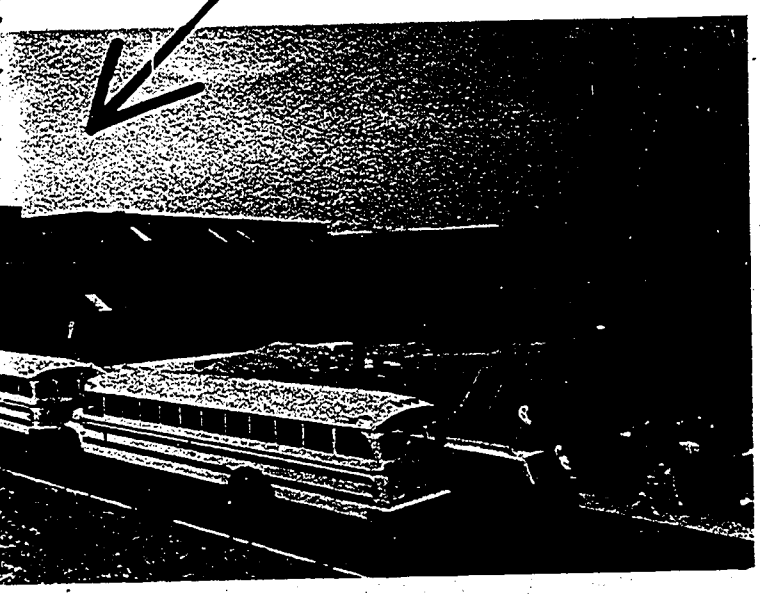


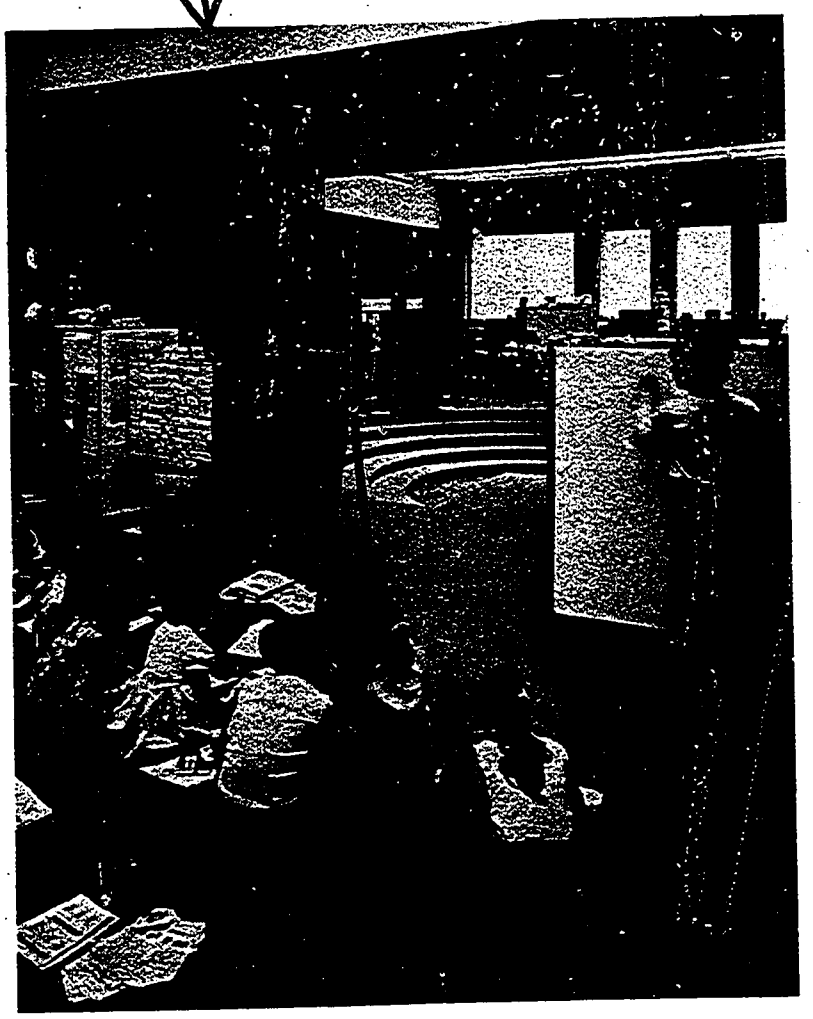


th Options

an schools
ng, unless
d carefully
me of them
ers less so.





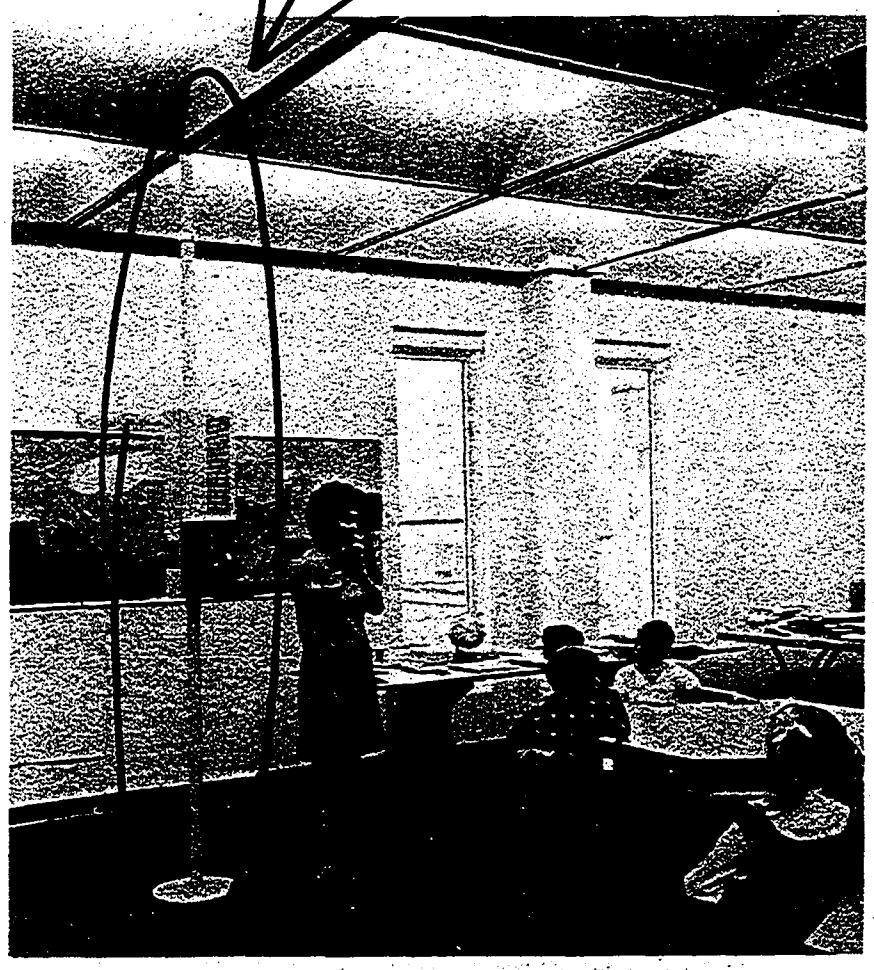


The Mechanical Environment

Advances in technology have solved most of the mechanical problems in the early open plan schools. Carpeting and acoustically treated ceilings and soft furniture and equipment (bean bags, snake chairs, inflatables, fabric screens) have not only contributed to better sound conditioning but have also made school environments softer and more yielding to the body and spirit.* Other problems, like the power outlets when there are few walls, have been more difficult. But power distribution systems through the ceiling or floor now make it possible to use machines anywhere in a room, no matter how far the nearest wall. Systems building, for example, has developed an electronic subsystem for plug-in electrical and communication outlets operable anywhere along a 5-ft module.** Write: John Boice, Building Systems Information Clearinghouse/Educational Facilities Laboratories, 3000 Sand Hill Road, Menlo Park, Calif. 94025.

*See: 4.FURNITURE, p.48

** See also Systems Building



Castle Rock High
Wash., has develo
science center fo
and waste disposa
p.56, for illustr
the electrical ca
development; it p
flexibility in po
communications.**

*** See also Carpet

Study of Educati
Educational Spec
and User Require
for Intermediate

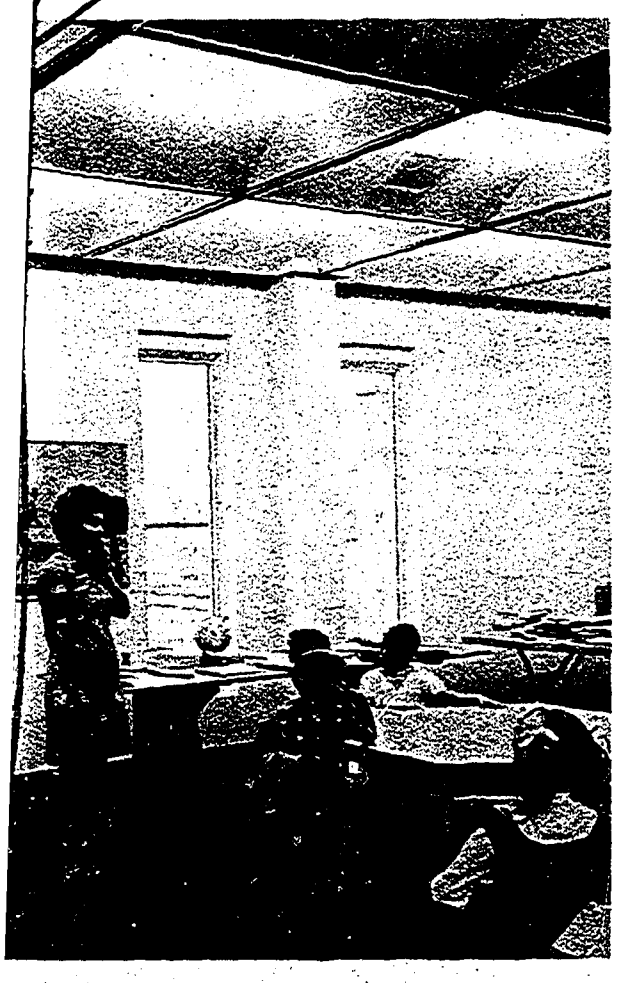
Study of Educati
Educational Spec
and User Require
for Secondary Sc

Available from M
330 Progress Ave
Scarborough, Ont
Attention: Pete

For more informa
Peter Tirion, Te
Study of Educati
Metropolitan Tor
155 College Aven
Toronto, 2B, Ont

...ronment

...ost of the mechanical
...ols. Carpeting and acous-
...rniture and equipment (bean
...ric screens) have not only
...ning but have also made
yielding to the body and
...ower outlets when there are
But power distribution
now make it possible to
matter how far the nearest
..., has developed an elec-
...ical and communication
...-ft module.** Write:
...ation Clearinghouse/Educa-
...0 Sand Hill Road, Menlo Park,



Castle Rock High School in Tacoma, Wash., has developed a "wet" column science center for plug-in plumbing and waste disposal (see 4.FURNITURE, p.56, for illustration). Watch for the electrical carpet now under development; it promises a new flexibility in power supply and communications.***

*** See also Carpet

Study of Educational Facilities, #E2
Educational Specifications
and User Requirements
for Intermediate Schools ($10.00)

Study of Educational Facilities, #E3
Educational Specifications
and User Requirements
for Secondary Schools ($15.00)

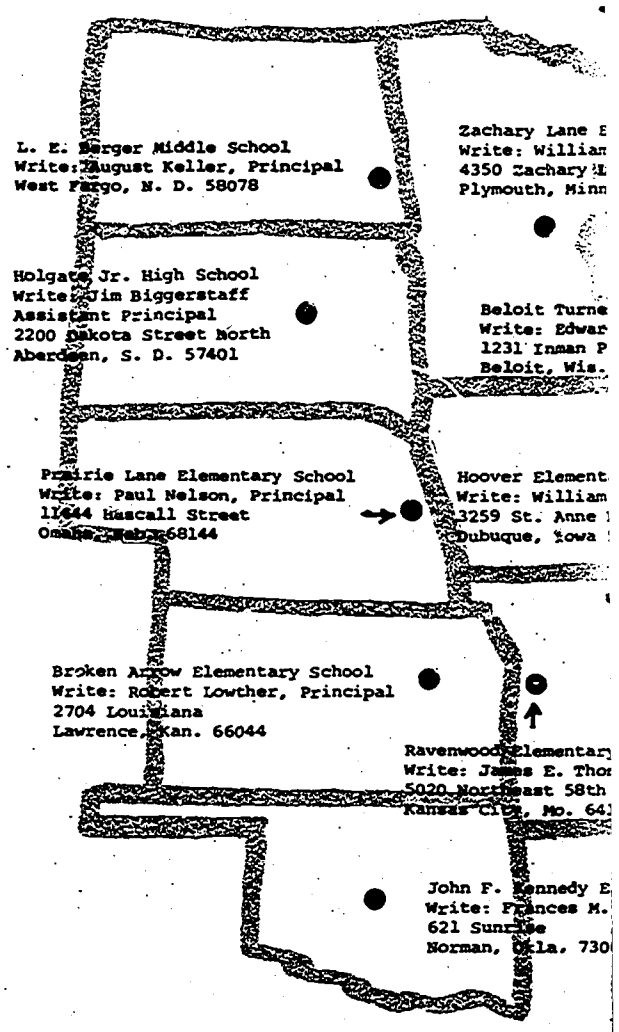
Available from McGraw-Hill Book Co.
330 Progress Avenue
Scarborough, Ontario, Canada
Attention: Peter Bradley

For more information, write:
Peter Tirion, Technical Director
Study of Educational Facilities
Metropolitan Toronto School Board
155 College Avenue
Toronto, 2B, Ontario, Canada

Wonder Park Elementary School
Write: John C. Everitt, Jr., Principal
5100 East 4th Avenue
Anchorage, Alaska 99504

Hahaione Elementary School
Write: Thelma Yoshida, Principal
595 Pepeekeo Street
Honolulu, Hawaii 96825

MIDWEST



L. E. Berger Middle School
Write: August Keller, Principal
West Fargo, N. D. 58078

Zachary Lane E
Write: William
4350 Zachary L
Plymouth, Minn

Holgate Jr. High School
Write: Jim Biggerstaff
Assistant Principal
2200 Dakota Street North
Aberdeen, S. D. 57401

Beloit Turne
Write: Edwar
1231 Inman P
Beloit, Wis.

Prairie Lane Elementary School
Write: Paul Nelson, Principal
11644 Hascall Street
Omaha, Nebr. 68144

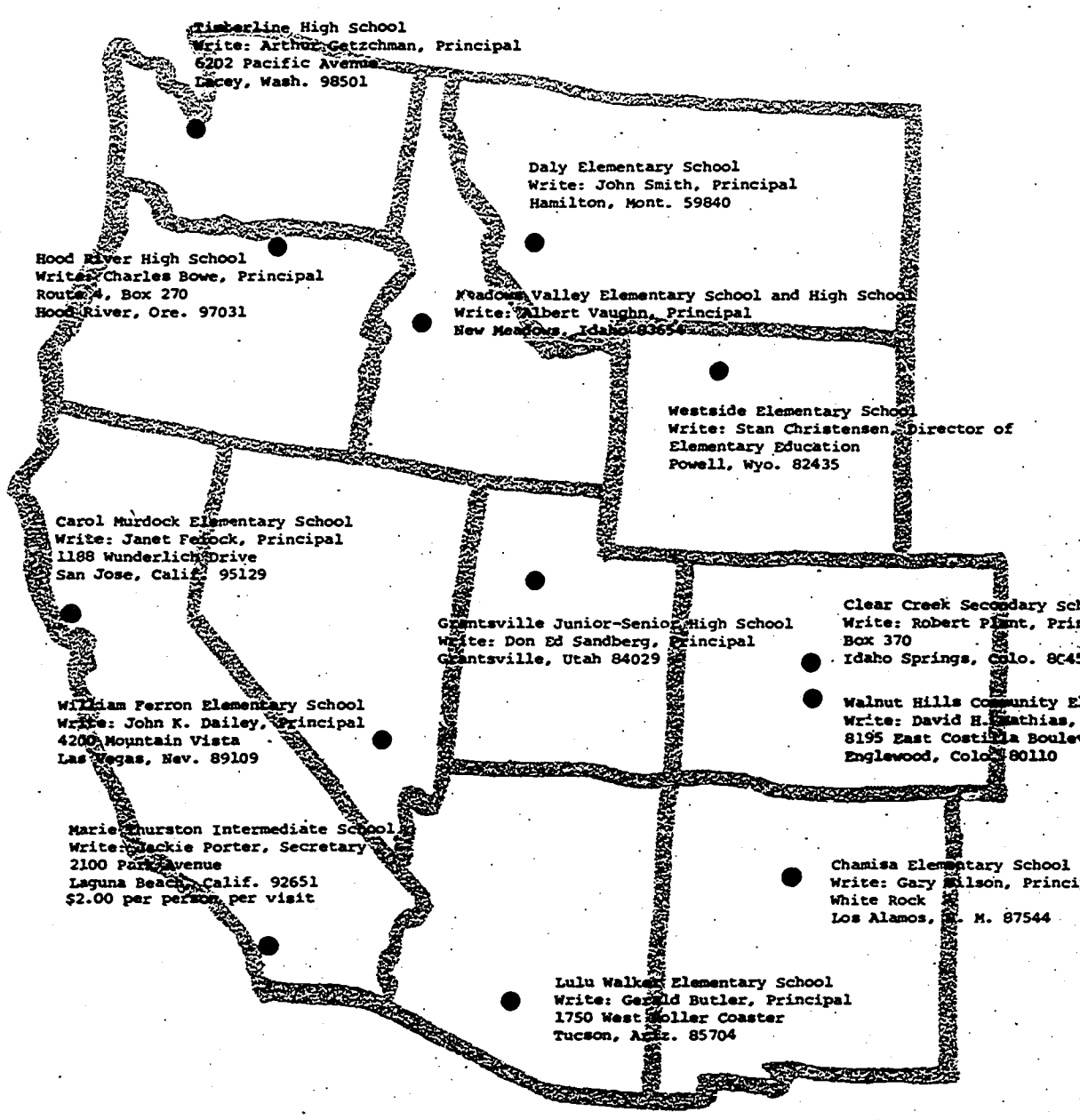
Hoover Element
Write: William
3259 St. Anne
Dubuque, Iowa

Broken Arrow Elementary School
Write: Robert Lowther, Principal
2704 Louisiana
Lawrence, Kan. 66044

Ravenwood Elementary
Write: James E. Thor
5020 Northeast 58th
Kansas City, Mo. 641

John F. Kennedy E
Write: Frances M.
621 Sunrise
Norman, Okla. 730

WEST



Timberline High School
Write: Arthur Getzchman, Principal
6202 Pacific Avenue
Lacey, Wash. 98501

Daly Elementary School
Write: John Smith, Principal
Hamilton, Mont. 59840

Hood River High School
Write: Charles Bowe, Principal
Route 4, Box 270
Hood River, Ore. 97031

Meadows Valley Elementary School and High School
Write: Albert Vaughn, Principal
New Meadows, Idaho 83654

Westside Elementary School
Write: Stan Christensen, Director of
Elementary Education
Powell, Wyo. 82435

Carol Murdock Elementary School
Write: Janet Fetock, Principal
1188 Wunderlich Drive
San Jose, Calif. 95129

Grantsville Junior-Senior High School
Write: Don Ed Sandberg, Principal
Grantsville, Utah 84029

Clear Creek Secondary School
Write: Robert Plant, Principal
Box 370
Idaho Springs, Colo. 80452

Walnut Hills Community Elementary School
Write: David H. Mathias, Principal
8195 East Costilla Boulevard
Englewood, Colo. 80110

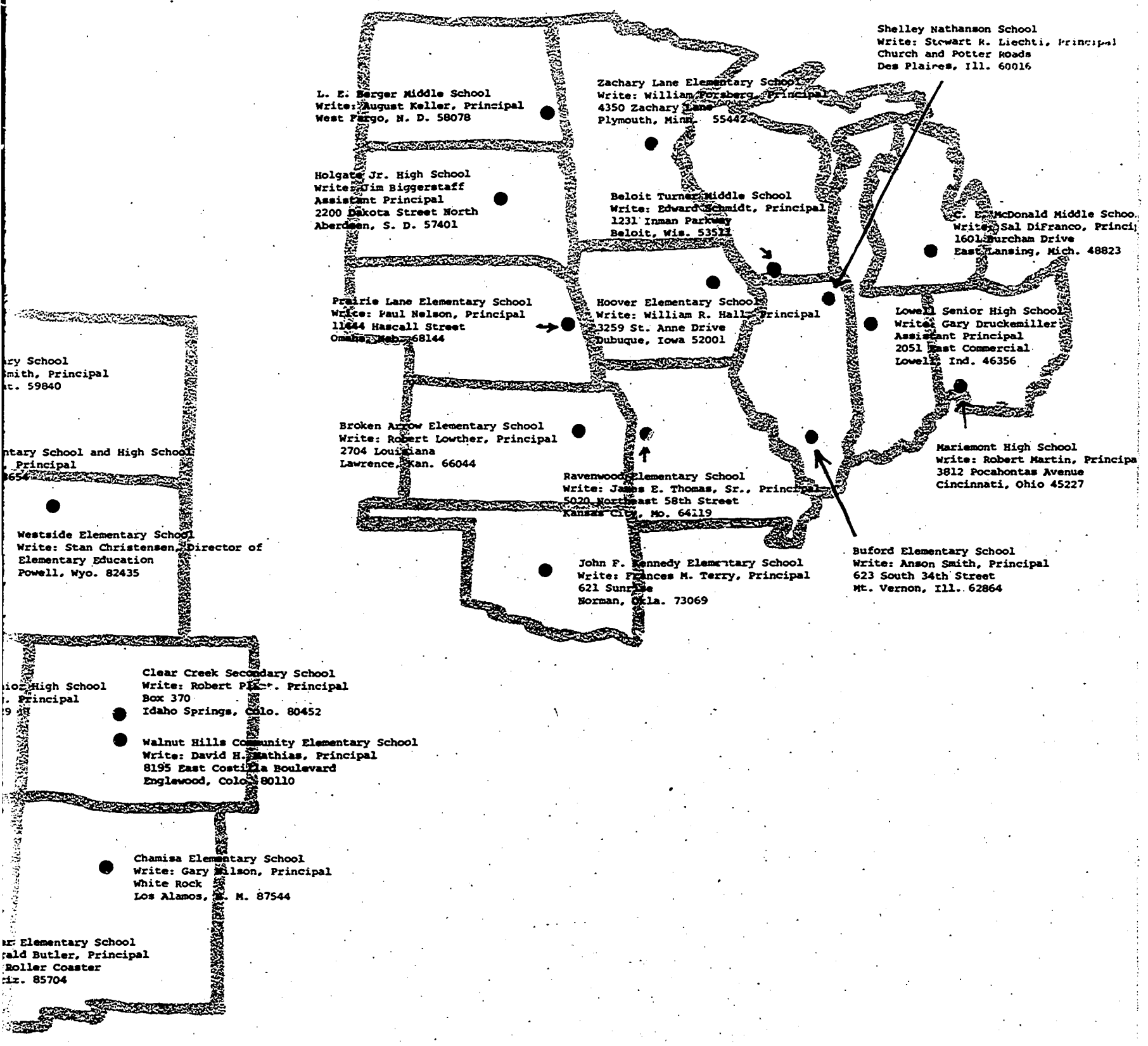
William Ferron Elementary School
Write: John K. Dailey, Principal
4200 Mountain Vista
Las Vegas, Nev. 89109

Marie Thurston Intermediate School
Write: Jackie Porter, Secretary
2100 Park Avenue
Laguna Beach, Calif. 92651
$2.00 per person, per visit

Chamisa Elementary School
Write: Gary Wilson, Principal
White Rock
Los Alamos, N. M. 87544

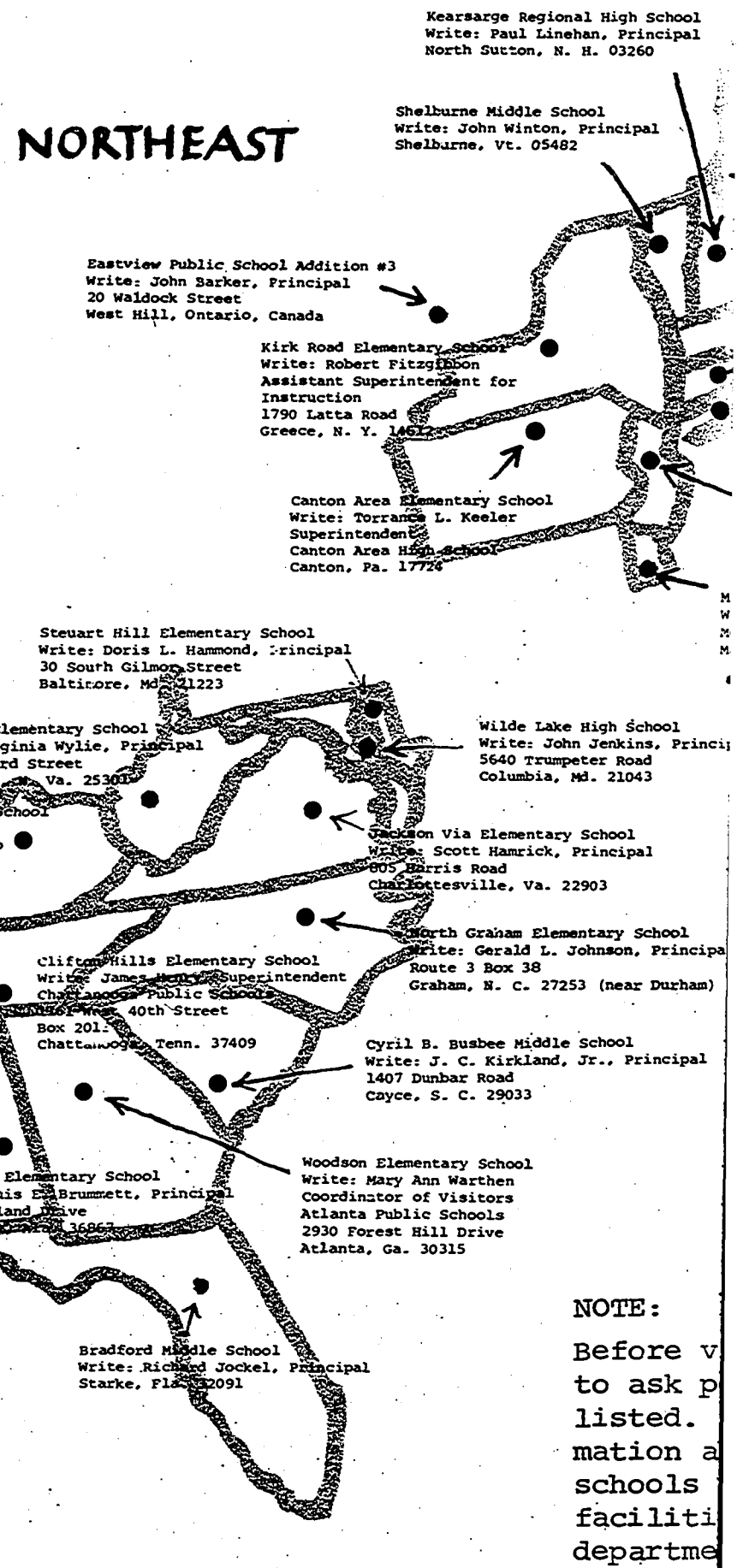
Lulu Walker Elementary School
Write: Gerald Butler, Principal
1750 West Roller Coaster
Tucson, Ariz. 85704

MIDWEST


L. E. Berger Middle School
Write: August Keller, Principal
West Fargo, N. D. 58078
Holgate Jr. High School
Write: Jim Biggerstaff
Assistant Principal
2200 Dakota Street North
Aberdeen, S. D. 57401
Zachary Lane Elementary School
Write: William Forsberg, Principal
4350 Zachary Lane
Plymouth, Minn. 55442
Beloit Turner Middle School
Write: Edward Schmidt, Principal
1231 Inman Parkway
Beloit, Wis. 53511
Shelley Nathanson School
Write: Stewart R. Liechti, Principal
Church and Potter Roads
Des Plaines, Ill. 60016
C. S. McDonald Middle School
Write: Sal DiFranco, Princi
1601 Burcham Drive
East Lansing, Mich. 48823
Prairie Lane Elementary School
Write: Paul Nelson, Principal
11444 Hascall Street
Omaha, Neb. 68144
Hoover Elementary School
Write: William R. Hall, Principal
3259 St. Anne Drive
Dubuque, Iowa 52001
Lowell Senior High School
Write: Gary Druckemiller
Assistant Principal
2051 East Commercial
Lowell, Ind. 46356
ry School
mith, Principal
t. 59840
Broken Arrow Elementary School
Write: Robert Lowther, Principal
2704 Louisiana
Lawrence, Kan. 66044
Mariemont High School
Write: Robert Martin, Principa
3812 Pocahontas Avenue
Cincinnati, Ohio 45227
ntary School and High School
Principal
654
Ravenwood Elementary School
Write: James E. Thomas, Sr., Principal
5020 Northeast 58th Street
Kansas City, Mo. 64119
Westside Elementary School
Write: Stan Christensen, Director of
Elementary Education
Powell, Wyo. 82435
John F. Kennedy Elementary School
Write: Frances M. Terry, Principal
621 Sunrise
Norman, Okla. 73069
Buford Elementary School
Write: Anson Smith, Principal
623 South 34th Street
Mt. Vernon, Ill. 62864
ior High School
Principal
9 01
Clear Creek Secondary School
Write: Robert Pike, Principal
Box 370
Idaho Springs, Colo. 80452
Walnut Hills Community Elementary School
Write: David H. Mathias, Principal
8195 East Costilla Boulevard
Englewood, Colo. 80110
Chamisa Elementary School
Write: Gary Wilson, Principal
White Rock
Los Alamos, N. M. 87544
r Elementary School
ald Butler, Principal
Roller Coaster
iz. 85704

A NOTE:

The number of open plan schools across the country has grown so large (especially at the elementary level) it is no longer possible for us to visit all of them. Since in many cases we must rely upon information from the field, readers who make visits to these schools are likely to find varying degrees of openness -- from totally open to partially open, from no walls at all to combinations of demountable partitions and movable screens, and to interiors subdivided into open pods equal in size to three or more classrooms. Here are some pinpointed regionally. For more information, write: Catherine Slade, Librarian
EFL
477 Madison Avenue
New York, N.Y. 10022

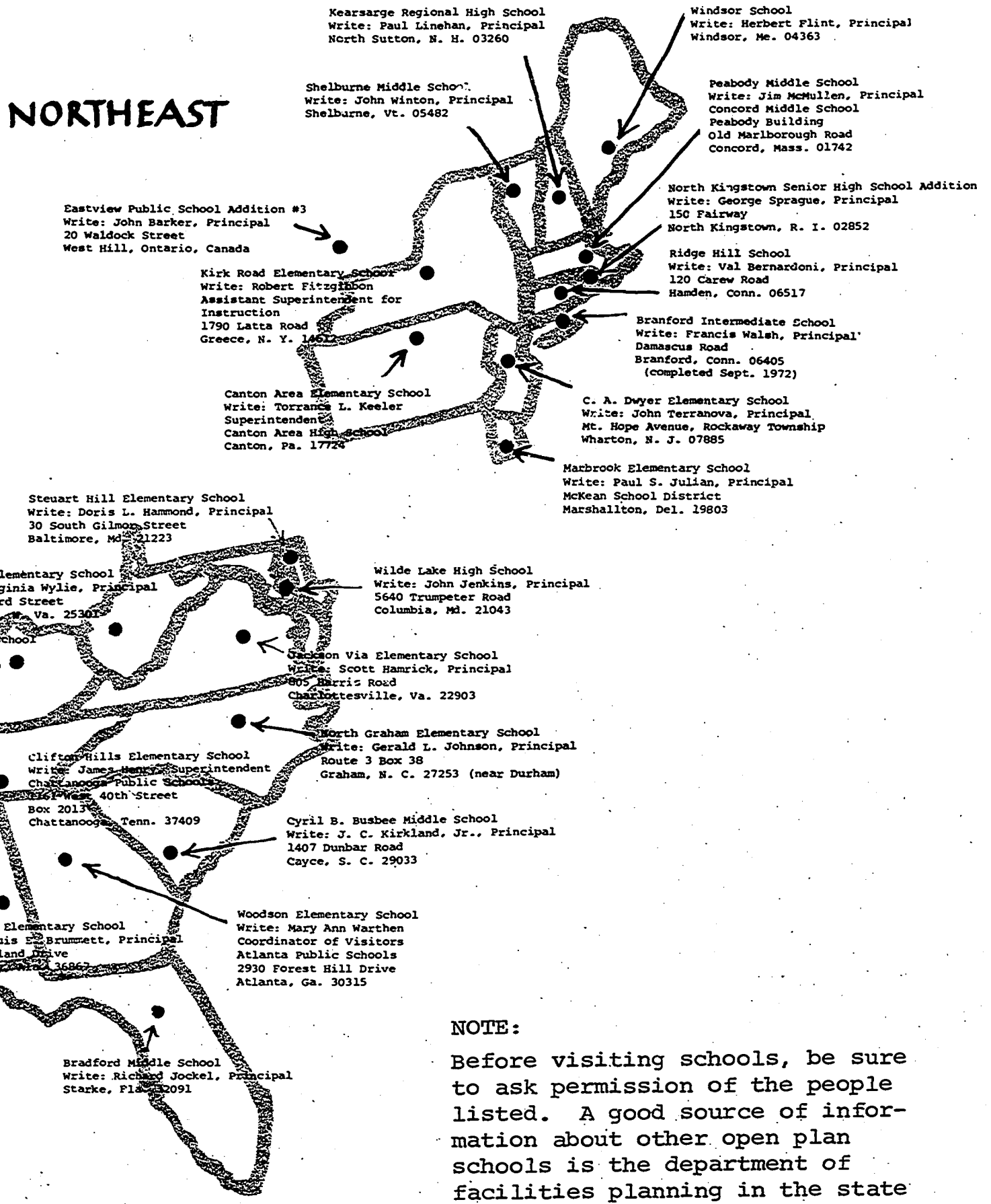


NOTE:

Before v
to ask p
listed.
mation a
schools
faciliti
departme

bols across the
(especially at
no longer pos-
f them. Since
upon information
make visits to
find varying
totally open to
ls at all to
partitions and
eriors sub-
l in size to
Here are some
more informa-
de, Librarian

venue
. 10022



NOTE:

Before visiting schools, be sure to ask permission of the people listed. A good source of information about other open plan schools is the department of facilities planning in the state departments of education.

The Human Environment

Some of the more serious problems in open plan schools have had to do with human factors -- with the need for a sense of place and the need for visual and auditory privacy. Often, the first generation open plan schools were simply huge seas of undifferentiated space in which the absence of landmarks, reference points, or territorial markers left students disoriented, not knowing where to go or where they belonged when they got there. The latest models recognize the need for defining subspaces in such a way as to provide both orientation and conditions for the visual and auditory interaction of a specific group within a subspace. This is accomplished with movable fabric screens, panels and casework. There is a large inventory of equipment that can serve well for this purpose (so long as it is scaled to human proportions and is not so tall as to totally isolate a subspace from its larger surround). With colorful surfaces of their own, or surfaces prepared to receive graphics, these territorial markers add to the warmth and vitality of the total environment.

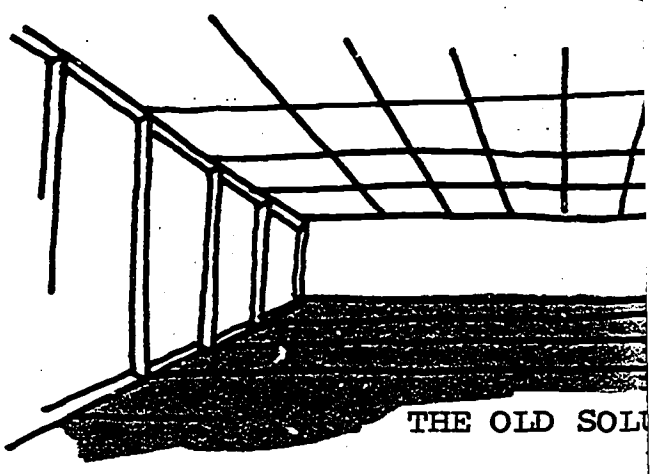
For good examples of space-defining elements and systems, see:

North Kingstown Senior High School
150 Fairway
North Kingstown, R. I. 02852

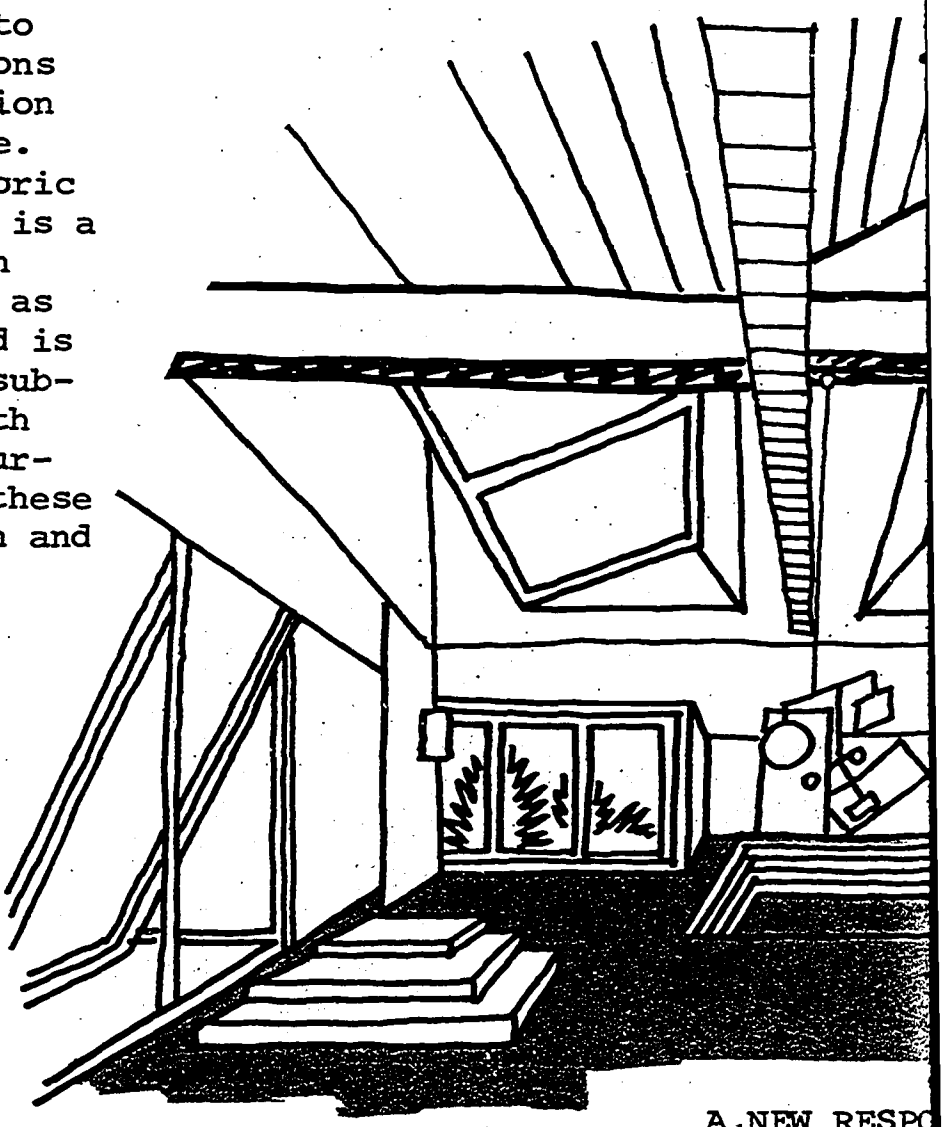
Little Falls High School
Top Notch Road
Little Falls, N. Y. 13365

Beachwood Middle School
2860 Richmond Road
Beachwood, Ohio 44122

The architect's response
becoming increasingly sop
ment to the belief that e
has changed the form of t



THE OLD SOL



A NEW RESP

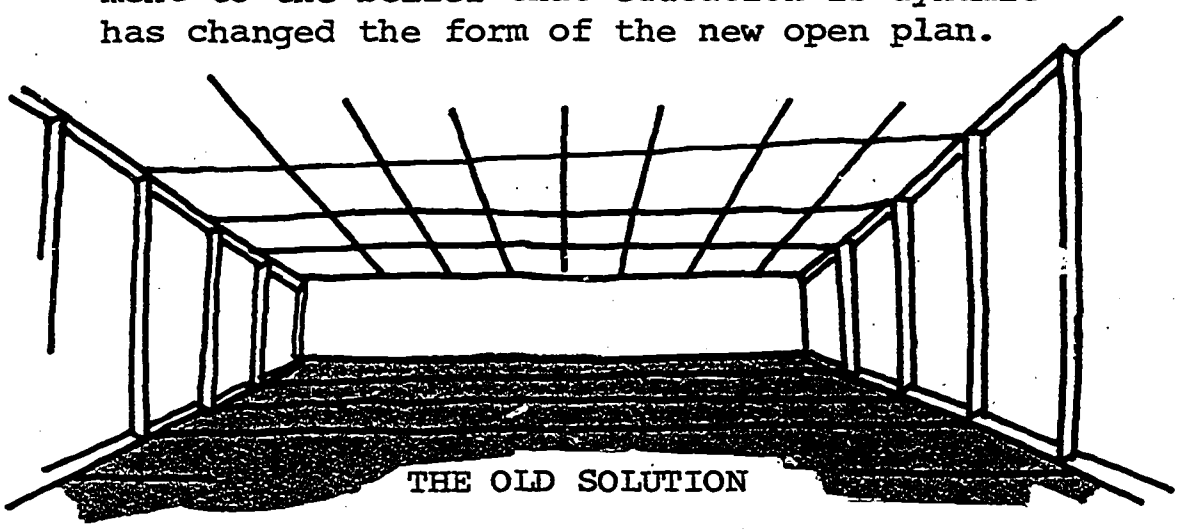
ment

in open
uman
se of
auditory
ion open
s of
e ab-
ts, or
dis-
or
there.
ed for
as to
itions
action
pace.
fabric
ere is a
can
ong as
and is
a sub-
With
r sur-
s, these
rmth and
.

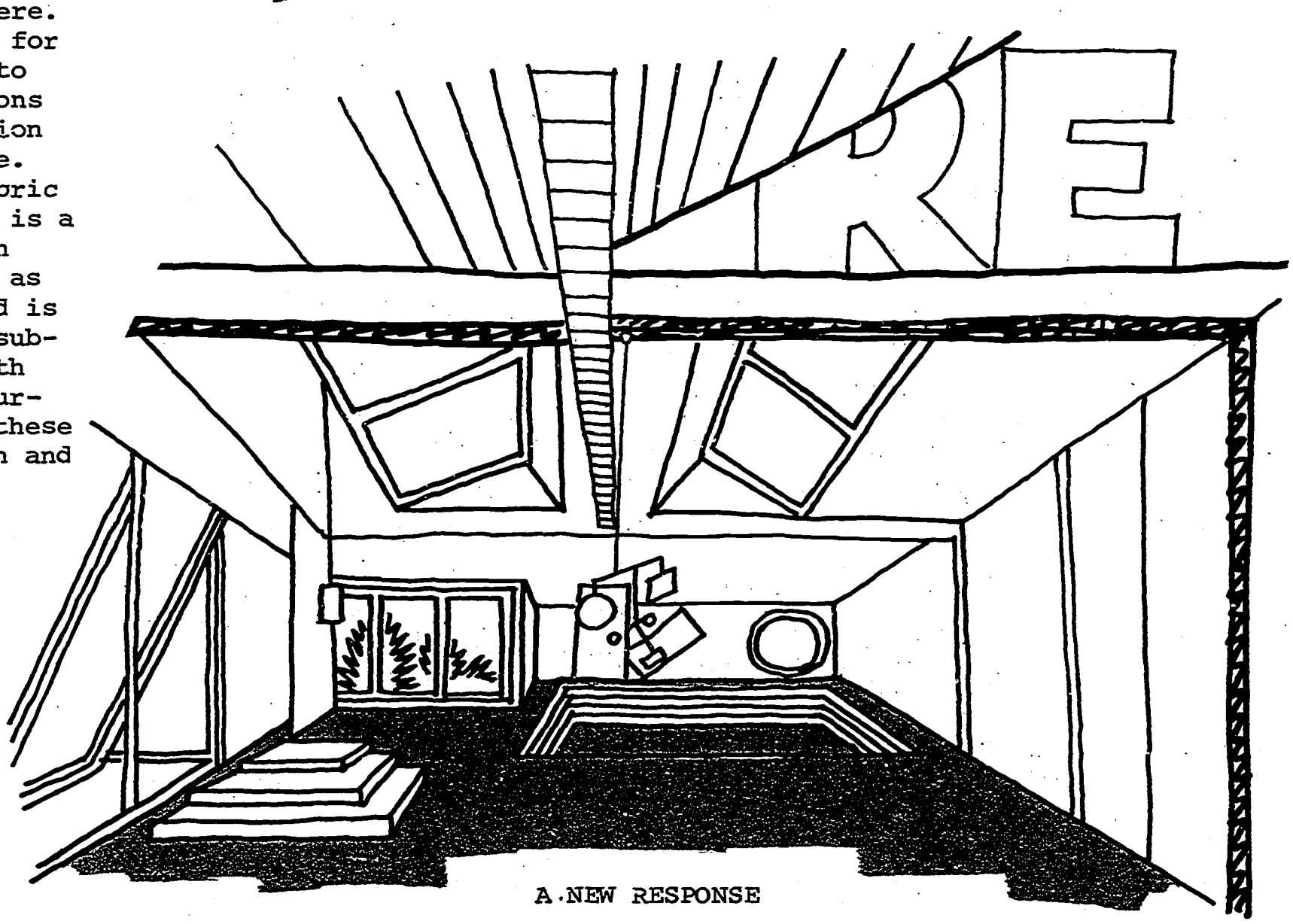
ng

l

The architect's response to open plan space is becoming increasingly sophisticated. Commitment to the belief that education is dynamic has changed the form of the new open plan.

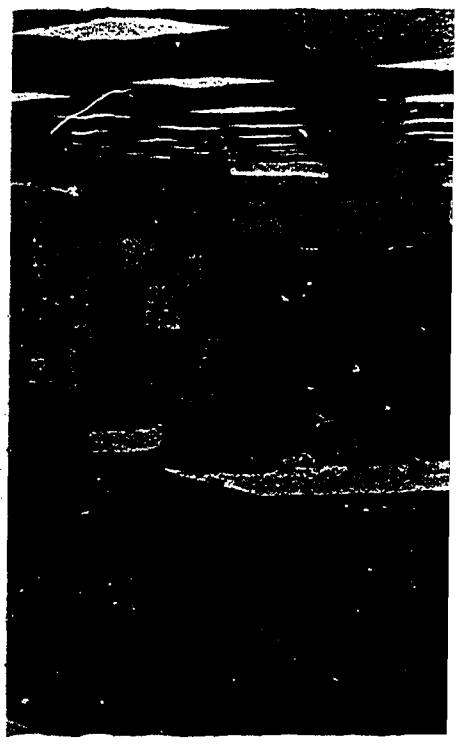


THE OLD SOLUTION



A NEW RESPONSE

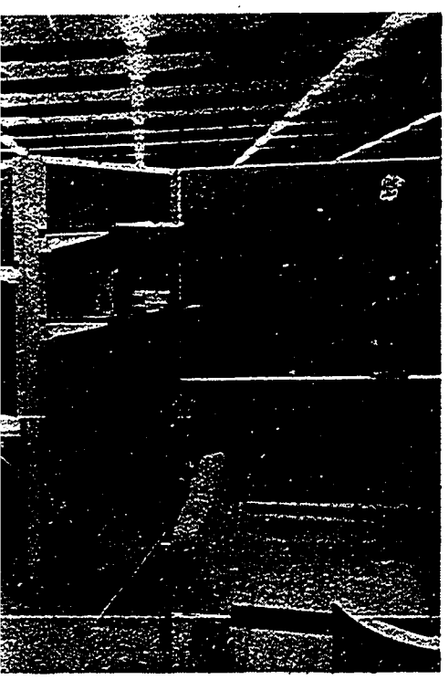
North Kingstown Senior High School Addition



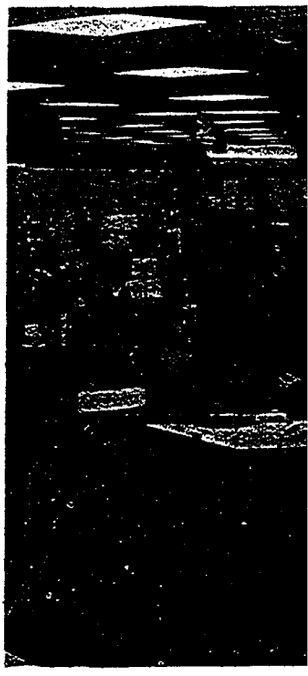
Little Falls High Sch

North Kingston High School and Little Falls High School define space with movable furniture and multiuse dividers.

Beachwood Middle School highlights subspaces with carpeted "sit-upons" and dropped lighting panels.

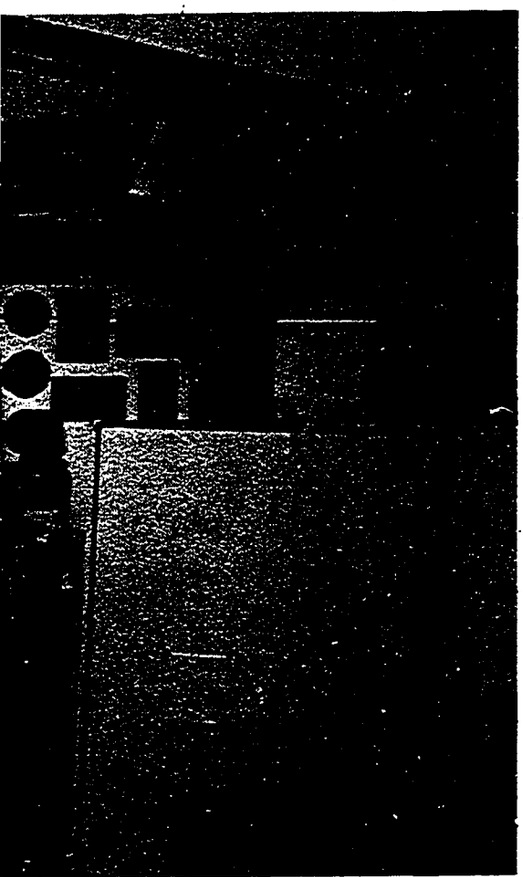


ol Addition



Little Falls Hig

1001



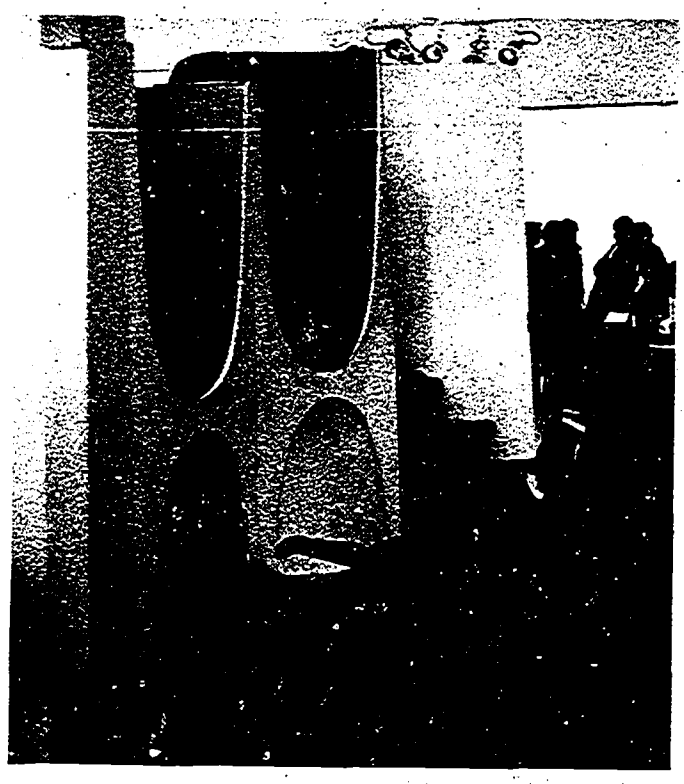
The Human Environment

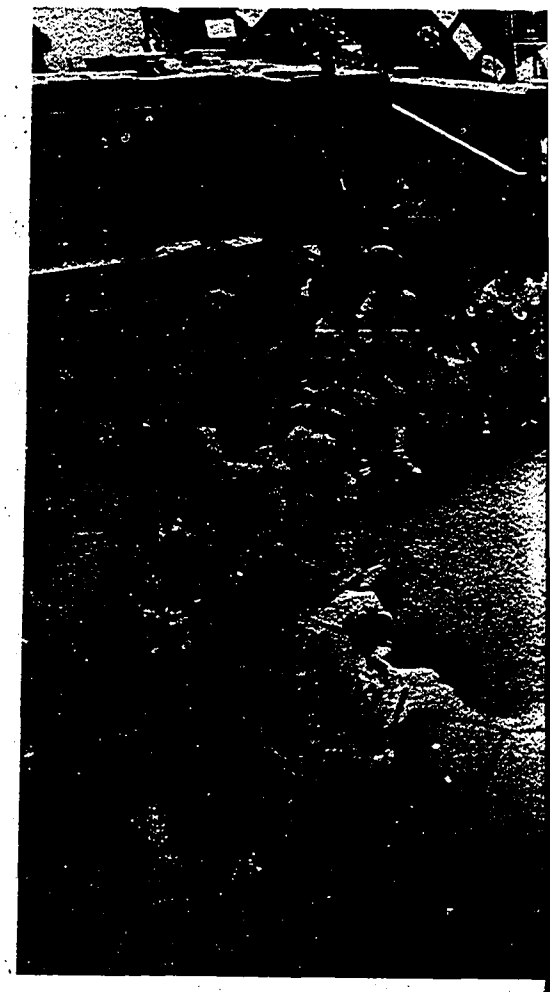
Schools have different ways of defining subspace, using a variety of techniques and equipment:

BUILT ENVIRONMENTS
Write:
Lynn Raphael, Director
Shady Lane School
6319 Walnut Street
Pittsburgh, Pa. 15206

DESIGNED SUBSPACE Write:

Philip McCurdy, Headmaster
Calhoun School
309 West 92nd Street
New York, N. Y. 10025

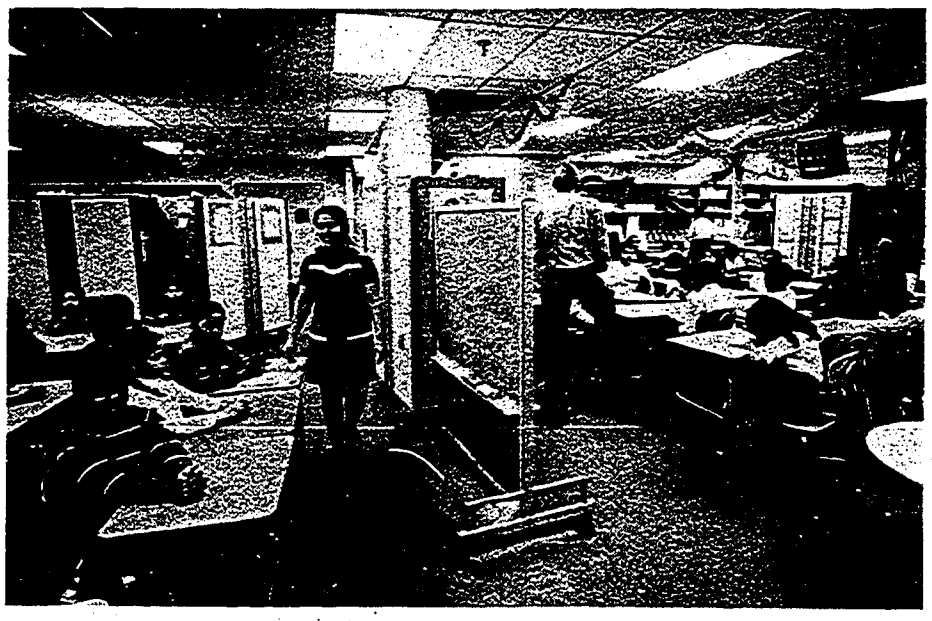




onment

f
riety

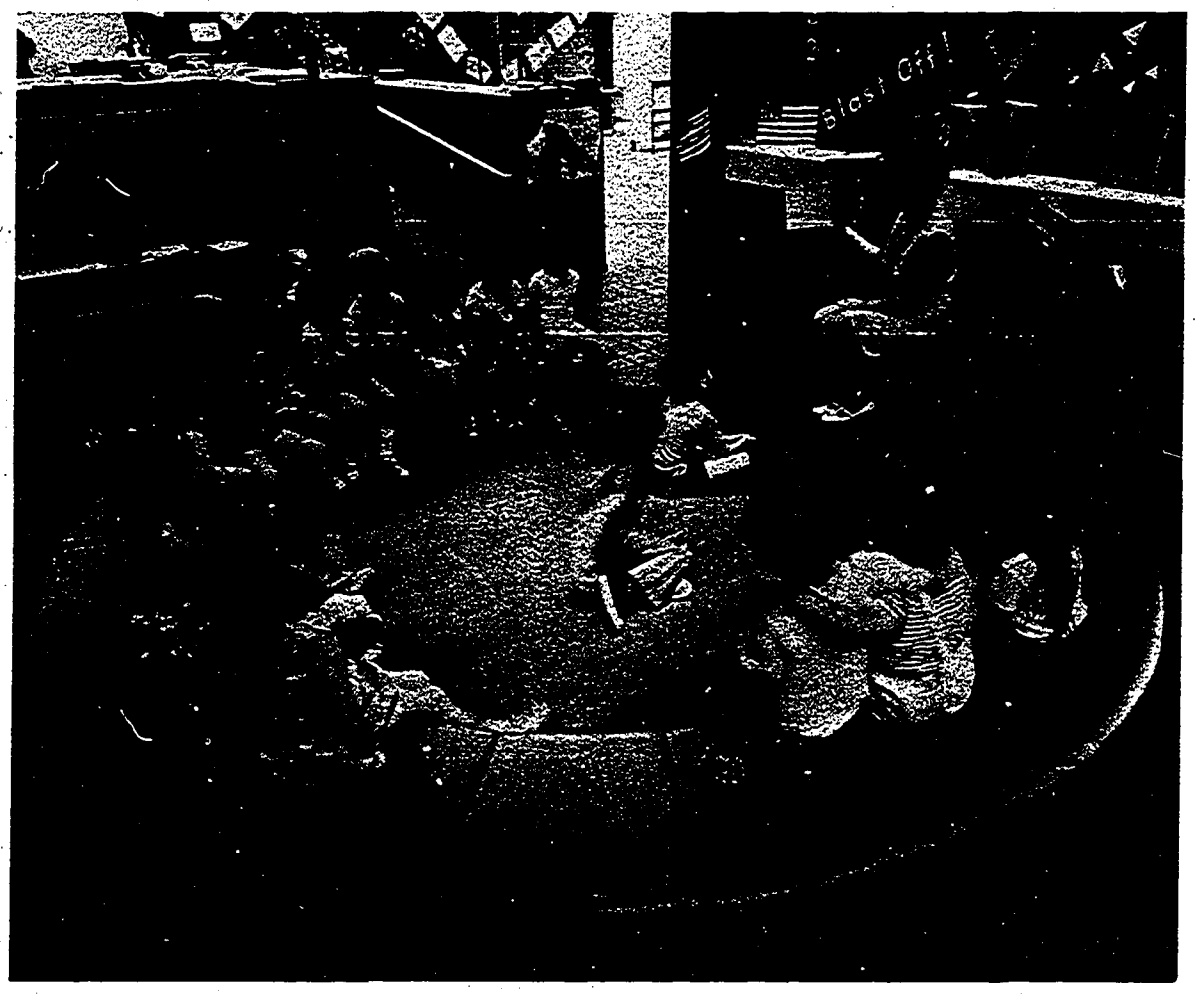
LT ENVIRONMENTS
te:
n Raphael, Director
dy Lane School
9 Walnut Street
tsburgh, Pa. 15206

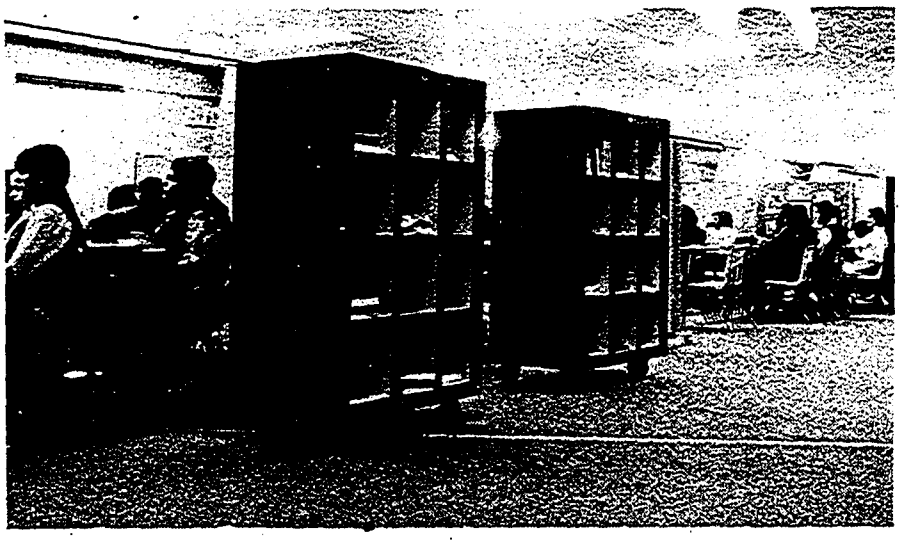


ROLL-AWAY PARTITIONS
Write:
Carmen Rivera, Principa
Public School 211
560 East 179th Street
Bronx, N. Y. 10457

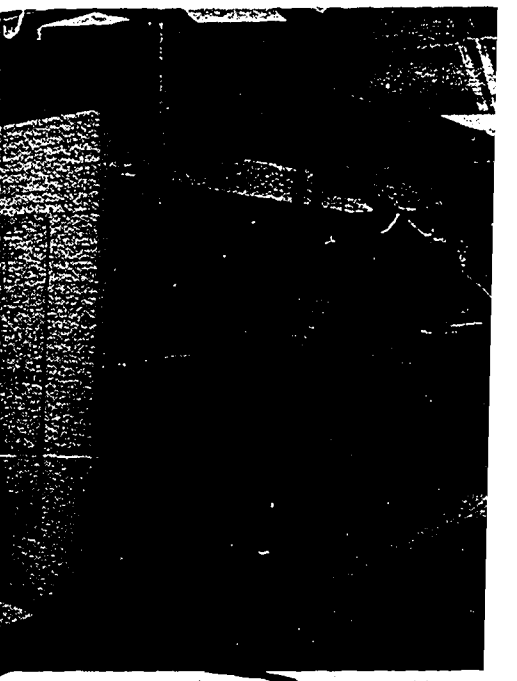
DESIGNED SUBSPACE Write: Val Bernardoni, Principal
Ridge Hill School
120 Carew Road
Hamden, Conn. 06517

Lip McCurdy, Headmaster
noun School
West 92nd Street
York, N. Y. 10025



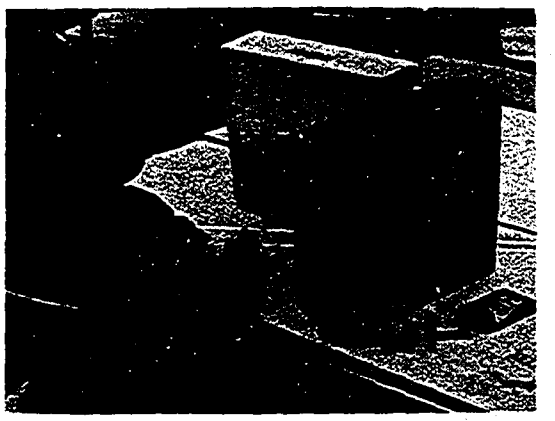


MOVABLE FURNITURE Write:
Paul Linehan, Principal
Kearsarge Regional High School
North Road, North Sutton, N.H. 03260



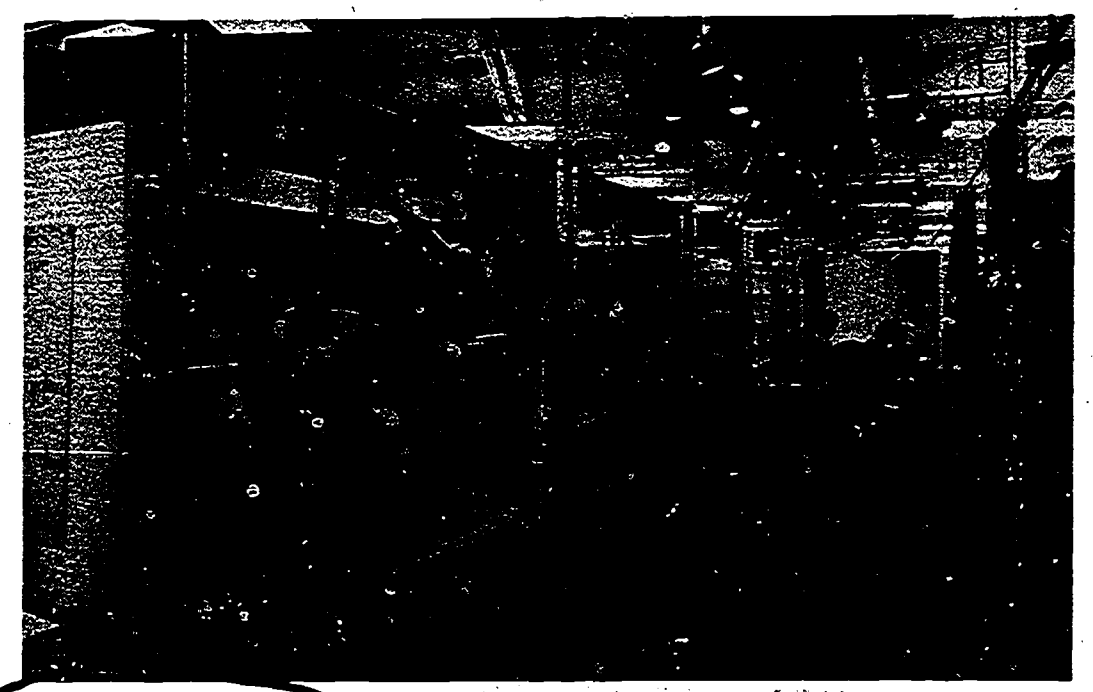
FABRIC SCREENS Write: D
A
3
N

DEMOUNTABLE PARTITIONS
Write: Floyd Harryman, Principal
Estancia High School
2323 Placentia Avenue
Costa Mesa, Calif. 92627

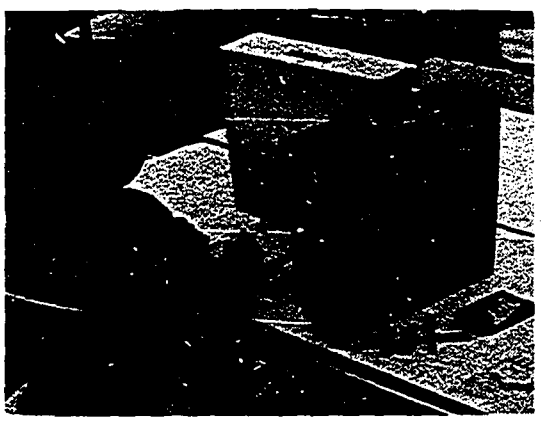


THE INDIVIDUAL APPROACH
Write:
E. L. Page, Principal
George Syme Public School
69 Pritchard Avenue
Toronto, Canada

hool
N.H. 03260



FABRIC SCREENS Write: Doris Schwartz, Director
Acorn Montessori School
330 East 26th Street
New York, N. Y. 10010



THE INDIVIDUAL APPROACH
Write:
E. L. Page, Principal
George Syme Public School
69 Pritchard Avenue
Toronto, Canada

The Teaching Environment

The creation of efficient living and working conditions, once the province of architecture, now results almost wholly from manipulation of the interior elements and the ongoing management of the space. And it is teachers and administrators who must assume the role of space manager. So, to prepare them for this new role, they must be taught how to use the equipment and teach in open plan schools.

TEACHER TRAINING FOR OPEN PLAN SCHOOLS

At present, there is no overall attempt to prepare teachers for open plan schools. However, since a majority of new schools are being designed at least partially open plan, the necessity for showing teachers how to use them is growing rapidly.

Some suggestions:

1. Check with your local college or university. Many have some kind of program, ranging from a full curriculum approach -- the University of North Dakota, Grand Forks, N. D.; the University of Houston, Houston, Tex.; and the University of South Florida, Tampa, Fla. -- to smaller programs, such as the extension courses taught in local open plan schools at San Jose State College, San Jose, Calif.; small programs within the education department at the University of British Columbia, Vancouver, B.C., Canada; and summer workshops at St. Mary's College, Notre Dame,Ind.

2. I/D/E/A, Inc. of the Kettering Foundation is developing in-service teacher training operations in a number of states and overseas. The programs concentrate on two components: teacher effectiveness and individualization of the educational program. Although not limited to open plan schools, the programs encourage the open space concept and dialogue between interested schools. For more information, Write: Kenneth Schultz, Innovative Programs, I/D/E/A, Inc., 5335 Far Hills Avenue, Suite 300, Dayton, Ohio 45429

PACIFIC
HAS A TE
CENTER F
Write:
Departme
Pacific
Tacoma,

3. Visiting local ope
with their teachers ca
schools have informall
neighboring schools de
The Mullen School, 100
Ind. 46360, for exampl
Will Hedstrom, Princip

ment

and working conditions, once the
sults almost wholly from manipulation
ongoing management of the space. And
s who must assume the role of space
r this new role, they must be taught
ch in open plan schools.

LAN SCHOOLS

all attempt to prepare teachers
ever, since a majority of new schools
partially open plan, the necessity
use them is growing rapidly.

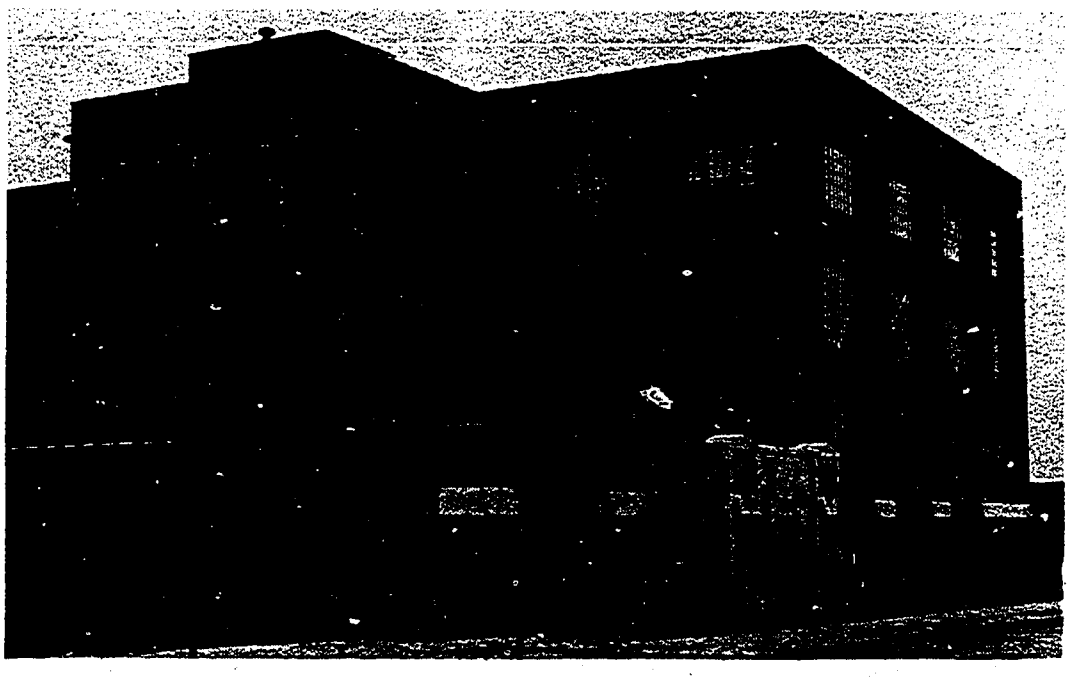
PACIFIC LUTHERAN UNIVERSITY
HAS A TEACHER TRAINING
CENTER FOR THE TACOMA AREA
Write: Kenneth Johnston
Department of Education
Pacific Lutheran University
Tacoma, Wash. 98447

llege or university. Many have some
om a full curriculum approach -- the
Grand Forks, N. D.; the University
and the University of South Florida,
rograms, such as the extension
n plan schools at San Jose State
small programs within the education
y of British Columbia, Vancouver, B.C.,
s at St. Mary's College, Notre Dame,Ind.

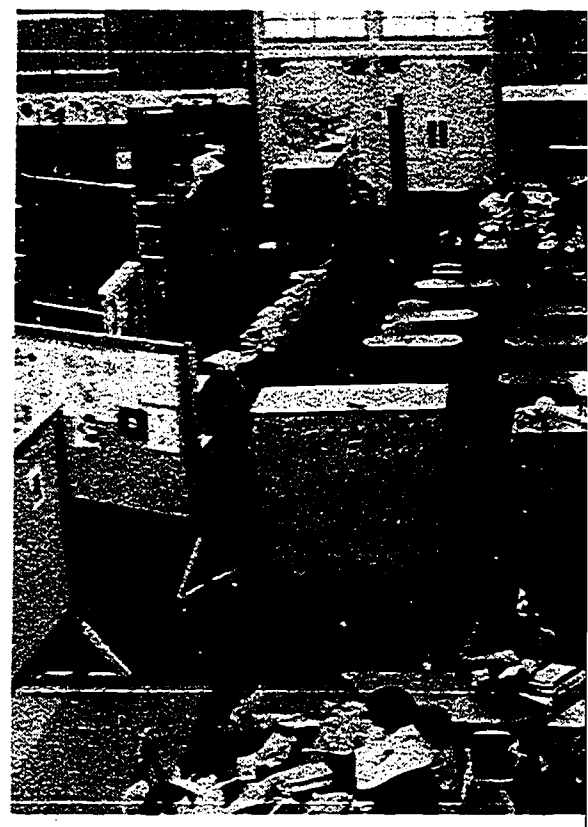
ttering Foundation is
er training operations
verseas. The programs
ts: teacher effective-
of the educational
ted to open plan
rage the open space
n interested schools.
: Kenneth Schultz,
A, Inc., 5335 Far
yton, Ohio 45429

3. Visiting local open plan schools and talking with their teachers can often be helpful. Some schools have informally organized workshops to help neighboring schools desiring a change to open plan. The Mullen School, 100 Manny Court, Michigan City, Ind. 46360, for example, has done this. Write to Will Hedstrom, Principal, for more information.

East Orange, N. J., for example, is building a new open plan middle school. The school is currently located in an old loft space, but in preparation for its opening, teachers and students are working with educational consultants to find more effective ways of using the space they now have. Write: Maxine Koelling, East Orange Public Schools, East Orange, N. J. 07017.



In Havertown, Pa., a new mi
construction. Until it is
old school has been carpete
and an acoustical ceiling,
space training area for tea
Write: Superintendent Harr
School District, East Darby

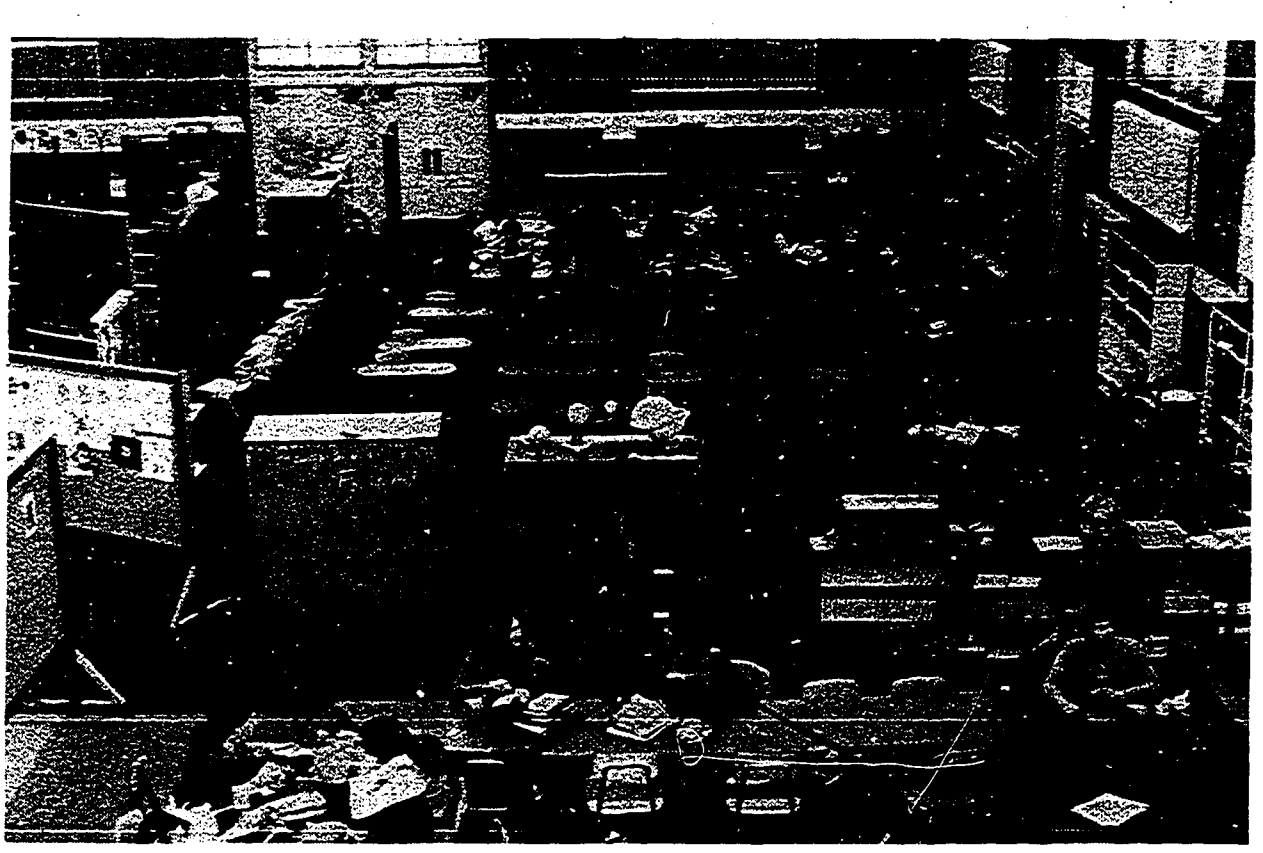


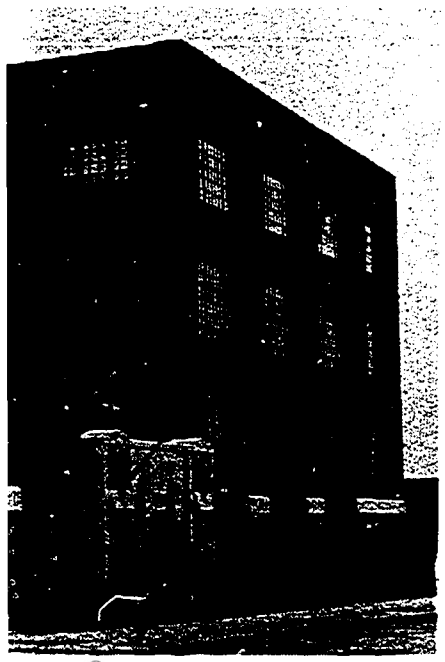
The Public Schools of the Dist
an open plan training center f
to their moving into new open
center has worked so well that
make it a permanent facility.
warehouse which is currently u
they hope to move in within th
Greene, Public Schools of the
Projects Division, 415 — 12th
D. C. 20004.

*See: 1.FOUND SPACE, p.4.

le, is building a new
school is currently
but in preparation
students are working
to find more effective
now have. Write:
Public Schools, East

In Havertown, Pa., a new middle school is also under construction. Until it is ready, the gymnasium in the old school has been carpeted, provided with new lighting and an acoustical ceiling, and is being used as an open space training area for teachers with 120 to 140 students. Write: Superintendent Harry R. Henly, Haverford Township School District, East Darby Road, Havertown, Pa. 19083.





The Public Schools of the District of Columbia are running an open plan training center for teachers and aides prior to their moving into new open plan schools. In fact, the center has worked so well that the city has decided to make it a permanent facility. The schools have acquired a warehouse which is currently undergoing renovation, and they hope to move in within the year.* Write: J. Weldon Greene, Public Schools of the District of Columbia, Special Projects Division, 415 — 12th Street, N. W., Washington, D. C. 20004.

*See: 1.FOUND SPACE, p.4.

The Cost of Environment

Sometimes, open plan schools turn out to be unsatisfactory because of misconceptions of cost. One misconception is that they are cheaper to build than conventional school buildings. Another is that more children can be crammed into them. Either view as a reason for building them is fallacious.

Schools without walls are not likely to cost less than conventional schools. True, money is saved on expensive interior walls and doors. And it is also true that without them, and with reclaimed corridor space, the net usable area of a building may be 80% or more, compared with 66% net usable area in a conventional building. But the money saved must now be spent elsewhere. The interior walls and doors, once part of the construction budget, are now thrown into the furniture and equipment tally. The reason is that the lack of interior partitions demands a better environment because the concentration of large numbers of people in a single space is potentially abrasive. Schools that try to get by with a minimal interior simply do not work. And so, with the furniture, equipment, and other interior elements costing more because of the greater diversity and highly refined quality demanded of them, it is wiser to expect a trade-off in cost rather than a savings.

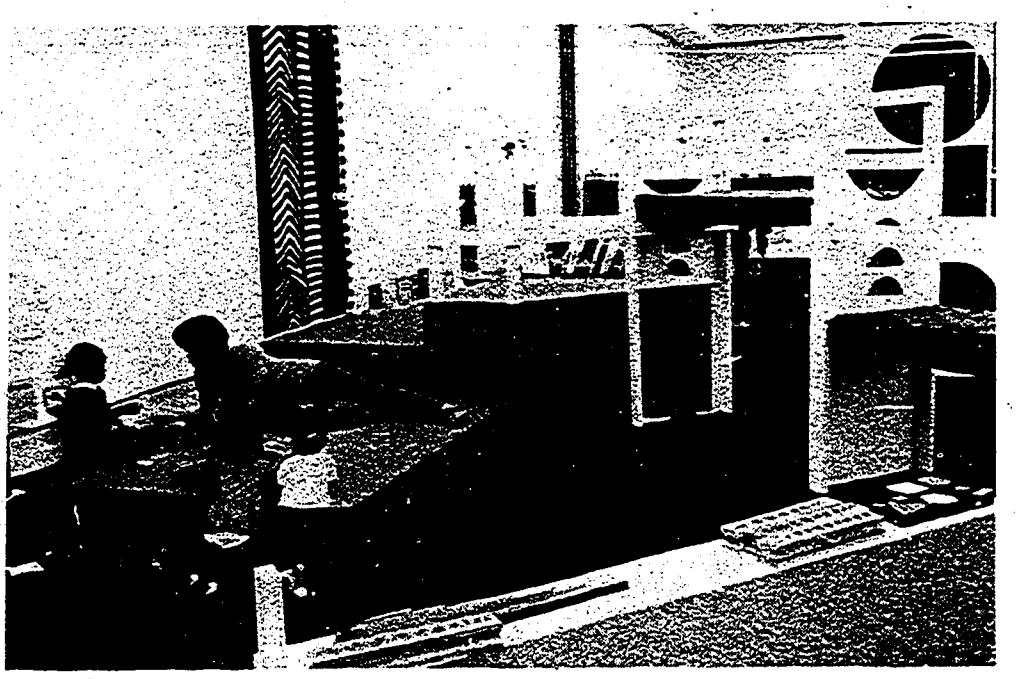
The floor in an o
be a cost dividen
changes in levels
become the school
piece of furnitur

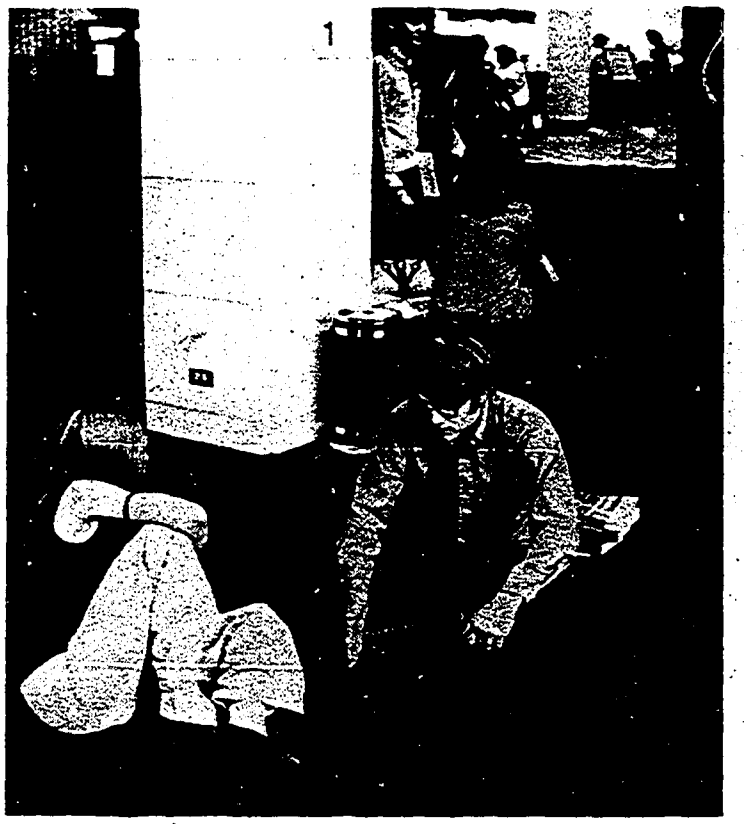
nment

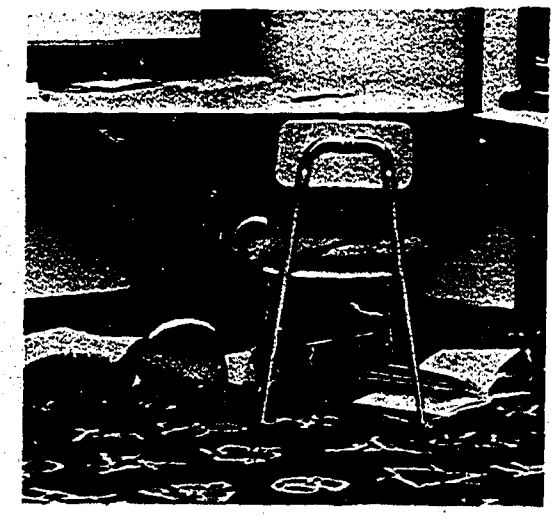
turn out to be unsatis-
ions of cost. One miscon-
per to build than conventional
that more children can be
ew as a reason for building

likely to cost less
rue, money is saved on
doors. And it is also
ith reclaimed corridor
a building may be 80%
t usable area in a
he money saved must now
rior walls and doors,
budget, are now thrown
ent tally. The reason
partitions demands a
e concentration of large
space is potentially
o get by with a minimal
And so, with the furni-
terior elements costing
iversity and highly
hem, it is wiser to
ther than a savings.

The floor in an open plan school can be a cost dividend. Carpeted and with changes in levels, the floor alone can become the school's most significant piece of furniture.







Open plan scho
are intended f
programs which
than is requir
listening gro
reserve footag
physical plan
contraction a
tories within
reserve space
standable tem
tional pupils
But to do so
ment and may
well. If any
ing may be wo
classrooms.
one of the me
that it is al
planned capac
play havoc wi

For information on research on open plan schools, write:

School Planning Laboratory
Stanford University, Stanford, Calif. 94305

Reports available:

Open Plan Schools: a Status Report (School Environment Study, Occasional Paper #1), August, 1971. $0.50.

Evolution of Space: a Study of Open Space Planning in Jefferson County School District, by Frank Brunetti and Victor Langhart. (Research Report #1), 1972. $1.50.

Guidelines for Establishing an Open Space Curriculum. (Occasional Paper #2), 1971. $0.50.

Research Bulletins (Various).

Other books to read:

American Assoc. of School Administrators. Open Space Schools: Report of the AASA Commission on Open Space Schools, 1971. Available from AASA, 1201 — 16th St.,N.W., Washington, D.C. 20036. $5.00.

Educational Facilities Labs. E
Architectural Consequences, 196
477 Madison Ave., New York, N.Y

Educational Facilities Labs. S
1965. Available from EFL, 477
N.Y. 10022. $0.50.

Institute for Development of Ed
The Open Plan School: Report of
Available from I/D/E/A, P.O. Bo
32901. $2.00.

Probst, Robert. Edited by Ruth
the Process and the Place, 1972
477 Madison Ave., New York, N.Y

Some magazine articles:

Drew, Philip. "Open Plan", Car
Oct., 1970. pp. 46-57.

CEFP Journal (Council of Educat
Oct., 1971 issue: "Space: Cata

Progressive Architecture, whole
on open plan schools and their

Open plan schools work well because they are intended for active, individualized programs which require more spatial "give" than is required for inactive, sitting-listening groups. Usually, additional reserve footage is included in the physical plan to serve as the elastic for contraction and expansion of sub-territories within the school. With the reserve space present, there is an understandable temptation to use it for additional pupils should enrollment increase. But to do so hampers activities and movement and may cause acoustic friction as well. If anything, a crowded open building may be worse than crowded conventional classrooms. It is a false assumption that one of the merits of the open school is that it is always possible to exceed the planned capacity. Such a practice can play havoc with the best planned building.

---

on open plan schools, write:

y
ford, Calif. 94305

Report (School
onal Paper #1),

of Open Space Plan-
School District,
tor Langhart.
2. $1.50.

an Open Space Curriculum.
71. $0.50.

ministrators. Open Space
Commission on Open Space
om AASA, 1201 — 16th St.,N.W.,
00.

Educational Facilities Labs. Educational Change and Architectural Consequences, 1968. Available from EFL, 477 Madison Ave., New York, N.Y. 10022. $2.00.

Educational Facilities Labs. Schools Without Walls, 1965. Available from EFL, 477 Madison Ave., New York, N.Y. 10022. $0.50.

Institute for Development of Educational Activities. The Open Plan School: Report of a National Seminar, 1969. Available from I/D/E/A, P.O. Box 446, Melbourne, Fla. 32901. $2.00.

Probst, Robert. Edited by Ruth Weinstock. High School: the Process and the Place, 1972. Available from EFL, 477 Madison Ave., New York, N.Y. 10022. $3.00.

Some magazine articles:

Drew, Philip. "Open Plan", Canadian Architect, Oct., 1970. pp. 46-57.

CEFP Journal (Council of Educational Facility Planners). Oct., 1971 issue: "Space: Catalyst for Education".

Progressive Architecture, whole issue of Feb., 1971, on open plan schools and their furnishings.

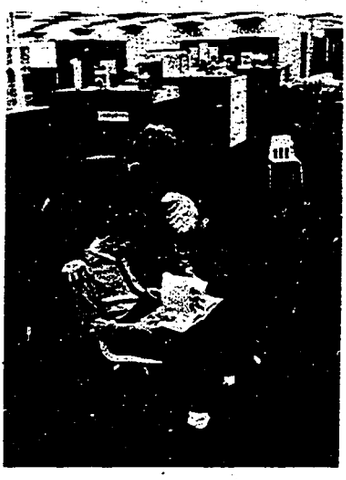
Why Open Pla

Traveling across the co
people moving to open p

lan?

e country we see
en plan space:

Because the teacher can no longer be the sole source of information.



Because childs

Because there is a sharp competition for information.

ry we see
space:

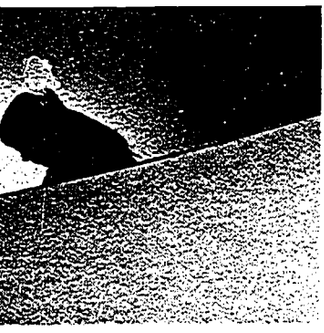
Because the teacher can no longer be the sole source of information.

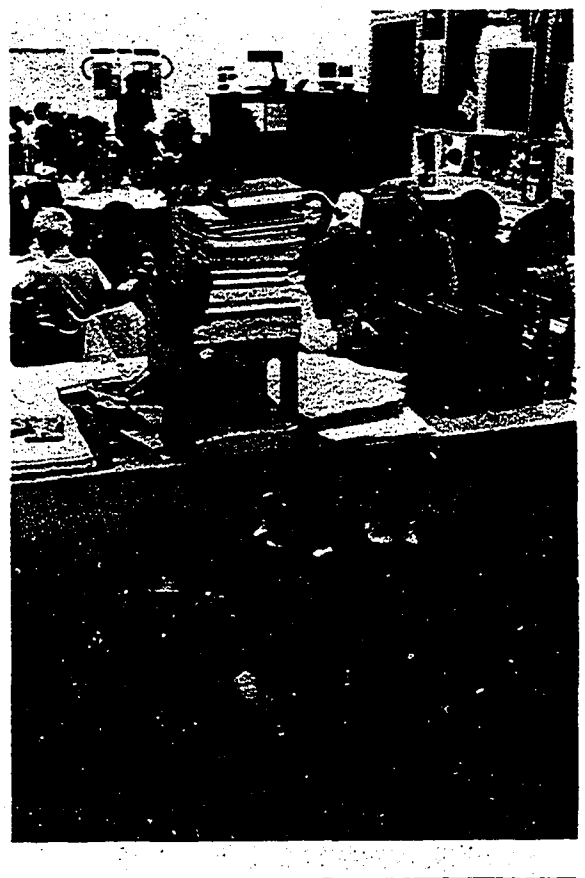
Becaus
compet

Because children learn from eac

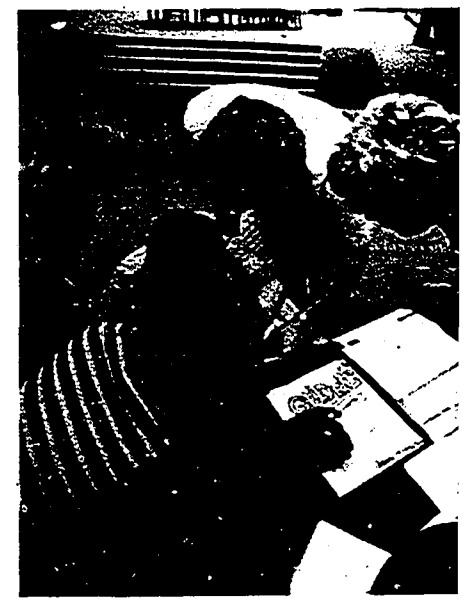
re is a sharp
for information.

ch other.

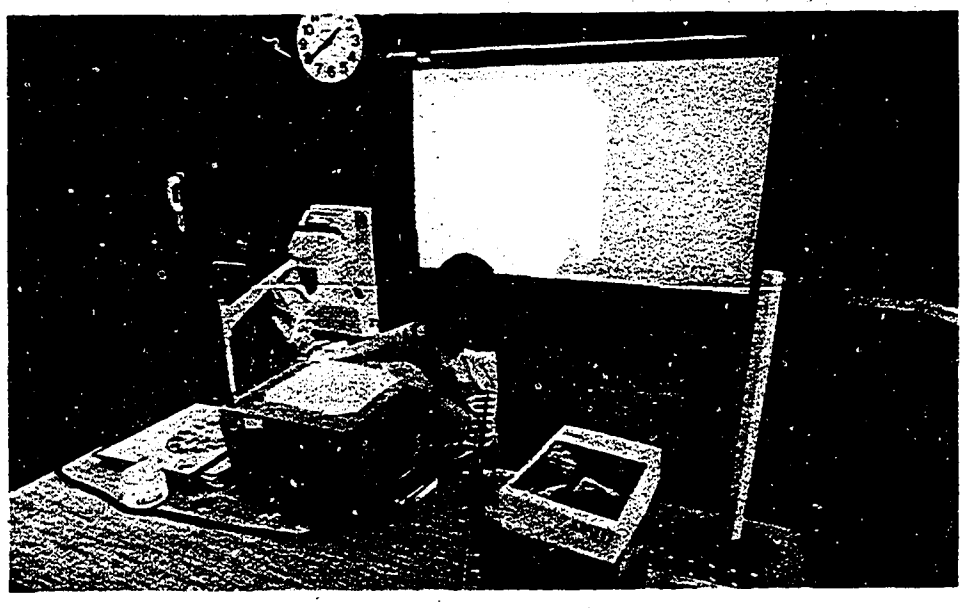


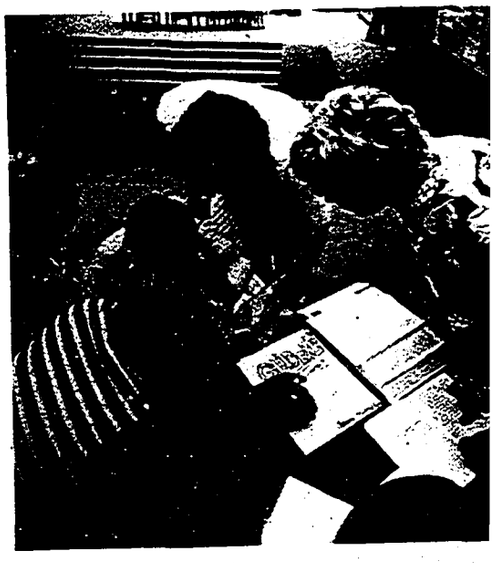


Because children learn in a variety of ways.

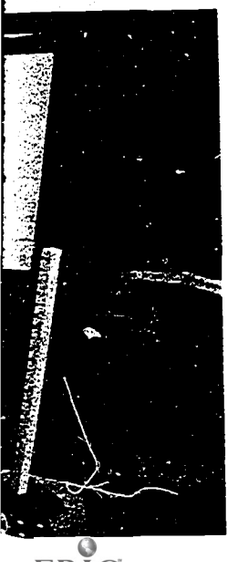


Because the time of a teacher and paraprofessional can be more effectively deployed





Because the time of a teacher and paraprofessional can be more effectively deployed.



4. FURNITURE

Furniture is going through metamorphoses. Individualized learning, the changing role of the teacher, large and small group instruction and the increased use of audio-visual aids have affected the need and the function of school furniture. What was once considered standard equipment designed to "fill-up" a school building has now become a significant part of the educational process. Furniture and equipment should be primarily flexible, easily movable and compact multi-usable. It should define space for the current activity, make children comfortable and help provide the acoustical and aesthetic environment necessary for learning.

SIX PRINCIPLES FOR SELECTING FURNITURE

1. DURABLE - Look for easily cleaned surfaces, solid construction, easy repair.

2. SIMPLE - Watch out for the stuff with a thousand uses and a thousand pieces and extraneous gadgets that fall off.

3. USEFUL - How many uses does it have? Can another piece do 2 or 3 things at once?

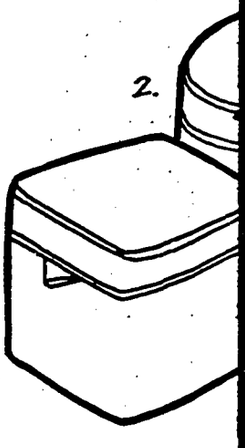
4. USABLE - Who can use it? Is it too small or large? Too complicated for children?

5. MOVABLE - Can it be moved on your surface? Skiddable? On wheels? Too heavy?

6. COMPACT - Does the piece wander; have extraneous arms; eat up room?

Eclectic Furniture

SKIDDABLE S



BEA

In response
needs of the
buyers are m
manufacturer
specifically
is called th
of the right
The result i
comes excit
daily change

NITURE

ough metamorphoses. Individu-
hanging role of the teacher, large
ction and the increased use of
affected the need and the function
What was once considered standard
"fill-up" a school building has
nt part of the educational process.
t should be primarily flexible,
pact multi-usable. It should
urrent activity, make children
rovide the acoustical and
necessary for learning.

CTING FURNITURE

easily cleaned surfaces,
struction, easy repair.

for the stuff with a
uses and a thousand
d extraneous gadgets
off.

uses does it have? Can
iece do 2 or 3 things at once?

se it? Is it too small or
oo complicated for children?

moved on your surface?
? On wheels? Too heavy?

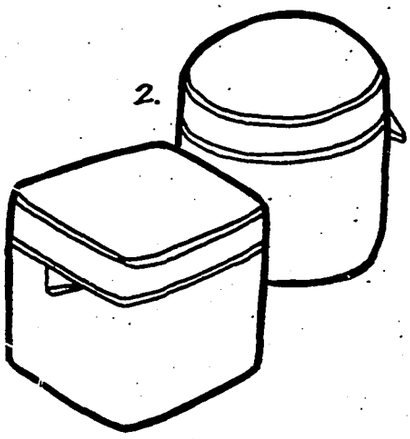
piece wander; have extraneous
up room?

Eclectic Furniture

1.

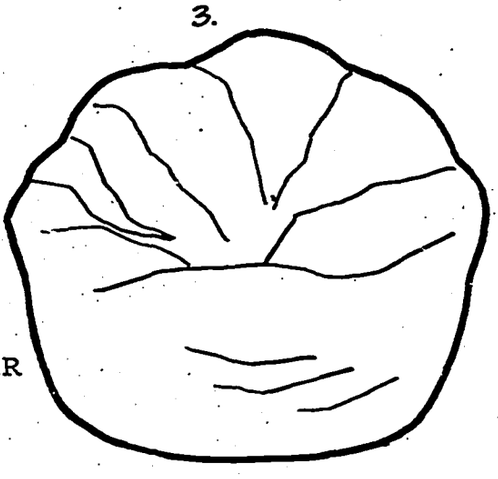
SKIDDABLE SEAT AND DESK

2.



HASSOCK

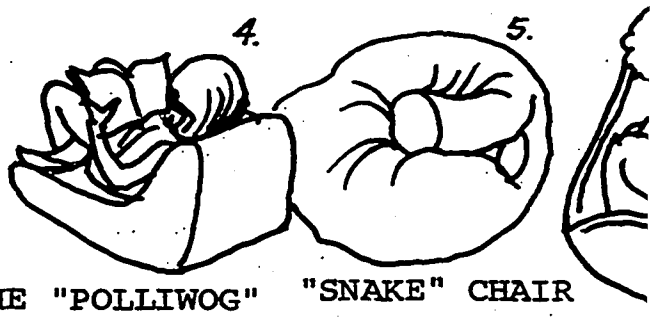
3.



BEAN BAG CHAIR

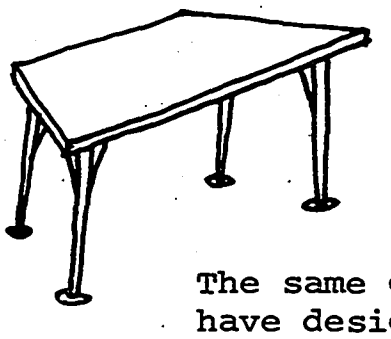
In response to the demands of educators and the needs of the open-plan school, some furniture buyers are mixing the furniture from traditional manufacturers with a large variety of items not specifically designed for the school market. It is called the eclectic approach, and the choice of the right piece depends on individual needs. The result is a mixture of furniture which becomes exciting, variable, and lends itself to daily change.

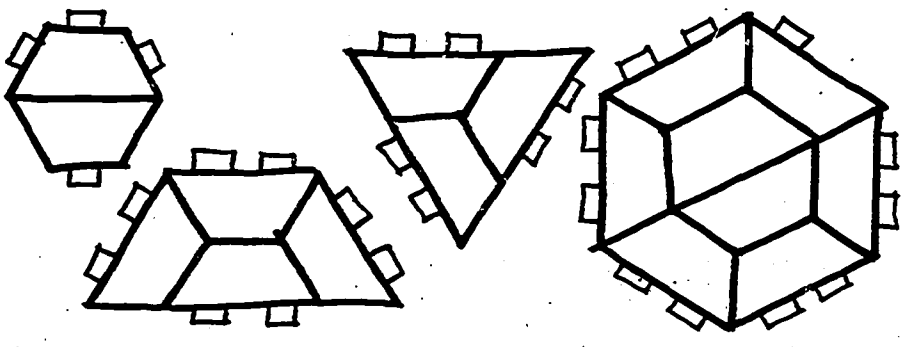
Seats are shaped as shells, bean-bags, snakes or polywogs, and are foldable, stackable, box-in-a-box or skiddable. Others, made of foam rubber or air inflated heavy-duty vinyl, are produced in a variety of shapes. Seats like these have different uses for different times of the day and are easily stored, deflated, or lumped into a corner when not needed. In other words, schools may still provide a seat for every child, but not necessarily the same type of seat.



THE "POLLIWOG" "SNAKE" CHAIR SHEL

Alternate configurations using the "trapezoid" table.

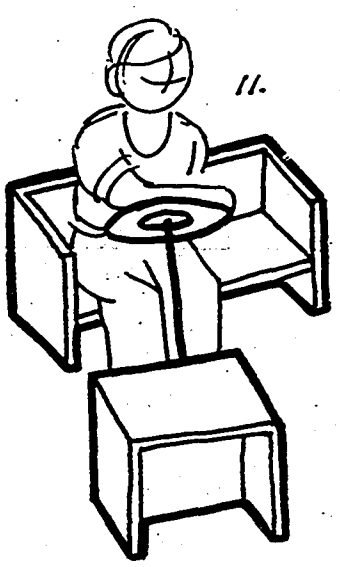




BALANC

The same goes for tables. Many have designed trapezoid, trizoi round, horseshoe, kidney-shape gular and square tables which serve alone but also fit togeth alternative configurations to needs of different size groups dren. Some, like the trizoid be converted to various shapes with the turn of a wrist.

BLOCK-AND-BOARD COMBINATION

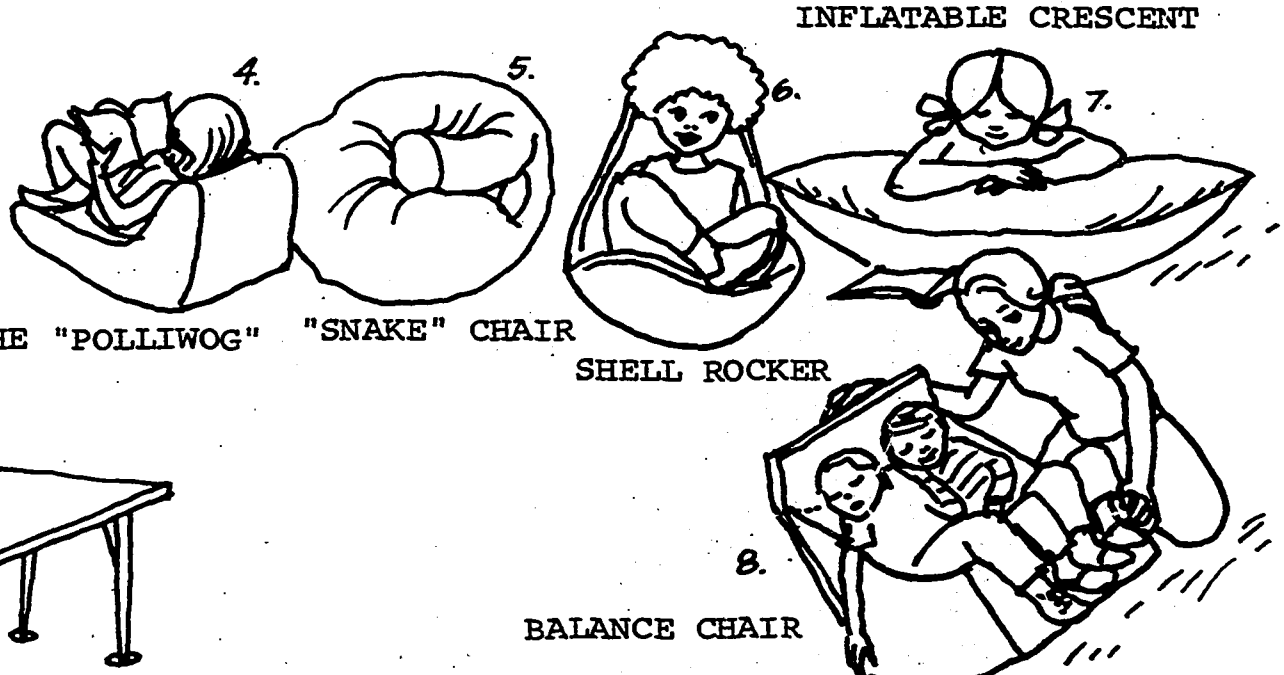


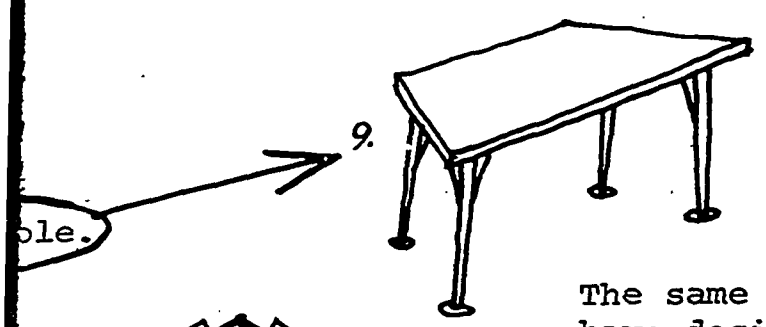
Much of the newer furniture is neither seat nor table, but so simple in form that it serves those and even more functions. Boxes and cubes, for example, are either tables, seats, stools, ladders or simply building blocks for play. Other units, like the mini-locker, are compact shapes that fold out when needed to serve multiple uses. More important, they are compact when not needed.

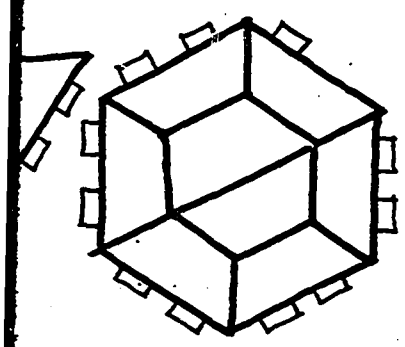
12.

Mini-lo shelvin

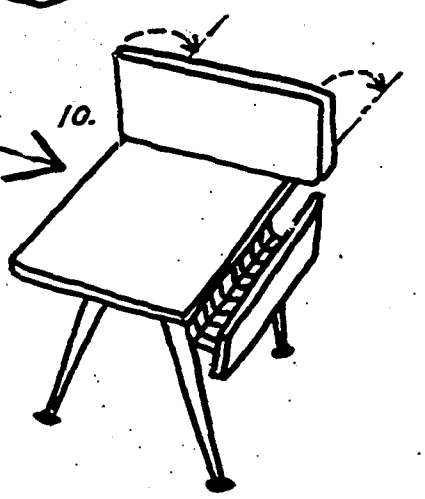
ean-bags, snakes or
tackable, box-in-a-box
f foam rubber or air
e produced in a variety
have different uses for
d are easily stored,
rner when not needed.
till provide a
necessarily



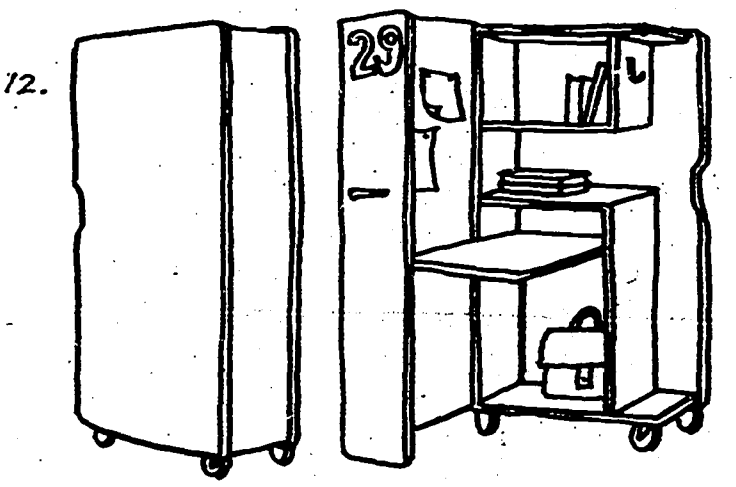




The same goes for tables. ~~Manufacturers~~ have designed trapezoid, trizoid, half-round, horseshoe, kidney-shaped, rectangular and square tables which not only serve alone but also fit together in alternative configurations to serve the needs of different size groups of children. Some, like the trizoid desk, can be converted to various shapes and uses with the turn of a wrist.



Much of the newer furniture is neither seat nor table, but so simple in form that it serves those and even more functions. Boxes and cubes, for example, are either tables, seats, stools, ladders or simply building blocks for play. Other units, like the mini-locker, are compact shapes that fold out when needed to serve multiple uses. More important, they are compact when not needed.



Mini-locker folds out to become desk, shelving, storage and coat rack.

Space Definers

13.

14.

Like seats and tables, space definers need to roll or skid on many surfaces and apply to a variety of needs. Today, simple partitions come with surfaces of chalkboard, felt, cloth, self-healing vinyl, or mesh. They can be moved, rearranged and the surface material can be changed. Storage definers and case-work, often from offices and industry, come as lockers, desks, benches, or combination units. Public School 211, for example, uses a variety of space definers as chalkboards, display boards, projection screens, storage and visual partitions in order to convert a loft-type factory building into an open plan, bilingual elementary school.

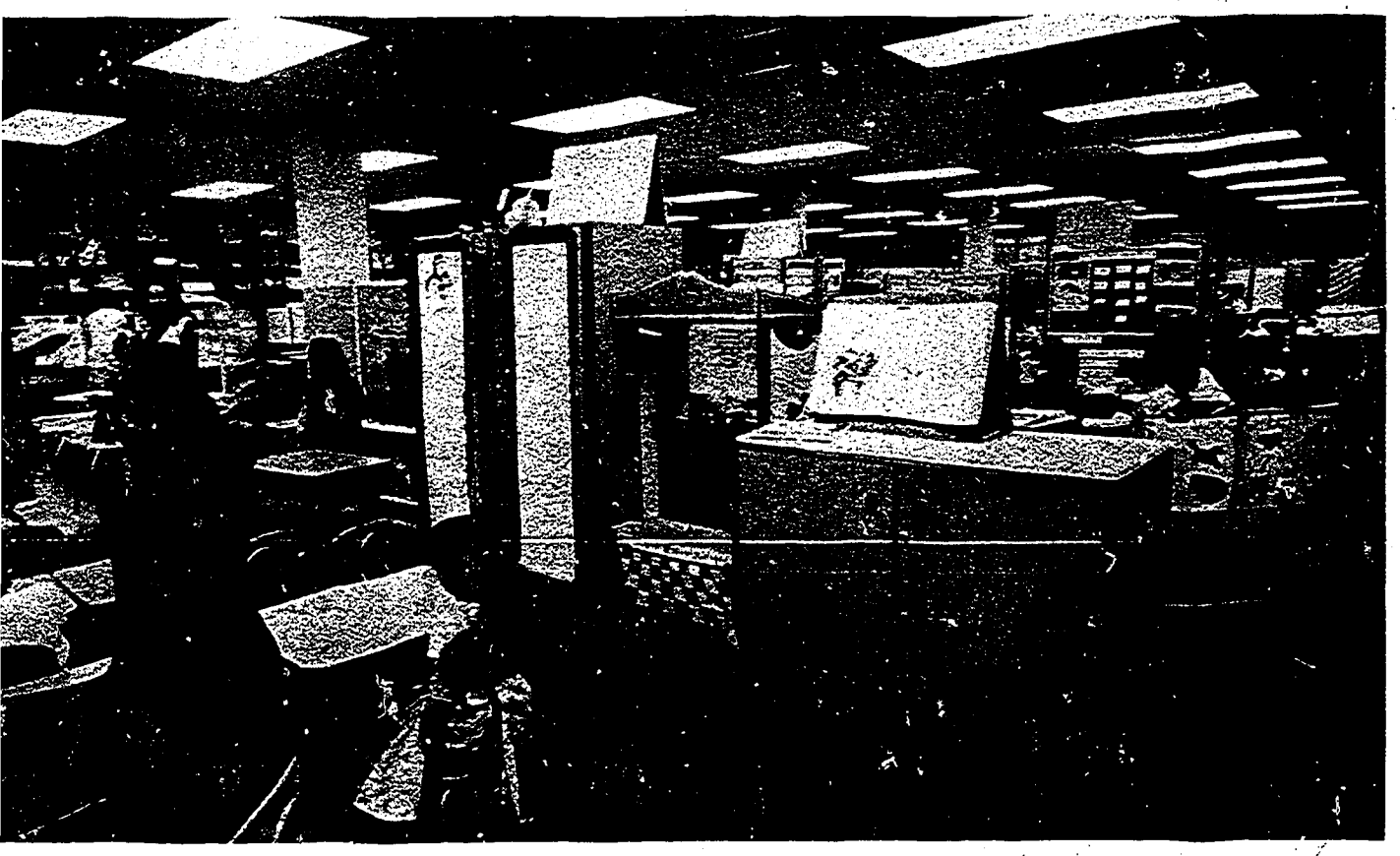
It used to be that walls, di
principally to separate one
even called space dividers.
need to divide space; they n
small as necessary and maybe
Moreover, a wall that doesn'
so needs to serve as somethi
ture that fills these require
they come in a variety of st

HARLEM PREP HIGH SCHOOL
Write: Edward Carpenter, Hea
Harlem Prep High School
2535 Eighth Avenue
New York, N.Y. 10030

It used to be that walls, dividers and partitions were used principally to separate one space from another - they were even called space dividers. Today's teachers, however, don't need to divide space; they need to define it - as large or as small as necessary and maybe in alternative parts of the room. Moreover, a wall that doesn't do anything isn't functional and so needs to serve as something more than a divider. The furniture that fills these requirements we call space definers, and they come in a variety of styles and uses.

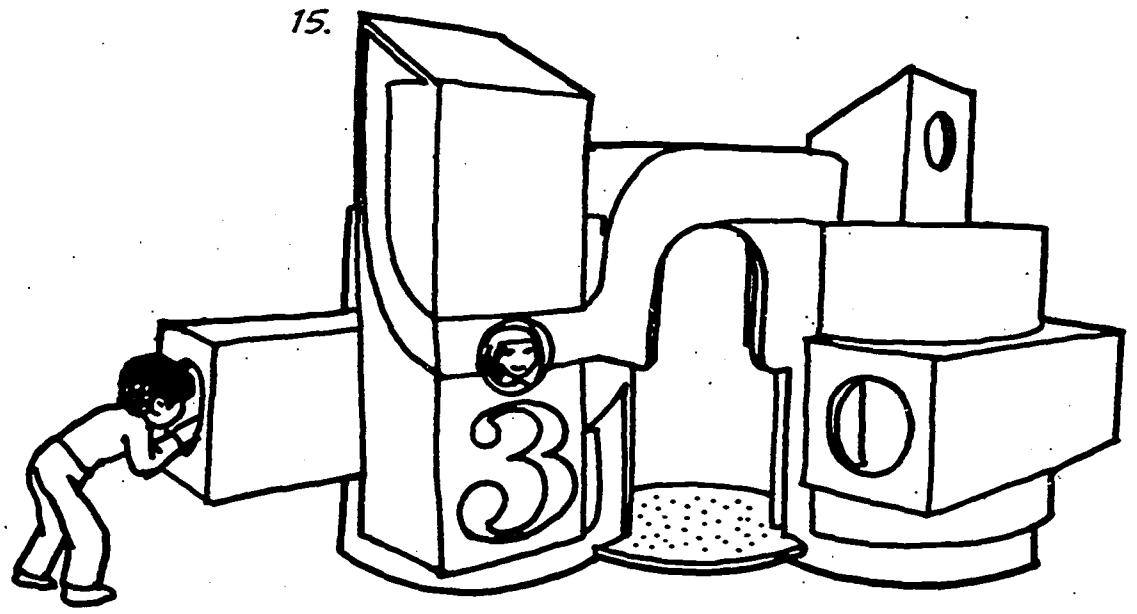
HARLEM PREP HIGH SCHOOL
Write: Edward Carpenter, Headmaster
Harlem Prep High School
2535 Eighth Avenue
New York, N.Y. 10030

PUBLIC SCHOOL 211
Write: Carmen Rivera, Principal
560 East 179th Street
Bronx, N. Y. 10457



DUAL INDIVIDUAL LEARNING MODULE
Write: Margaret H. Loeffler
Casady School
9500 North Pennsylvania
Box 20507
Oklahoma City, Okla. 73120

15.

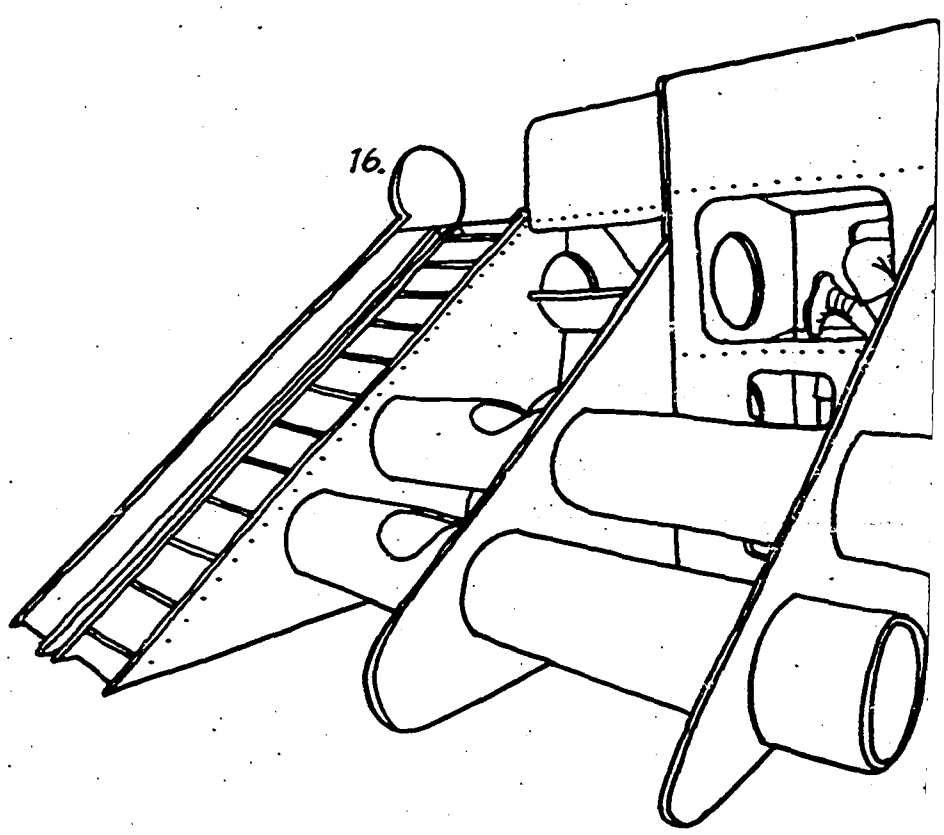


Other ar
that are
furnishi
either p
"doughnu
seat, re
private
foam mat
vinyl ca
play hou
area, cc

17.

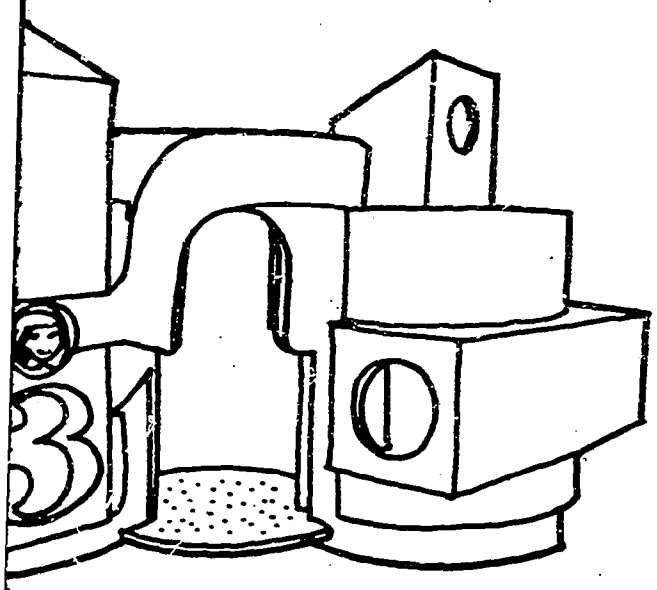
Sometimes, space definers approach architecture. The Casady School in Oklahoma City built a "dual individual learning module," a sculptured structure which not only defines space but encloses it as well. In it are two study carrels and various other enclosures (carpeted throughout) giving the child an island of privacy in a sea of activity. On the other hand, a physical activity unit at the Durham Child Development Center is designed to stimulate activity - making recreation and fun synonymous with learning. Units like these define space in three dimensions so that the space definer takes on a function of its own.

16.



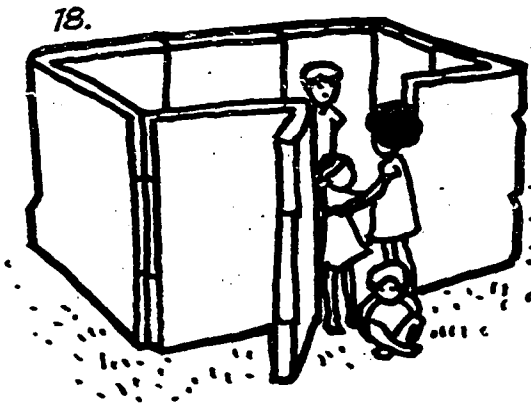
ACTIVITY STRUCTURE
Write: Lore Rasmussen, Project Director
Durham Child Development Center
16th and Lombard Streets
Philadelphia, Pa. 19146

Other architectural space definers that are available from the school furnishings market can be used for either play or privacy. The "doughnut" can be a teaching area, seat, recreation equipment or a private get-away space. A hinged foam mat covered with colorful vinyl can be folded to become a play house, small group lecture area, couch or tumbling mat.



17.

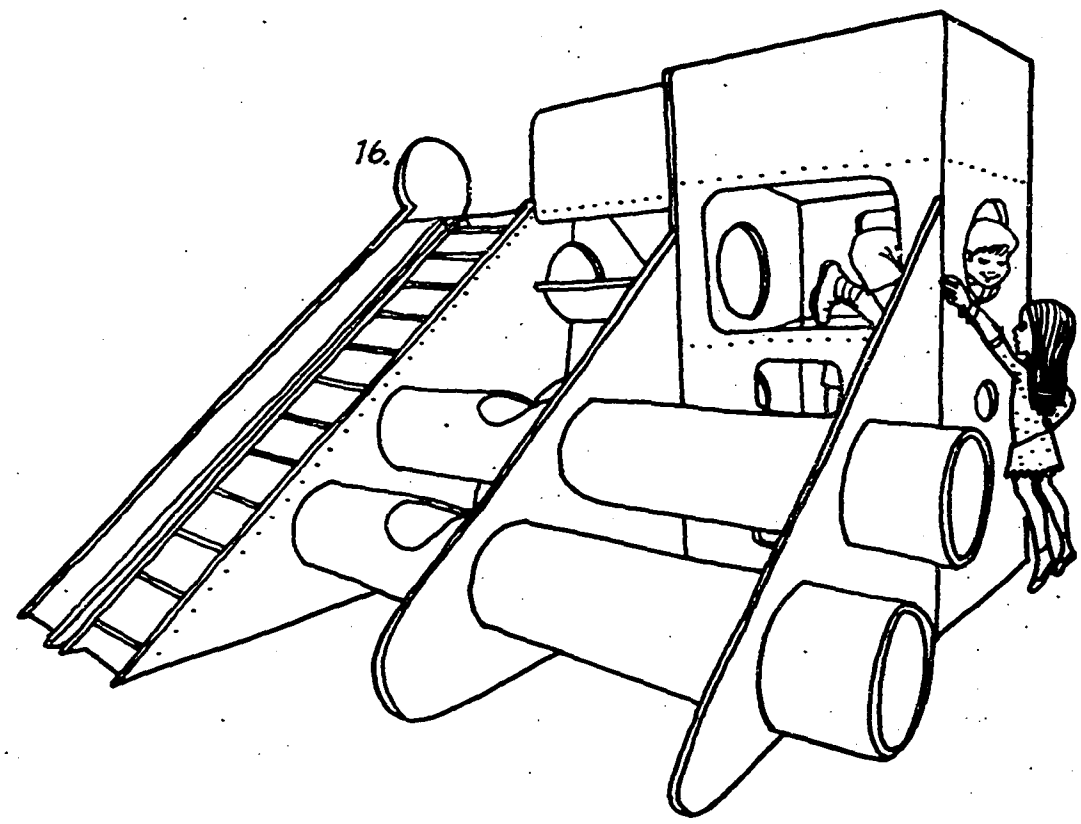
18.



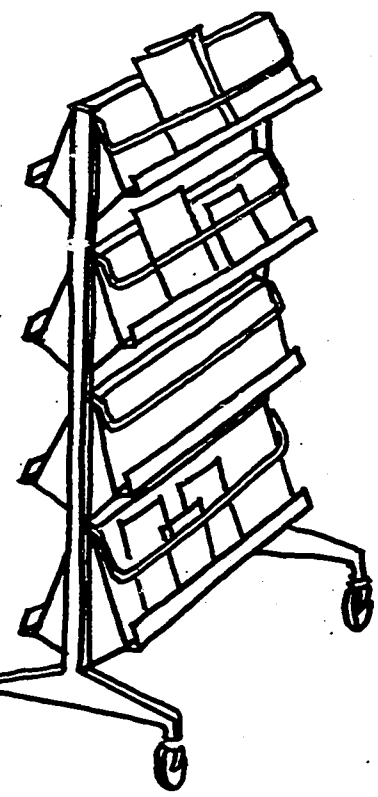
pach
ol in
dividual
structure
ut encloses
dy carrels
carpeted
n island
y. On the
y unit at
enter is
- making
with
fine space
ne space
its own.

Director
er

16.



Mobile Furniture

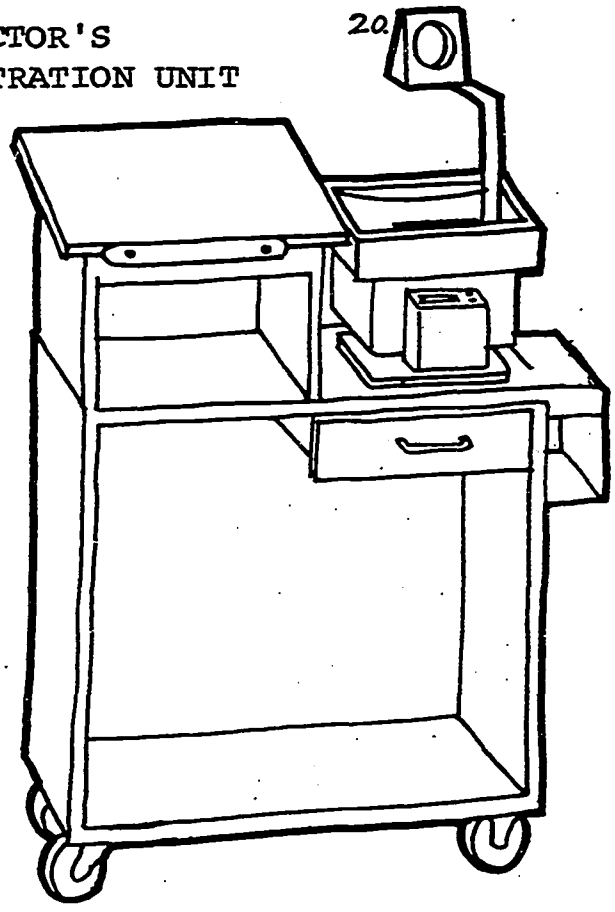


19.

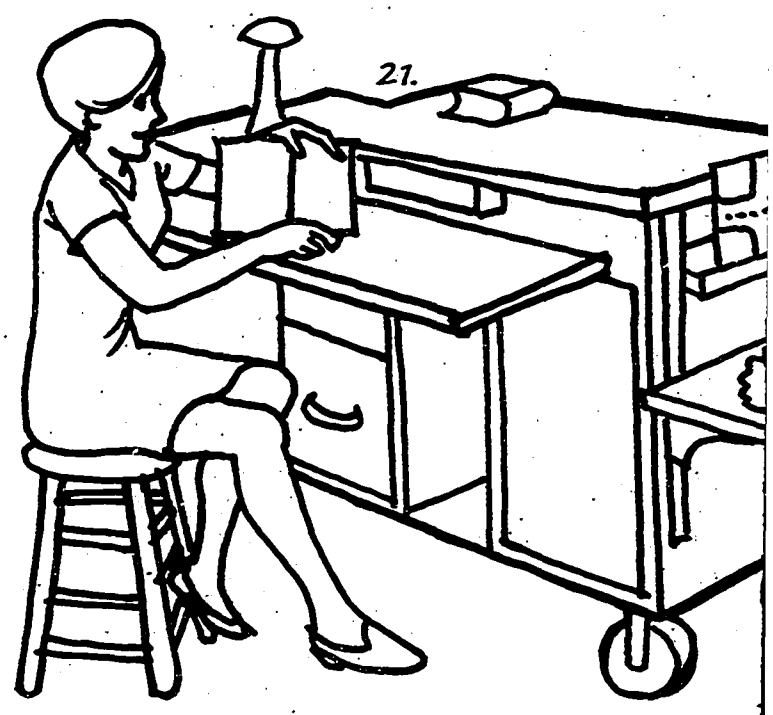
Furniture should be movable. Storage ra
and library display partitions are all a
or skids, or are simply lightweight enou
move. Roll-away resource centers and au
stration units come on wheels whose rang
by the nearest plug. With the right con
library can either change its location o
out the school in less than 15 minutes.

ROLL-AWAY RESOURCE CENTER

INSTRUCTOR'S
DEMONSTRATION UNIT

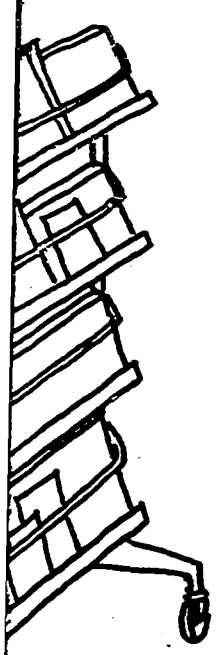


20.



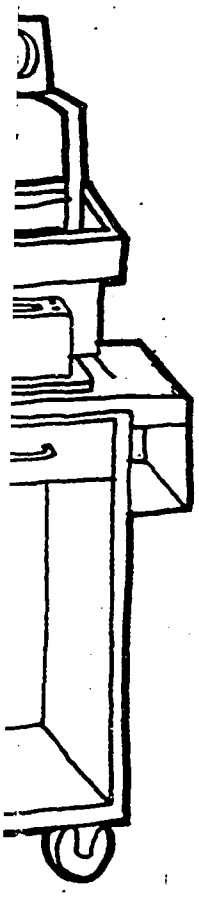
21.

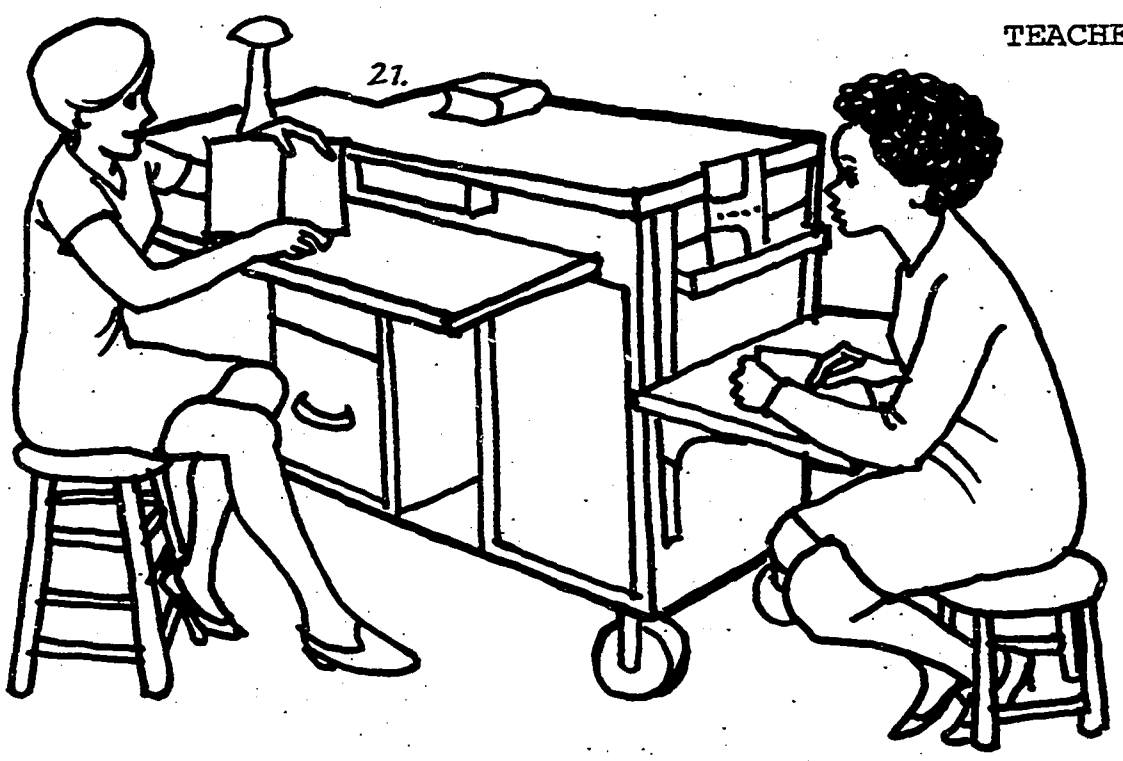
Instructor's demonstration units and langu
consoles come in lockable, skiddable units
broadcast. The lab — no longer rooted to
of plugs and wires — is lightweight and s
invite moving. Portable science tables, l
homemaking, math, and audio-visual carts a
take the place of heavy, fixed equipment a



Furniture should be movable. Storage racks, basket bins and library display partitions are all available on wheels or skids, or are simply lightweight enough to pick up and move. Roll-away resource centers and audio-visual demonstration units come on wheels whose range is limited only by the nearest plug. With the right combination, a whole library can either change its location or disperse throughout the school in less than 15 minutes.

ROLL-AWAY RESOURCE CENTER



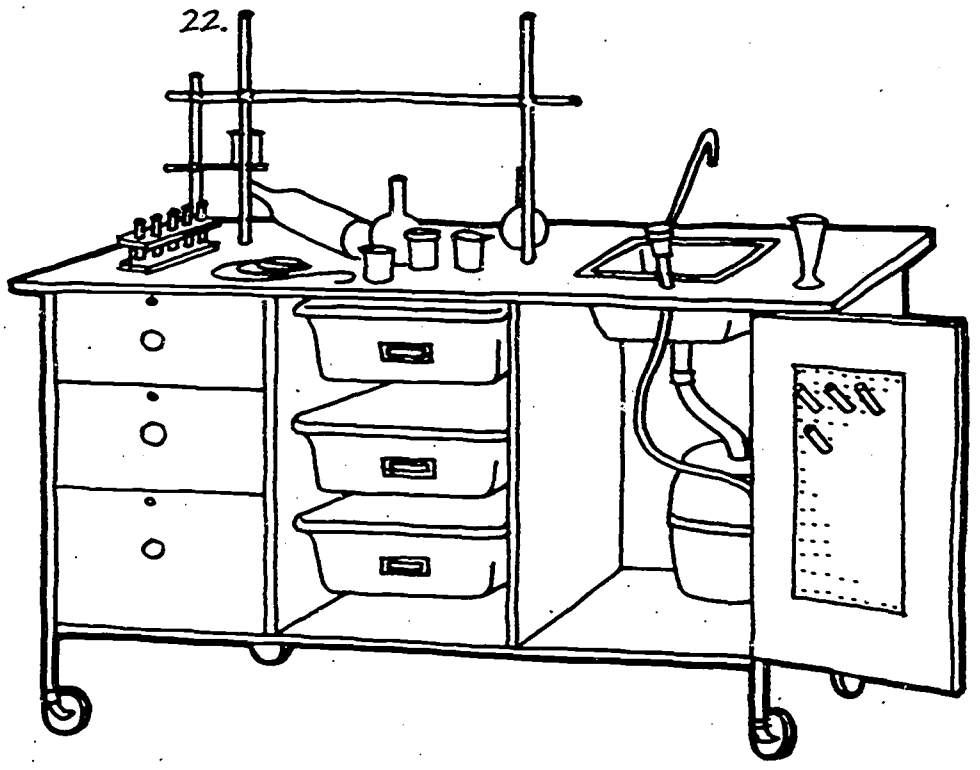


TEACHER PLANNING STATION

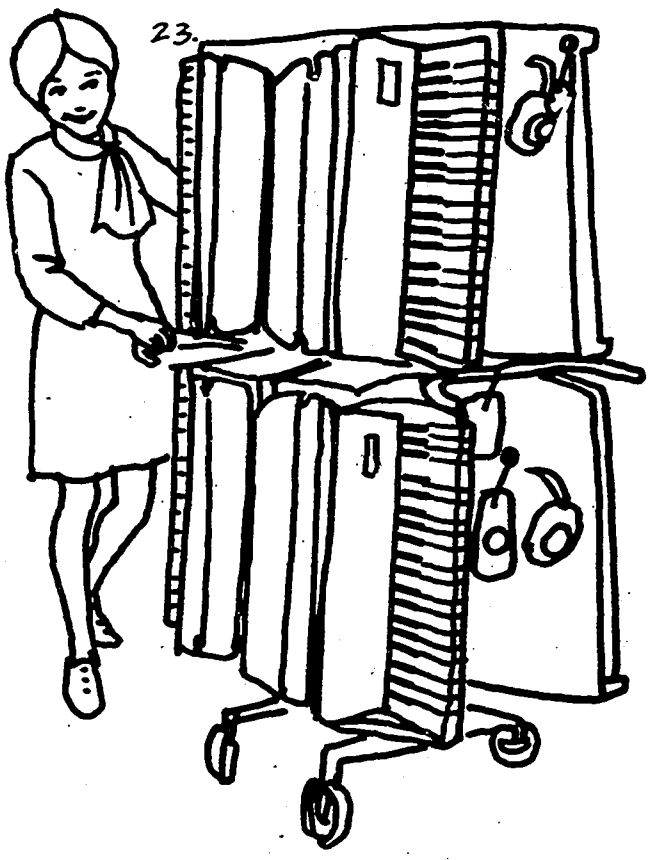
Instructor's demonstration units and language lab control consoles come in lockable, skiddable units with shortwave broadcast. The lab — no longer rooted to a complex series of plugs and wires — is lightweight and simple enough to invite moving. Portable science tables, labs, mini-shops, homemaking, math, and audio-visual carts are beginning to take the place of heavy, fixed equipment at all levels.

PORTABLE SCIENCE CABINET

22.

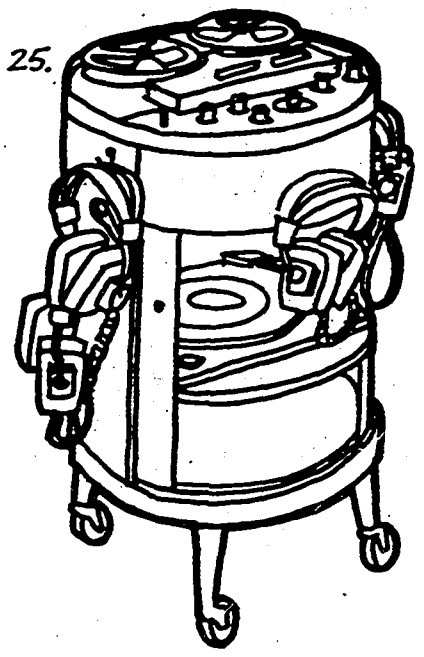


23.

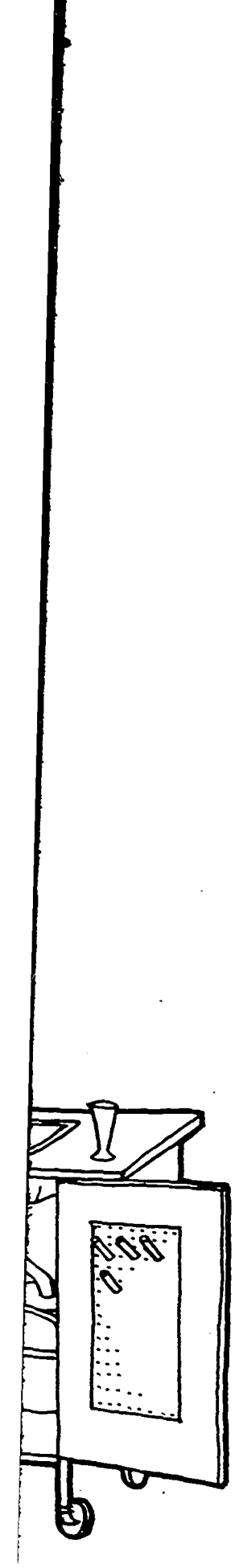


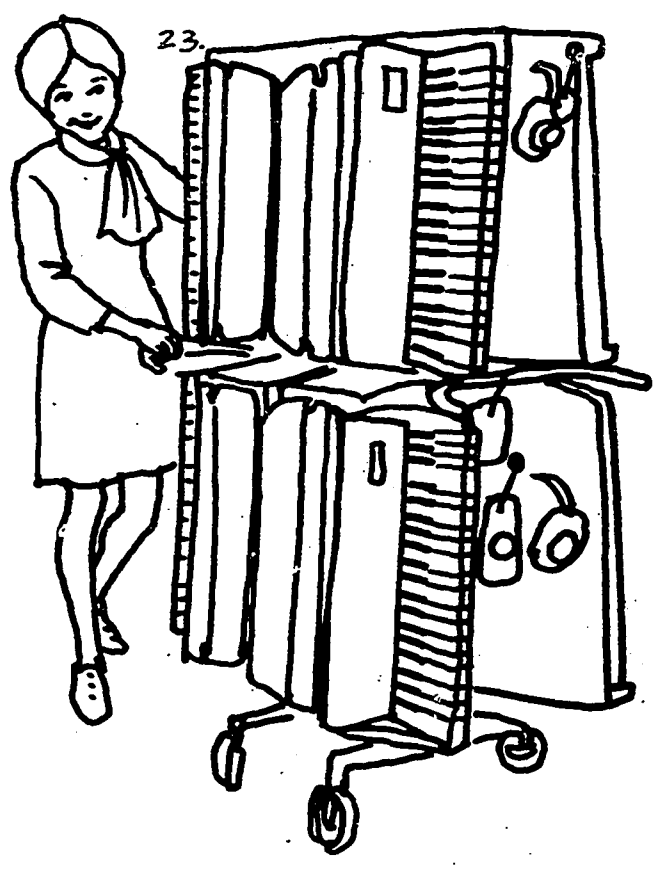
MUSIC LABORATORY

25.



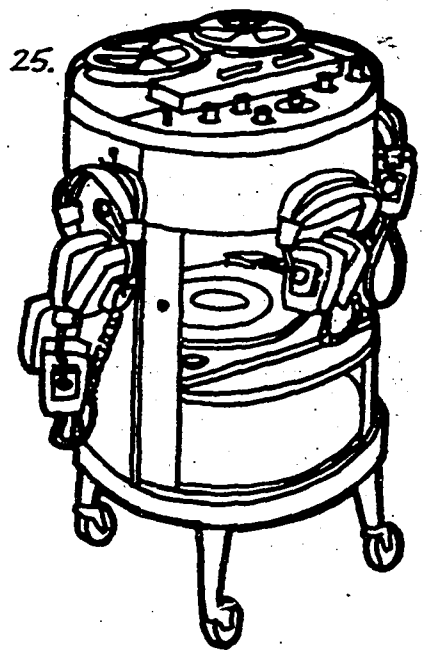
Some cabinetry on wheels is made as complete activity units for anatomy, carpentry, geography, crafts, and mechanical drawing. Other units, designed for the natural sciences, carry their own water supply and come with a variety of equipment for a mix of your own choosing. Science cabinets, for example, come completely portable with their own supply of water, gas, waste, and chemical storage. Communications canisters can be purchased with tape deck, radio, phonograph, and two-way broadcast. Other handy units range from a percussion center to a portable greenhouse. Thus, the proper choice of mobile furniture can put your space into an activity rather than pigeon-holing an activity into a space.





MUSIC LABORATORY

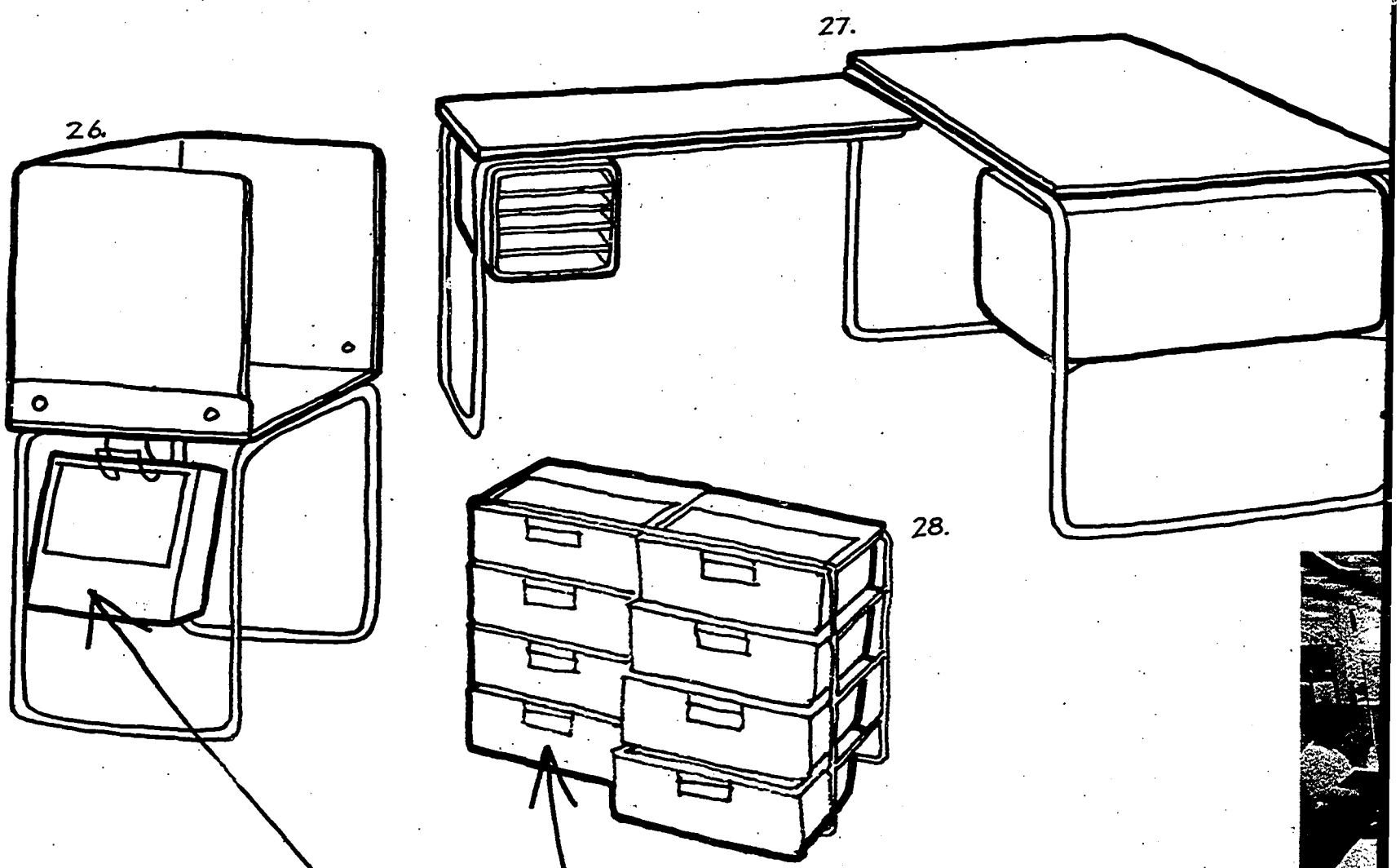
VIDEO TAPE RECORDING CENTER



COMMUNICATIONS CANISTER

; complete activity units
crafts, and mechanical
: the natural sciences,
ome with a variety of equip-
g. Science cabinets, for
vith their own supply of
orage. Communications
pe deck, radio, phonograph,
y units range from a
eenhouse. Thus, the proper
your space into an activity
ity into a space.

Systems Furniture

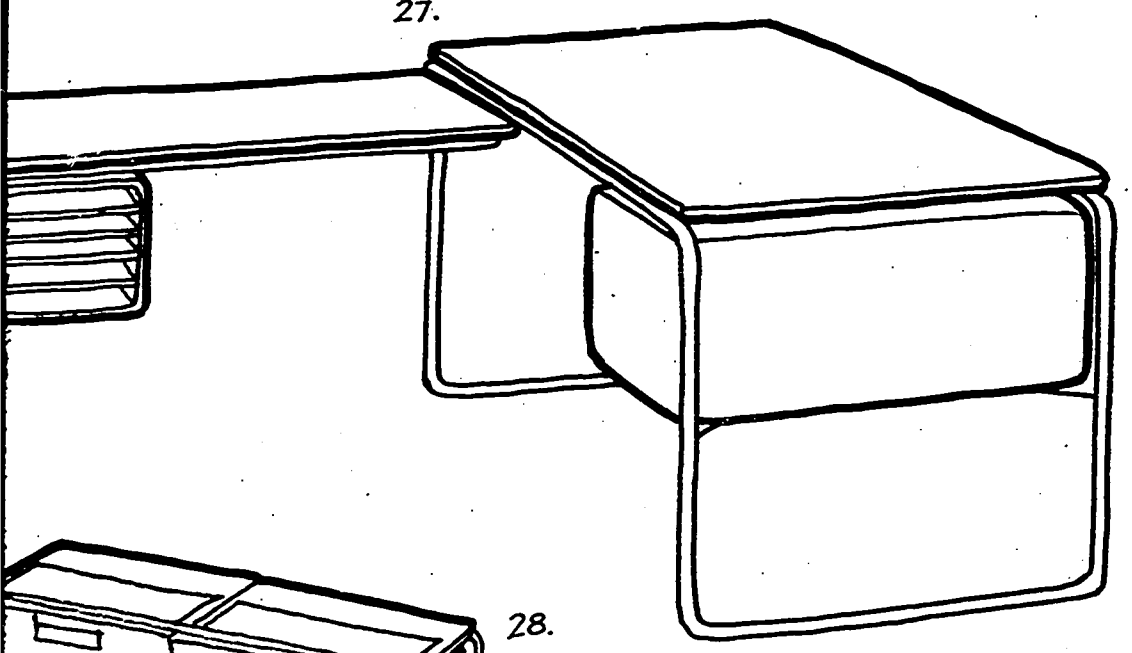


The increased demand for total flexibility in casework and furniture has stimulated the design of systems furniture. Toronto's Study of Educational Facilities program* demanded a solution to casework and furniture for 2,000,000 square feet of new systems schools. The result is a line whose parts are wholly interchangeable. With the turn of a few screws, tables convert to study carrels, cabinets have drawers, shelves, racks, hooks, trays and/or doors. A place for each child is provided by a solid surface tote-box that stacks, hangs from any table or serves as a writing surface. Even the bases (wheels, skids or platforms) are interchangeable.

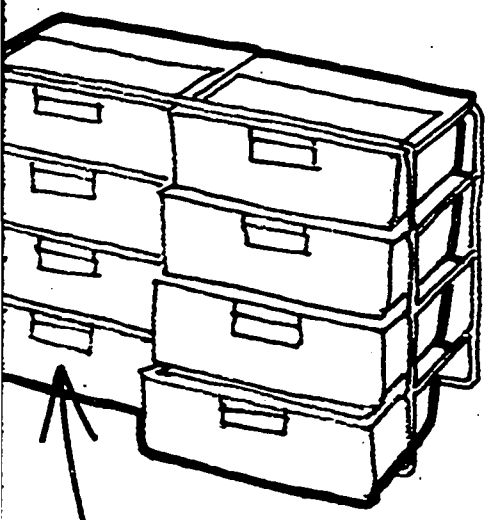
*See also Systems Building

TORONTO'S SYSTEMS FURNITURE
Write: Peter Tirion, Technical Director
Study of Educational Facilities
Metropolitan Toronto School Board
155 College Avenue
Toronto, 2B, Ontario, Canada

27.

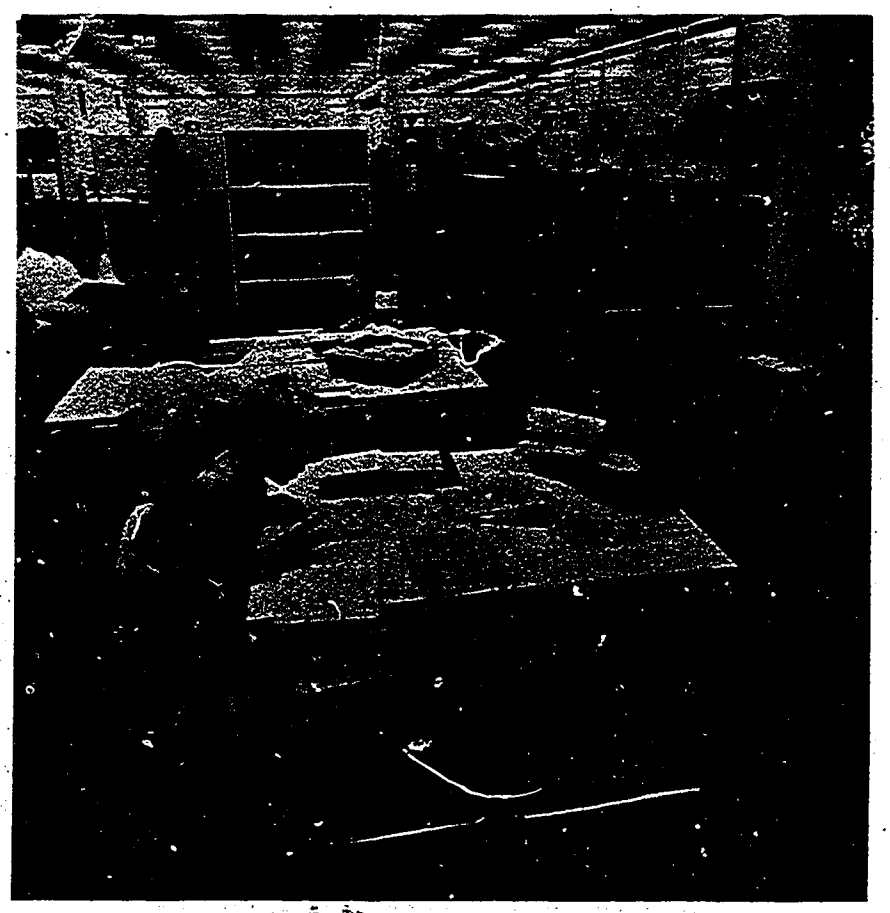


28.



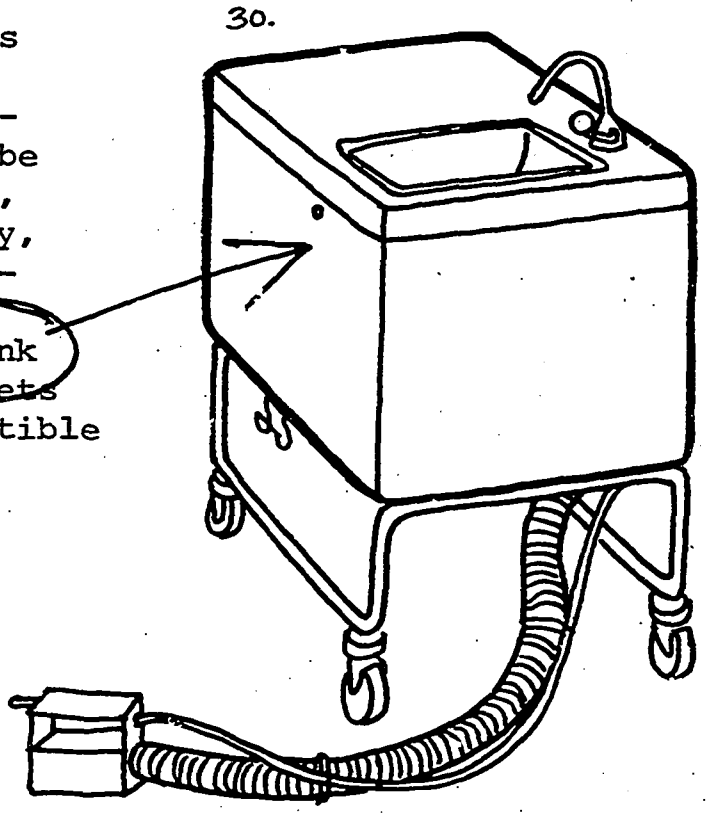
al flexibility in
timulated the design of
s Study of Educational
a solution to casework
square feet of new systems
ne whose parts are wholly
urn of a few screws, tables
binets have drawers, shelves,
oors. A place for each
surface tote-box that stacks,
es as a writing surface. Even
platforms) are interchangeable.

*See also Systems Building

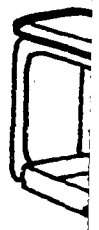


Toronto's systems furniture is constructed of plastic laminates with polyurethane foam cores. The lightweight boxes are available in varying sizes that may be used as bookcases, storage bins, files, cabinets or carts. Empty, they are washable, durable sandboxes, toys, tables or chairs. The systems include portable sink units which plug into wall outlets or fixed units, each with compatible panels interchangeable between combinations.

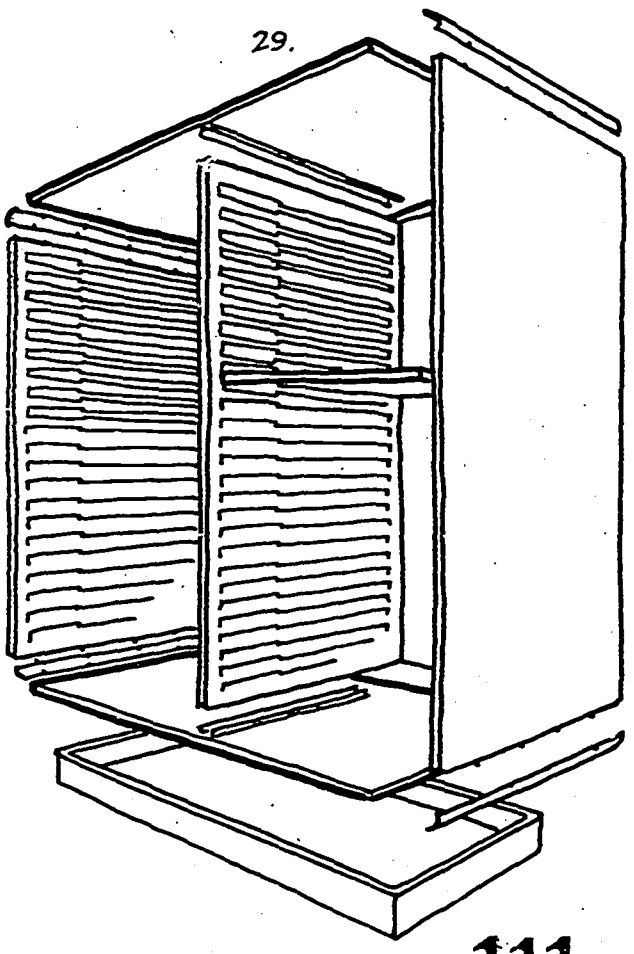
30.



TORONTO COAT RACK



29.



Another example of systems furniture can be seen at:

CALOOSA ELEMENTARY-MIDDLE SCHOOL
Write: Harry Koss, Principal
Caloosa Elementary-Middle School
Del Prado Boulevard
Cape Coral, Fla.

Furniture succeeds as a system when it is meet rigid architectural performance speci based on an educational program. There ar of furniture based on a systems approach a a variety of manufacturers. Hence, the no constructed, compatible unit furniture is dot the schoolroom landscape. A buyer has the whole system or pieces of it. Therefo simple, easy to maintain, and useful, syst is a must for investigation.

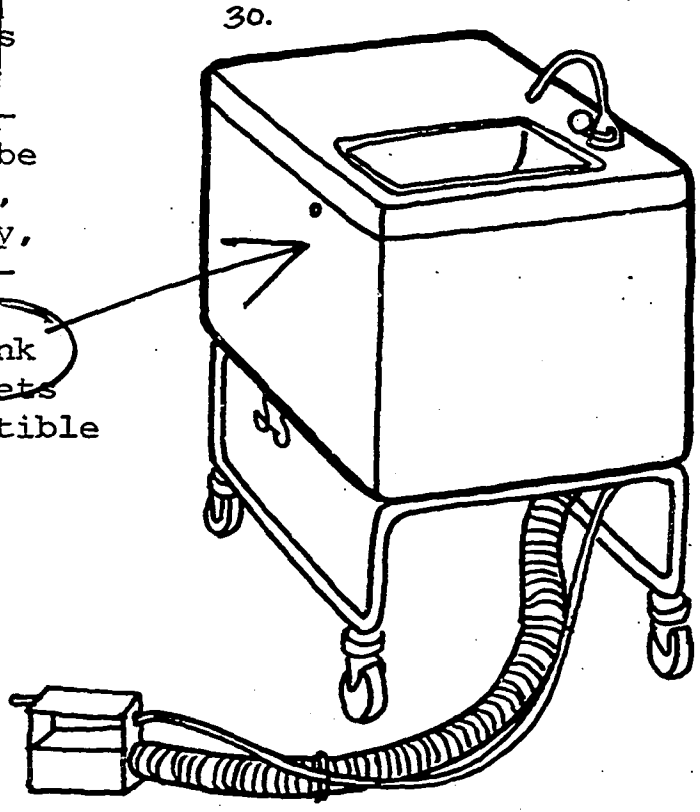
s

be

y,

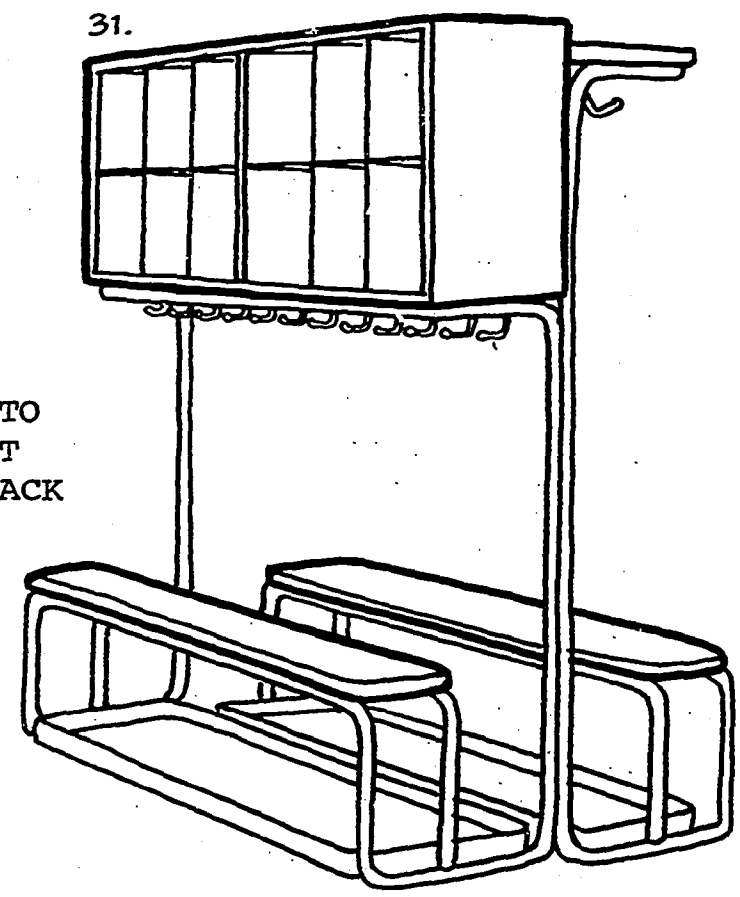
nk
ets
tible

30.



31.

TORONTO
COAT
RACK

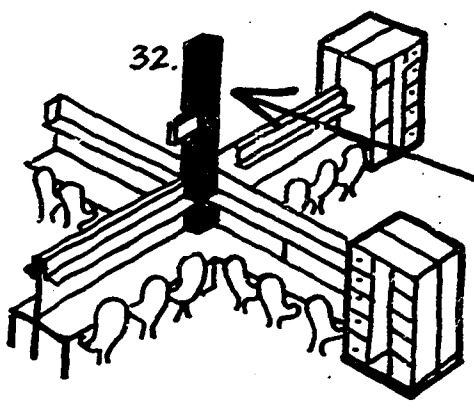


Another example of systems furniture
can be seen at:

CALOOSA ELEMENTARY-MIDDLE SCHOOL
Write: Harry Koss, Principal
Caloosa Elementary-Middle School
Del Prado Boulevard
Cape Coral, Fla.

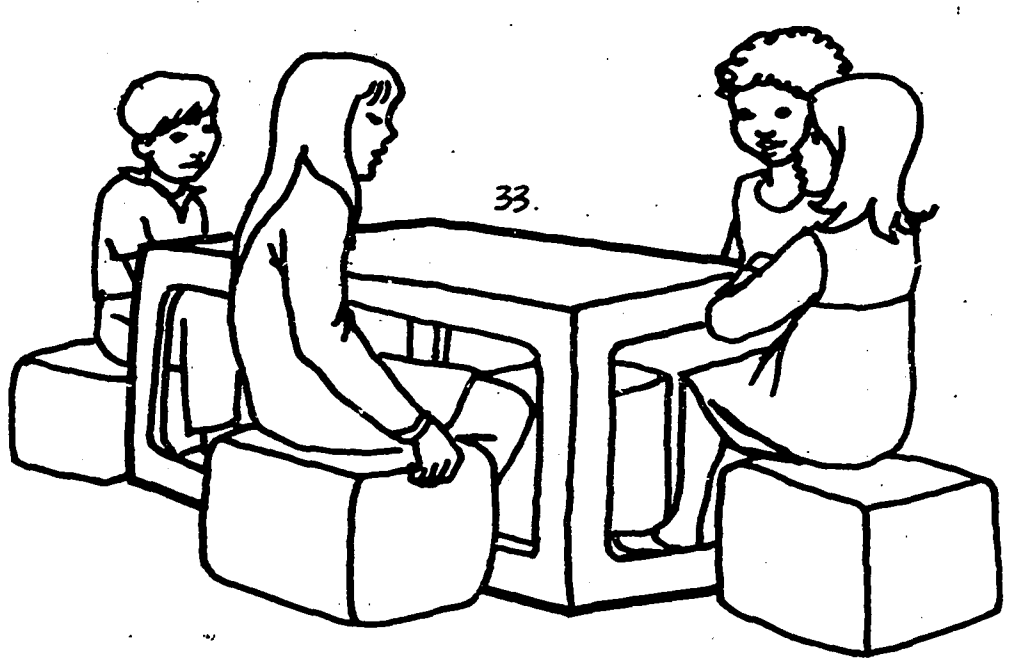
Furniture succeeds as a system when it is designed to meet rigid architectural performance specifications based on an educational program. There are many lines of furniture based on a systems approach available from a variety of manufacturers. Hence, the notion of simply constructed, compatible unit furniture is beginning to dot the schoolroom landscape. A buyer has the choice of the whole system or pieces of it. Therefore, because it's simple, easy to maintain, and useful, systems furniture is a must for investigation.

Design-your-own Furniture



Many schools experiment with
Architects and interior desig
furniture and equipment for o
Rock High School near Tacoma,
Center is designed so learnin
"wet" column housing the elec
The station provides cassette
recorders, computer terminals
and laboratory equipment. Ea
the "wet" column, screens, wo
planters, storage and confere

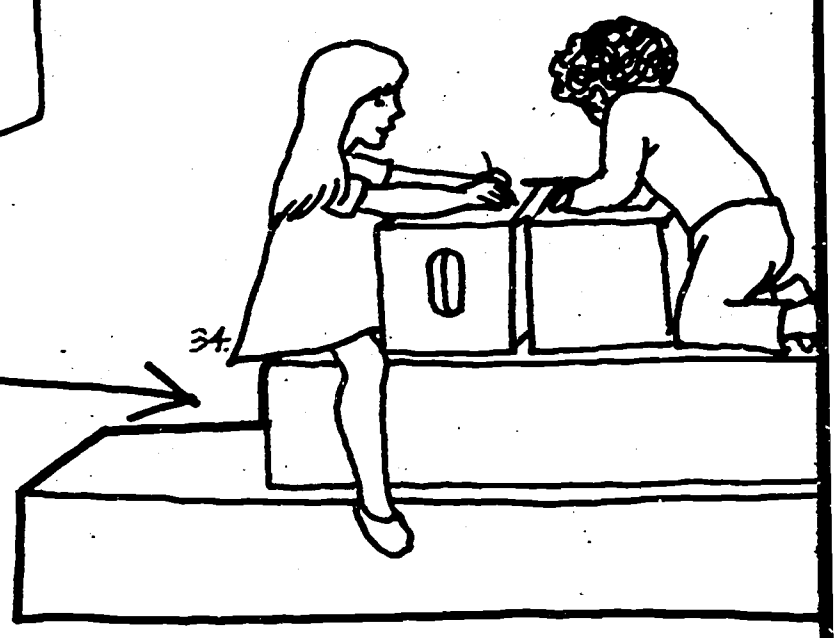
"WET" COLUMN WITH CLUSTERED LABORATORY FACILITIES
Write: Donald M. Christensen, Superintendent
Castle Rock Public Schools
Castle Rock, Wash. 98611



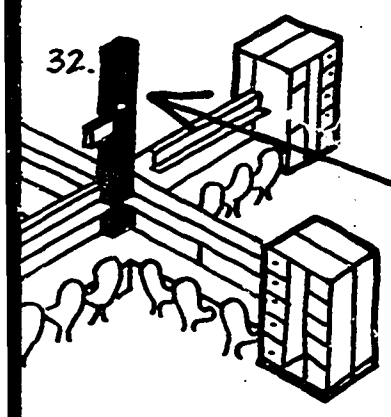
THE JEFFERSON COUNTY SCHOOL PR

Write: Lloyd D. Carlton, Princ
Kendrick Lakes Elementary Scho
1350 South Hoyt
Lakewood, Colo. 80226

The Jefferson County School Di
an architect to design furnitu
youngsters. Two basic shapes
slab-like table. On each, one
and another is hollow for stor



The Cherry Creek School District in Colorado also needed simply designed blocks and boards for a variety of needs. This district not only designed its own combination units but also established a workshop to produce the furniture in quantity, all tailored to fit the fluctuating needs of an entire school district.



Many schools experiment with individually designed furniture. Architects and interior designers are commissioned to design furniture and equipment for open plan schools. In the Castle Rock High School near Tacoma, Wash., the Student Learning Center is designed so learning stations are grouped around a "wet" column housing the electrical and plumbing services. The station provides cassette players, headsets, viewers, tape recorders, computer terminals, radio, television, typewriters and laboratory equipment. Each learning center consists of the "wet" column, screens, work tables, lockers, chairs, planters, storage and conference tables of various sizes.

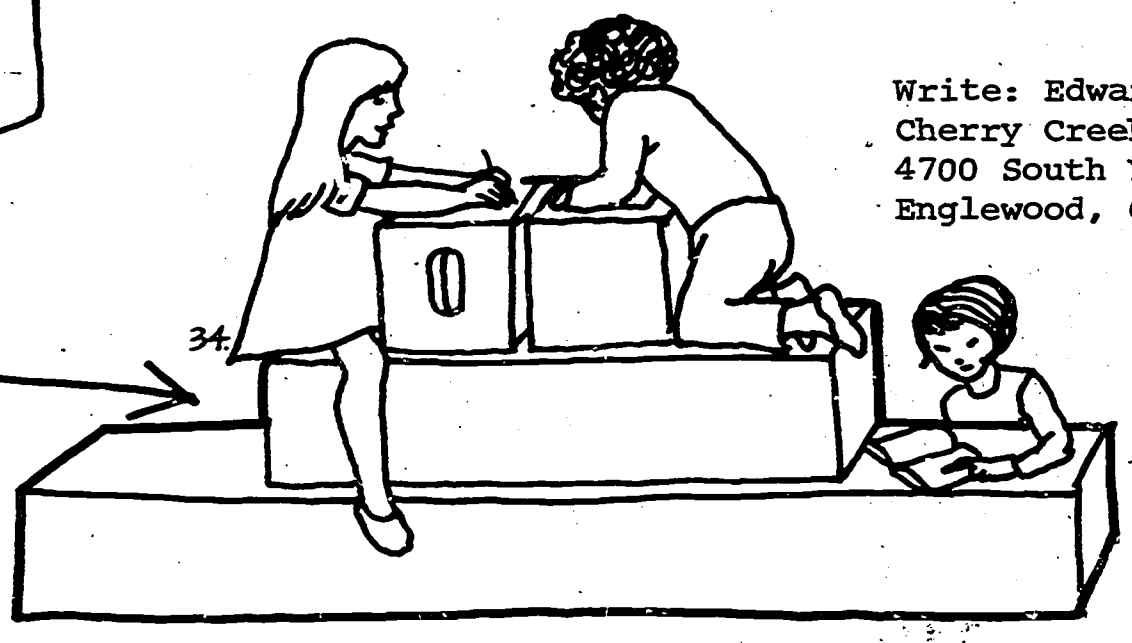
32.

" COLUMN WITH CLUSTERED LABORATORY FACILITIES
e: Donald M. Christensen, Superintendent
le Rock Public Schools
le Rock, Wash. 98611

THE JEFFERSON COUNTY SCHOOL PROJECT

Write: Lloyd D. Carlton, Principal
Kendrick Lakes Elementary School
1350 South Hoyt
Lakewood, Colo. 80226

The Jefferson County School District in Colorado commissioned an architect to design furniture for elementary school youngsters. Two basic shapes emerged: a hollow cube and a slab-like table. On each, one side is hard enough for writing and another is hollow for storage.

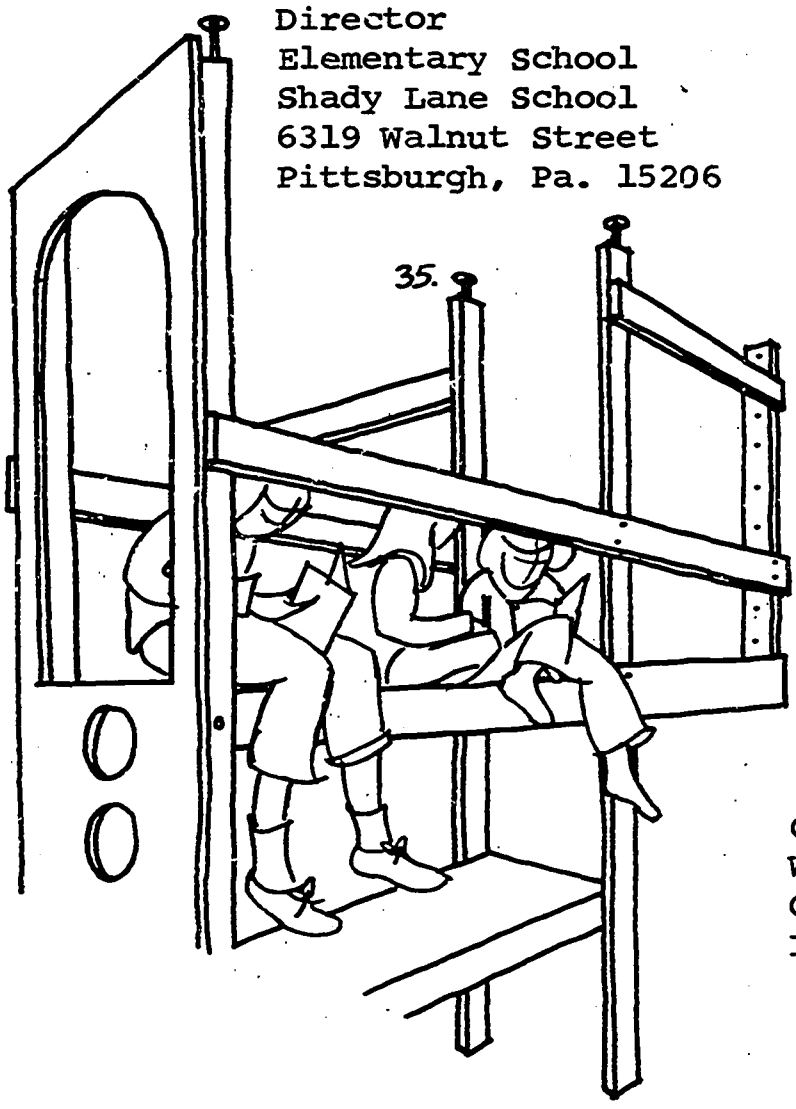


Write: Edward C. Pino
Cherry Creek School District
4700 South Yosemite Street
Englewood, Colo. 80110

Colo-
locks and
is dis-
bination
hop to
all
eds of an

34.

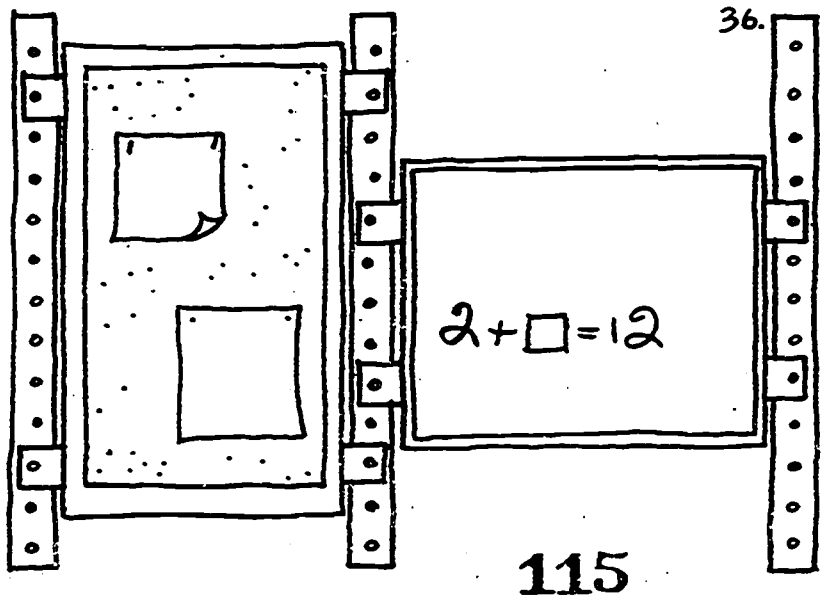
TREE HOUSE STUDY UNIT
Write: Lynn Raphael
Director
Elementary School
Shady Lane School
6319 Walnut Street
Pittsburgh, Pa. 15206


35.

For their early learning program, the Shady Lane School in Pittsburgh wanted a prepared environment which actively stimulates imagination and individual initiative. The result was individually designed furniture constructed on site under the supervision and specifications of their own designers. On the other hand, Clear Creek High School in Colorado, invited a major furniture manufacturer to develop prototypes for a line of furniture based on the needs of an open-plan secondary school. This venture resulted in furniture tailored not only to the needs of Clear Creek but also uniquely suited to a new movement in secondary education.*

*See: 3.OPEN PLAN, p.32

CLEAR CREEK SECONDARY SCHOOL
Write: Robert F. Metzler, Superintendent
Clear Creek Public Schools
Idaho Springs, Colo. 80452



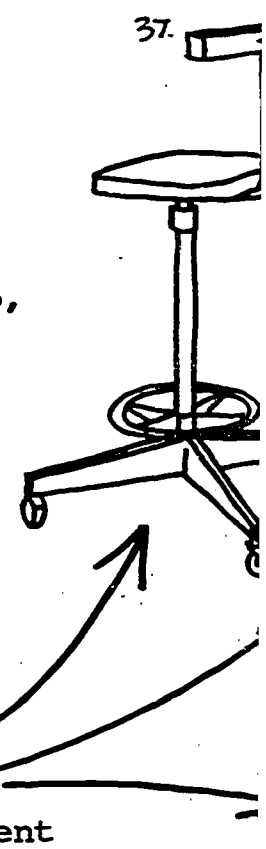
36.

EVERYWHERE SCHOOL ADJUSTABLE-REMOVABLE DISPLAY BOARDS
Write: Jack Dollard
Hartford Design Group
470 Asylum Street
Hartford, Conn. 06103

The Everywhere School in Hartford, Co
architect to design adjustable furnit
school in a warehouse. The specifica
boards, tables, chairs, boxes and boa
inexpensive materials in units that c
various ages and activities. A local
furniture.

*See: 6.REACHOUT SCHOOLS, p.88

PERCH CHA


37.

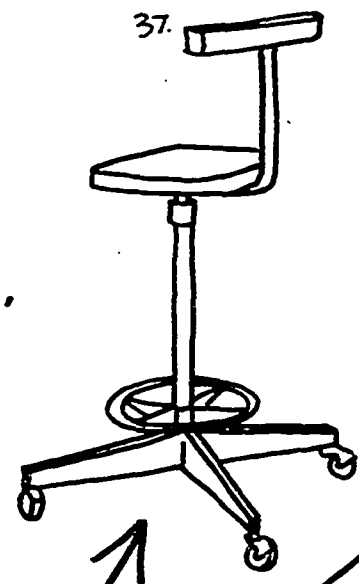
r their early learning program, e Shady Lane School in Pittsburgh nted a prepared environment ich actively stimulates imagina- on and individual initiative. e result was individually signed furniture constructed on te under the supervision and ecifications of their own signers. On the other hand, lear Creek High School in Colorado, vited a major furniture manu- acturer to develop prototypes for line of furniture based on the eeds of an open-plan secondary chool. This venture resulted furniture tailored not only the needs of Clear Creek but lso uniquely suited to a new vement in secondary education.*

ee: 3.OPEN PLAN, p.32

R CREEK SECONDARY SCHOOL
e: Robert F. Metzler, Superintendent
r Creek Public Schools
o Springs, Colo. 80452

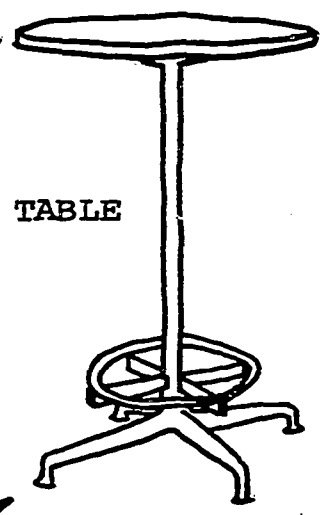
PERCH CHAIR

37.



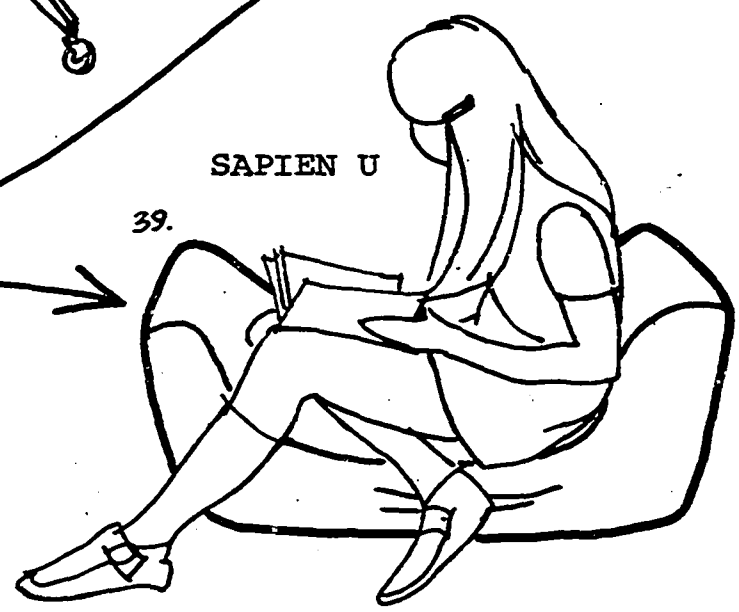
38.

BROWSING TABLE



SAPIEN U

39.



EVERYWHERE SCHOOL ADJUSTABLE-REMOVABLE DISPLAY BOARDS
Write: Jack Dollard
Hartford Design Group
470 Asylum Street
Hartford, Conn. 06103

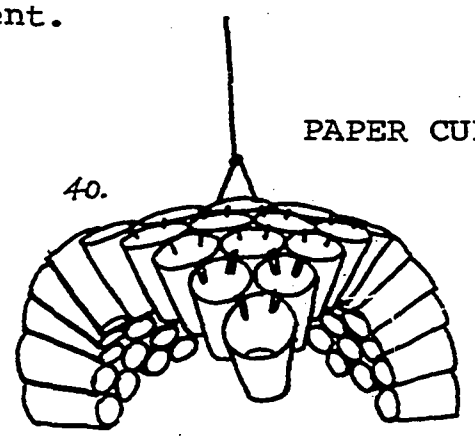
The Everywhere School in Hartford, Conn., commissioned an architect to design adjustable furniture for its home base* school in a warehouse. The specifications called for display boards, tables, chairs, boxes and boards to be built with inexpensive materials in units that can be adjusted to suit various ages and activities. A local carpenter built the furniture.

*See: 6.REACHOUT SCHOOLS, p.88

Make-Your-Own Furniture

Well, it's a short (and ecconomical) step from having furniture made to your design to making it yourself. And because it's not easy, there are several sources of help around for the "do-it-your-selfer" who wants creative, individualized school furniture at less than market prices.

The Advisory for Open Education has centers in six strategic locations throughout the country. The centers offer a work-shop curriculum for teachers and administrators who want to learn about tools and materials, and how to make individualized school furniture. The centers also distribute publi-cations on how to make school furniture and equip-ment.



PAPER CUP MOBILE

40.

Approximation #1 - A plan
furniture
be assemb
provide a
young chi

Building With Cardboard -
work with

Building With Tubes - Sho
discarde
stools,

Materials List - A usefu
equipmen
purchase

Building a Playground -
communit
plans, m

These and further inform
be obtained from the nat
Advisory
90 Sherm
Cambridg

Approximation #1 - A plan for a classroom using furniture and equipment that "can be assembled in limited time to provide a learning environment for young children." $1.00

Building With Cardboard - A booklet showing how to work with Tri-Wall cardboard. 60¢

Building With Tubes - Shows how to work with discarded cardboard tubes to make stools, cubbies, shelves, etc. 60¢

Materials List - A useful list of materials and equipment that can be scrounged or purchased for classroom use. 50¢

Building a Playground - Shows how to make a community-built playground with plans, materials, and photos. 50¢

These and further information about the project can be obtained from the national office:

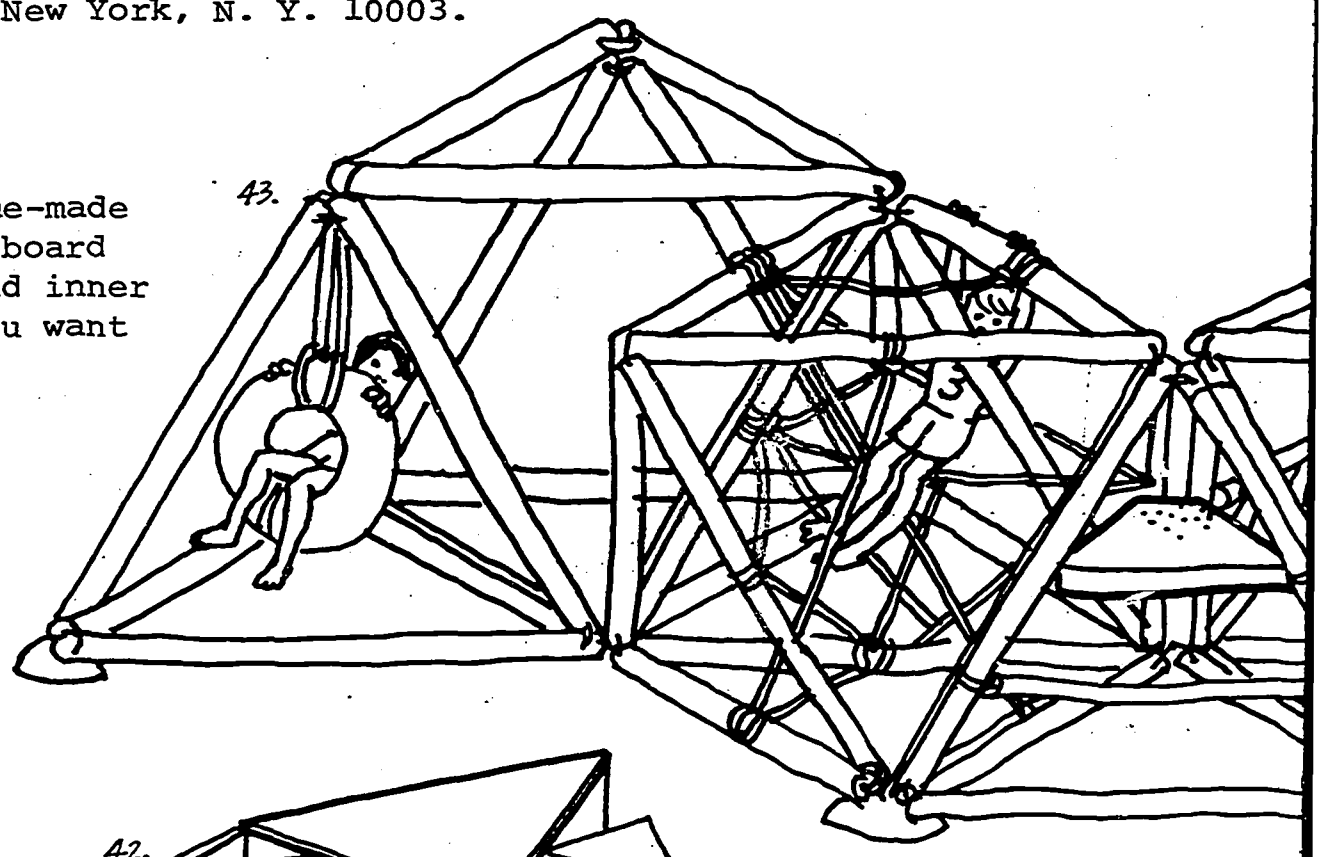
Advisory for Open Education
90 Sherman Street
Cambridge, Mass. 02140

Robert Mangurian and the staff and students of Schoolworks are developing a Primer on Making Places for Small People. While carefully developing the attitude of making the user an implementor rather than passive client, the book tells you where to find the materials and how to construct your own imaginative furniture for nurseries and early learning centers. It's made of inner tubes, carpet rollers, ropes, and other cast-off or easily obtainable materials. Its use in a classroom provides indoor playgrounds, projection screens, individual tree-house units, and semi-enclosed small-group instruction areas, all compatible with the trend toward multi-use furniture and indoor physical education equipment.* Information and the book from: Robert Mangurian, Schoolworks, 33 Union Square West, New York, N. Y. 10003.
$2.00 per copy

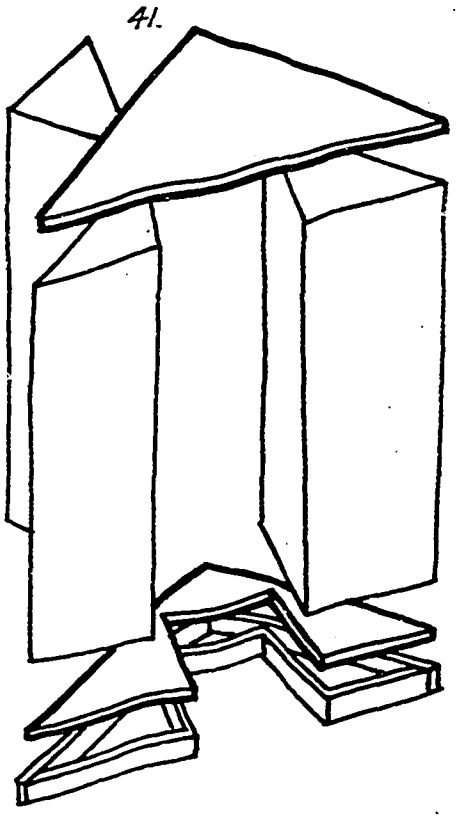
* See also Physical

EDUCATION SPACE-FRAME
A self-supporting, home-made structure made of cardboard carpet tubes, rope, and inner tubes. As large as you want for less than $100.

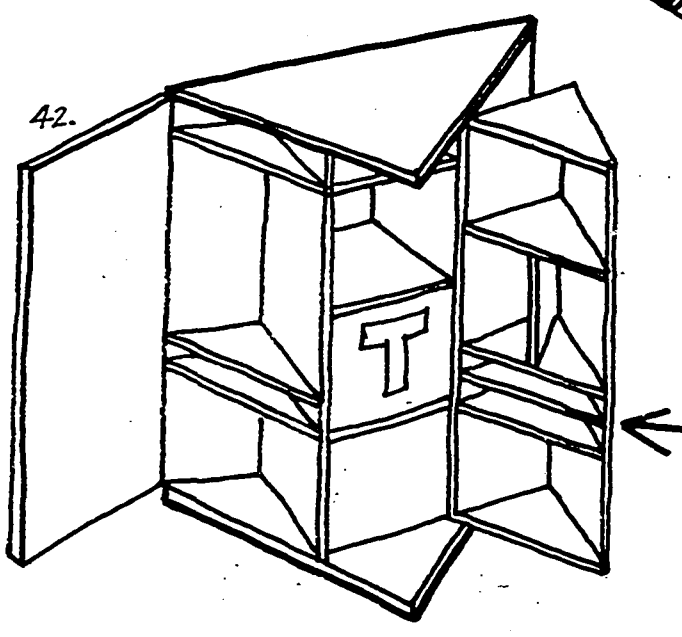
43.



41.



42.



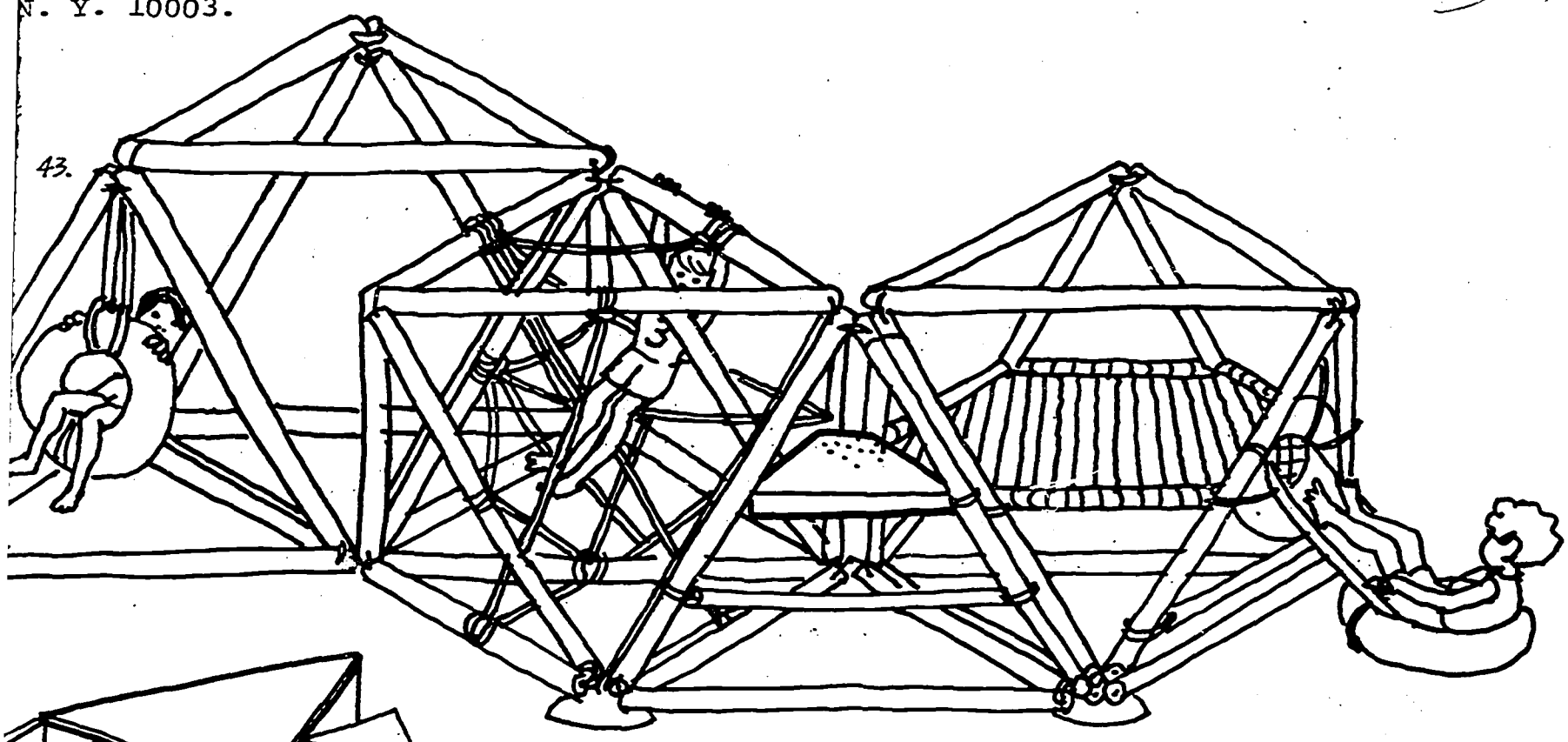
EFL KIOSK ASSEMBLY

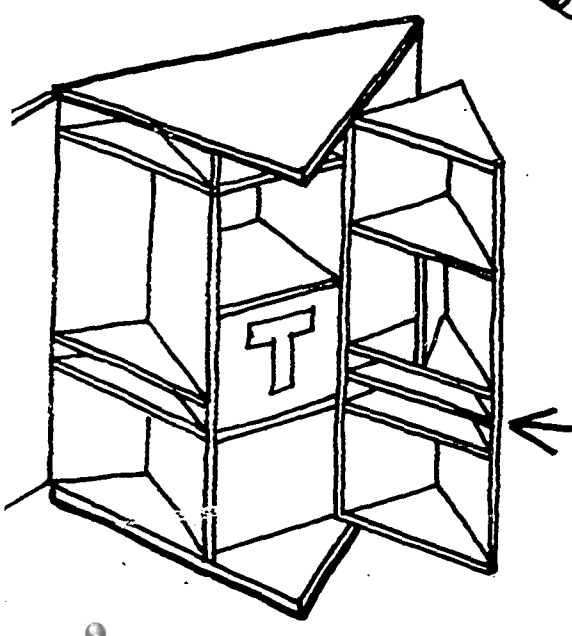
EFL commissioned an ar
set of designs to meet
sharing space with oth
Sunday schools or ever
rooms. The result is
foldable home-made fur
variety of materials.
requirements for seati
etc. For a set of pla
477 Madison Avenue, Ne

hd students of Schoolworks are
aces for Small People. While
e of making the user an implementor
book tells you where to find the
our own imaginative furniture for
ters. It's made of inner tubes,
cast-off or easily obtainable
om provides indoor playgrounds,
ree-house units, and semi-enclosed
l compatible with the trend toward
hysical education equipment. *
obert Mangurian, Schoolworks,
N. Y. 10003.

* See also Physical Education

43.





EFL KIOSK ASSEMBLY

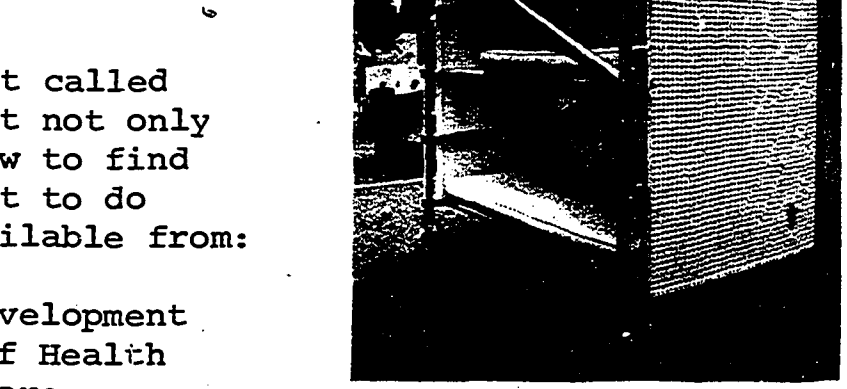
EFL commissioned an architect to develop a set of designs to meet the needs of schools sharing space with other programs, such as Sunday schools or evening meetings in church rooms. The result is a set of plans for foldable home-made furniture made from a variety of materials. The kiosk fulfills requirements for seating, writing, storage, etc. For a set of plans, write EFL, 477 Madison Avenue, New York, N.Y. 10022.

Found Furniture

Some schools are turning to junk and found objects for furniture and school equipment. To this end, there are some excellent sources of information available.

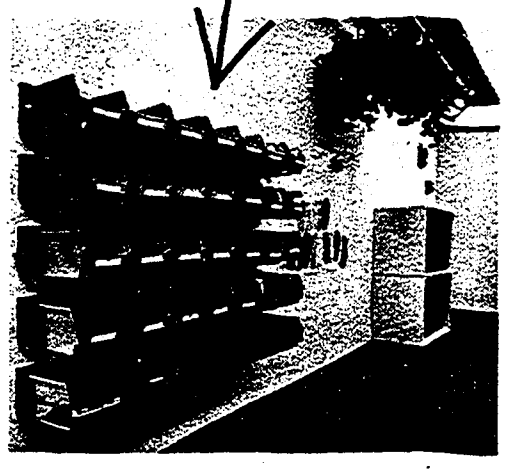
Write for a booklet called Beautiful Junk. It not only tells where and how to find junk, but also what to do with it. It's available from:
PROJECT HEAD START
Office of Child Development
U. S. Department of Health
Education and Welfare
Washington, D. C. 20201

Another book of ideas on what to do with readily available, inexpensive or found objects is called From the Ground Up. The writers, the Community Education Extension, consider it a workbook and they both give and accept ideas for developing school furniture.



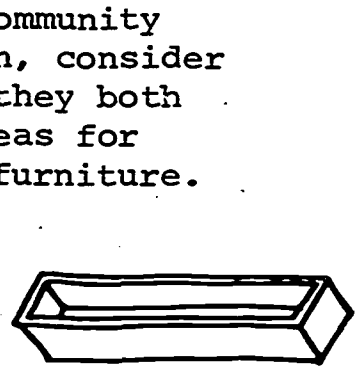
SCAFFOLDING 44.

Portable industrial furniture is begi
classroom. The Acorn School in New Y
industrial scaffolding on wheels with
beds, desks, cubbies, storage and othe
spotlights used on trucks have proved
the wall, and plastic tool trays on t
floor - from paint to spent chewing g
another handy industrial item.



TOOL BOX RACKS 45.

W
D
A
3
N



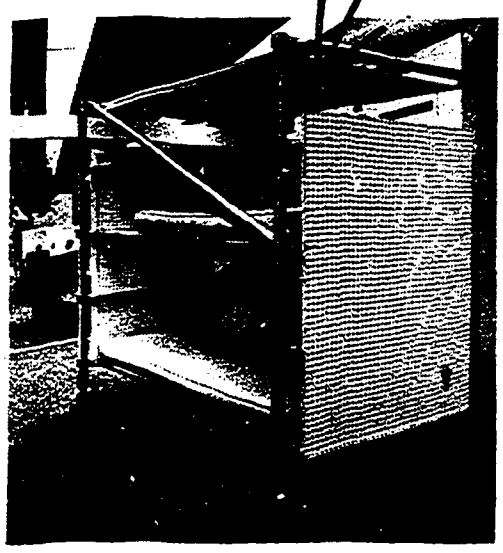
46.

ILLUSTRATION OF HOME-MADE ART EASEL
From the Ground Up, p. 68
Write: Community Education Extension
418 South Gallatin Street
Jackson, Miss. 32903

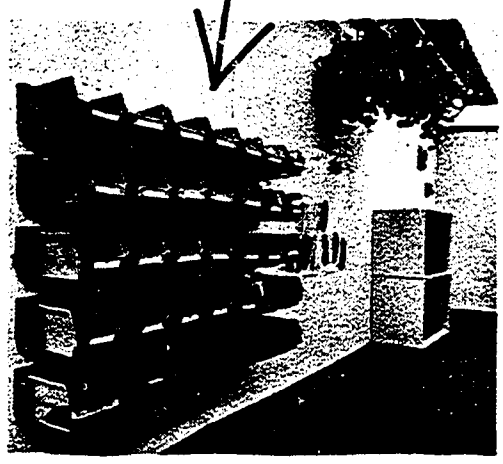
Something "found
seat rack into a

47.

Portable industrial furniture is beginning to move into the classroom. The Acorn School in New York City, for example, uses industrial scaffolding on wheels with interchangeable parts for beds, desks, cubbies, storage and other handy uses. The swingout spotlights used on trucks have proved versatile when mounted on the wall, and plastic tool trays on tracks keep everything off the floor - from paint to spent chewing gum. Supermarket carts are another handy industrial item.



SCAFFOLDING 44.

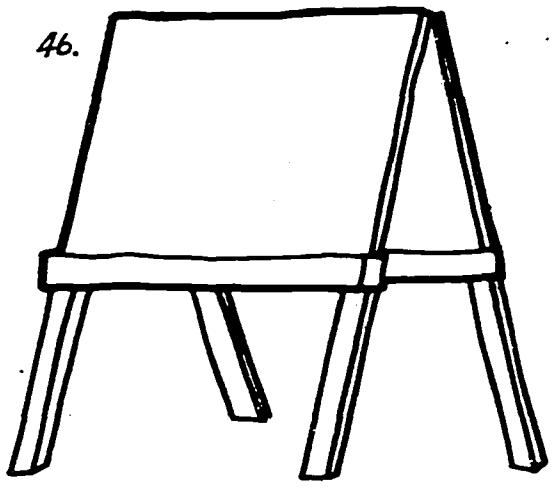


TOOL BOX RACKS 45.

Write:
Doris Schwartz, Director
Acorn School
330 East 26th Street
New York, N. Y. 10010

Something "found" you already have? Turn a seat rack into a bus, ship, train or plane.

46.



SEL

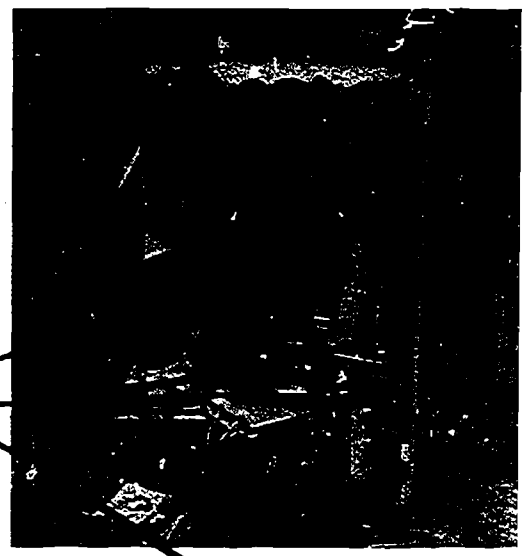
nsion
t

47.

One final idea for furniture is the notion of the Kit-of-Parts. Burnside Manor,* a converted catering establishment in New York City, has been modernized into a new and quite viable elementary school. Since the space and vaulting in the building contributed to a warm, social atmosphere too nice to disturb, a kit-of-parts of furniture was developed so that it carried the burden of the school design. Drawing on many of the concepts in this chapter, a selection of furniture was ordered as a kit. When the furniture is moved in, the space becomes a school. If the school decides to move, the kit is simply moved out, leaving Burnside Manor, or any other space for that matter, much the same as it was before the parts were moved in.

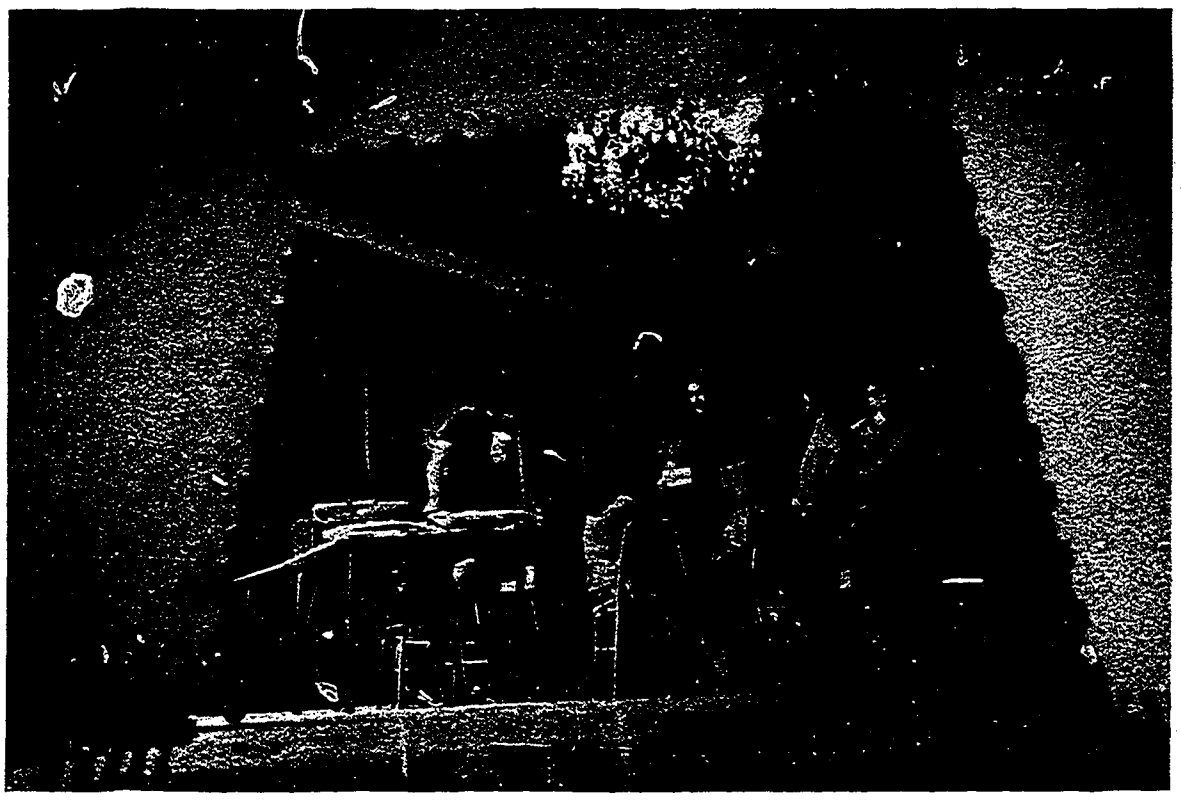
*See: 1.FOUND SPACE, p.9

Write:
Delia Lee, Principal
Burnside Manor Elementary School
85 West Burnside Avenue
Bronx, N. Y. 10453



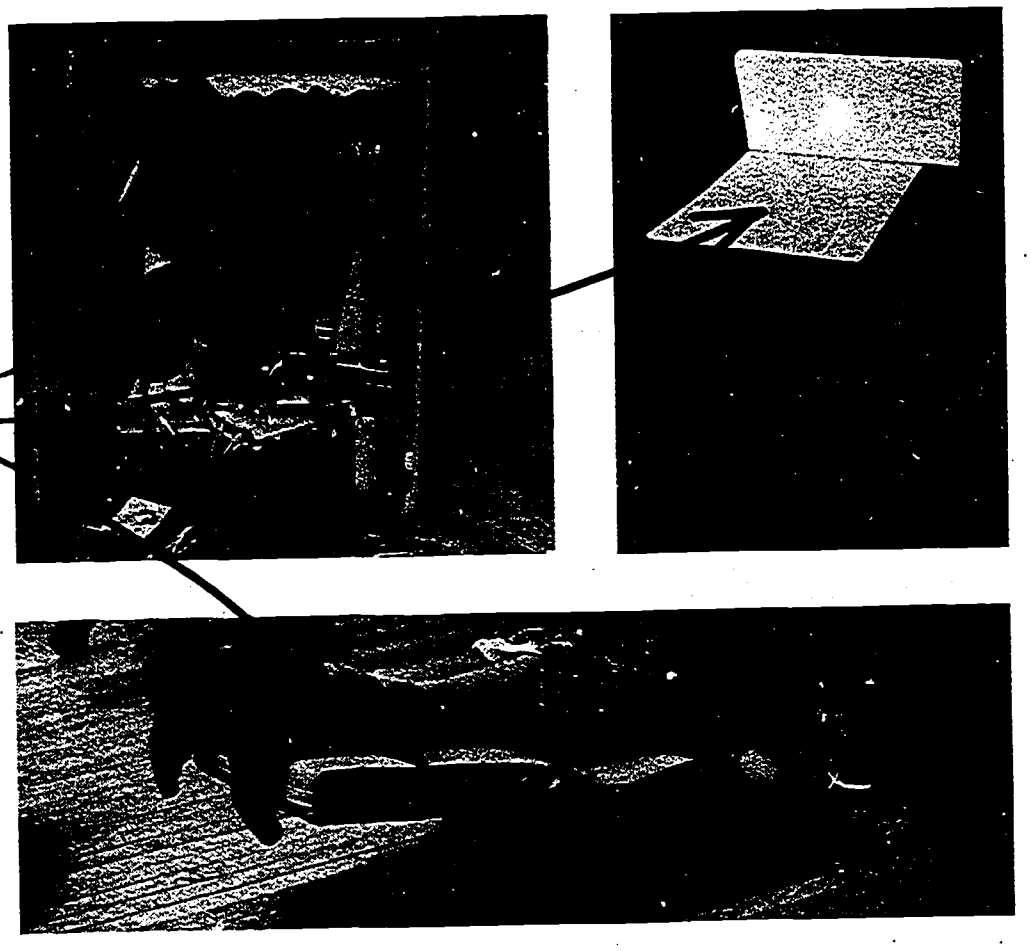
48.

BURNSIDE MANOR'S KIT-OF-PARTS FI
NEEDS OF ELEMENTARY PUPILS. A H
SCHOOL WOULD REQUIRE A DIFFERENT



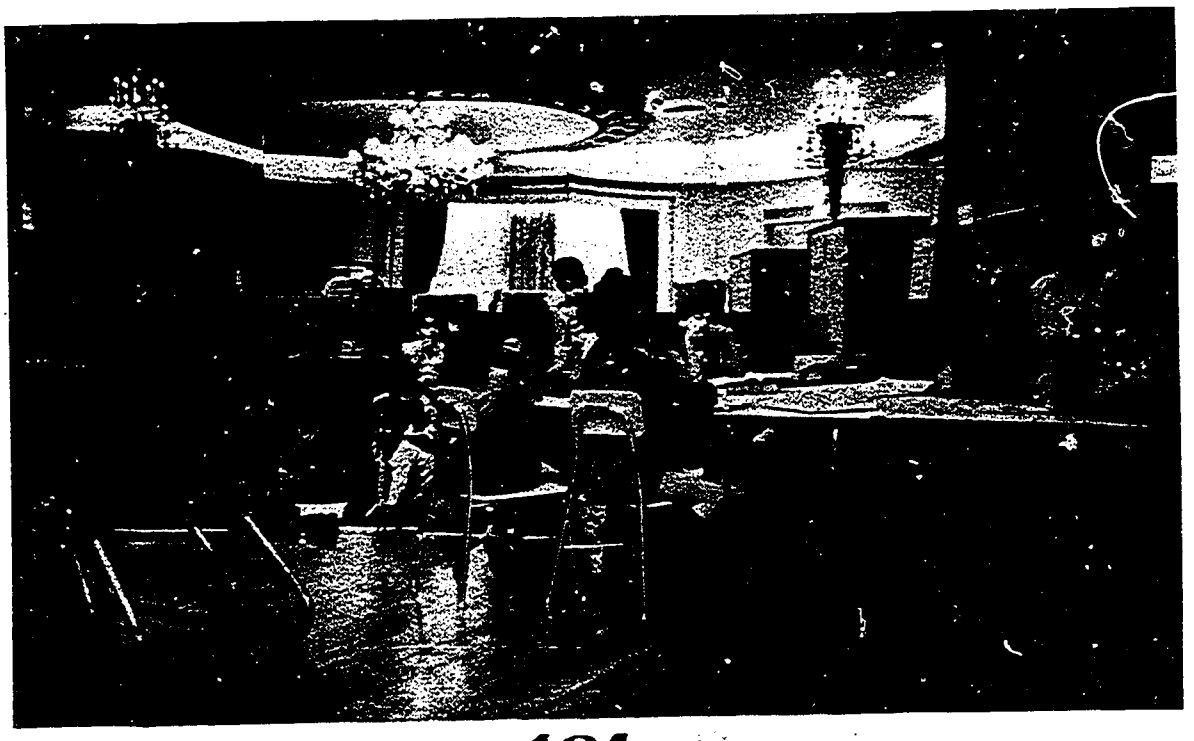
is the notion of the Kit-of-Parts.
catering establishment in New York
o a new and quite viable elementary
vaulting in the building contributed
too nice to disturb, a kit-of-parts
that it carried the burden of the
ny of the concepts in this chapter,
ordered as a kit. When the furniture
s a school. If the school decides to
out, leaving Burnside Manor, or any
much the same as it was before the

hool



48.

BURNSIDE MANOR'S KIT-OF-PARTS FITS THE NEEDS OF ELEMENTARY PUPILS. A HIGH SCHOOL WOULD REQUIRE A DIFFERENT KIT.



Conclusion

Furniture is, indeed, a rapidly changing aspect of school facilities. We can expect that in the future, school furniture will become an integral part of the design and development of school buildings. It will have noise-absorbing qualities. It will be part of a systems grouping. It will be simple in shape, light in weight, mobile and have multiple purposes. Above all, it will help to create a warm, inviting environment for learning.

Where to Find Furniture

HOME FURNISHINGS MARKET

Check your local contemporary design stores, department stores and furniture stores.

INDUSTRIAL PRODUCTS MARKET

Industrial items often have extra usefulness. If you notice something at a construction site, a supermarket, a loading dock or on a truck that might be useful to you, ask where they got it.

SCHOOL FURNISHINGS MARKET

Read current magazines such as School Product News (information about school equipment and furniture only) and education magazines such as Nation's Schools, American School and University, American School Board Journal, School Management, and others, which often have regular columns on new products.

Look for the reader service cards which can be returned for more information on furniture and equipment mentioned in the magazine.

Check into special education furniture; some of it is applicable to regular schools and unique in its approach.

CUSTOM DESIGN

Ask an architect to design your furniture, or check with your local school of architecture -- some will accept design projects for their students. Check also with your local schools of interior design -- students also have design projects. If your local college or university has a home economics department offering interior design courses, it can often be a rich source of information on furniture.

Where to Find Furniture

HOME FURNISHINGS MARKET

heck your local contemporary design stores, epartment stores and furniture stores.

NDUSTRIAL PRODUCTS MARKET

ndustrial items often have extra usefulness. f you notice something at a construction ite, a supermarket, a loading dock or on a ruck that might be useful to you, ask where hey got it.

CHOOL FURNISHINGS MARKET

ead current magazines such as School Product ews (information about school equipment and furniture only) and education magazines such s Nation's Schools, American School and niversity, American School Board Journal, School Management, and others, which often ave regular columns on new products.

ook for the reader service cards which can e returned for more information on furniture nd equipment mentioned in the magazine.

heck into special education furniture; some f it is applicable to regular schools and nique in its approach.

USTOM DESIGN

sk an architect to design your furniture, r check with your local school of architec- ure -- some will accept design projects for heir students. Check also with your local schools of interior design -- students also ave design projects. If your local college r university has a home economics depart- ent offering interior design courses, it can often be a rich source of information on fu re.

FURNITURE AVAILABILITY LIST

Furniture pictured in the preceding text is keyed by number to this list. A rapidly expanding school furnishings market, however, should make this list obsolete within a few months.

Home Furnishings Market

Items # 2, 3, 48

Industrial Products Market

Items # 44, 45, 48

School Furnishings Market

Items # 1, 4, 6, 7, 8, 9, 10, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 46, 48

Custom Design

Items # 5, 11, 12, 13, 15, 16, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 47, 48

BUYING NOVEL FURNITURE

Sometimes choosing non-standard furniture is easier than buying it, especially when only one company manufactures an item. When faced with office procedures that demand competitive bidding, three courses are open.

1. Compare prices for similar items, e.g., a 'polliwog' with a snake chair.

2. Budget the item as experimental. If it's good, there will be competition next time you shop.

3. Or, don't buy all you need. Save part of the budget until you see what children and teachers really need in specific areas.

For more information on sources for schoo

1. Write: Dave McCurrach, Executive Vic
National School Supply and Eq
79 West Monroe Street
Chicago, Ill. 60603

2. Check: Sweet's Interior Design File
Published by McGraw-Hill Info
Systems Company annually.

3. Check: Educator's Purchasing Master
Published by the Fisher Publi
3 West Princeton Avenue, Engl

4. Attend: Convention of the American As
of School Administrators, whe
furniture manufacturers have
1973: Atlantic City, N.
Write: Paul B. Salmon, Exec
1201-16th Street, N.
Washington, D. C. 20

5. Write: Marion Pasnik, Educational F
Standards Coordinator
New York City Board of Educa
110 Livingston Street
Brooklyn, N. Y. 11201

For more information on sources for school furniture:

1. Write: Dave McCurrach, Executive Vice President
National School Supply and Equipment Association
79 West Monroe Street
Chicago, Ill. 60603

2. Check: Sweet's Interior Design File
Published by McGraw-Hill Information
Systems Company annually.

3. Check: Educator's Purchasing Master
Published by the Fisher Publishing Company
3 West Princeton Avenue, Englewood, Colo. 80110

4. Attend: Convention of the American Association
of School Administrators, where school
furniture manufacturers have large exhibits.
1973: Atlantic City, N. J., February 24-28
Write: Paul B. Salmon, Executive Secretary AASA
1201-16th Street, N. W.
Washington, D. C. 20036

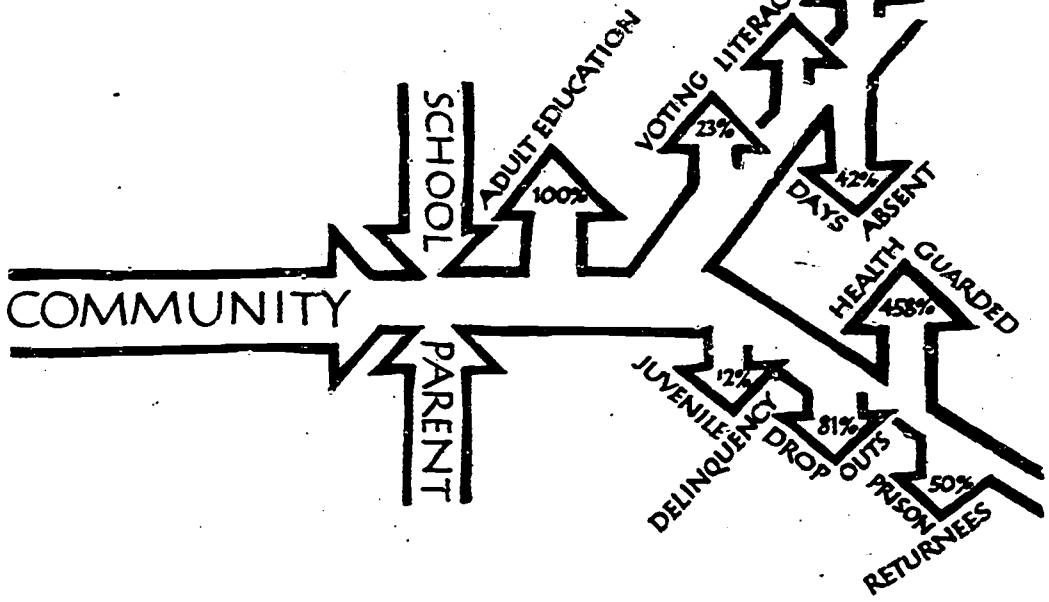
5. Write: Marion Pasnik, Educational Facilities
Standards Coordinator
New York City Board of Education
110 Livingston Street
Brooklyn, N. Y. 11201

5. COMMUNITY/SCHO

A community/school is a place in which education of children and activities of a community occur either alternately or simultaneously. Senior citizen entertainment, community theater, social services and recreation have been happening in school auditoriums, cafeterias, gymnasiums and classrooms. Today, new community needs and the need for better schools are being answered together in the design of a new multi-purpose service unit -- the community/school. Besides bringing together unrelated groups whose combined resources can provide spaces none could have afforded separately, there is another compelling reason for economic cooperation: the marriage of public funds and operations from several sectors promises a better value for the public dollar, more efficient use of space, smoother operation, and last but not least, more effective joint programming. In short, whatever the need of the community, the schools are a likely partner for the solution. The design of the resulting multi-purpose space is becoming versatile enough to meet the requirements of both the community and its children.

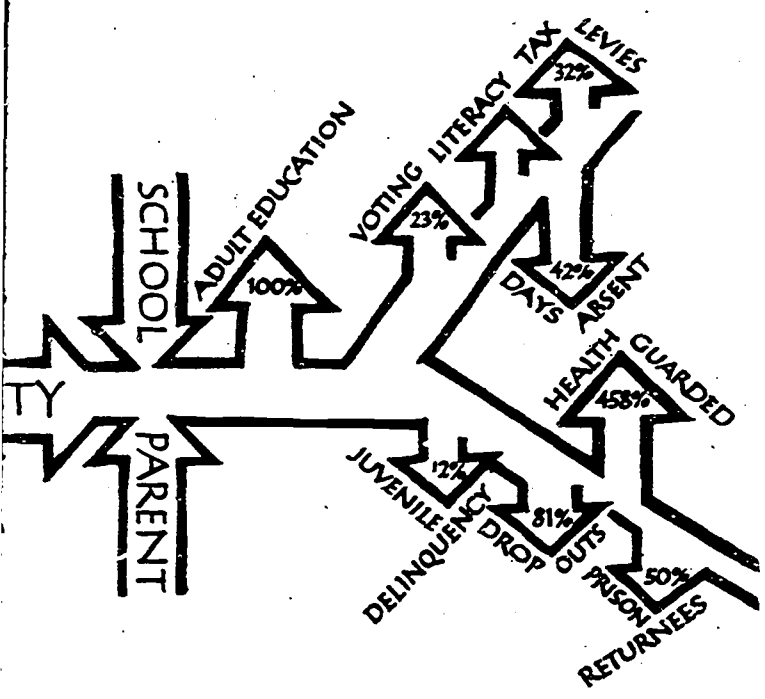
Community educati
1930's, has demo
its doors to the
nity, and societ
the winner is pr
is open twelve o
for all the memb
insurance may go
down dramatical
School districts
variety of agenc
Program and urba
nity projects.
be shared among
between the boar
ation department
not necessarily
agencies, nor is
for its design.
community/school
needs and resour
an expanding com
come up with an
unique system.
considering, bec
schools meeting

* See also Joint Occup



MUNITY/SCHOOLS

place in which education of
of a community occur either
eously. Senior citizen enter-
ater, social services and
ppening in school auditoriums,
and classrooms. Today, new
need for better schools are
in the design of a new multi-
the community/school. Besides
ated groups whose combined
paces none could have afforded
other compelling reason for
the marriage of public funds
eral sectors promises a better
llar, more efficient use of
on, and last but not least, more
ming. In short, whatever the
the schools are a likely partner
design of the resulting multi-
ng versatile enough to meet the
e community and its children.

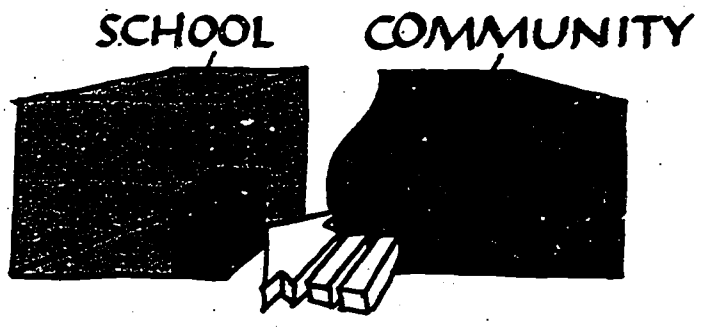


Community education, which began in the 1930's, has demonstrated that when a school opens its doors to the community, the school, the community, and society in general come out ahead; but the winner is probably the school. When a school is open twelve or more hours a day and has programs for all the members of its community, liability insurance may go up, but the cost of vandalism goes down dramatically. Bond issues pass more readily. School districts find that federal monies from a variety of agencies (such as the Model Cities Program and urban renewal) are available for community projects. Financing of community/schools can be shared among several agencies: for example, between the board of education and the city recreation department. The best community/school does not necessarily have the largest mixture of local agencies, nor is there any one ideal combination for its design. The program and architecture of a community/school must vary with its own particular needs and resources.* To meet the requirements of an expanding community program, many schools have come up with an innovative design to meet their own unique system. The following examples are worth considering, because they are in the vanguard of schools meeting the demands of an expanding clientele.

* See also Joint Occupancy

Flint, Mich., with help from the Mott Foundation has run a community school program since 1935. The city has documented social improvement patterns and compared them with national averages. The diagram shows, for example, that adult education in Flint increased 100% more than the average for the country, and that school absences dropped 42% below the average.

The Community Moves Inside the Schools:



It's the design, funding, and management techniques of the community/school that are new, not the community program. Elements of community education have been used in Flint, Mich., since 1935. All 56 public schools in Flint offer their services to all members of their community from the unborn to the aged. Under the support of the Mott Foundation, community groups in Flint use the schoolhouse and its equipment after hours to offer adult education, skills courses, vocational training, practical nursing and extensive summer programs. Akron, Ohio, has done the same with state support. Because of years of experience in community education, both cities have a wealth of information available about community programming. For further information, write:

Peter Clancy
Associate Superintendent
for the Mott Program
Flint Board of Education
923 East Kearsley Street
Flint, Mich. 48502

Charles J. Maggio
Director, Extended Services
Akron Public Schools
70 North Broadway
Akron, Ohio 44308

Read

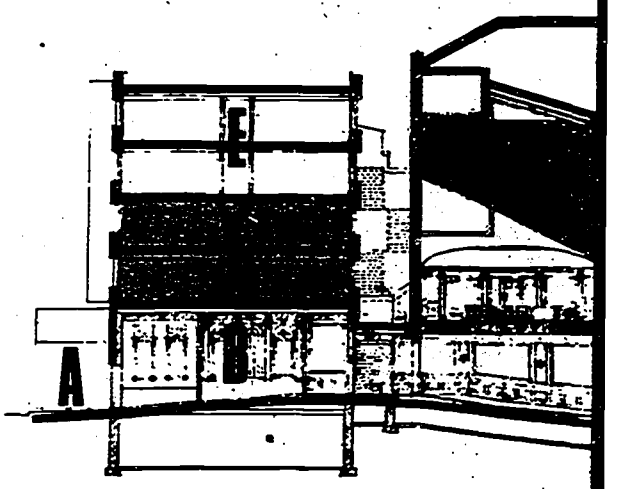
The Community School: Basic Concepts, Function, and Organization, by W. Fred Totten and Frank J. Manley, published by the Allied Education Council, Galien, Mich. 49113, in 1969. $7.95

The Community and the Schools, Harvard Educational Review's Reprint Series, No. 3, 1969. Available from Harvard Educational Review, Longfellow Hall, 13 Appian Way, Cambridge, Mass. 02138. $3.50

An elementary school i
an abandoned theater.*
the State of New York
ically earmarked for a
The theater's balcony
museum stocked with re
Metropolitan Museum of
the renovation (which
superintendent's offic
1972. Two more phases
will create a meeting
school and community.
a new entrance to the
circulation problems a
When completed, this j
gives the school a mus
space, and a community

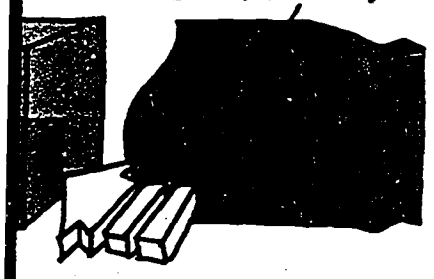
*See: 1.FOUND SPACE, p.4.

FAIRMOUNT SCHOOL AND C
(P.S. 61 ANNEX) IN ABA
Write: Edythe J. Gain
Community Scho
708 East Tremo
Bronx, N.Y. 10



KEY: A. - ENTRANCE
B. - PLANNED EX
C. - MUSEUM SPA
D. - MULTI-PURP
E. - DISTRICT O
F. - ELEMENTARY

OL COMMUNITY



ent techniques
not the community
tion have been
l 56 public
to all members
the aged. Under
ommunity groups
equipment after
s courses, voca-
d extensive
one the same with
experience in commu-
ealth of information
g. For further

J. Maggio
r, Extended Services
ublic Schools
h Broadway
Ohio 44308

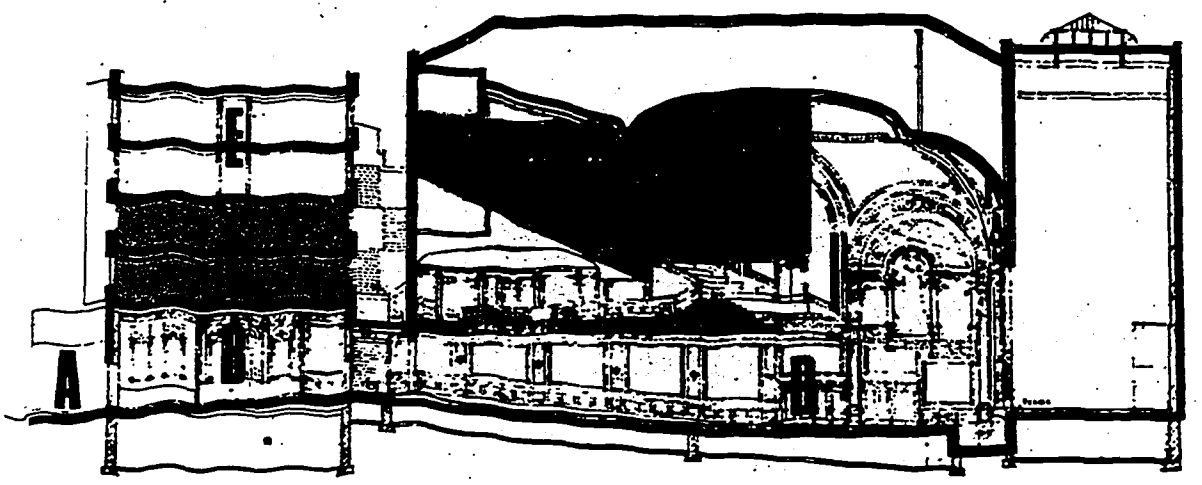
epts, Function,
ten and Frank J.
Education
1969. $7.95

arvard Educational
1969. Available
Longfellow Hall,
02138. $3.50

An elementary school in New York City moved into an abandoned theater.* During the renovation, the State of New York gave the city money specifically earmarked for a community education center. The theater's balcony became a community/school museum stocked with resources on loan from the Metropolitan Museum of Art. The first phase of the renovation (which includes the district superintendent's offices) was completed in early 1972. Two more phases are planned. The next will create a meeting room on the lower level for school and community. The last phase calls for a new entrance to the building to solve its circulation problems and expand exhibition space. When completed, this joint use of found space gives the school a museum, the administration space, and a community educational center.

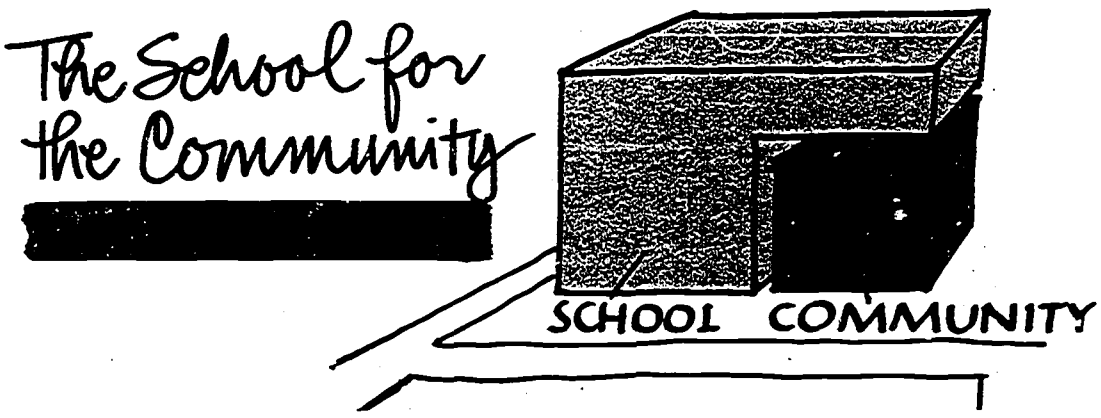
*see: 1.FOUND SPACE, p.4.

FAIRMOUNT SCHOOL AND COMMUNITY CENTER
(P.S. 61 ANNEX) IN ABANDONED FAIRMOUNT THEATER
Write: Edythe J. Gaines
Community School Superintendent
708 East Tremont Avenue
Bronx, N.Y. 10457

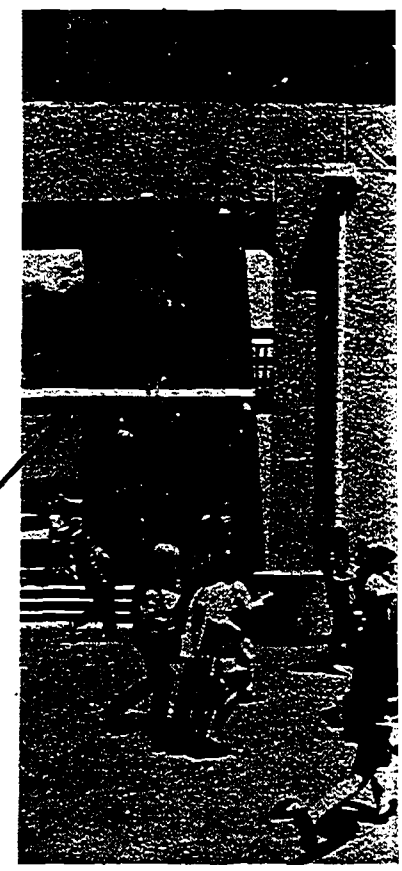


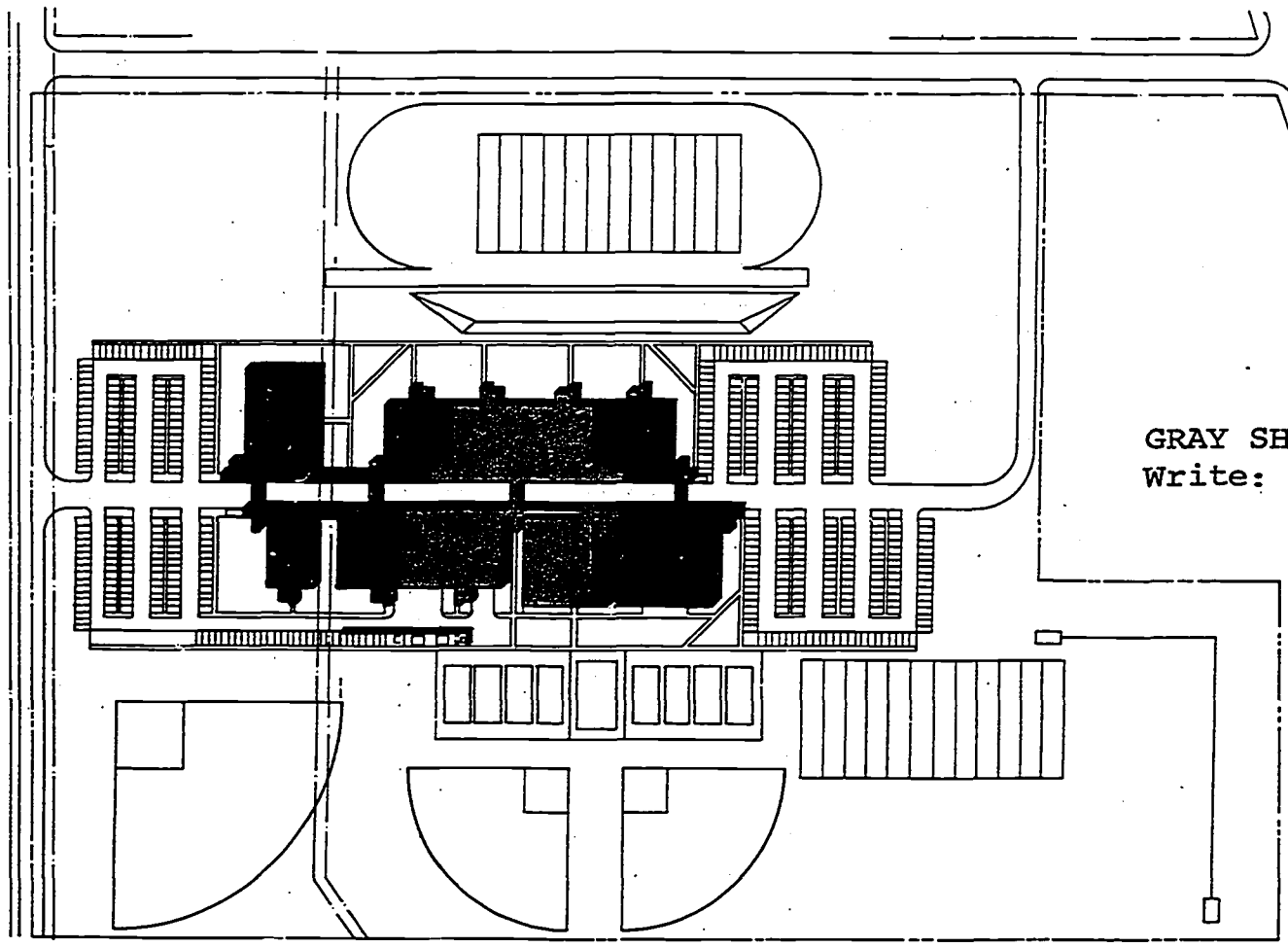
KEY: A. - ENTRANCE
B. - PLANNED EXHIBITION LOBBY
C. - MUSEUM SPACE
D. - MULTI-PURPOSE THEATER (1200 SEATS)
E. - DISTRICT OFFICES
F. - ELEMENTARY SCHOOL

The School for the Community



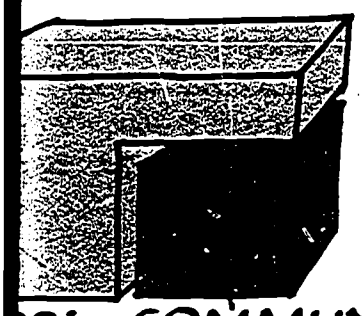
Some schools are designed from the beginning for their community. Carson City, Nevada, got its citizens involved with a referendum on a "school community." Phase I of this plan, the Ormsby County High School, is now complete; recent voter approval gives the go-ahead for phase II, adjacent space for municipal and community agencies. Planned like a main street, the school's circulation flows through pedestrian galleries joined by bridges. The structure is designed to be highly flexible and, according to the architects, planned in the hope that, "the school will become society and society will become a school."





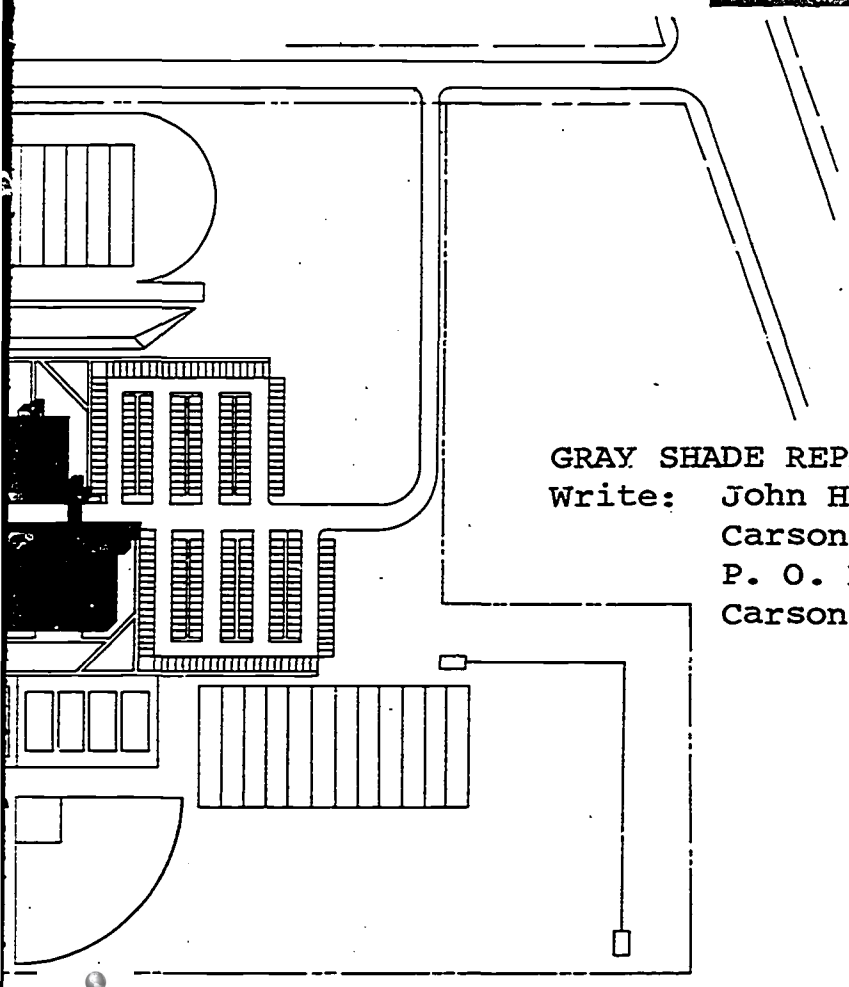
GRAY SHADE REPRESENTS PHAS

Write: John Hawkins, Supe
Carson City School
P. O. Box 603
Carson City, Nev.



OOL COMMUNITY

the beginning for their
a, got its citizens in-
"school community."
by County High School,
approval gives the go-
pace for municipal and
ike a main street, the
ough pedestrian galleries
ure is designed to be
to the architects,
school will become society
ol."



GRAY SHADE REPRESENTS PHASE I

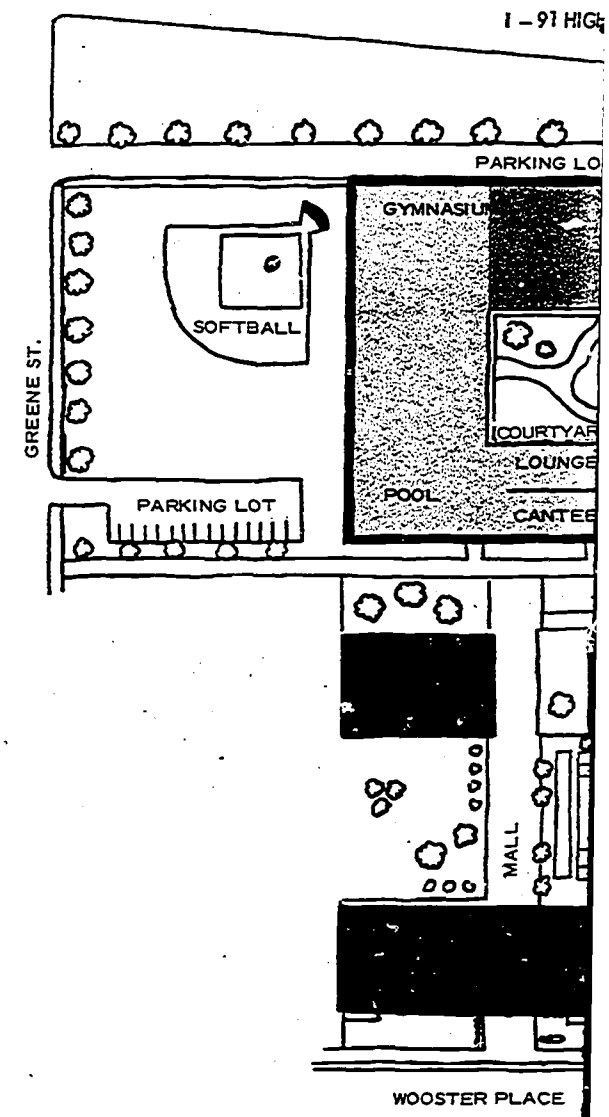
Write: John Hawkins, Superintendent
Carson City Schools
P. O. Box 603
Carson City, Nev. 89701

ENTRANCE TO THE CONTE COMMUNITY

Write: Gerald Tirozzi
Community Service Build
1 State Street
New Haven, Conn. 06511

The Harry A. Conte Community School in New Haven, Conn., is perhaps the oldest school in the country specifically designed with its community in mind. With federally funded land, state aid for school construction, and funds from the Urban Renewal Program, the designers put the school (K-8), a public library, and community facilities together on a two-city-block site to make a community-oriented "education park." The Conte School opened its doors to the citizens of the Wooster Square neighborhood in September, 1962. The school itself is square, two stories high, with 26 classrooms on one side, a gymnasium, science lab and pool on the other, and offices in the corner. An underground passage connects the school to a community and school auditorium; across the plaza is the senior citizens center linked to a branch public library. The Conte Community School is open 12 months a year, 7 days a week until 9:00 P. M., to all its citizens for all available activities. The programs include education for everyone. Last year attendance at the school totaled over 105,000, not counting the school children, the senior citizens nor the patrons of the public library. The school has, in effect, turned an otherwise dying and dilapidated neighborhood into one of the bright spots of urban renewal.

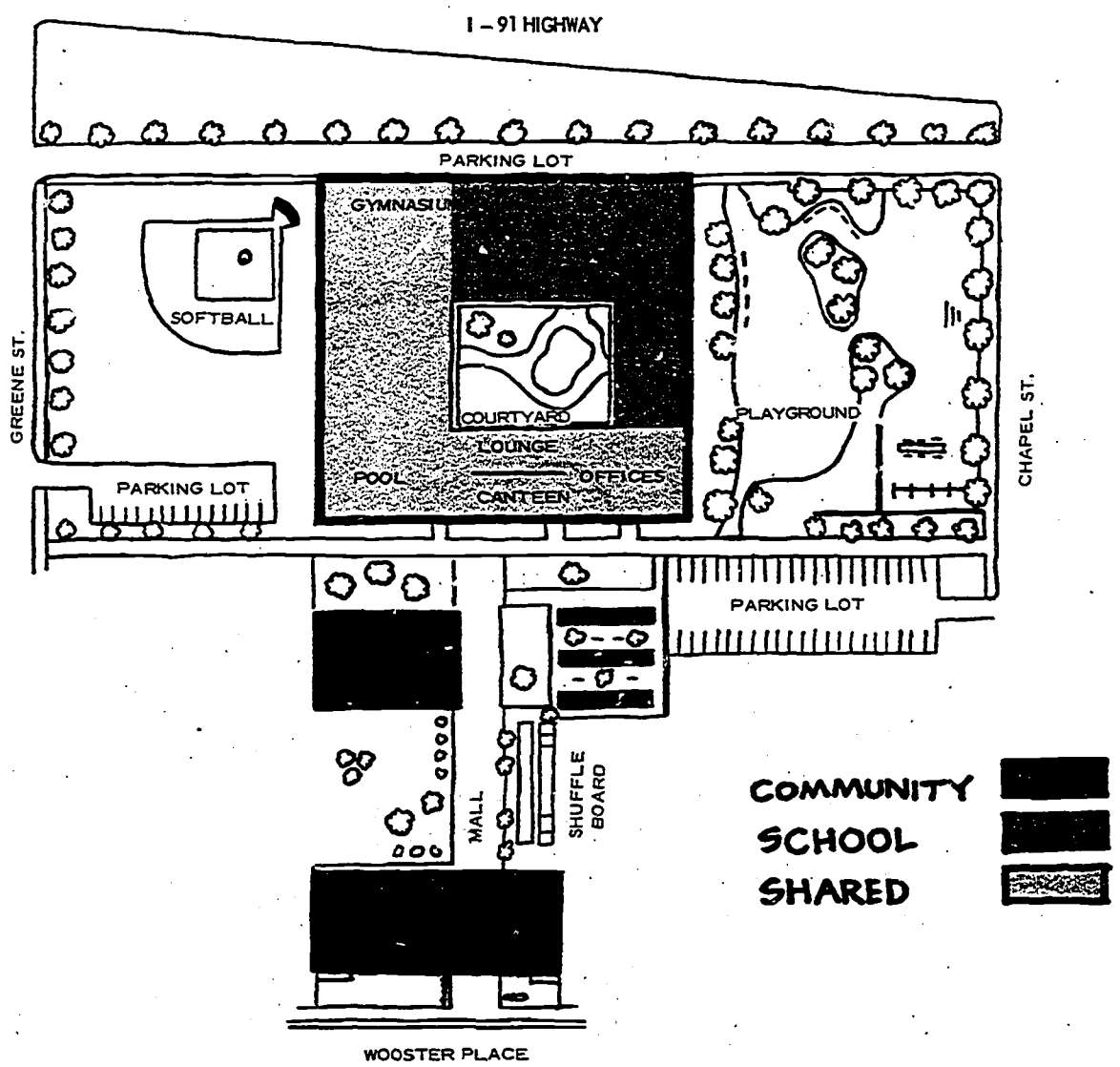
The Conte Community Sch
success since 1962.



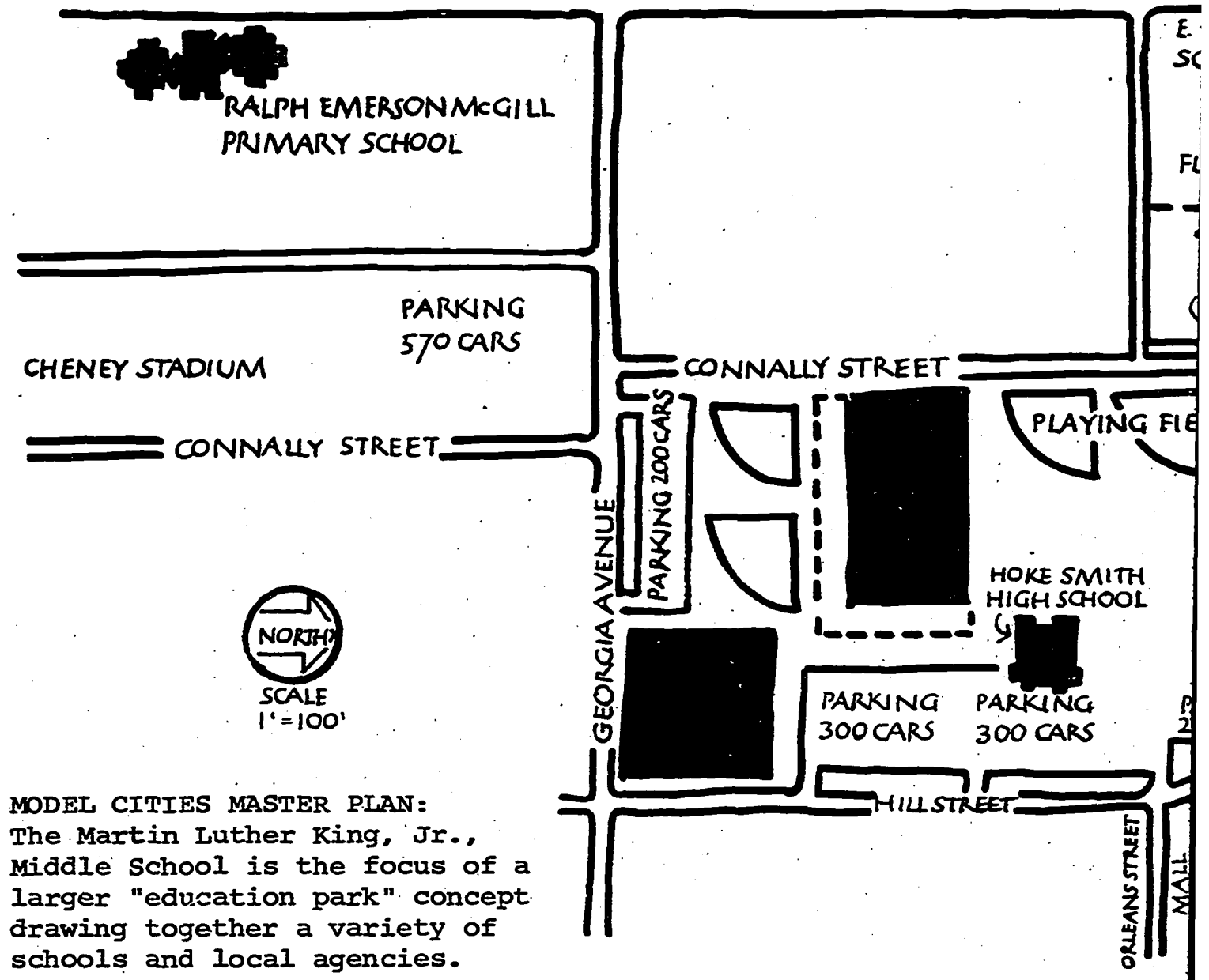
l in New
t school
ed with
ally
construc-
ewal
ool (K-8),
cilities
to make a
." The
he citizens
in
f is square,
ms on one
pool on
ler. An
school to
across the
ter linked
Conte Com-
year, 7
all its
ties. The
eryone.
l totaled
hool children,
ns of the public
ct, turned an
eighborhood
rban renewal.

ENTRANCE TO THE CONTE COMMUNITY SCHOOL
Write: Gerald Tirozzi
Community Service Building
1 State Street
New Haven, Conn. 06511

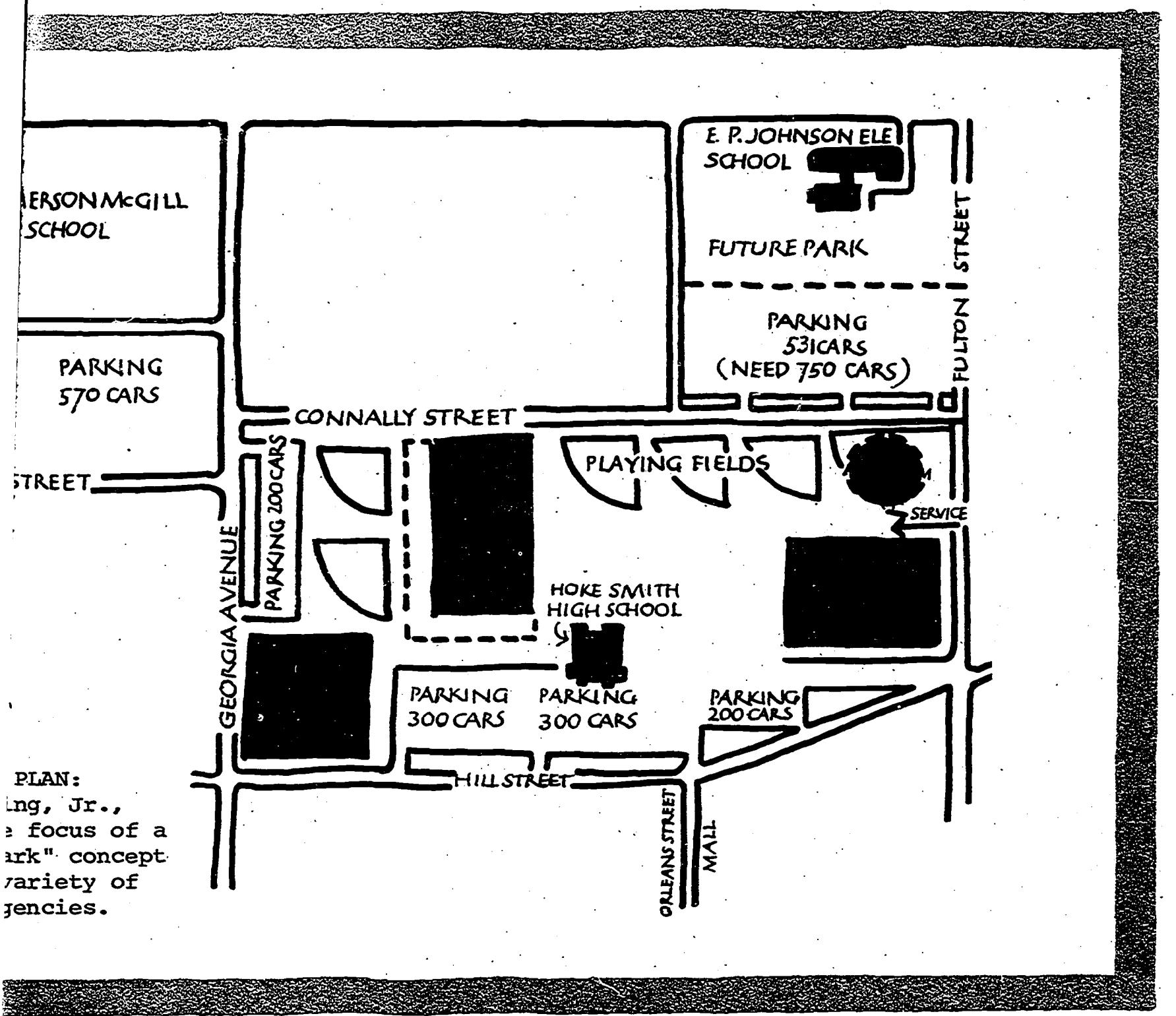
The Conte Community School has been a success since 1962.



The School for the Community



MODEL CITIES MASTER PLAN:
The Martin Luther King, Jr., Middle School is the focus of a larger "education park" concept drawing together a variety of schools and local agencies.



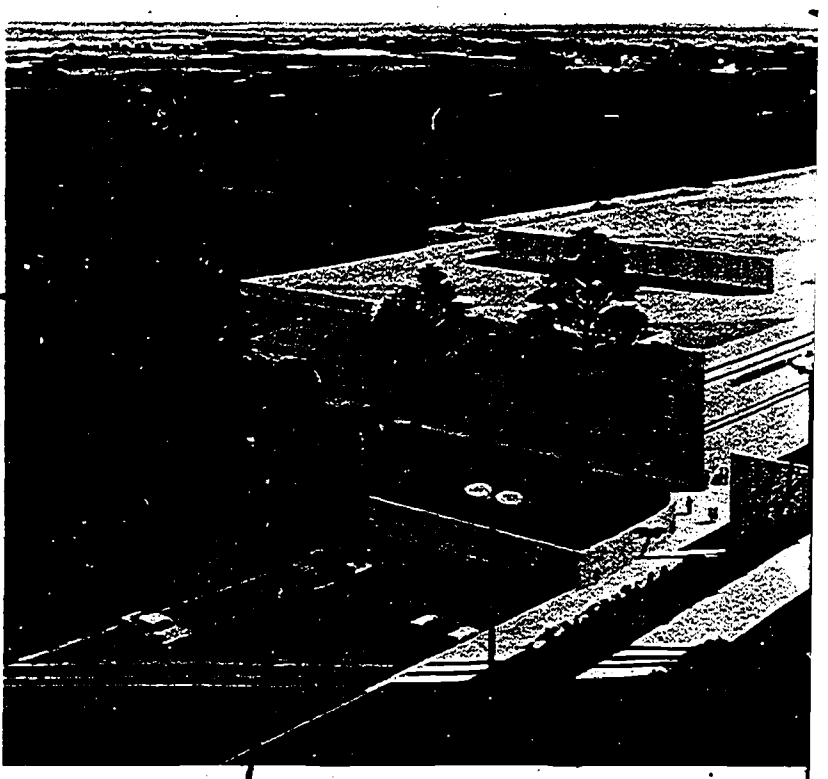
PLAN:
ing, Jr.,
e focus of a
ark" concept
variety of
gencies.

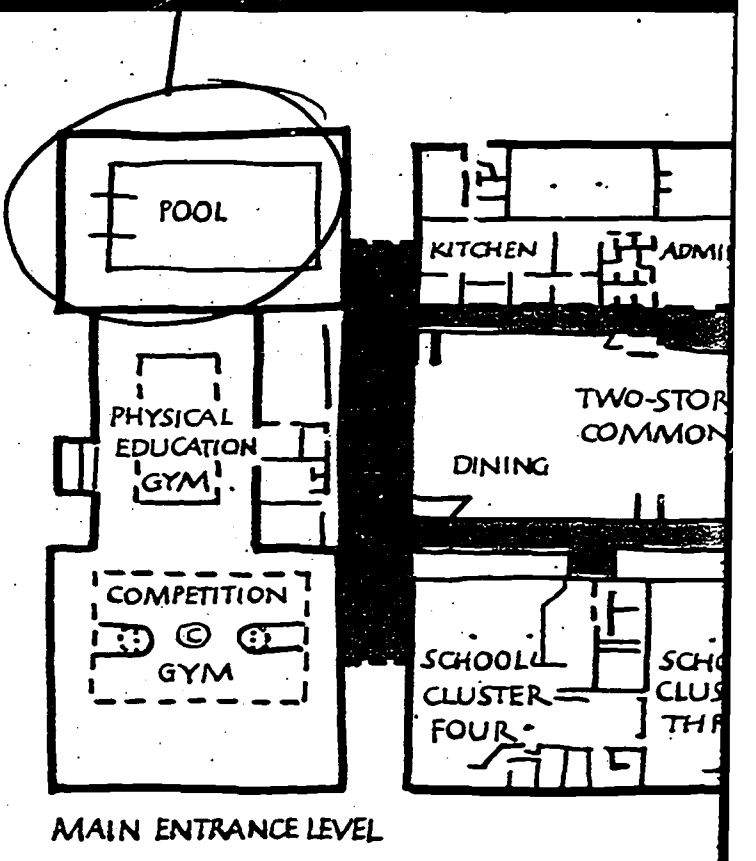
The Martin Luther King, Jr., Middle School in Atlanta is a community school jointly planned by the board of education and the city parks department and is partially funded by the Model Cities program. The school contains an enclosed swimming pool and two gymnasiums* to be used by the students during school and by community recreation programs after hours. All curriculum subjects are taught within each of seven clusters of open plan learning space arranged around an open commons. This two-story commons area gives access to the teaching theater, dining room, library mezzanine and the physical education area, thereby solving the circulation problems and allowing the separation of community and school activity. The school is expected to open in September, 1972.

Write: Darwin W. Womack
Assistant Superintendent
School Plant Planning and Construction
Atlanta Public Schools
224 Central Avenue, S. W.,
Atlanta, Ga. 30303

* See also Physical Education

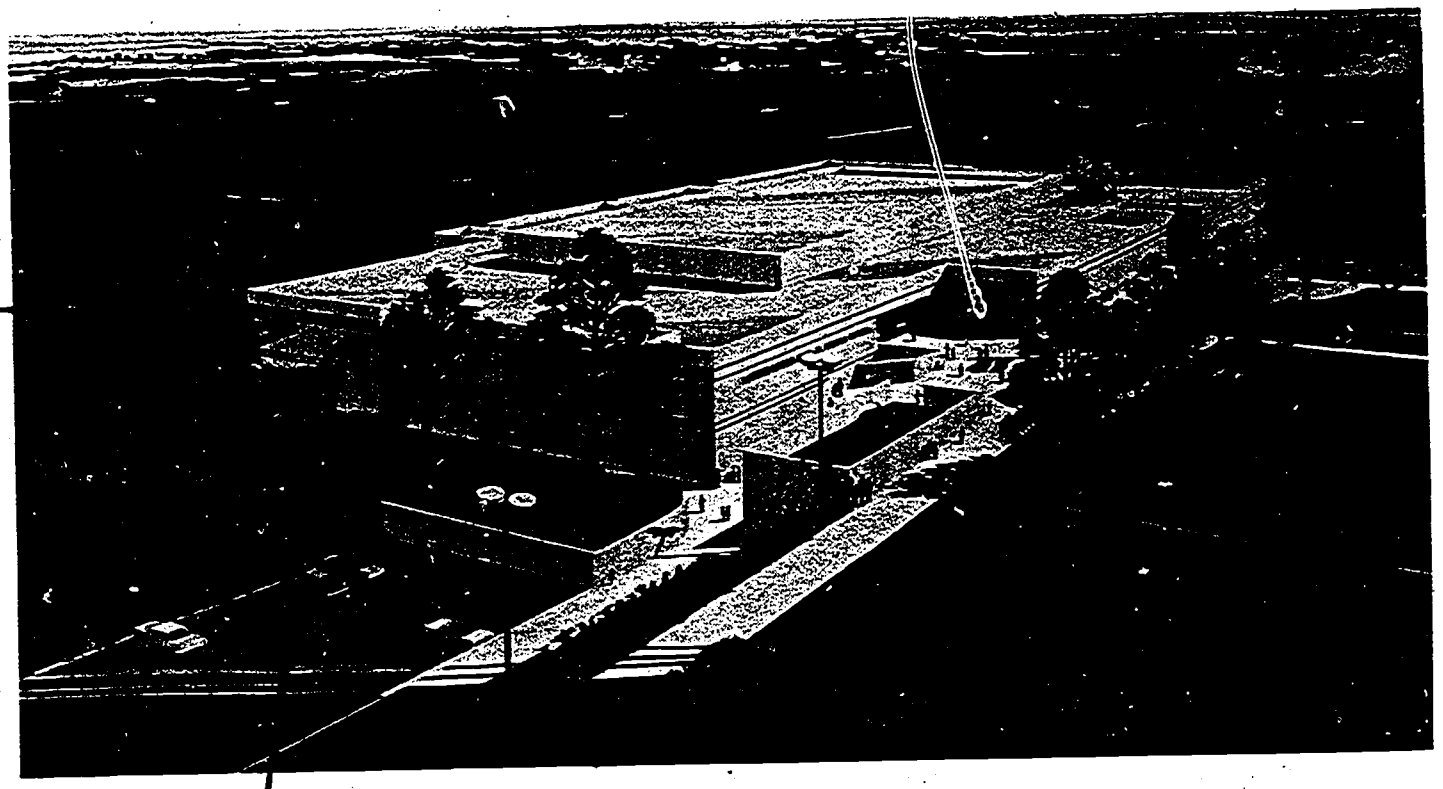
MARTIN LUTHER KING, JR., MIDDLE SCHOOL
The circulation space and two-story co
access, while allowing each activity it

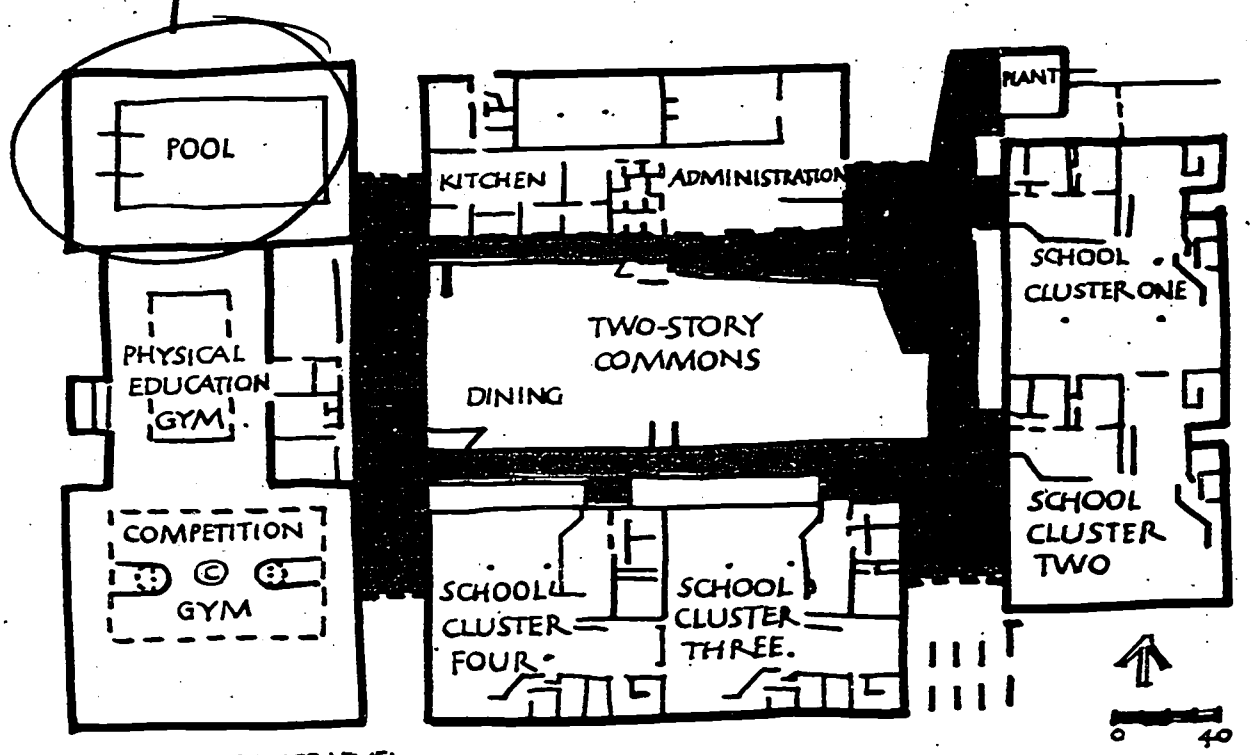




MAIN ENTRANCE LEVEL

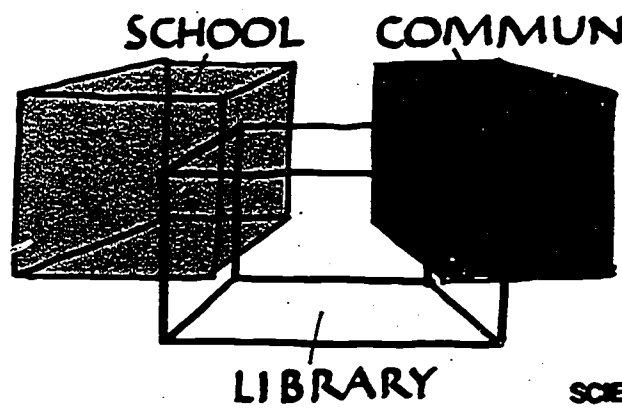
MARTIN LUTHER KING, JR., MIDDLE SCHOOL
The circulation space and two-story commons are designed for easy access, while allowing each activity its own separate area.

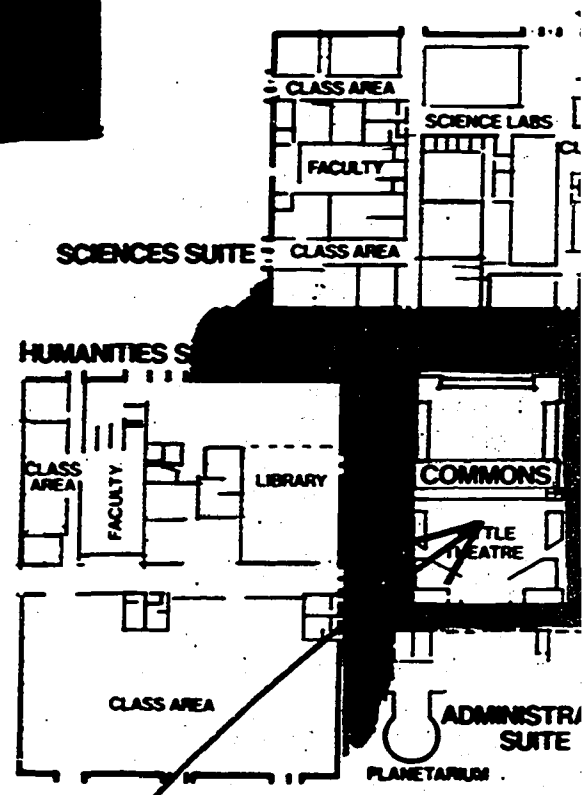




MAIN ENTRANCE LEVEL

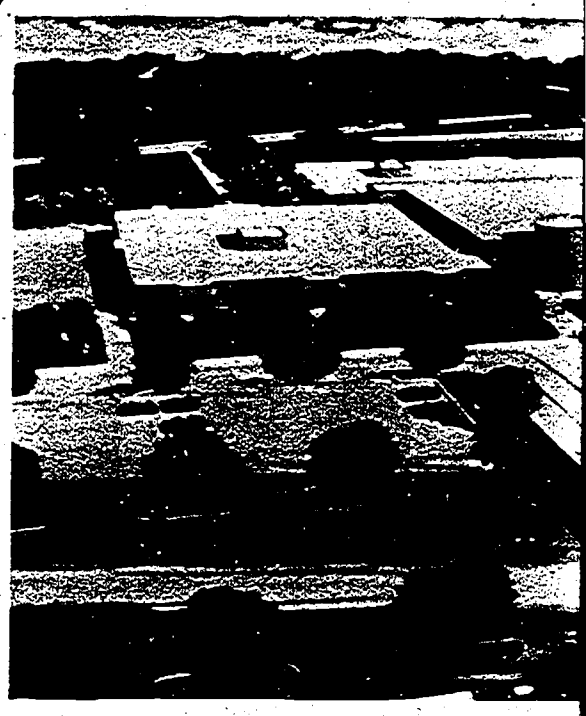
The School and Community Facilities

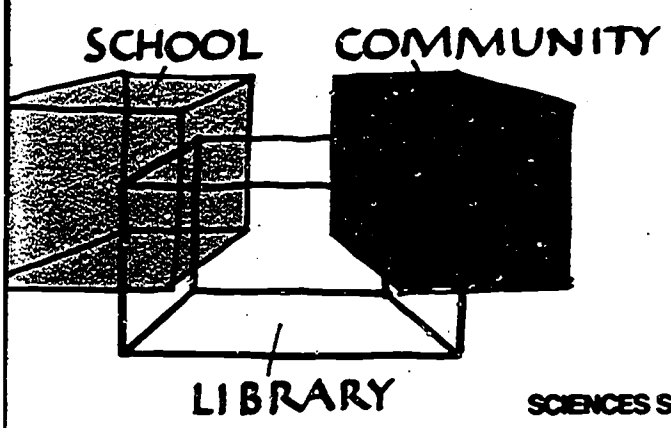




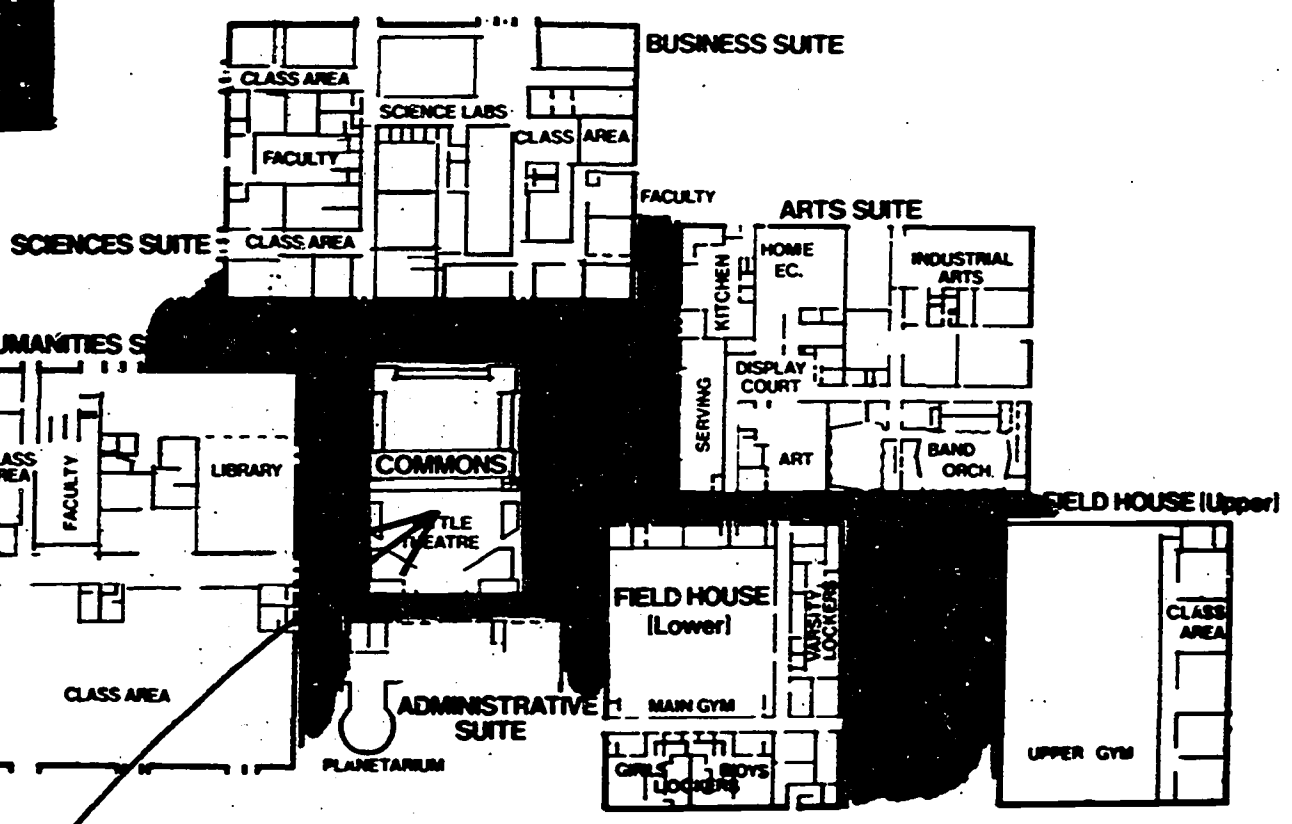
Across the country, schools and their communities are sharing funds and facilities in a single design. This sharing may involve one room or the whole school, but with or without state and federal aid, they are sharing. A good example of this spontaneous joint planning is in Portsmouth, Va. Needing a new high school to serve not one but three distinct communities, the board of education floated a bond issue for a community school with facilities to serve its neighborhoods at all times of the day. The school is entirely financed through local funding; the city, for example, reimburses the school for the square-foot cost of the branch public library. The result of this joint financing is the Manor High School, whose design includes the branch public library, a planetarium, a 300-seat mini-theater, and office space, all specifically designated for community and school use. In addition, an expanded gymnasium and locker space are open after hours to the community and sometimes during scheduled portions of the day. A central commons allows complete access to the school's concession stands, kitchen/dining areas, central restrooms, gymnasium and theaters, without entering any of the school's academic or administrative areas. The design of this community school thus allows the separation of community and school activities, while making the commons available to everyone at all hours of the day.

Write: Charles K. Price, Pr
Manor High School
1401 Elmhurst Lane,



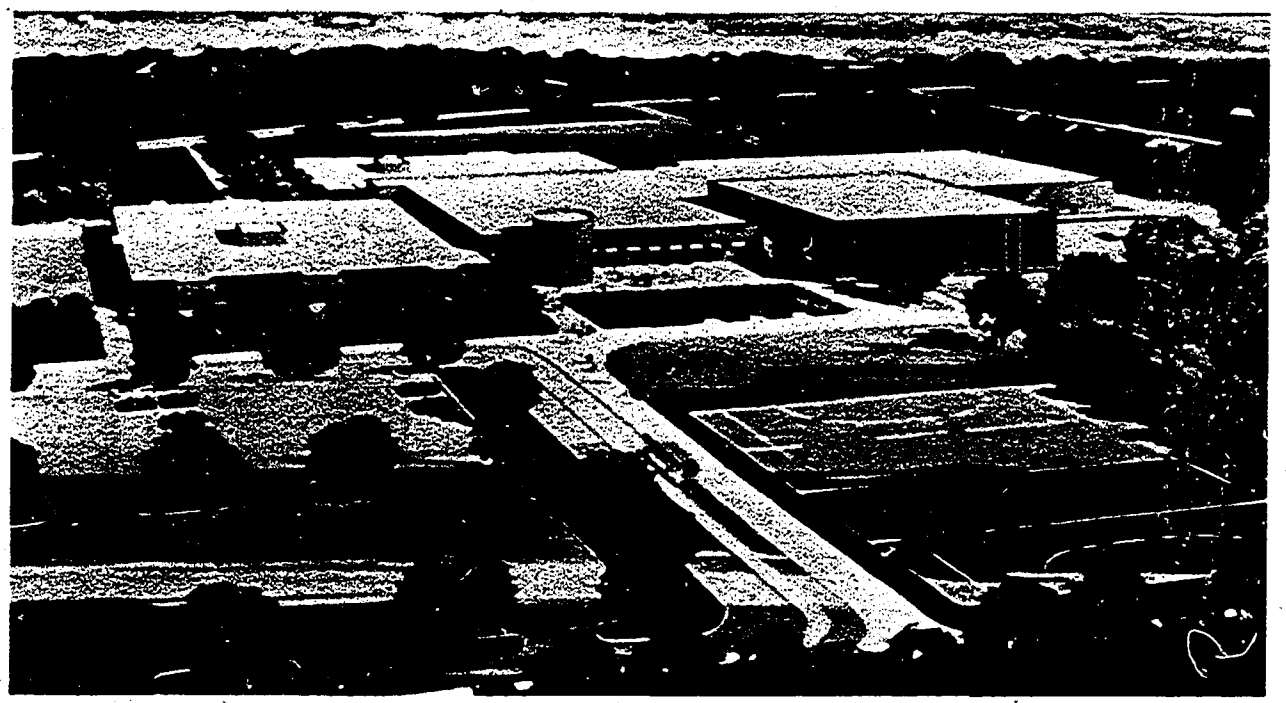


CIRCULATION PLAN AND COMMONS AREA ALLOW SEPARATION OF SIMULTANEOUS ACTIVITIES.



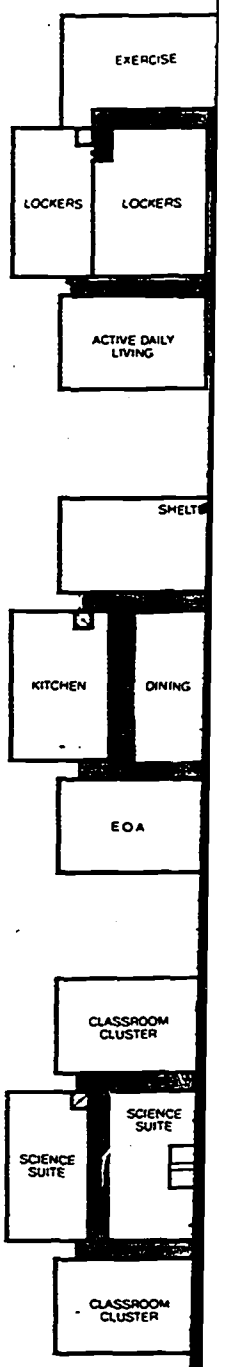
and their com-
and facilities
haring may involve
l, but with or
id, they are
this spontaneous
outh, Va. Needing
not one but three
oard of education
community school
s neighborhoods
he school is
ocal funding; the
es the school for
branch public
s joint financing
hose design in-
brary, a plane-
ater, and office
ignated for com-
addition, an ex-
space are open
y and sometimes
f the day. A
lete access to the
kitchen/dining
ymnasium and
any of the school's
areas. The design
us allows the
school activities,
ailable to everyone

Write: Charles K. Price, Principal
Manor High School
1401 Elmhurst Lane, Portsmouth, Va. 23701



JOHN F. KENNEDY
SCHOOL AND
COMMUNITY CENTER
ATLANTA, GA.

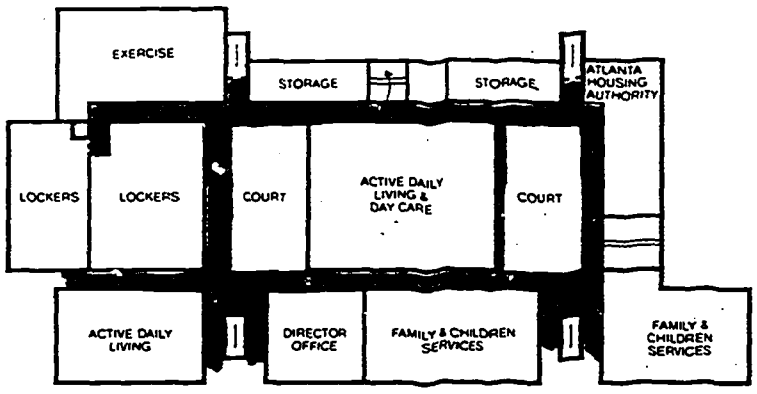
THE CIRCUL
(SHADED AR
COMMONS AR
DIFFERENT
AND LEARN
AND COMMUN



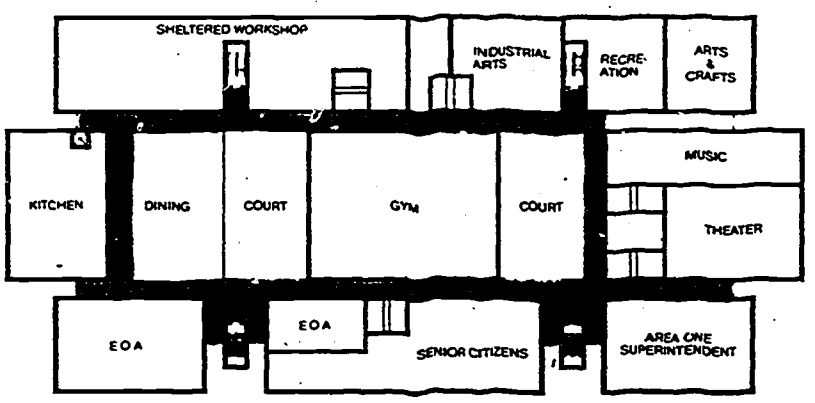
The funding and planning of Atlanta's John F. Kennedy School and Community Center included such diverse groups as the parks department, the senior citizens services, the department of family and children's services, the housing code division, the Office of Economic Opportunity, the state department of education, the Atlanta Public Schools and many more. The new school opened in February, 1971. Located in the heart of the Nash-Washington Community, a marginal neighborhood suffering from inner-city blight, the building houses a middle school (grades 6-8), recreation facilities, and eleven community agencies. The school uses 100,000 sq ft of the 225,000 sq ft; the rest is devoted to agency offices, recreation services, day care centers, vocational training, and workshops, including a sheltered workshop for the mentally retarded. The community has the free use of most of the facilities at all times of the day (the community eats lunch with the children, for example) and full use of the entire center after 3 P.M. In short, the John F. Kennedy School and Community Center has under one roof a school and just about every type of municipal and community agency, except a health and medical facility. But there is one of these just down the street. Write: Ralph A. Long, John F. Kennedy School and Community Center, 225 Chestnut Street, N. W., Atlanta, Ga. 30314.

ed in February, 1971. Located
Community, a marginal neighbor-
ht, the building houses a middle
ilities, and eleven community
sq ft of the 225,000 sq ft; the
recreation services, day care
orkshops, including a sheltered
The community has the free use
mes of the day (the community
xample) and full use of the entire
John F. Kennedy School and Commu-
hool and just about every type of
ept a health and medical facility.
the street. Write: Ralph A. Long,
y Center, 225 Chestnut Street,

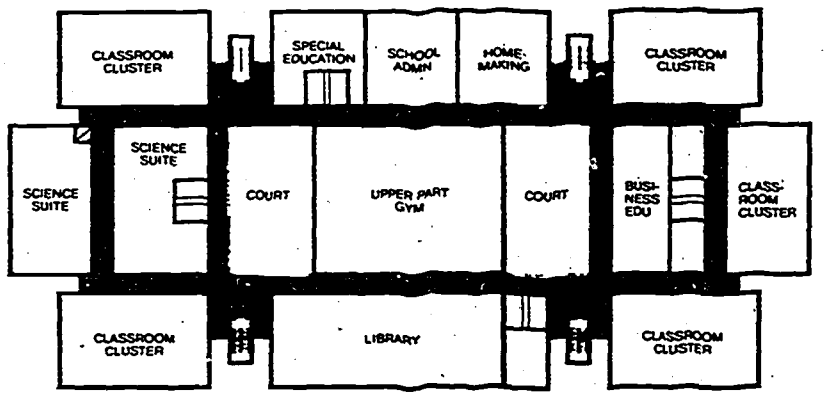
THE CIRCULATION CORRIDORS (SHADED AREAS) ARE A CENTRAL COMMONS AREA FOR THE MANY DIFFERENT KINDS OF PEOPLE WHO WORK AND LEARN AT THE JFK SCHOOL AND COMMUNITY CENTER.



FIRST FLOOR PLAN

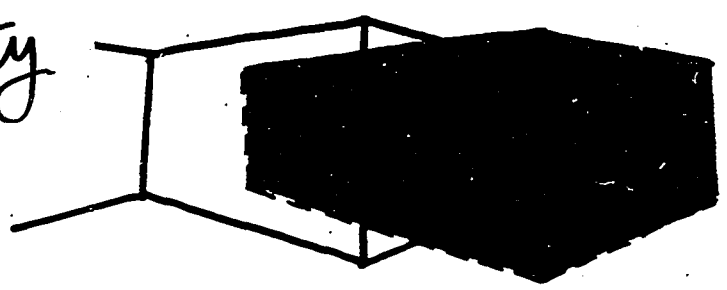


SECOND FLOOR PLAN



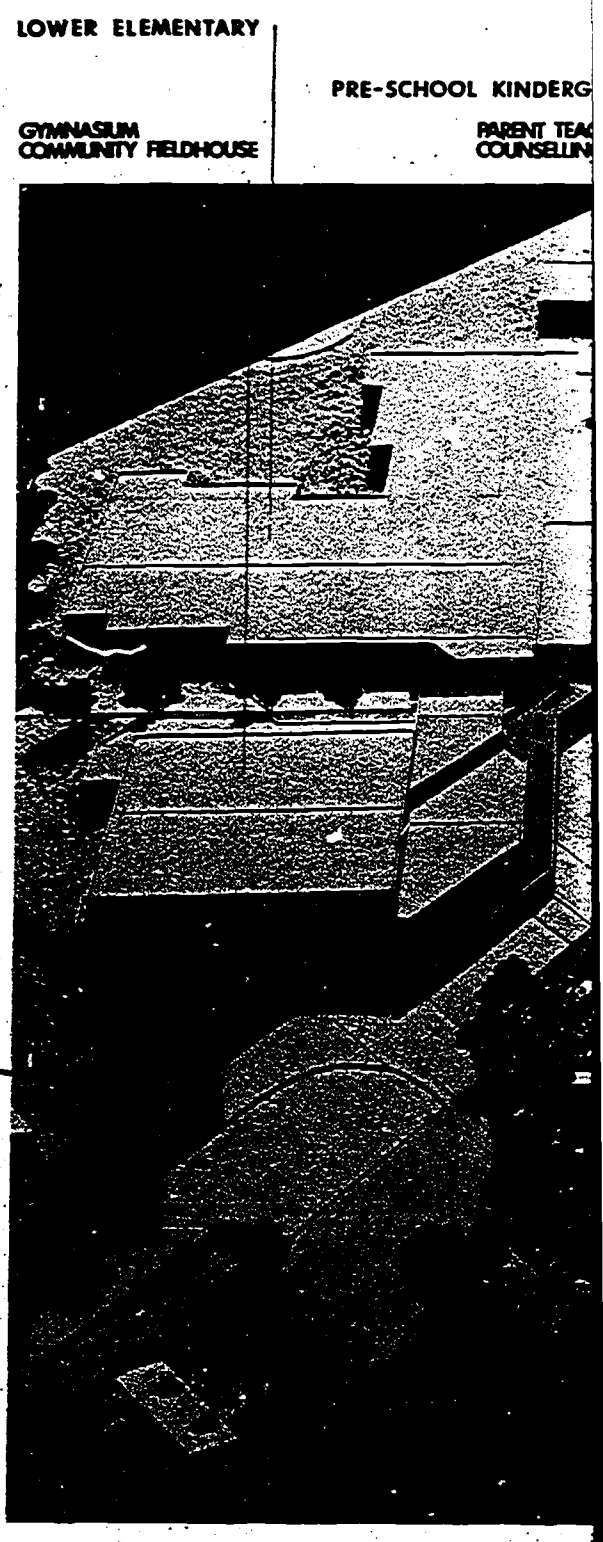
THIRD FLOOR PLAN

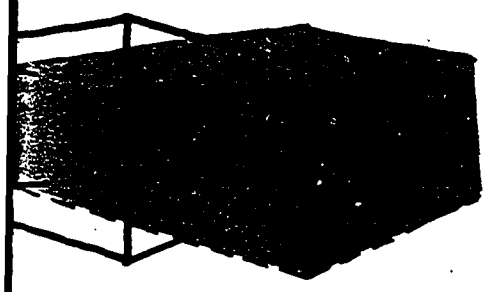
The Community School



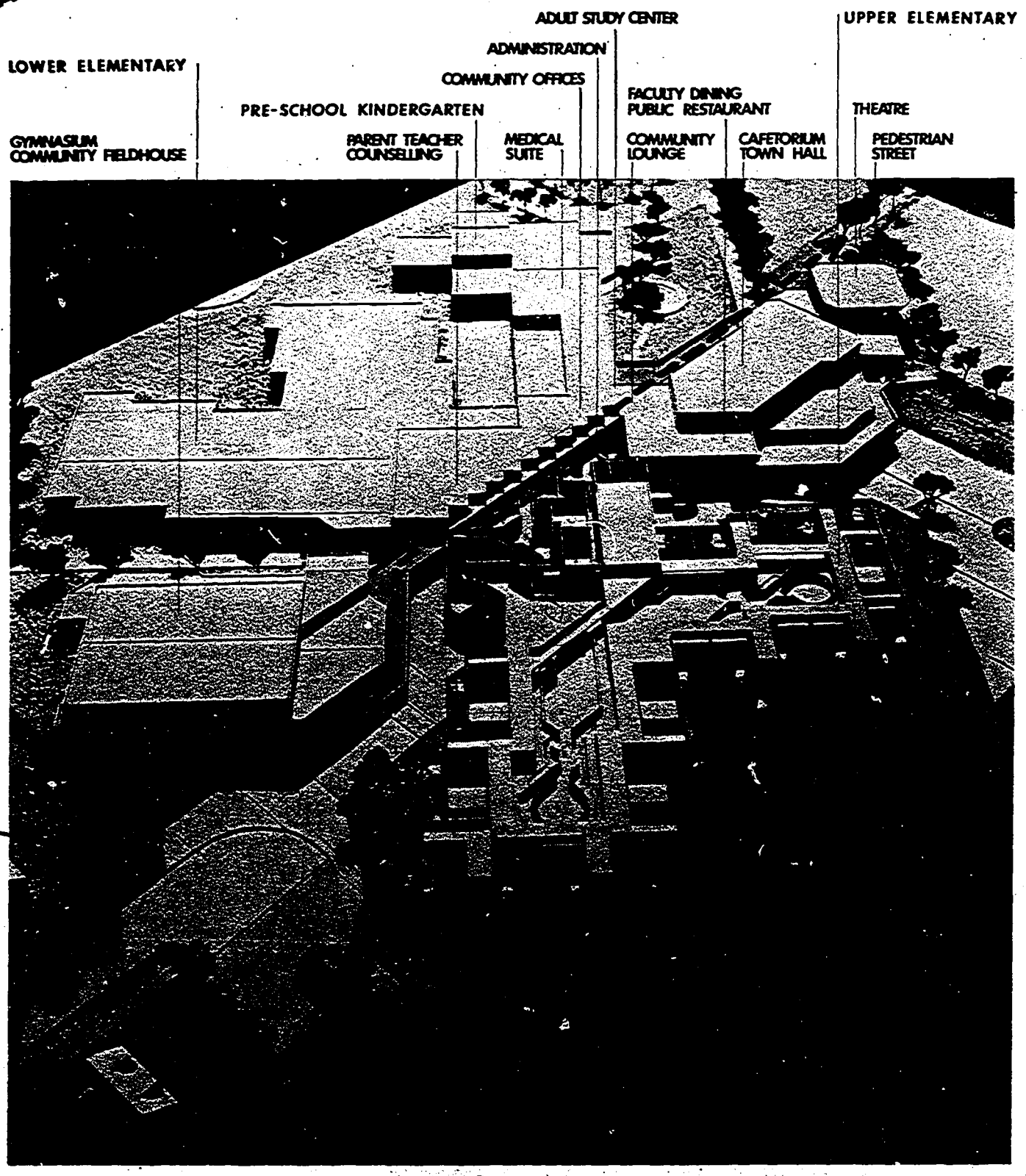
THE HUMA

Some districts design a community school with a comfortable blend of students and citizens in spaces designed specifically for simultaneous use. The Human Resources Center in Pontiac, Mich., is one approach to this type of community school. Joint funding, joint operation, and the joint use of space give both the school and its community something neither could have had separately. In need of a total city redevelopment plan to solve its many problems (inner-city blight, the isolation of neighborhoods, massive urban exodus, and a half-dozen ancient elementary schools), Pontiac's urban planners suggested a resource center right in the middle of the downtown area -- a decaying urban core. A partnership of many different agencies contributed funds: the city, the board of education, the state, private foundations, and the Department of Housing and Urban Development. The resulting Human Resources Center opened in 1971. Planned with a pedestrian roof-street linking the business core with the adjacent neighborhoods and the neighborhoods with each other, the center provides multi-use space for a variety of activities for many different kinds of people. Although there are distinct student and community levels, some areas in each are shared by students and the community at the same time. Such areas include the gymnasium, the arts center, and the public restaurant. Other spaces are designed to serve primarily one group or another, but the design emphasis of this community school is to provide a central focus of activity -- changing and improving the life and education of its citizens no matter what their age or address.





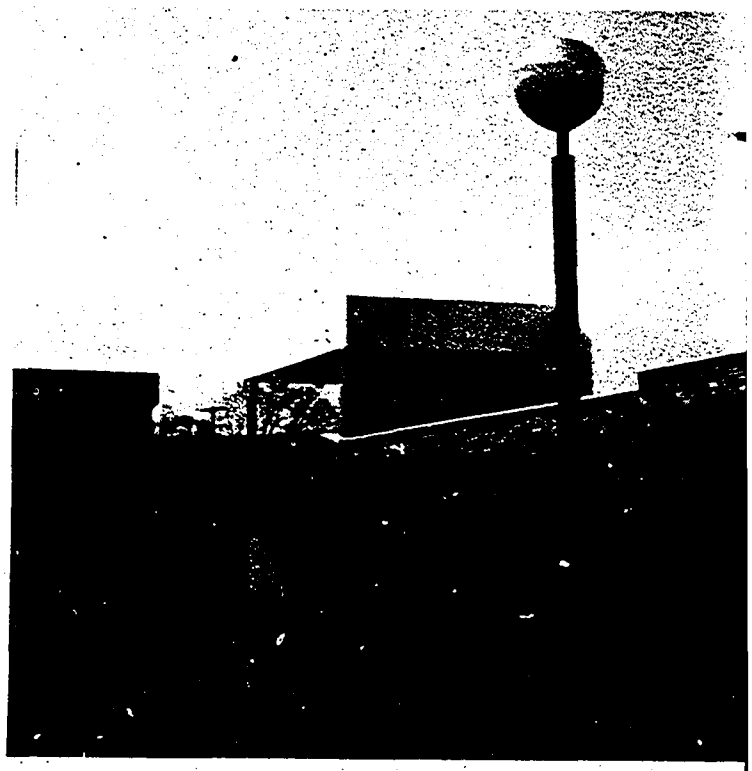
THE HUMAN RESOURCES CENTER

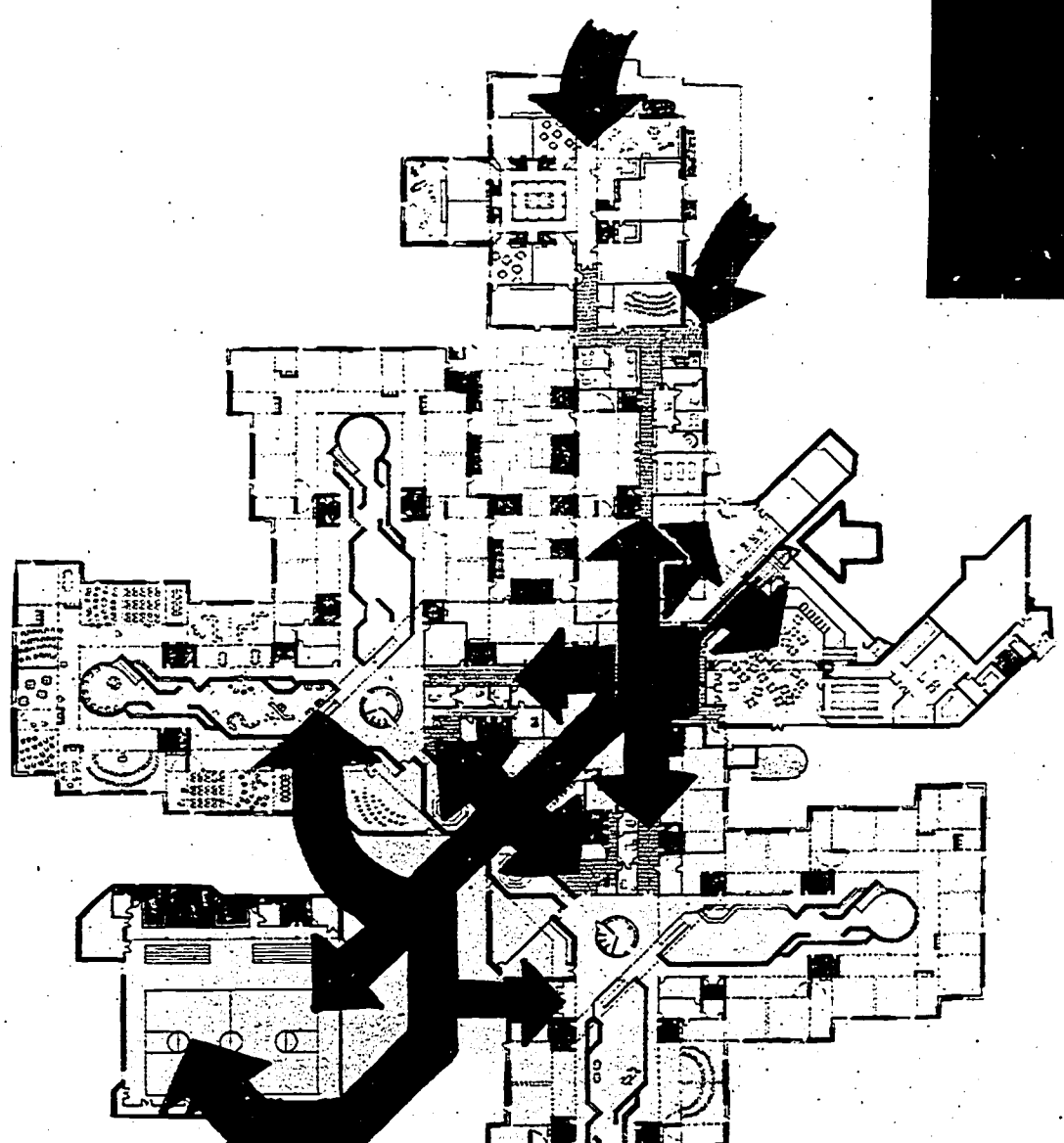


f students
pecifically
Resources
approach to
oint funding,
e of space
unity some-
rately. In
t plan to
ty blight,
assive urban
elementary
s suggested
ddle of the
core. A
encies con-
ard of edu-
ations, and
ban Develop-
rces Center
pedestrian
core with
he neighbor-
r provides
activities
le. Although
ommunity levels,
students and
Such areas in-
nter, and the
are designed
another, but
unity school is
tivity -- chang-
ducation of its
e or address.

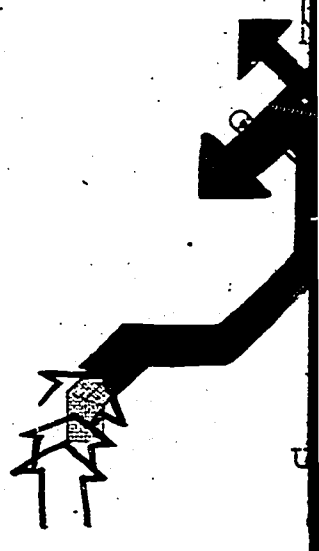
A GLASS-COVERED ROOF STREET LINKING NEIGHBORHOODS TO THE CITY CENTER IS A THOROUGHFARE DISTRIBUTING STUDENTS AND COMMUNITY.

Write:
Dana P. Whitmer, Superintendent
School District Administration Building
School District, City of Pontiac
350 Wide Track Drive East
Pontiac, Mich., 48058



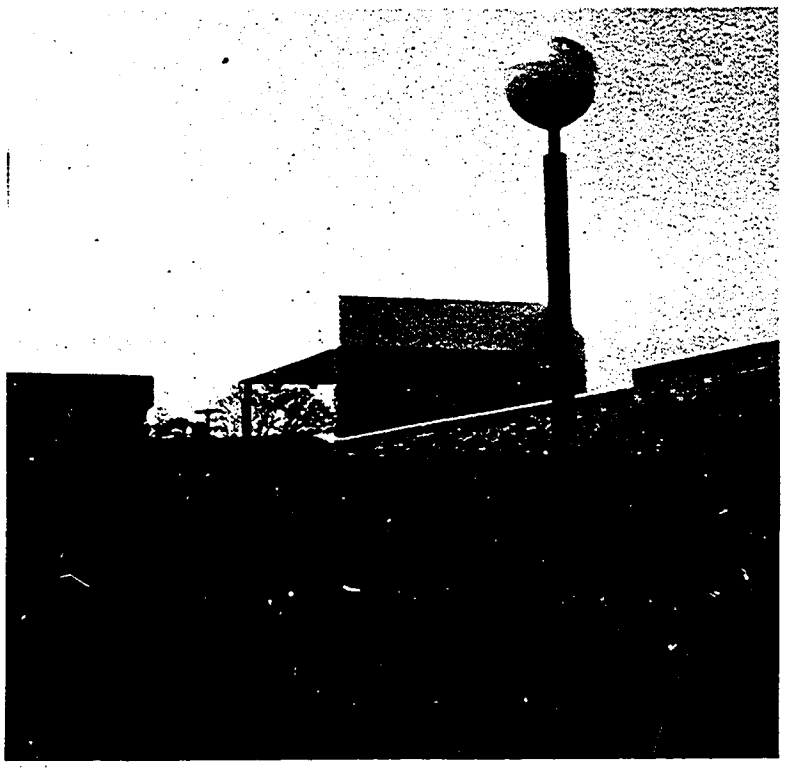


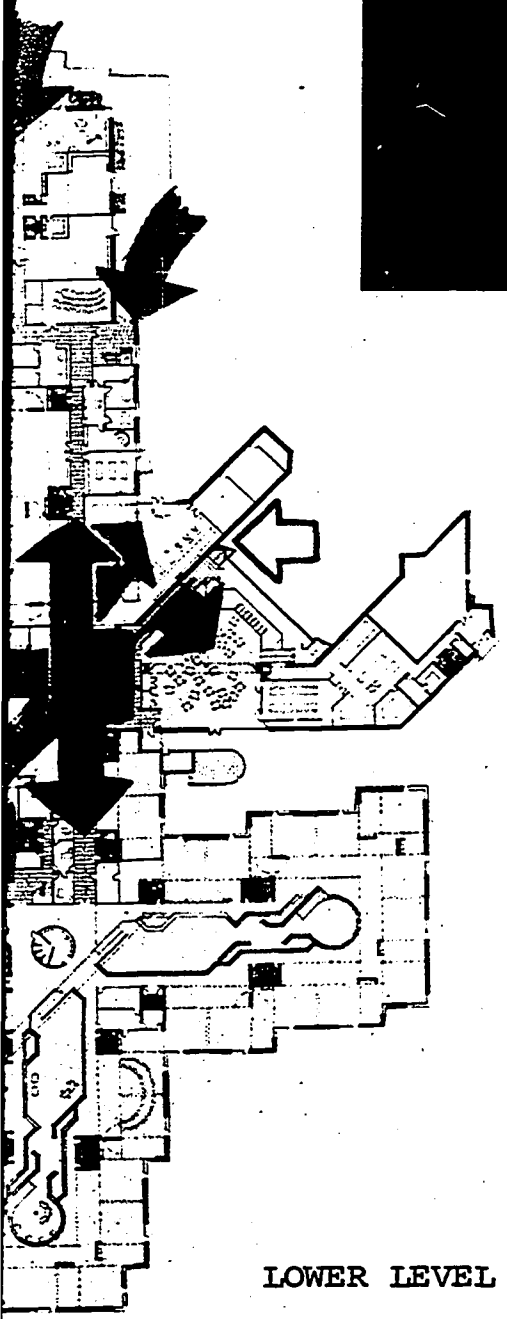
LOWER LEVEL



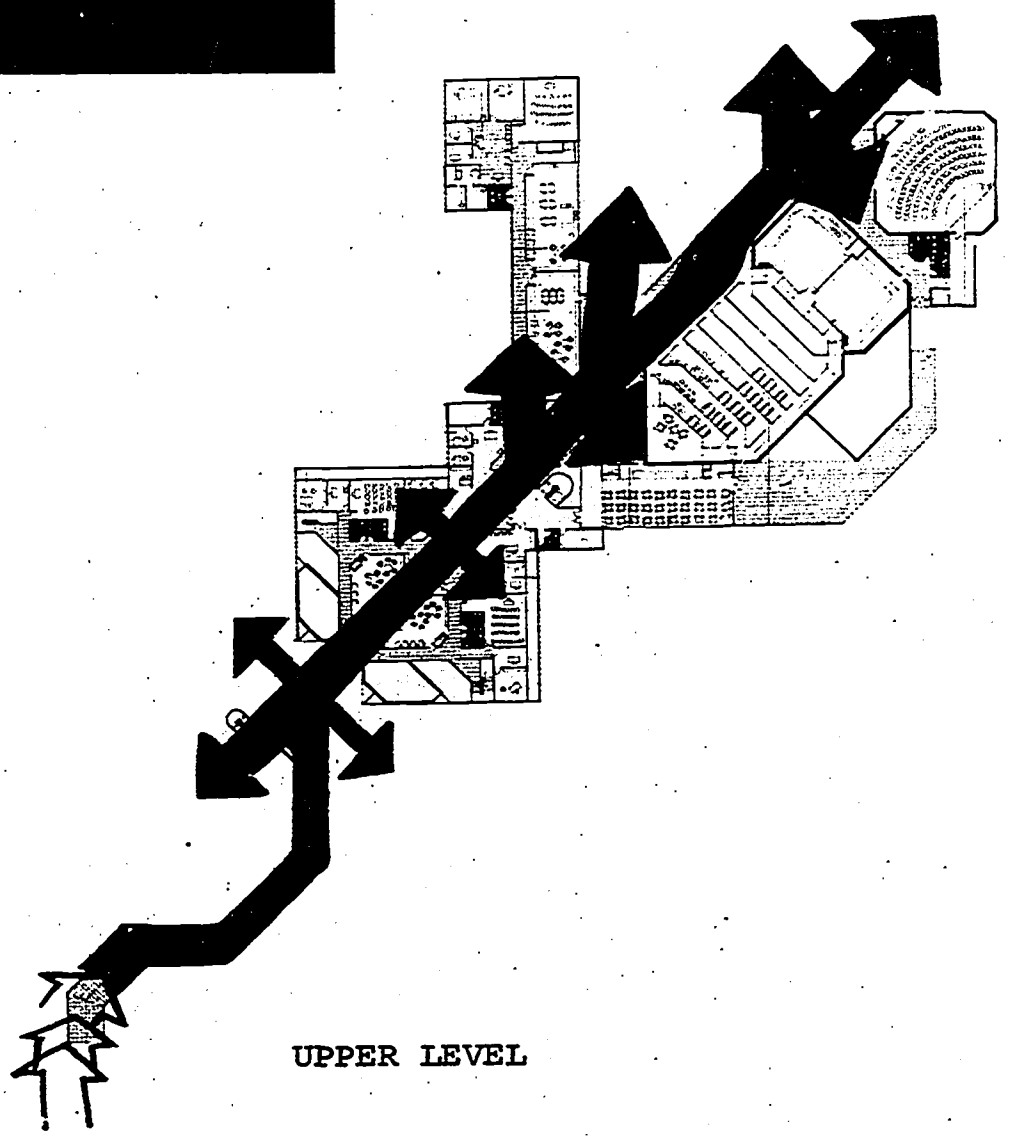
LINKING
NTER IS

ent
on Building
tiac





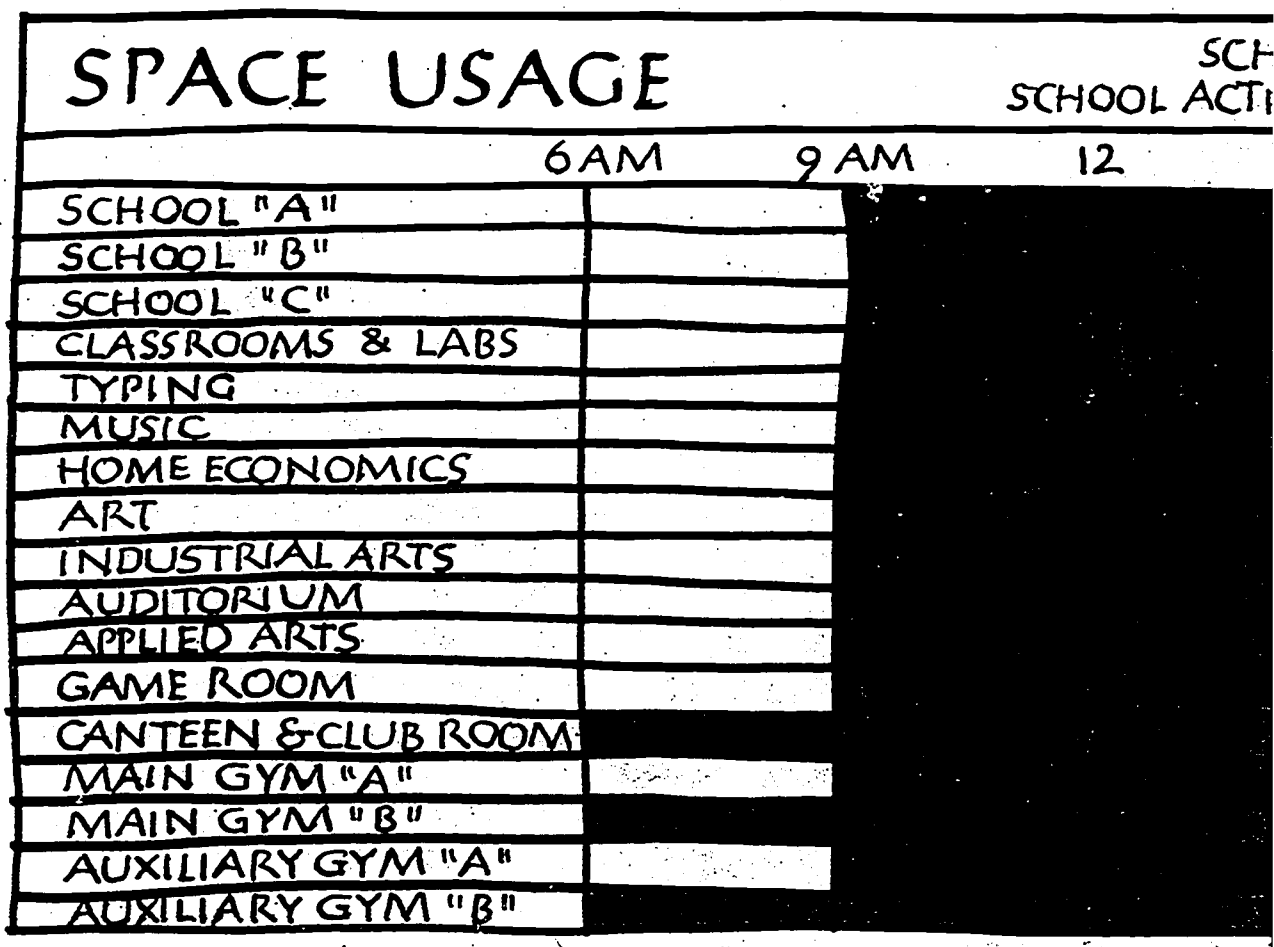
LOWER LEVEL



UPPER LEVEL

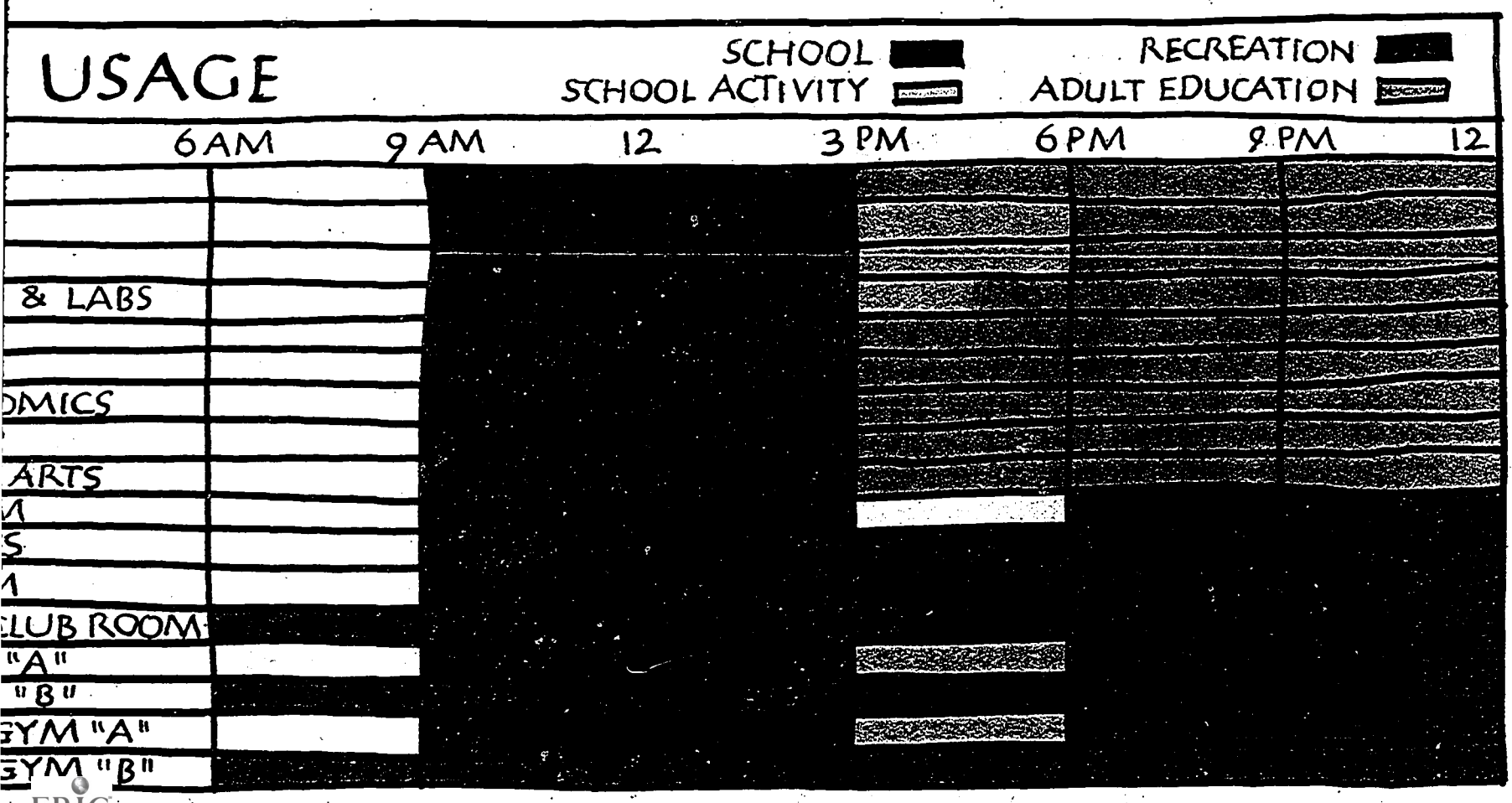
The Community School

Another approach to joint and simultaneous use of community/school space resulted from the combined effort of the Alexandria School Board and the County Parks and Recreation Department. The Thomas Jefferson Junior High School and Community Center in Arlington, Va., is planned for alternate and simultaneous use of all facilities by both school and community, i.e., not one square foot is designed for the exclusive use of either. The result is a two-level building: one level primarily school, and the other essentially arts and recreation designed to meet the expanding activity needs of lively community groups and spirited junior high school students.



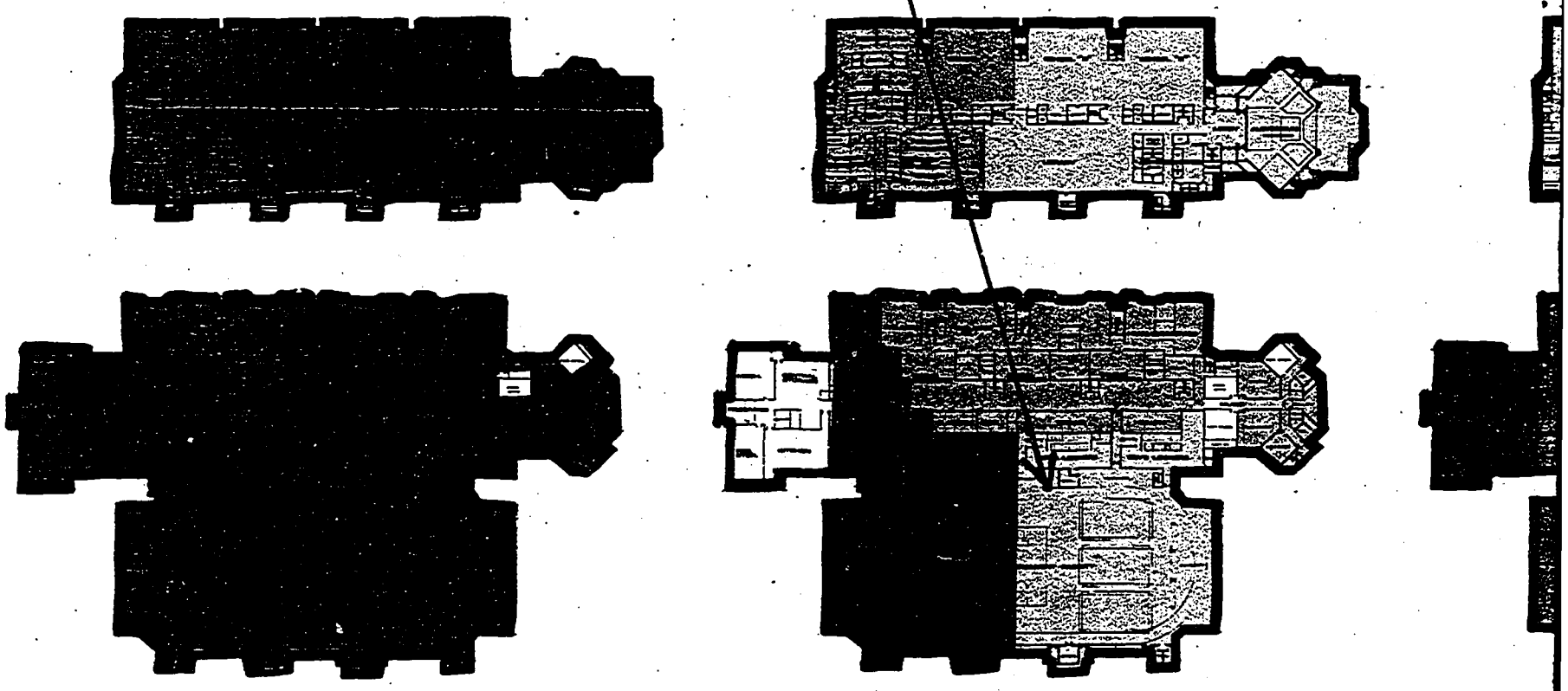
ol

to joint and simultaneous use of community/
ulted from the combined effort of the
l Board and the County Parks and Recreation
Thomas Jefferson Junior High School and
in Arlington, Va., is planned for alternate
use of all facilities by both school and
not one square foot is designed for the
either. The result is a two-level
vel primarily school, and the other essen-
recreation designed to meet the expanding
of lively community groups and spirited
ol students.



A feature of Thomas Jefferson's design is a space called the Controlled Environment Facility (C.E.F.), 68,000 sq ft of completely enclosed airconditioned space -- guaranteed June the year around. The multi-use surfacing allows a variety of activities from athletic events to indoor picnics, concerts and town meetings. The recreation center is adjacent to the C.E.F. With applied arts, a club room, a canteen, a game room, and a dining commons, this space is also targeted for lively use by both students and the community. Perhaps the most unique feature of this school is the manner in which it's going to be used. During a 12-hour day, no space in the building remains unscheduled, and only a very small portion of the total space is used by a single type of activity all the time. Thomas Jefferson is a case in which the marriage of the board of education and the department of parks and recreation has produced for the students and for the community a facility whose resources are beyond the capability of either agency working alone.

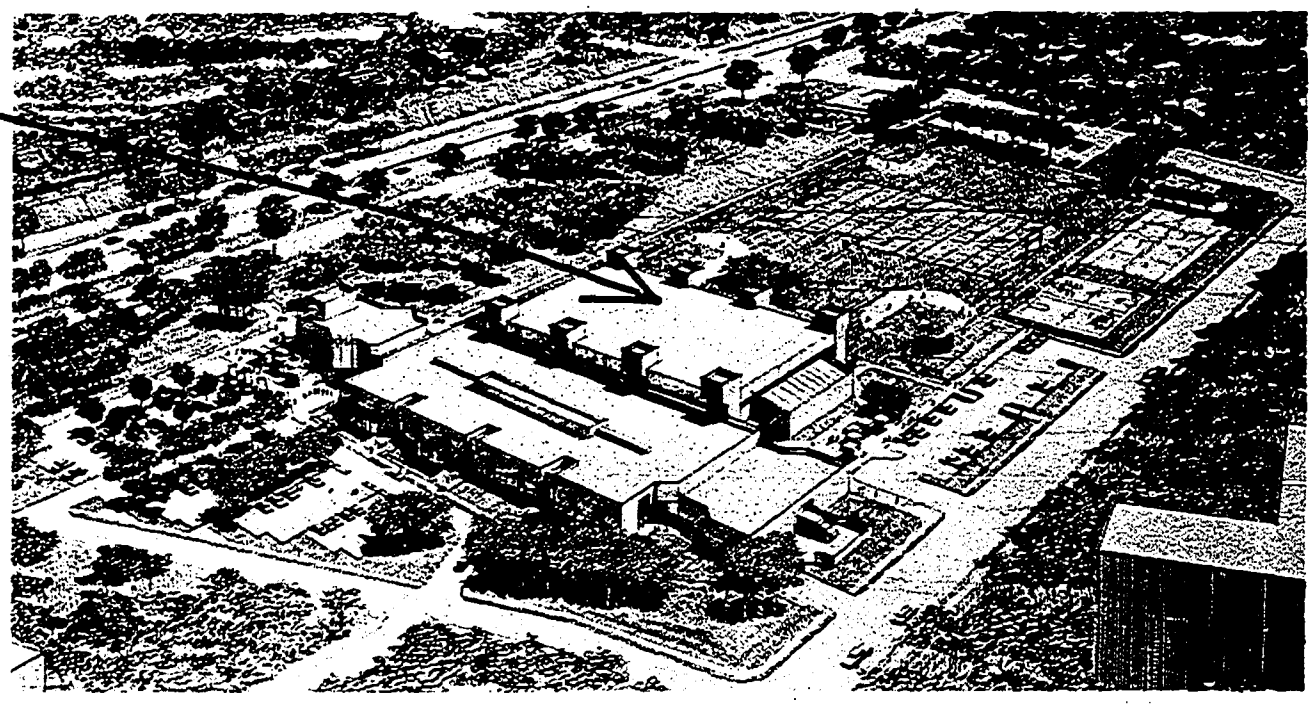
THOMAS JEFFERSON JUNIOR HIGH SC
Write: Joseph Ringers, Assista
Arlington County Public
1426 North Quincy Stree
Arlington, Va. 22207



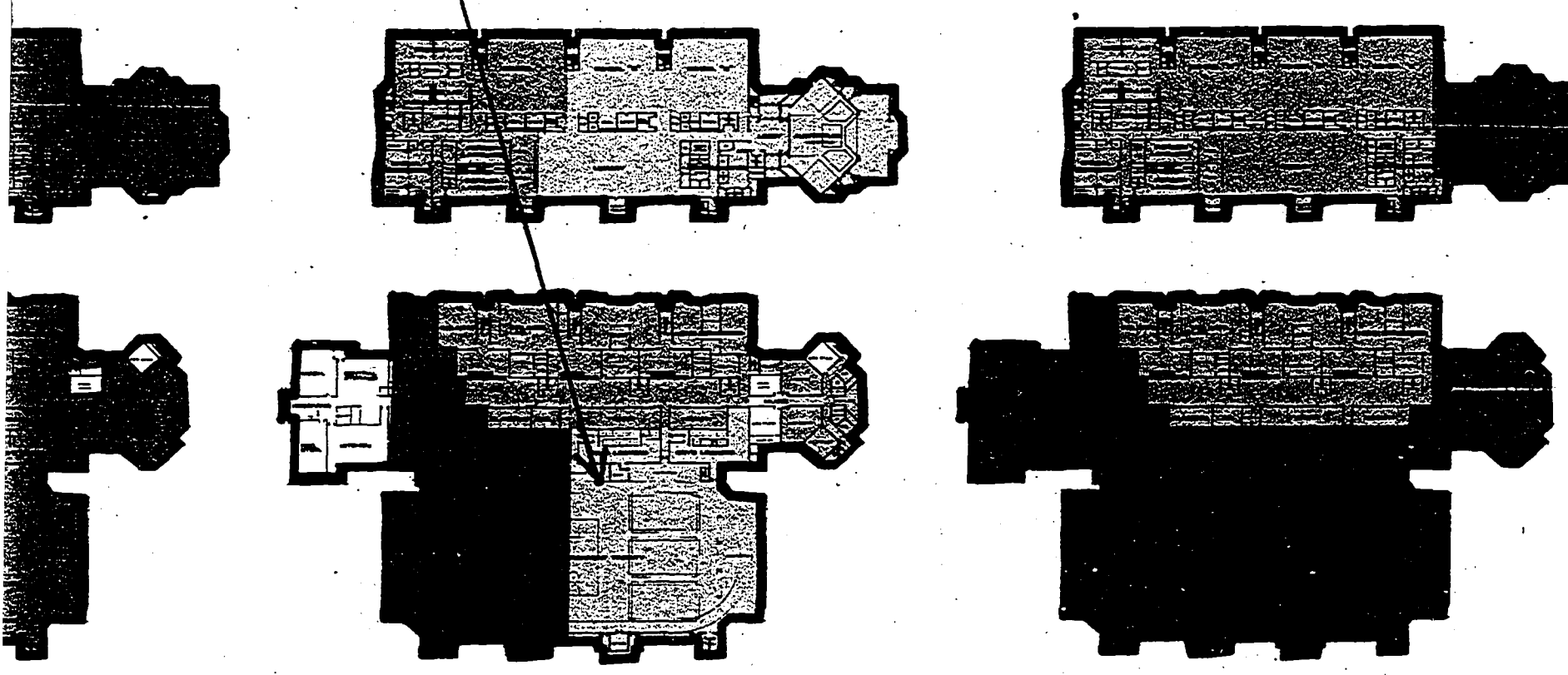
9 A.M.

4 P.M.

erson's design is a
led Environment Facility
f completely enclosed
guaranteed June the year
urfacing allows a variety
tic events to indoor
wn meetings. The recre-
to the C.E.F. With
m, a canteen, a game room,
is space is also targeted
tudents and the community.
feature of this school is
going to be used. During
in the building remains
very small portion of the
single type of activity
fferson is a case in which
d of education and the
recreation has produced for
community a facility whose
capability of either



THOMAS JEFFERSON JUNIOR HIGH SCHOOL AND COMMUNITY CENTER
Write: Joseph Ringers, Assistant Superintendent
Arlington County Public Schools
1426 North Quincy Street
Arlington, Va. 22207



4 P.M.

9 P.M.

A Look into the Future

COMMUNITY/SCHOOLS TO WATCH FOR IN THE 1970'S

A community/school utilizing found space, rather than constructing a new building:	Center for Human Development Patrick J. Mogan, Director Education Component Lowell Model Cities 400 Merrimack Street, Lowell, Mass.
Prototype for a suburban community/school:	Community Junior-Senior High School Thomas R. Turner, Superintendent Martinez Unified School District 921 Susana Street, Martinez, Calif.
Community/school proposed for increased interaction between student/community/teacher:	Ann Arbor Education Plan Philip McIlnay, Deputy Superintende Chairman, New Construction Coordina Ann Arbor Public Schools 1220 Wells Street, Ann Arbor, Mich.
Community/school combined with a year-round school program:	Community High School James R. Gove, Assistant Superinten Valley View Public Schools, Distric Dalhart Avenue, Lockport, Ill. 6044
New town community/school:	Schools and Community Spaces for We Felicia Clark Urban Development Corporation 1345 Avenue of Americas, New York,
This community/school plans a spate of social services for an Appalachian Area:	Hamilton County Human Resources Dev Thelma L. Scogin, Director Human Resources Development Project Hamilton County Department of Educa 317 Oak Street, Chattanooga, Tenn.
Commercial space is planned for community/school:	Marina High School H. A. Livingston, Superintendent San Mateo Union High School Distric 650 North Delaware Street, San Mate

re

LS TO WATCH FOR IN THE 1970'S

ool utilizing ther than new building:	Center for Human Development Patrick J. Mogan, Director Education Component Lowell Model Cities 400 Merrimack Street, Lowell, Mass. 01852
suburban l:	Community Junior-Senior High School Thomas R. Turner, Superintendent Martinez Unified School District 921 Susana Street, Martinez, Calif. 94553
l proposed for action between ty/teacher:	Ann Arbor Education Plan Philip McIlnay, Deputy Superintendent for Planning Chairman, New Construction Coordinating Committee Ann Arbor Public Schools 1220 Wells Street, Ann Arbor, Mich. 48104
ol combined with chool program:	Community High School James R. Gove, Assistant Superintendent Valley View Public Schools, District #96 Dalhart Avenue, Lockport, Ill. 60441
nity/school:	Schools and Community Spaces for Welfare Island Felicia Clark Urban Development Corporation 1345 Avenue of Americas, New York, N. Y. 10019
/school plans a l services for an ea:	Hamilton County Human Resources Development Center Thelma L. Scogin, Director Human Resources Development Project Hamilton County Department of Education 317 Oak Street, Chattanooga, Tenn. 37403
ce is planned school:	Marina High School H. A. Livingston, Superintendent San Mateo Union High School District 650 North Delaware Street, San Mateo, Calif. 94401

In the interests of higher productivity, the new community/school will be a comfortable place to be for persons of all ages and sizes who, in concert or in turn, are gathered there to learn and to enjoy. Such a place, more humane and more productive of learning, must await the design of furnishings and equipment that will serve both young and old simultaneously. The beginnings of such an environment are already emerging in some of the open plan, early childhood facilities.

Looking to the long future, the single-purpose school will gradually give way to the community/school. Increasingly, schools will be designed for people as distinguished from just children. Though still called a "schoolhouse," the place of education will be the gathering place for persons of all ages who desire to learn from each other in contrast to the schoolhouses we have known and which appear to be designed defensively against the destructive impulses of its occupants. The new schools will trust the occupants to rise to our expectation of them. Furniture, equipment, materials and surfaces will be softer and will yield to the body and to the spirit. More surfaces will have texture and warmth, and will elevate the occupant's feeling about himself.

No matter who r
nor what the mi
activities, the
community educa
and their commu
gether. More c
to the benefit
citizens in the
agencies which
documented soci
munity educatio
here, but a lis
in facilities c
order. Jointl
used, jointly c
tained, and joi
shared by both
school conserve
several economi
A smaller amou
in a city can b
and more intens
serving a large
both the costs
(research, desi
struction) and
materials invol
for a variable
used, and used
And finally, th
good space, bri
people not nece
each other; the
students become
nity, and the
extension of t

gs

e

ngle-
e way
ngly,
e as

e,"
e
l ages
er in
ave
gned
ve
ew
to rise
iture,
will
ody and
l have
ate the

No matter who runs a community/school, nor what the mixture of agencies and activities, the important point of community education is that schools and their communities are coming together. More often than not, this is to the benefit and satisfaction of all citizens in the area as well as the agencies which represent them. Well-documented social benefits of community education need not be repeated here, but a listing of the advantages in facilities design is perhaps in order. Jointly designed, jointly used, jointly operated, jointly maintained, and jointly funded facilities shared by both the community and the school conserve and take advantage of several economies in a building process. A smaller amount of the available land in a city can be programmed for greater and more intense use. Fewer buildings serving a larger clientele conserve both the costs of multiple projects (research, design, bidding and construction) and the amount of time and materials involved. Buildings designed for a variable patronage are more often used, and used at more times of the day. And finally, the provision of space, just good space, brings together groups of people not necessarily associated with each other; the result often is that more students become an asset to the community, and the community becomes an extension of the school.

6. REACHOUT SCHOOLS

Some schools are effectively blending the resources of the school with the realities of society by bringing the community and its student body into single multi-service centers -- the community/school. Other schools are trying a significant development we call reachout schools. These programs move students out of the school building directly into the community and take advantage of the assets and facilities for learning that they discover in the community.

Reachout schools require the same ingredients as community/schools, but in reverse order. Instead of the community joining in events in the school building, the reachout school sends its students out to take advantage of the facilities in the community. Five types of reachout programs have been identified.

Open Campus: Students leave school premises when not scheduled for classes. The forerunner of a true reachout program.

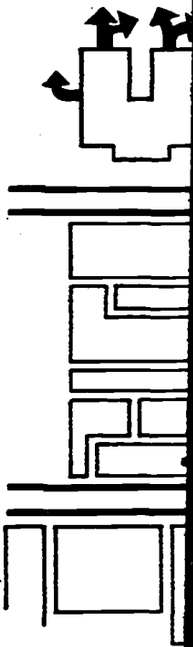
Home Base: Students spend half their time in traditional academic schoolhouse and half in extension activities outside it.

Non-School: Has no traditional school buildings. Home bases are established in found spaces; community provides educational facilities.

Resource Centers: Facilities built for specific purposes and shared by a number of schools.

Everywhere School: Combines home base, non-school and resource centers.

Open C



The reacho
new approa
and requir
an embryo
are not re
unless the
The assign
student wi
go to the
meet frien
schoolhous
the studen
movement;
sibility a
and both a
tional dev

OUT
S

ng the resources of
ciety by bringing
into single multi-
hool. Other schools
t we call reachout
nts out of the
ommunity and take
ties for learning
.

ingredients as commu-
. Instead of the
school building, the
out to take advantage
. Five types of
fied.

school premises when not
forerunner of a true

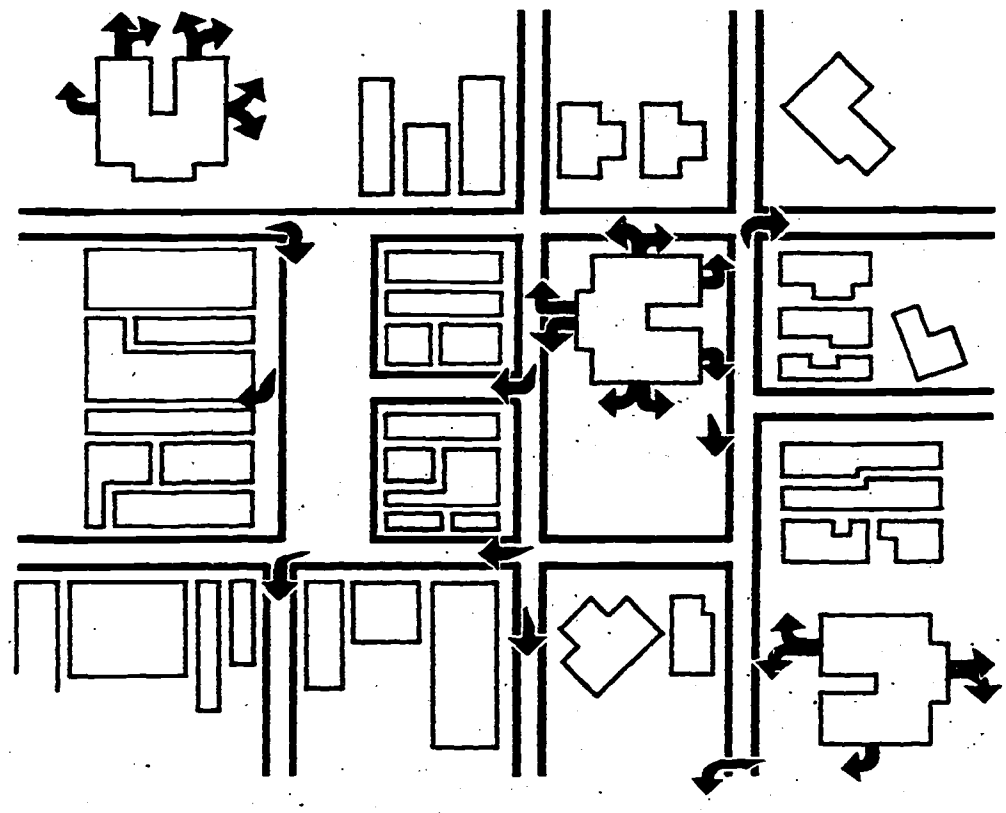
lf their time in tradi-
and half in extension

al school buildings.
n found spaces; commu-
cilities.

built for specific
ber of schools.

home base, non-school

Open Campus



The reachout school has its beginnings with new approaches to traditional school procedures and requirements. Under the open campus plan, an embryo form of the reachout school, students are not required to be in the school building unless they are actually scheduled for classes. The assigned study hall is eliminated and a student with no class to attend needs no pass to go to the library, work on projects of his own, meet friends, snack, take a walk around the schoolhouse or leave. This, of course, grants the student considerable freedom for unorthodox movement; it also shoulders him with responsibility and the need to develop self-discipline, and both are important factors in his educational development.

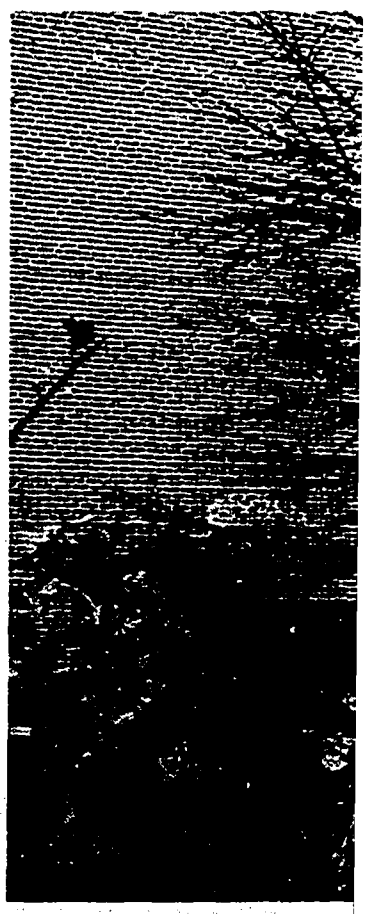
The open campus plan has a number of advantages for the teacher and the school plant. When teachers are freed from study hall assignments and hall patrol, they have time for planning lessons, for research, for evaluating student work, and for individual conferences with students. The schoolhouse benefits because space no longer needed for student supervision is available for classroom and other productive uses. Lawrence High School in Falmouth, Mass., for example, made its cafeteria available as a student lounge, and its auditorium is used for panel discussions, folk singing, films and guest speakers. Originally designed to accommodate 950 students, Falmouth High School was able to comfortably house 1,200 students with its open campus organization.

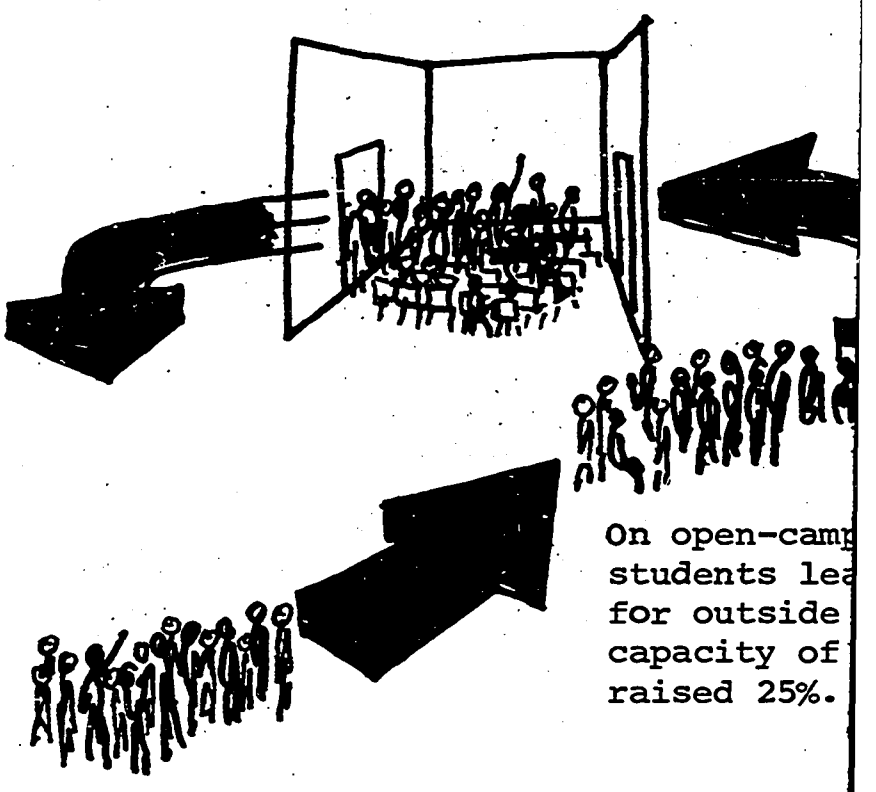
Jones High School, Beeville, Texas, similarly raised its accommodation from 970 to 1,200 by combining the open campus plan with an extended school day.* It has been operating since 1963, and more than half the students take an extra (sixth) course during one of their free hours. Several open campus schools have reported increased expenditures for such items as films and juke boxes, but these sums are insignificant when compared with the increased housing capacities of the schools, the increased opportunity for teaching, and the increased opportunity for learning.

Write: Lester W. McCoy, Principal
Jones High School
Beeville, Tex. 78102

Lawrence High School students leave schoolhouse for activities in the community. This increases students' self-responsibility and extends the use of school spaces.

Write: James Kalperis
Assistant Principal
Lawrence High School
Lakeview Avenue
Falmouth, Mass. 02540



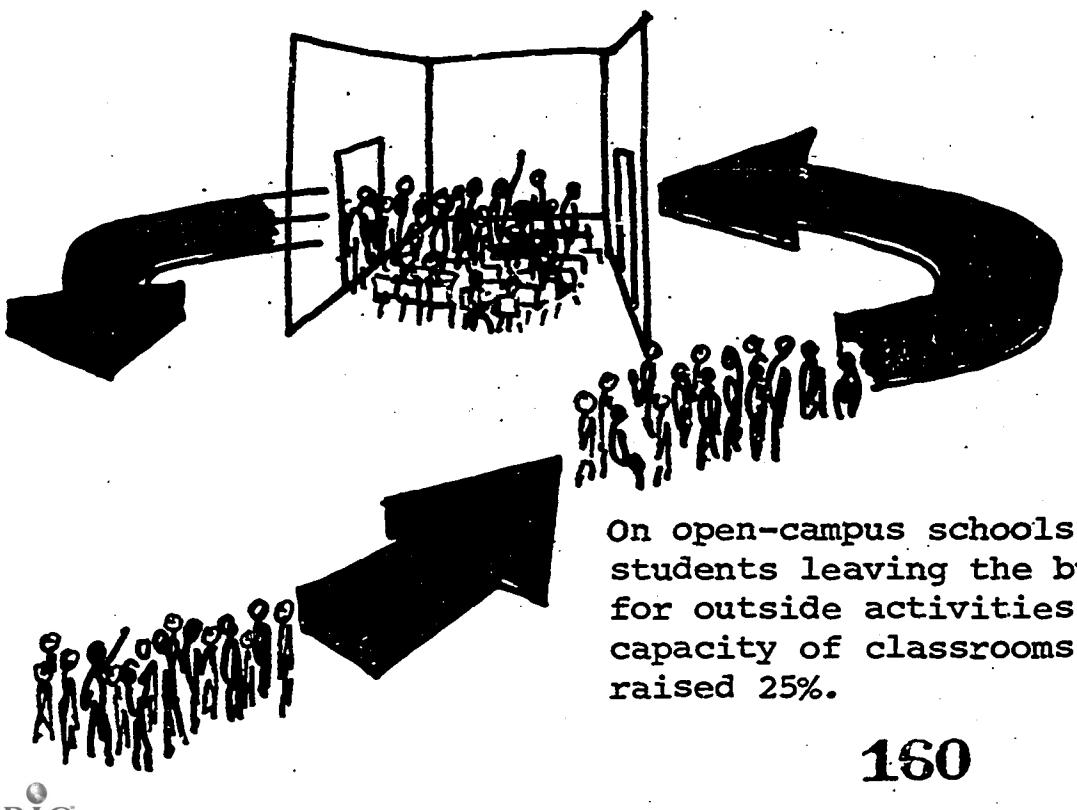


On open-camp
students lea
for outside
capacity of
raised 25%.

* See also Rescheduling

Lawrence High School students leave schoolhouse for activities in the community. This increases students' self-responsibility and extends the use of school spaces.

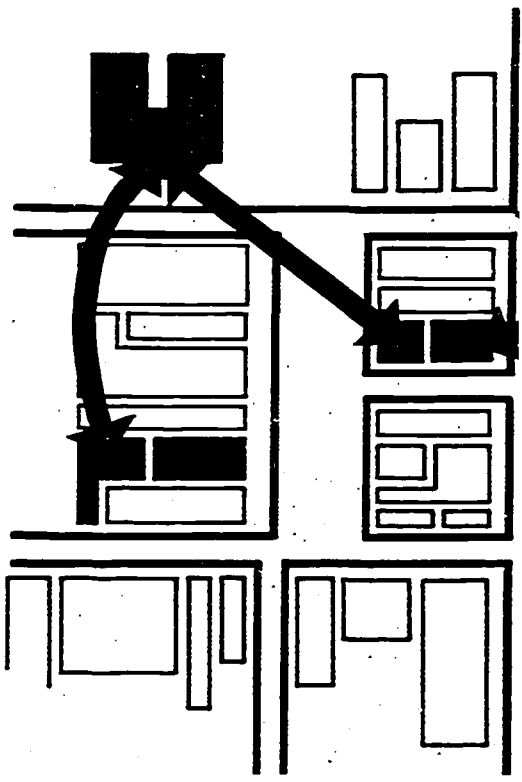
Write: James Kalperis
Assistant Principal
Lawrence High School
Lakeview Avenue
Falmouth, Mass. 02540



On open-campus schools with students leaving the building for outside activities, the capacity of classrooms can be raised 25%.

Home Base Schools

Another stage in the development of reachout schools is the home base program where students' hours are divided about equally between academic subjects in a traditional schoolhouse and extension subjects out of school. Home base is an intensification of the work/study programs used for years by schools in many parts of the country. The principal difference is that work/study emphasizes vocational training and home base stresses academic subjects plus an exposure to community activities.



HOME BASE ALLOWS
OF COMMUNITY RES

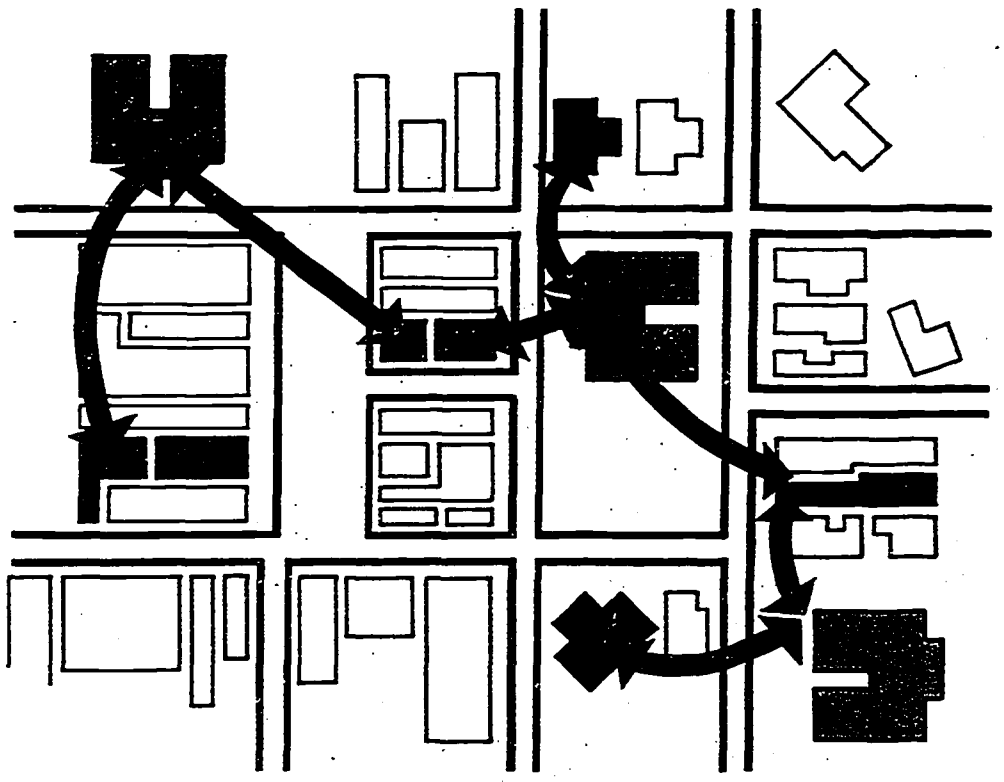
Marshall Univers
in an art progra
Center

Vocational train
in a dry cleanin
plant

Marshall University High School in Minneapolis, Minn., as part of a comprehensive Experimental Schools project, offers its students an option of traditional, structured or individualized programs. Its students may leave the campus to study under the Urban Arts Program, Works Opportunity Program, Environmental Studies Program* or the Wilderness Program. At the same time, these students may earn their high school credits by way of tutoring, independent study, or taking courses at the University of Minnesota. For further information, write: James Kent, Director, Southeast Alternatives, 3036 University Avenue, S. E., Minneapolis, Minn. 55414.

* See: 1.FOUND SPACE, p.4

of reachout
where
equally
ditional
s out of
ication
or years
ountry.
work/study
home base
exposure



n Minneapolis, Minn., as part
chools project, offers its
, structured or individualized
the campus to study under the
nity Program, Environmental
s Program. At the same time,
h school credits by way of
aking courses at the University
ation, write: James Kent,
3036 University Avenue, S. E.,

HOME BASE ALLOWS STUDENTS TO MAKE MAXIMUM USE OF COMMUNITY RESOURCES ON A SCHEDULED BASIS:

Marshall University High School students in an art program at the Walker Arts Center

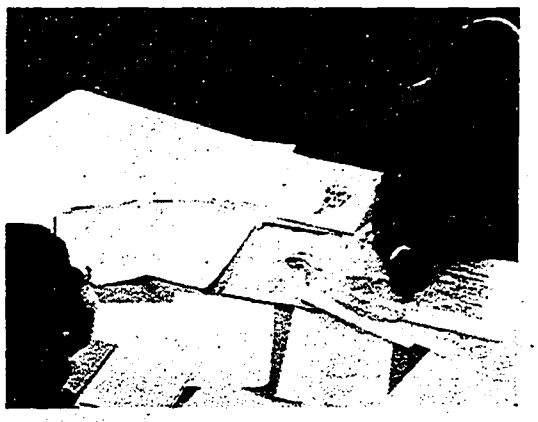
Vocational training in a dry cleaning plant

Modern dance at the University of Minnesota Playhouse

The San Mateo, Calif., school district has a home base program for 1,500 students drawn from all its high schools. The program, called School/Community Service, sends out students to perform social services in hospitals, police departments, homes for the aged and preschool nurseries. The students receive no pay for the daily 1 to 4 hours of service they give to the 50 nonprofit agencies participating in the program, but they do receive high school credit, and the satisfaction of working with a project that for social involvement is without parallel.

San Mateo
social se
Community
Gregory,
San Mateo
650 North
Calif. 94

Lexington, Mass., has a developing home base program, titled Education Without Walls, with an enrollment of 170 students. It offers school credit for a variety of career - oriented situations chosen by the students themselves. These out-of-school activities include paying jobs (food service, retail clerks, garage mechanics), as well as non-paying projects (teacher's aides, film production, arts and crafts). Generally, the students spend mornings in the school, afternoons in the community, averaging 18 hours of the week in school instead of the customary 27½. Write: Frederick Boyle, Director, Education Without Walls, Lexington High School, 251 Waltham Street, Lexington, Mass. 02173.



Student as teacher of younger children

EDUCATION WITHOU
USING THE COMMUN
RESOURCE INCLUDE
THAN TEACHERS FO

Parent teaching
writing course

Student sharing
talents with oth

s-
R
s
ed

er-
t-
e-

o

i-
do
the

ent

ng
tion
at
ol

he
-of-
jobs

on-
s,
s).

ons

tead

ation
chool,
Mass.

San Mateo's students provide needed social services in the Harold D. Chope Community Hospital. Write: Elwyn Gregory, School/Community Coordinator, San Mateo Union High School District, 650 North Delaware Street, San Mateo, Calif. 94401.

Student as teacher of younger children

EDUCATION WITHOUT WALLS, LEXINGTON, MASS. USING THE COMMUNITY AS AN EDUCATIONAL RESOURCE INCLUDES USING PEOPLE OTHER THAN TEACHERS FOR TEACHING.

Parent teaching creative writing course

Student sharing talents with others

Home Base Schools

Manual High School, Denver, Colo., with a population composed mainly of minority students, has organized a nonprofit organization with a student board of directors. This corporation, called Creative Urban Living Environments, Inc., contracts with government agencies (HUD, HEW, Urban Renewal Authority, and others) for specific and sizeable jobs. For example, the students in the drafting course have a $10,000 Urban Renewal contract to design four mini-parks for a blighted residential area. Other contracts with private as well as government agencies call for remodeling homes, publishing a newsletter, laying city sidewalks; another student corporation leases and operates a gas station. The students of Manual devote an average of three periods each school day to their "extension" work as part of their academic studies. Last year, about 40% of the school's graduating class went on to college.

Write: Alfred Prud'homme
Coordinator of Instruction, Manual High School
1700 East 28th Street, Denver, Colo. 80205

Students of Denver
an exploratory cou
staff of the Color

The home base plan may require one or more additional full-time administrators. Lexington and San Mateo, for example, have assigned full-time coordinators to their program. This does not necessarily mean a higher personnel cost, since volunteer community agencies can relieve teachers of a substantial part of their supervisory and clerical workload and free them for managerial assignments.

On the other hand, it should be noted that the home base plan permits considerable savings. With a significant section of the student body out of the building for huge blocks of time, there is an appreciable increase in classroom space, thereby giving a work place for every student.

An
th
th
be
th
vi
th
en

, with a population
ents, has organized
student board of direc-
Creative Urban Living
th government agencies
ty, and others) for
example, the students
0,000 Urban Renewal
ks for a blighted resi-
ith private as well as
odeling homes, pub-
y sidewalks; another
perates a gas station.
average of three
"extension" work as
Last year, about 40%
went on to college.

al High School
olo. 80205

Students of Denver Manual High School also take an exploratory course in health careers taught by staff of the Colorado University Medical School.

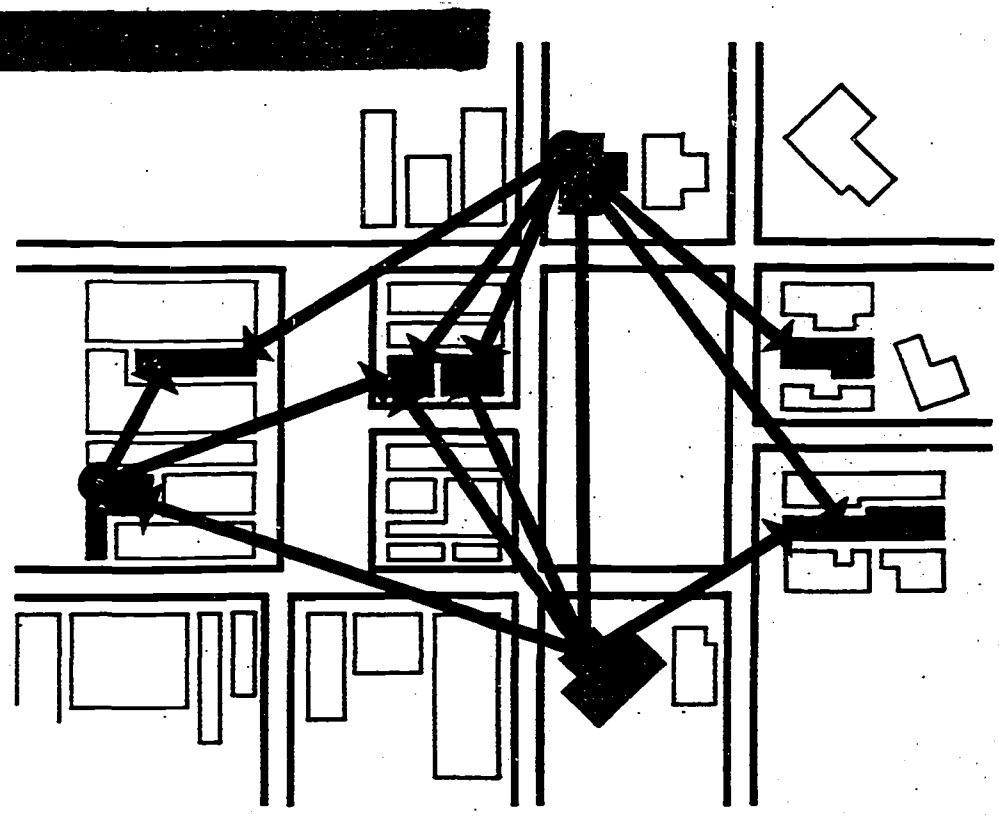
e
t
n-
-
ers

al

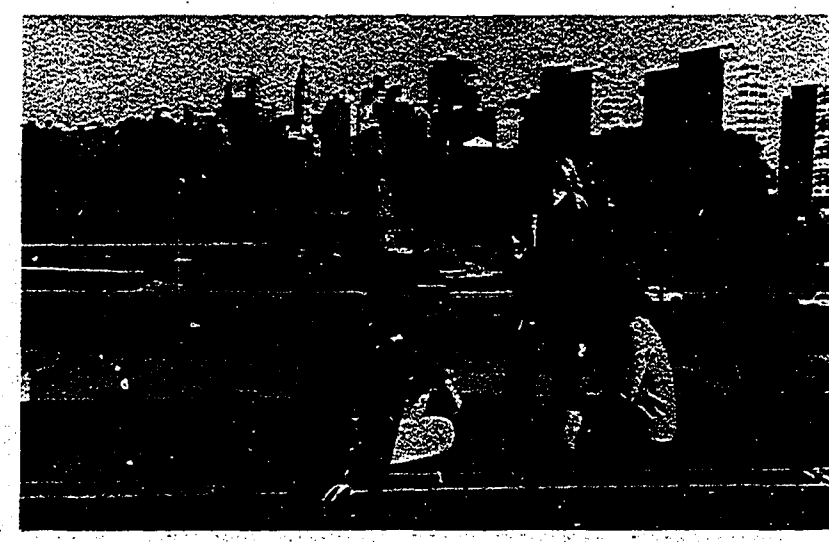
On the other hand, it should be noted that the home base plan permits considerable savings. With a significant section of the student body out of the building for huge blocks of time, there is an appreciable increase in classroom space, thereby giving a work place for every student.

And if development costs of the home base plan increase the budget, many educators believe it is justified for the broadening of educational vistas it encourages and for the depth of learning experience it affords its students.

The Non-School School



Philadelphia's Parkway Program was the first of the non-schools created to meet the problems of communities with over-crowded schools and no money for building additional structures. For its four home bases, Parkway leases office space at minimal rentals and uses a former elementary school. Each base is limited to 130 students, 8 teachers and 8 university interns. Additional classroom spaces and services are provided by almost 200 institutions, academies, churches, societies, government, businesses, universities and museums that voluntarily participate in the program. Operating costs for Parkway students are about the same as they are in conventional schools, but Parkway has no capital expenses and saves the city the multi-million dollar cost of a normal 500-pupil high school building.

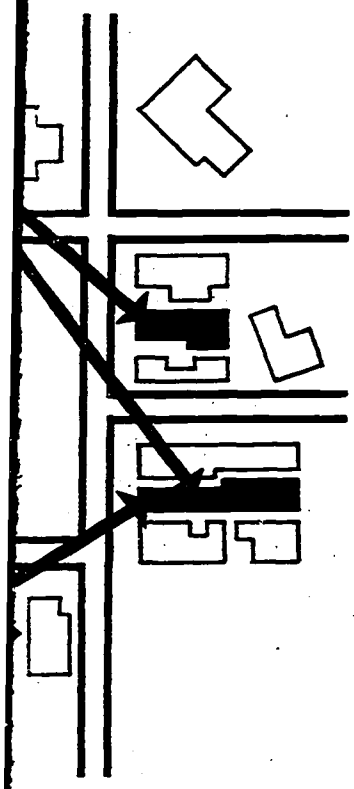


THE CITY OF PHILADELPHIA SERVES AS PARKWAY'S CAMPUS. Write: Lisa Strick, Parkway Program, Phil c/o The Franklin Inst 20th Street and the F

Students in the Parkway Program use publ their own ingenuity to meet teachers at appropriate site for on-the-spot classes

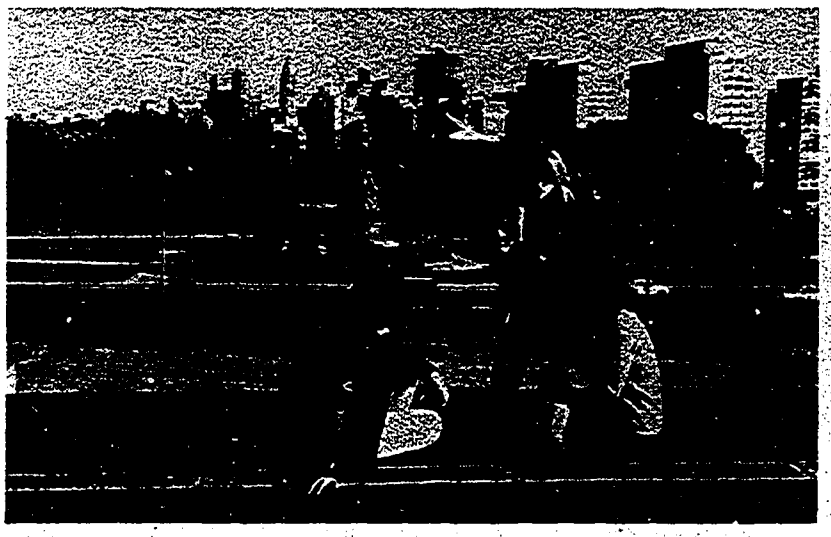
The non-school schoo the community. As i departs completely f buildings and conver still uses the home into a number of fou of its student enrol needs to be a tradit contrary, the base m concert hall, an aba unused warehouse or kind of space which vertible for classro spaces are generally All of the non-schoo provided by the comm schools function bet provide studios, lab hospitals and other

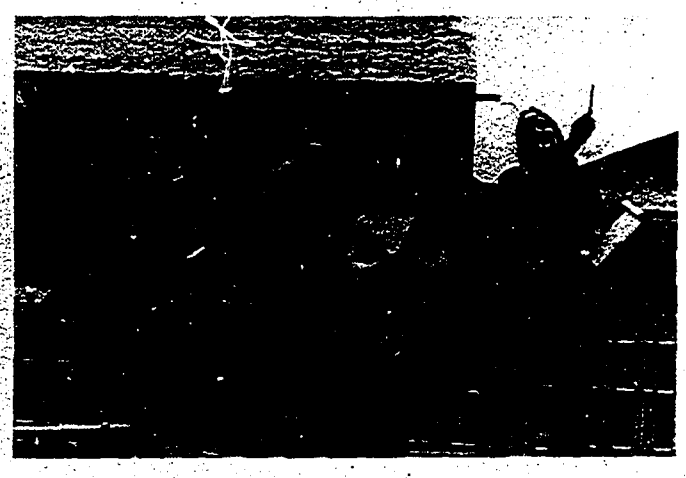
* See also Environmental Ed



The non-school school reaches further still into the community. As its name implies, it all but departs completely from conventional school buildings and conventional school organization. It still uses the home base, but its base is fractured into a number of found spaces,* each for a division of its student enrollment, and none of the bases needs to be a traditional school structure. On the contrary, the base may be a civic auditorium, a concert hall, an abandoned movie house, even an unused warehouse or rundown office building, any kind of space which is inexpensive and easily convertible for classroom and workshop use. Such spaces are generally available in the community. All of the non-school educational facilities are provided by the community. For this reason, non-schools function better in areas large enough to provide studios, labs, business premises, museums, hospitals and other spaces.

* See also Environmental Education





THE CITY OF PHILADELPHIA SERVES AS PARKWAY'S CAMPUS. Write: Lisa Strick, Information Officer
Parkway Program, Philadelphia Public Schools
c/o The Franklin Institute
20th Street and the Parkway, Philadelphia, Pa. 19103

Students in the Parkway Program use public transit or their own ingenuity to meet teachers at the appropriate site for on-the-spot classes.

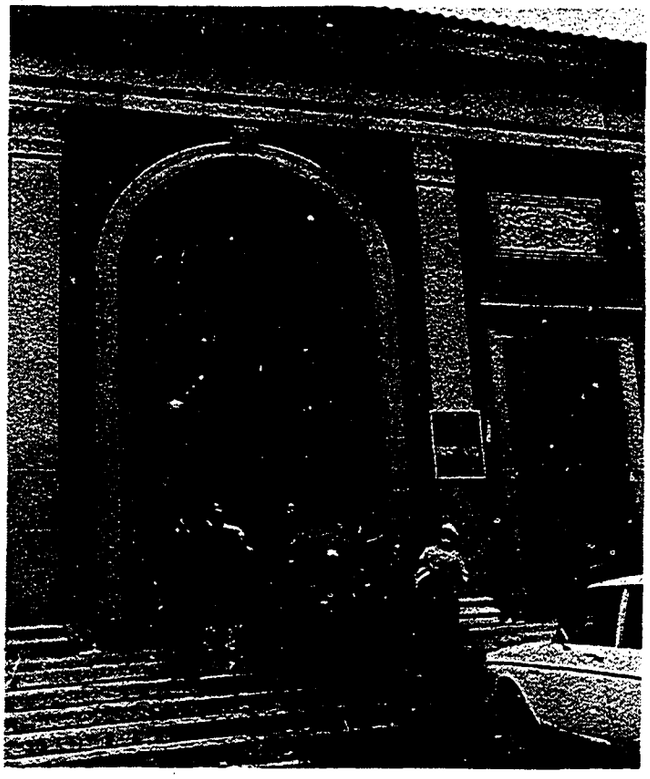
Th

Metr
floo

Wash
head
Scho
Star
Dist
univ
phot
Wall
will
even

chool

n three
ng



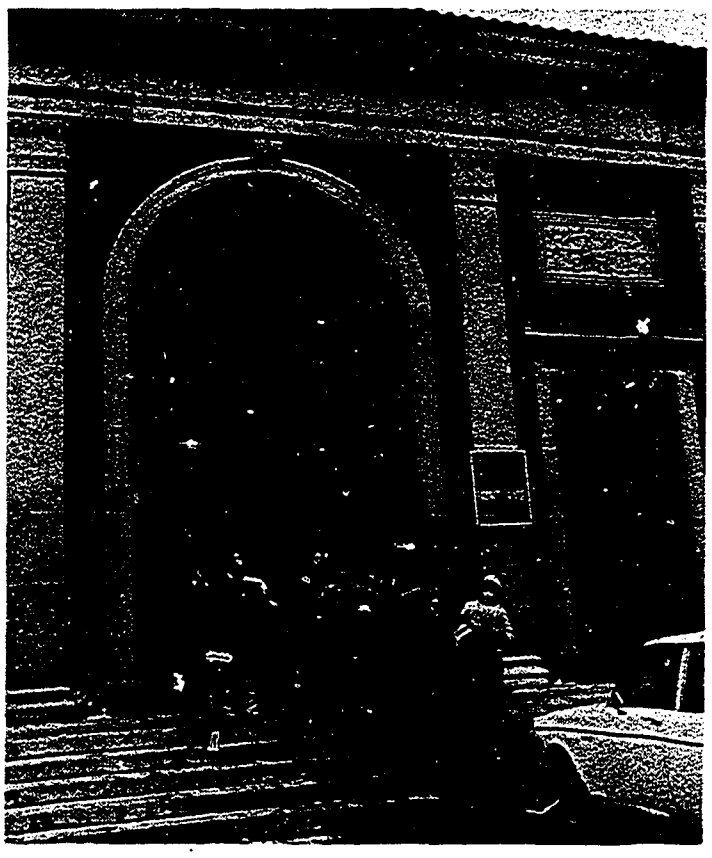
Classes studying animal and human behavior meet in the basement room of the Monkey House at Lincoln Park Zoo

Par
Chi
Sch
Met
con
res
the
in
tan
com
the
men
sin
The
mea
app
has
its
its
rec
Nat
Met
537
Chi

* See

own version of the non-school. With
floor of an office building, its
art of the public school system.
nt and supported with funds from the
e use of available city facilities:
s, private business, commercial
schools and others. School Without
th grade students. Next year it
granted the resources, will
ll the school grades.

Write: Pa
Sc
14
Wa



Classes studying animal and human behavior meet in the basement room of the Monkey House at Lincoln Park Zoo

Parkway began in 1969. A year later, Chicago followed with its Metro High School. In the '71-'72 school year, Metro operated from one home base containing laboratories and a media resource center.* Students spend half their time there, and the remainder in the city. Metro enjoys the assistance of 56 business, cultural and community organizations which afford the school additional space, equipment and instruction varying from a single lecture to an entire course. The popularity of both schools may be measured by the enormous number of applications for admission. Parkway has had about 15,000 applicants for its 500 capacity; Metro had 3,000 for its 200-student capacity that only recently increased to 330. Write:
Nathaniel Blackman, Principal
Metro High School
537 South Dearborn Street
Chicago, Ill. 60605

* See also Resource Centers

ersion of the non-school. With
of an office building, its
the public school system.
supported with funds from the
of available city facilities:
ivate business, commercial
ols and others. School Without
ade students. Next year it
ted the resources, will
al school grades.

Write: Patricia Goins, Principal
School Without Walls
1411 K Street, N. W.
Washington, D. C. 20005

Atlanta has operated a non-school program, called the Exploration Quarter, for three years. Each quarter, between 20 and 60 high school students elect their own subjects (with faculty approval) and use community facilities and staff to complete requirements. In January, 1972, for example, students were studying photography (using commercial photographers), law (working as a page in the state senate), computers (using the school district's facilities), social studies (in a social services department), music (with the Atlanta Symphony Orchestra), and oceanography (at the Emory University Department of Oceanography). Write:

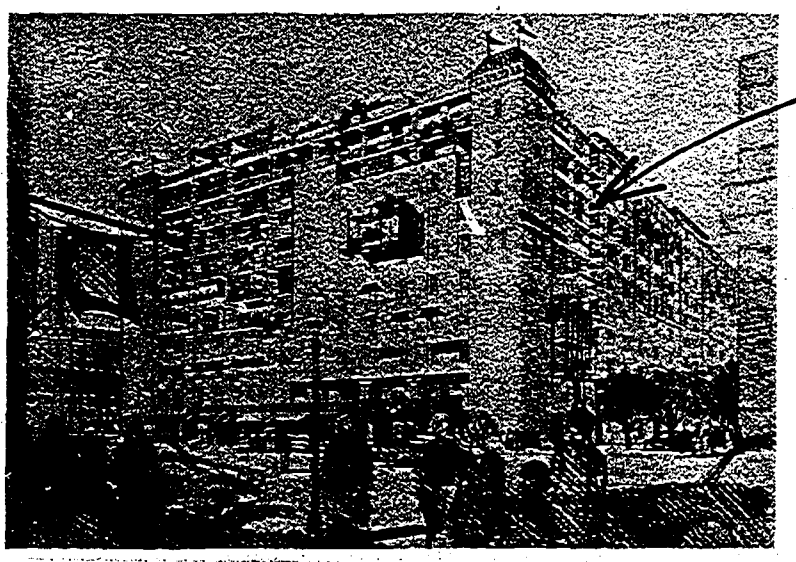
Jean Fant
Coordinator of Exploration Quarter
2930 Forest Hill Drive
Atlanta, Ga. 30315

Atlanta's students elect a variety of courses which they pursue in the community. Puppetry is one example where the student both learns in the community and teaches it in the elementary schools.

To date, the non-school has been limited to the high school, but its impact on the community and the accomplishment of its students have been most impressive, in fact, so impressive, that Boston is tentatively planning a similar non-school for the elementary grades to assist with federal desegregation procedures. Planned Partnership Program, as Boston's project is called, is a joint development between the Boston city schools and the Model Cities Administration.

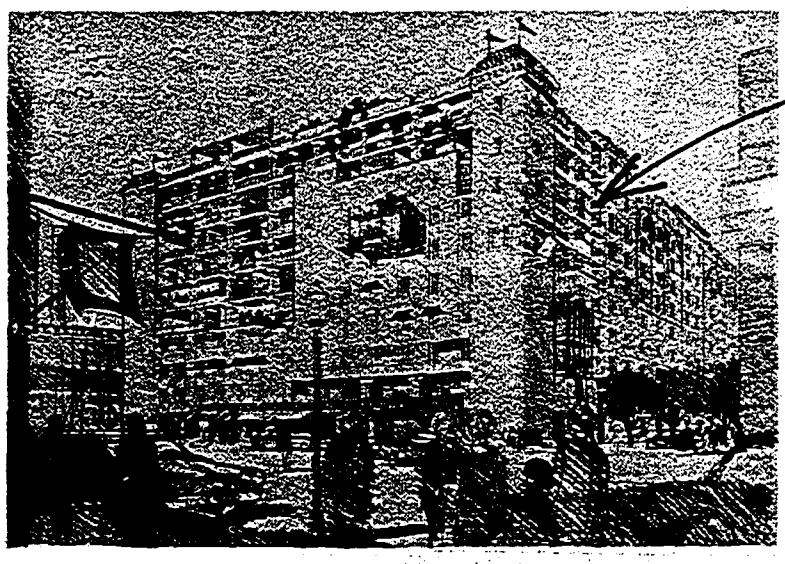
For further information, Write:

Barbara L. Jackson
Assistant Administrator for Education
Boston Model Cities Administration
Bartlett Building
2401 Washington Street
Boston, Mass. 02119

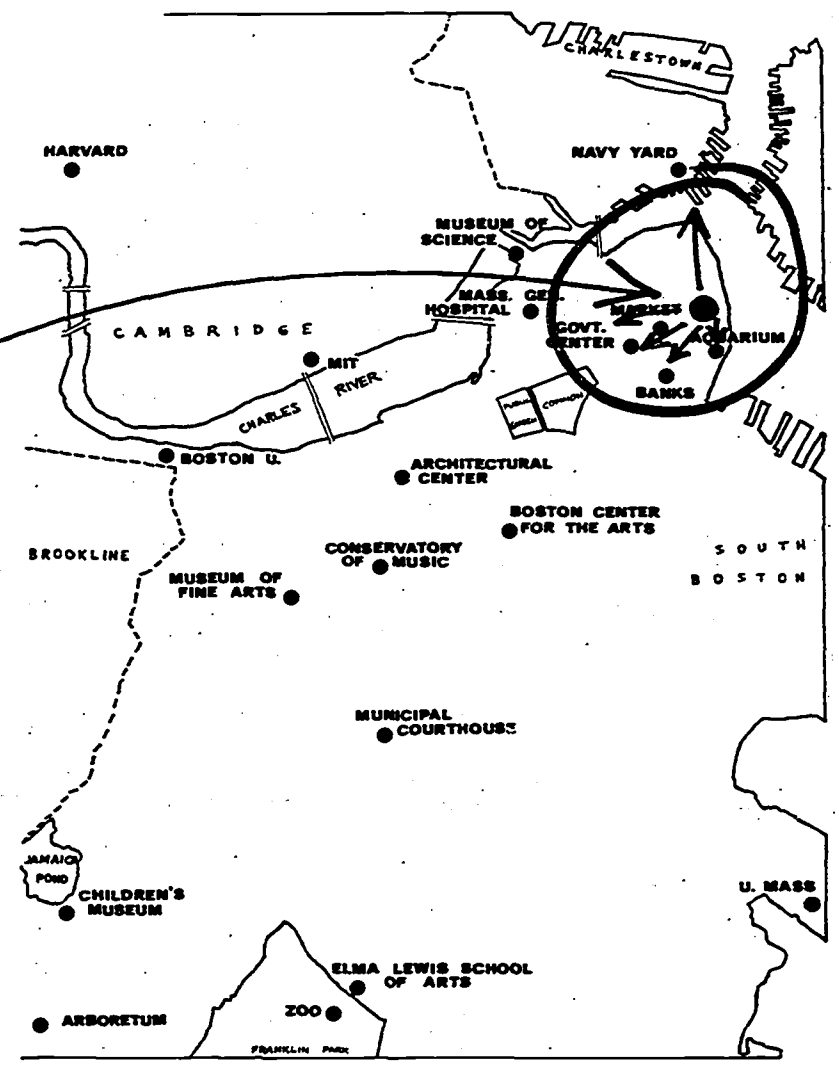


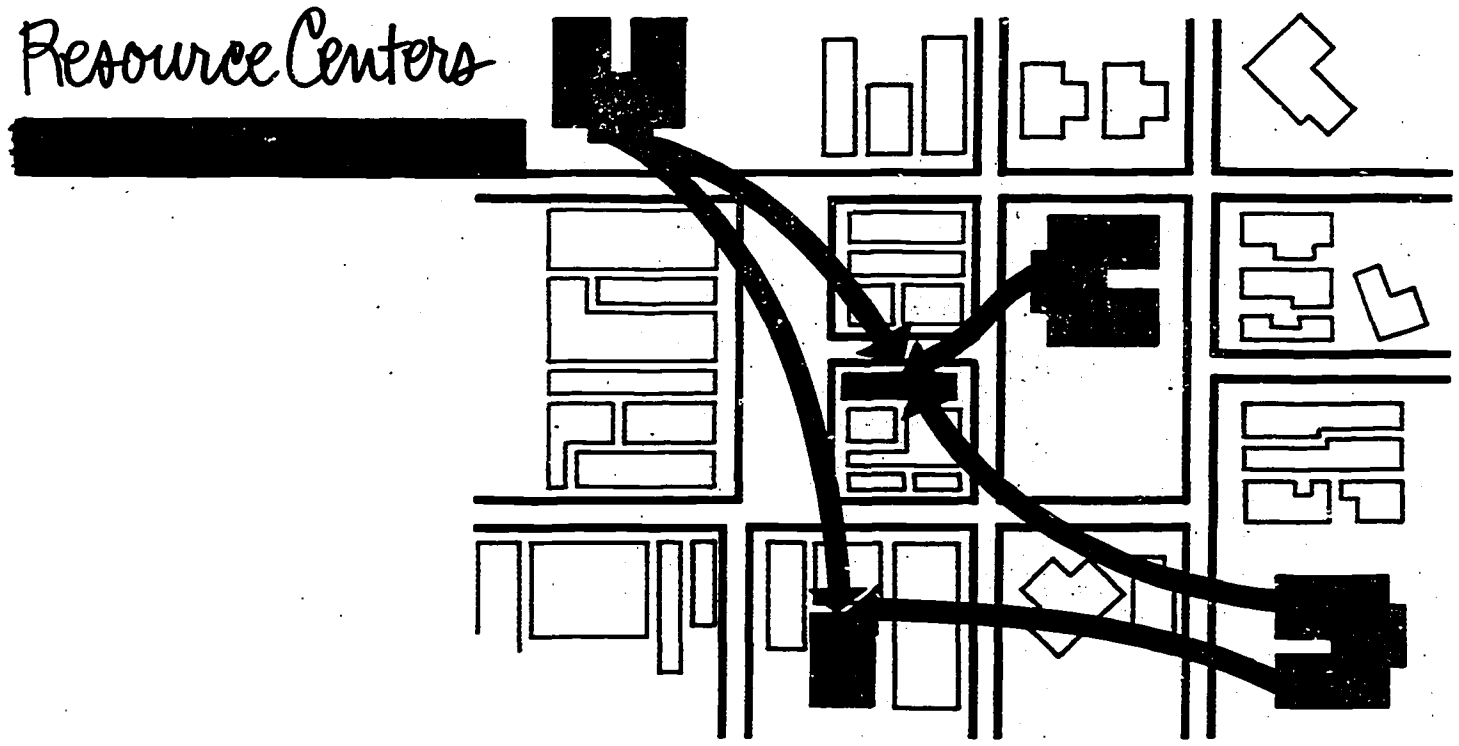
RENOVATED WAREHOUSE (SHOWN ABOVE) COULD SERVE AS ONE OF BOSTON'S NON-SCHOOL RESOURCE CENTERS. CHILDREN WOULD TAKE BASIC COURSES IN THESE CENTERS AND THEN GO TO COMMUNITY AGENCIES FOR RELATED EXPERIENCE.

Atlanta's students elect a variety of courses which they pursue in the community. Puppetry is one example where the student both learns in the community and teaches it in the elementary schools.



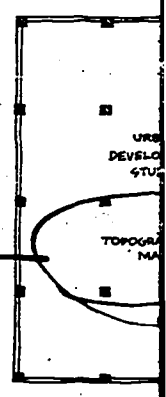
RENOVATED WAREHOUSE (SHOWN ABOVE) COULD SERVE AS ONE OF BOSTON'S NON-SCHOOL RESOURCE CENTERS. CHILDREN WOULD TAKE BASIC COURSES IN THESE CENTERS AND THEN GO TO COMMUNITY AGENCIES FOR RELATED EXPERIENCE.

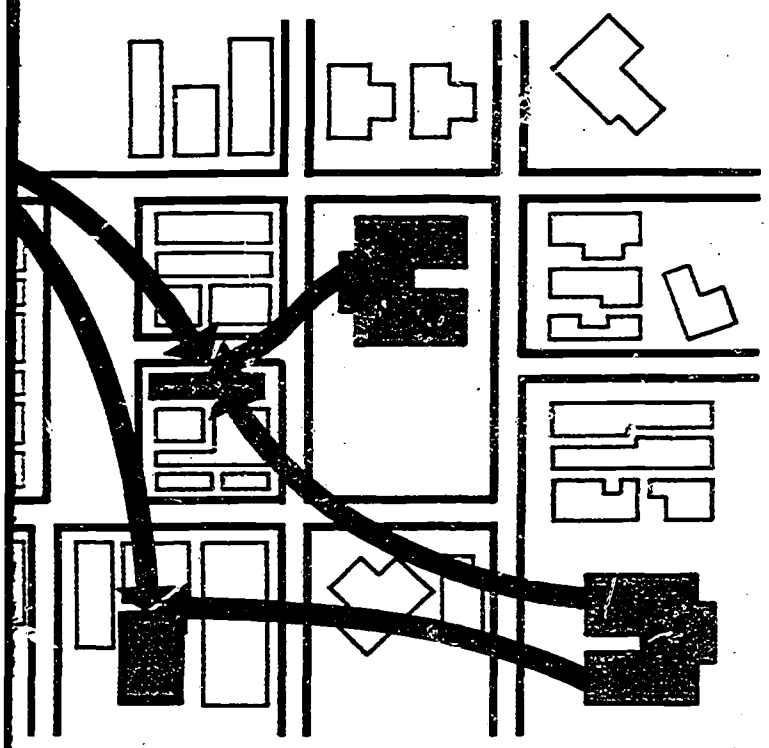




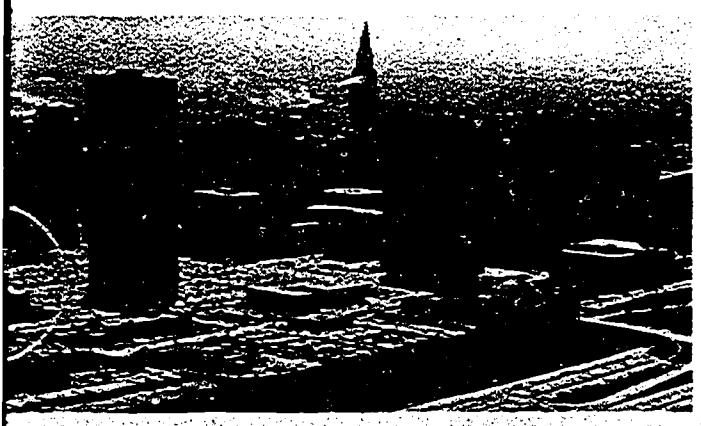
Cleveland renovated an abandoned warehouse in 1966 for its Supplementary Educational Center. Its program is designed for 3rd, 4th, 5th and 6th graders. Each day 375 students from both public and parochial schools actively participate in its planetarium, music listening and practice rooms, and in its model country store. In addition to the study of art, astronomy, space science, meteorology and urban development, the center offers professional concerts to the general public, as well as an enrichment program after school hours and on Saturdays.

The floor of the Education Center heritage include city to demonstr growth patterns area. Other flo for science, com a lunchroom. Wr Director, Supple 1365 East 12th S Cleveland, Ohio

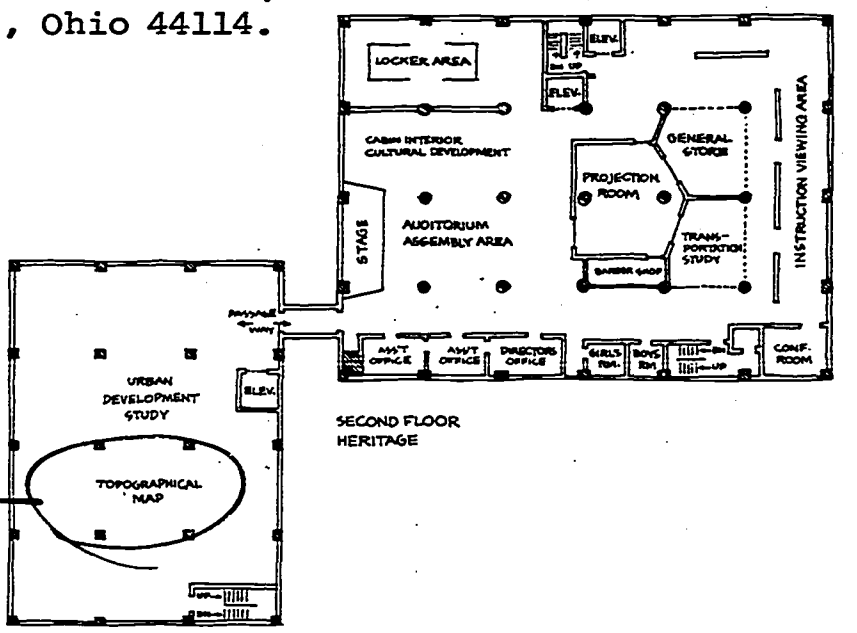




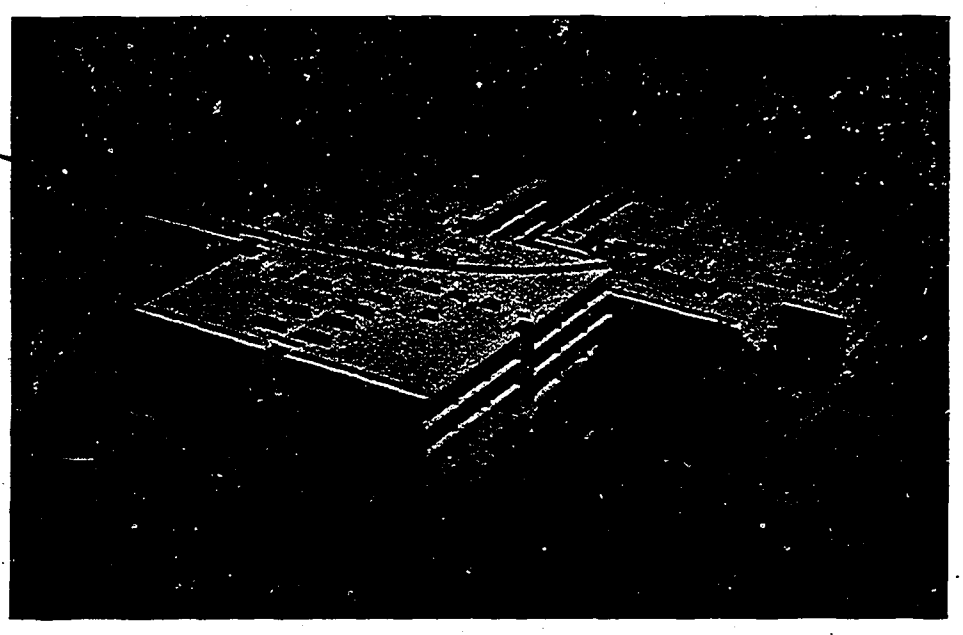
When a community cannot provide the sort of facilities used in non-school programs, the city can build resource centers to provide specific activities, such as labs, gyms or studios. These resource centers are shared by several schools that otherwise would not have had the space or money to provide the facilities themselves. Resource centers do not need playgrounds, cafeterias, auditoriums and other amenities of regular schoolhouses, and so can be installed in found spaces, such as warehouses or storefronts.



The floor of the Cleveland Supplementary Education Center devoted to cultural heritage includes a large model of the city to demonstrate scale and urban growth patterns of the greater Cleveland area. Other floors of the Center are for science, communication, assembly and a lunchroom. Write: Donald G. Quick, Director, Supplementary Education Center, 1365 East 12th Street, Cleveland, Ohio 44114.



Chicago will soon have a 40,000 sq ft resource center called the Disney Magnet Communications Arts Center. When opened, the building will be a teaching tool for 600 elementary children during school hours, and open to the community in the evenings. Classes will not meet on a regular schedule, but teachers will be able to reserve space for whatever length of time they require. A computer will help schedule the center for its optimum usage. The resource center will offer a variety of equipment not usually a part of standard school facilities: photography, television and recording equipment as well as kilns, easels and facilities for impromptu theater.



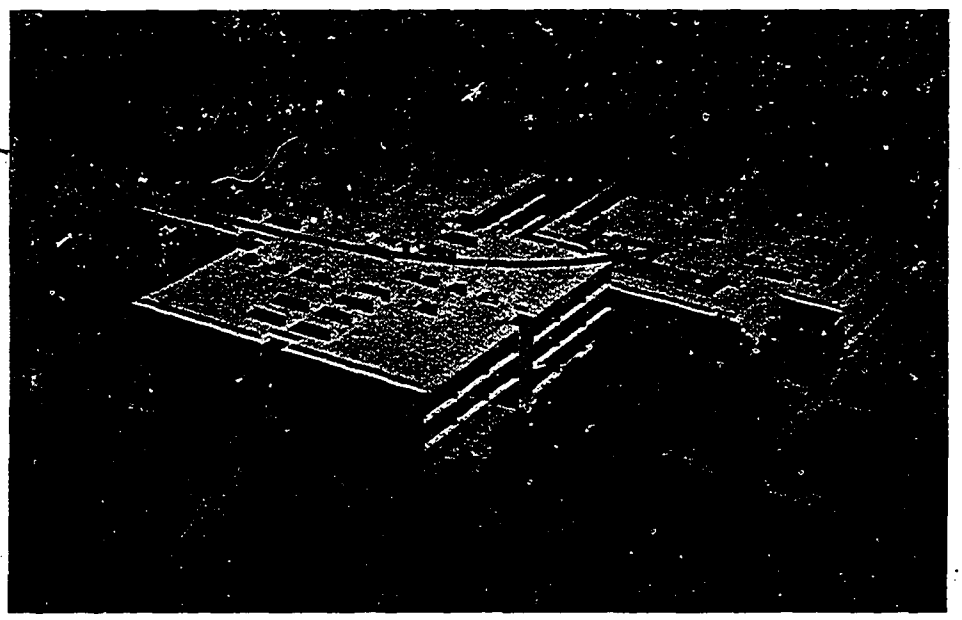
Disney
a one-
center
The re
own ei
availa
the re

Write
Manag
Publi
159 N
Chica

A storefront serves the
of the Morgan Community
Center, Inc. in Washingt
where 150 young people a
with its ducks, geese, r
and some 50 other animal
and rodents. The center
trates on wild life, on
research, and organizes
canoeing, bicycling, hik
camping and fishing trip
it does not neglect the
hood, and inspires a num
community activities aim
cipally at keeping the c
clean and developing pri

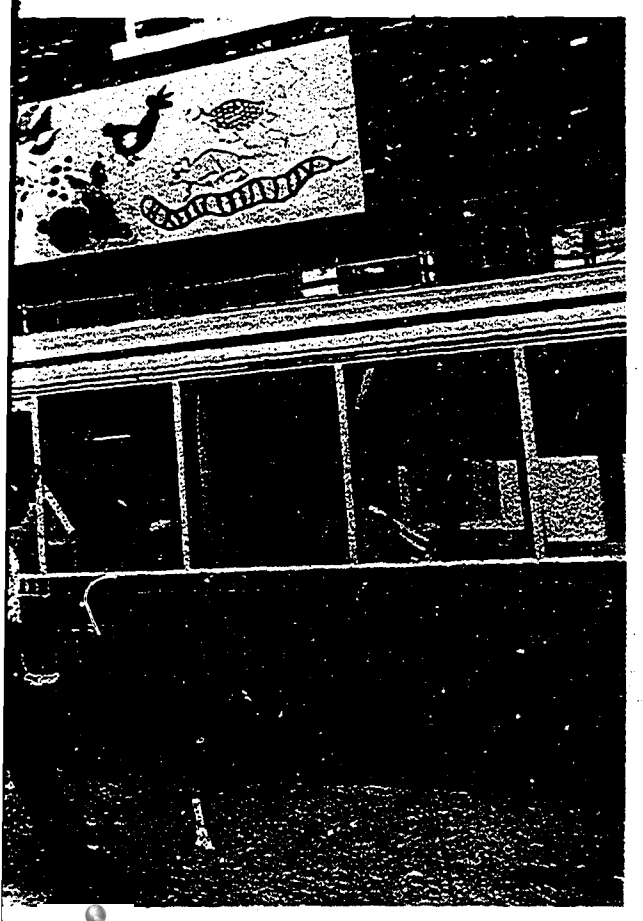
MORGAN COMMUNITY EDUCATI

Write: James E. Contee,
Morgan Community Educati
1718-1720 Florida Avenue
Washington, D. C. 20009



Disney Magnet School will have a one-story communications arts center (upper right of picture). The resource center will have its own entrances so that it can be available to the community when the rest of the school is closed.

Write: Jacques C. Brownson
Managing Architect
Public Building Commission
159 North Dearborn Street
Chicago, Ill. 60601

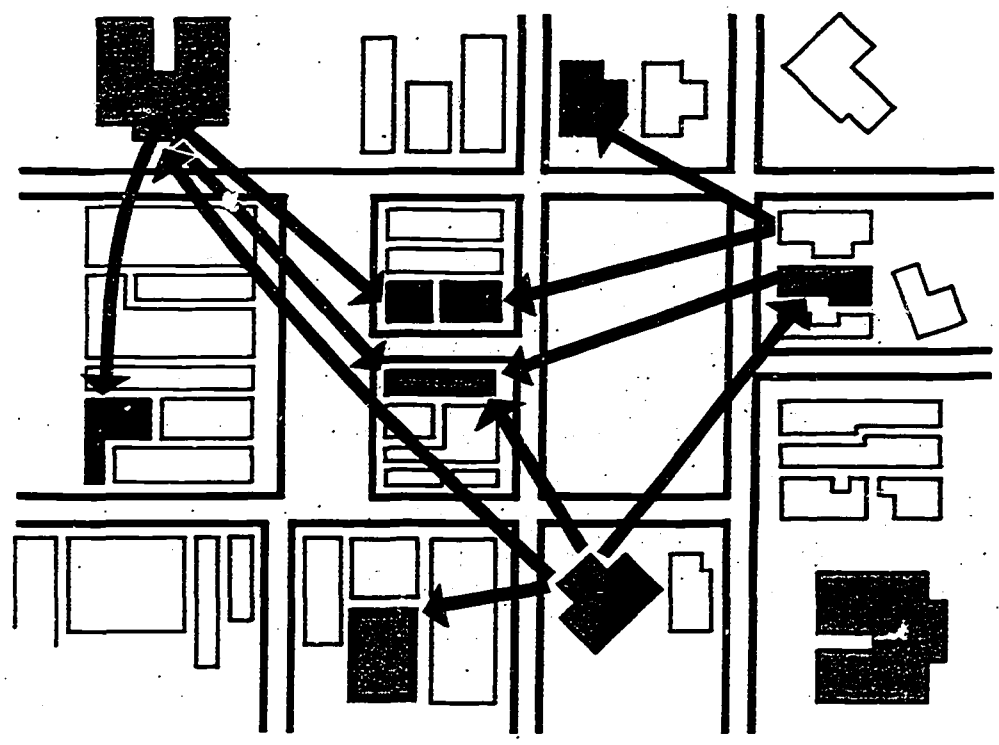


A storefront serves the purposes of the Morgan Community Education Center, Inc. in Washington, D. C., where 150 young people a day visit with its ducks, geese, raccoons and some 50 other animals, fowls and rodents. The center concentrates on wild life, on nature research, and organizes swimming, canoeing, bicycling, hiking, camping and fishing trips. But it does not neglect the neighborhood, and inspires a number of community activities aimed principally at keeping the community clean and developing pride in it.

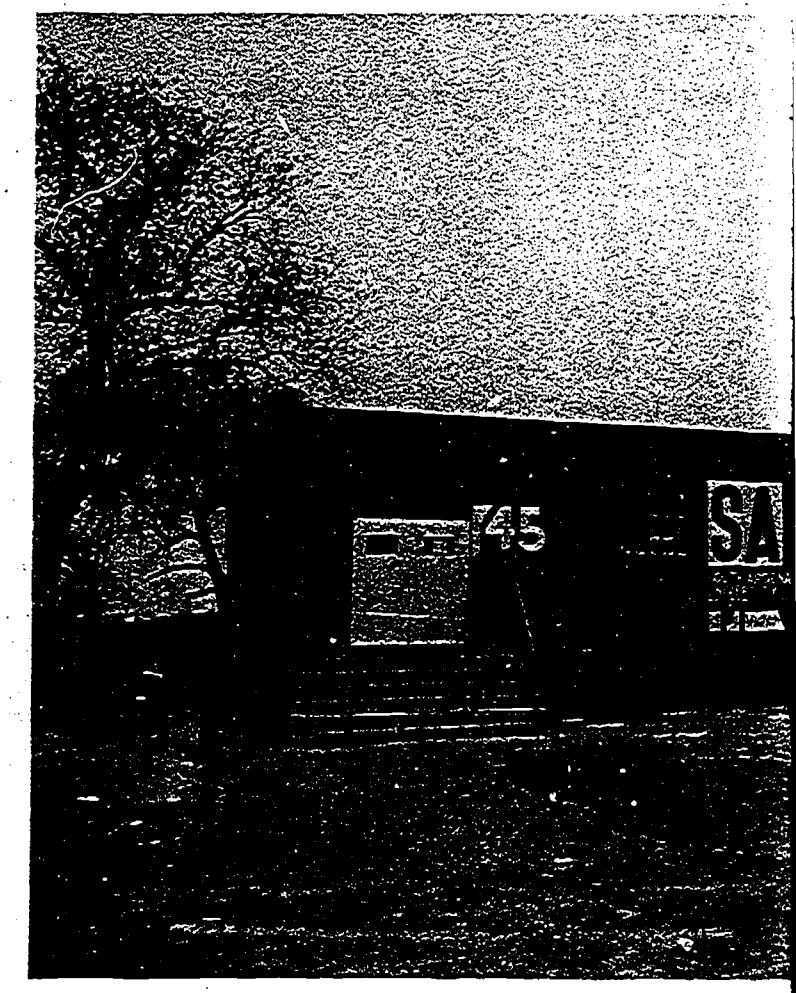
MORGAN COMMUNITY EDUCATION CENTER, INC.

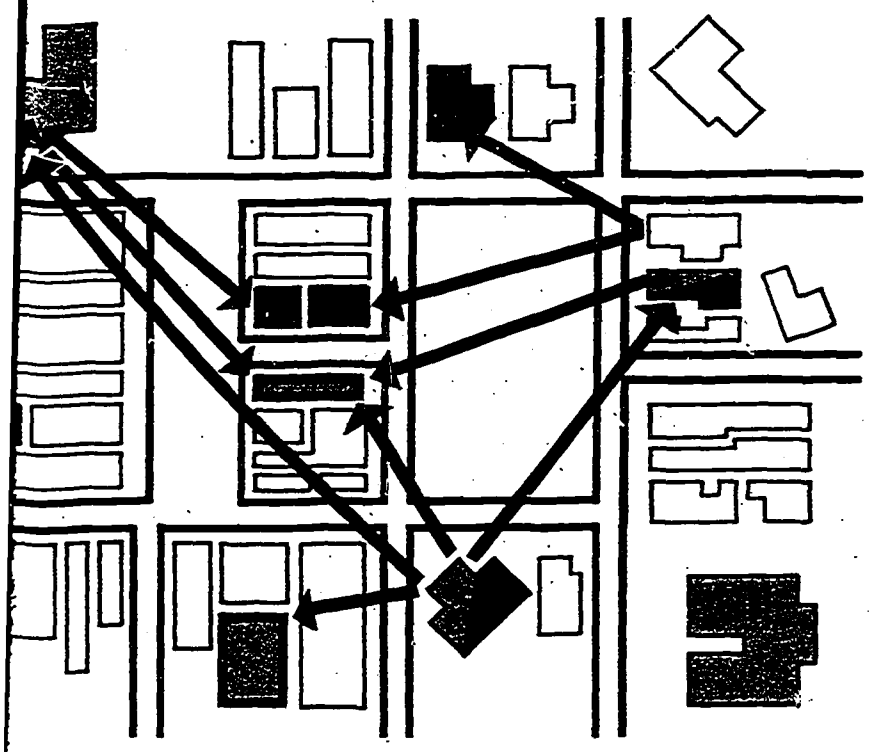
Write: James E. Contee, Director
Morgan Community Education Center, Inc.
1718-1720 Florida Avenue N. W.
Washington, D. C. 20009

The Everywhere School



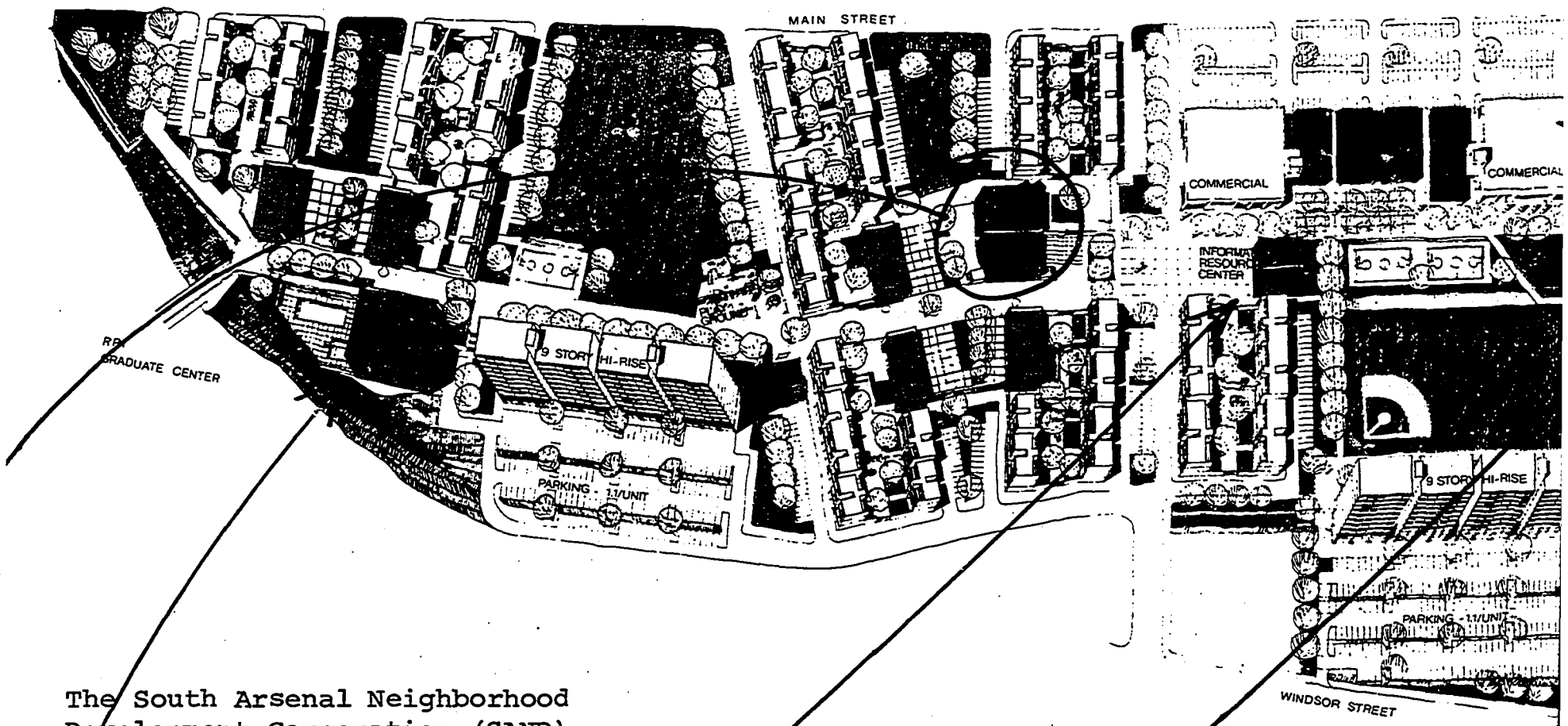
Although the SAND school is now in a warehouse, it is a forerunner of comprehensive school-community planning. When the SAND urban renewal project is constructed, there will be no separation among the elements of a neighborhood. Housing, health, education, recreation and other facilities will all function together as a community. Write: Jack Dollard, Hartford Design Group, 470 Asylum Street, Hartford, Conn. 06103.





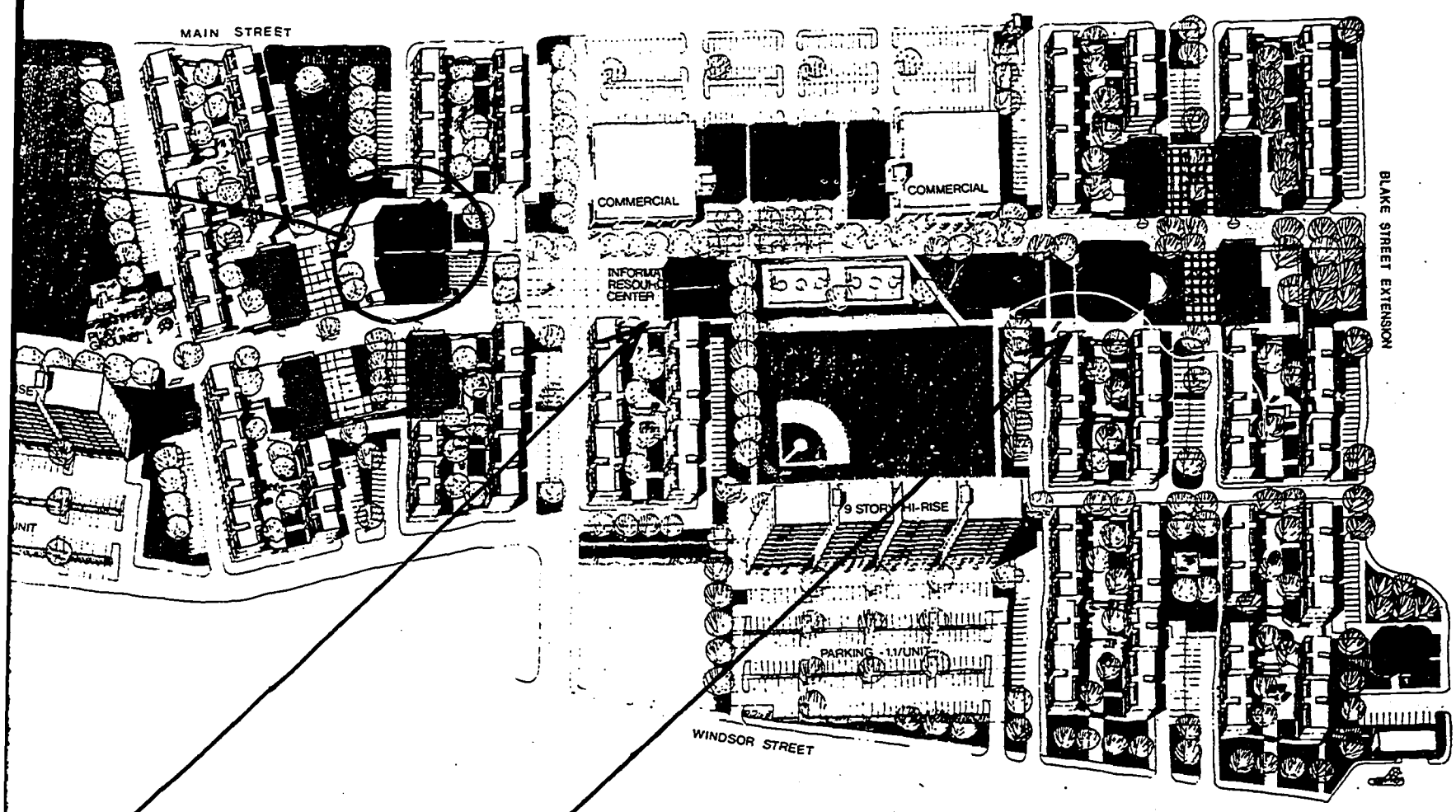
The Everywhere School concept combines home base, non-school and resource center programs. It houses students in several small schoolhouses or found spaces and sends students into the community to use the facilities for educational purposes. However, where the community facilities are lacking, the Everywhere School builds resource centers to be shared by its students and the community. The school, therefore, becomes an integral part of the community life, never a structure or way of life apart from its community vision or its ambitions.

SAND
in a
is a
com-
hool-
nning.
urban
ct is
there
paration
ements
hood.
lth,
ecreation
cilities
ction
a commu-
:
, Hartford
, 470
t,
nn. 06103.



SOUTH ARSENAL NEIGHBORHOOD DEVELOPMENT PROPO

The South Arsenal Neighborhood Development Corporation (SAND) of Hartford, Conn., is involved in the organization of such a school. When completed, it will have for its home bases eight multi-instructional areas (shown in grey) for elementary grades in a new low-income housing project to be constructed on the site of a slum neighborhood which is 60% black, 40% Puerto Rican. Its library will be available to the community as a meeting place, its auditorium as a community theater; its gymnasium and arts and industrial crafts rooms will also be used by both young people and adults as community resource centers. South Arsenal sees both its housing and school as a unit, an educational way of life, "the university." A Board of Education principal will head the school, but he will be responsible only to the people of the community. The state provides one associate counselor and the neighborhood hires another to coordinate the community facilities for the school, arrange for adult education and the continued education of dropouts. There will be 15 adults employed for every 150 students: a master teacher, 4 regular teachers (who will be asked to live in the community), 5 aides from the neighborhood, 2 program designers and 3 teaching associates. To date, the South Arsenal school is limited to an old warehouse and whatever community resources are at hand, but the will of its people should soon convert their dream into a reality.

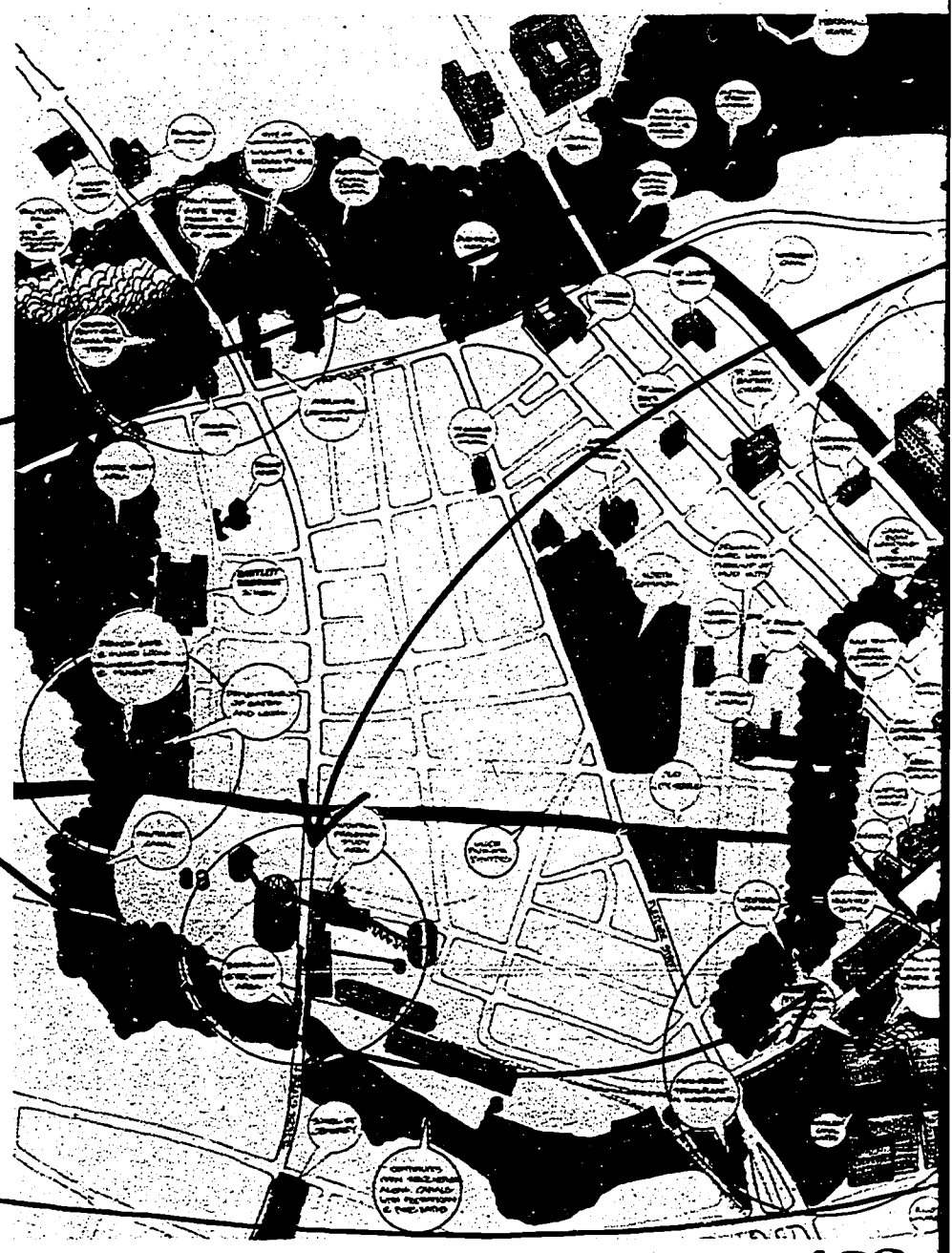


SOUTH ARSENAL NEIGHBORHOOD DEVELOPMENT PROPOSAL

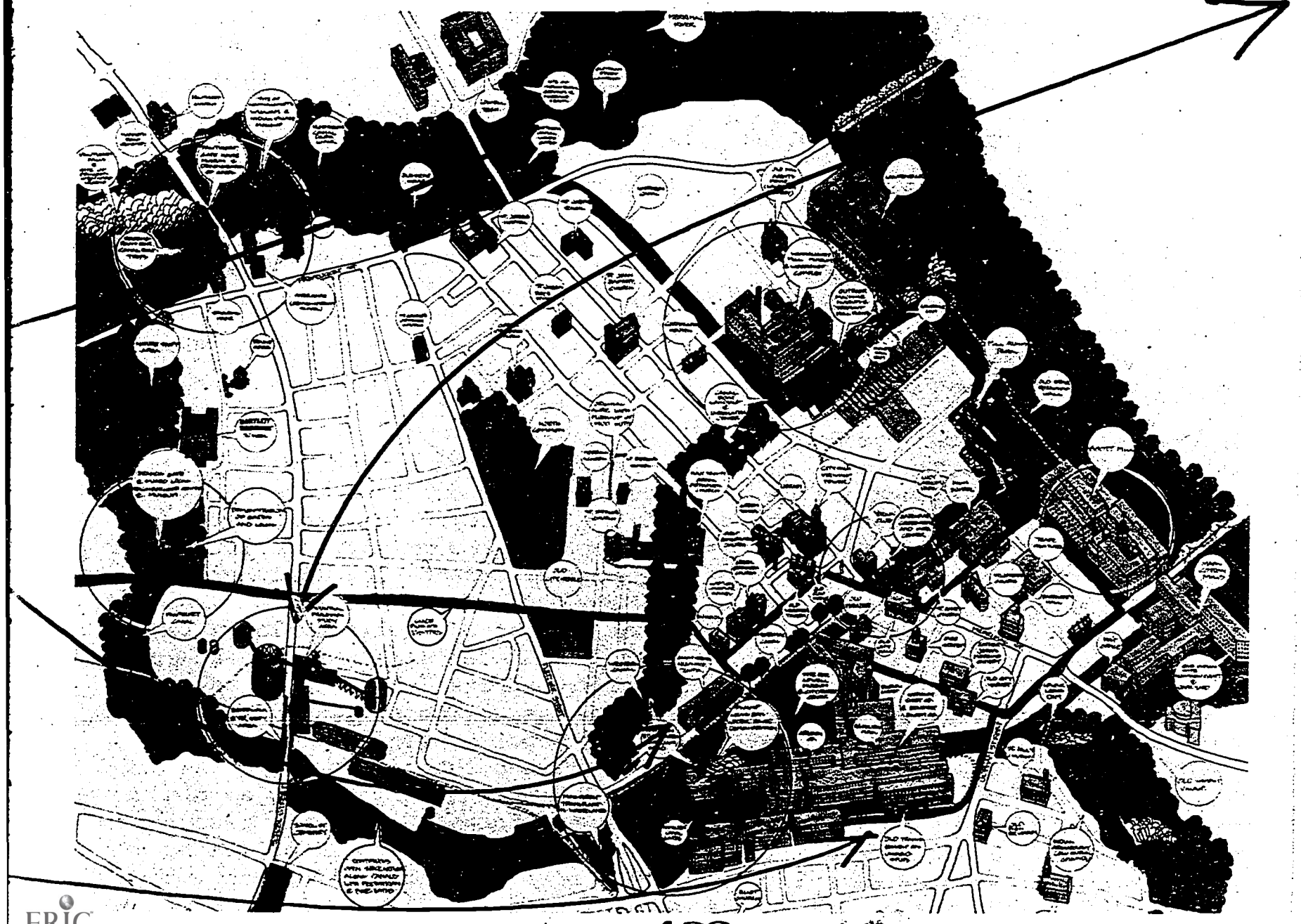
the people of the community. The state provides one associate counselor and the neighborhood hires another to coordinate the community facilities for the school, arrange for adult education and the continued education of dropouts. There will be 15 adults employed for every 150 students: a master teacher, 4 regular teachers (who will be asked to live in the community), 5 aides from the neighborhood, 2 program designers and 3 teaching associates. To date, the South Arsenal school is limited to an old warehouse and whatever community resources are at hand, but the will of its people should soon convert their dream into a reality.

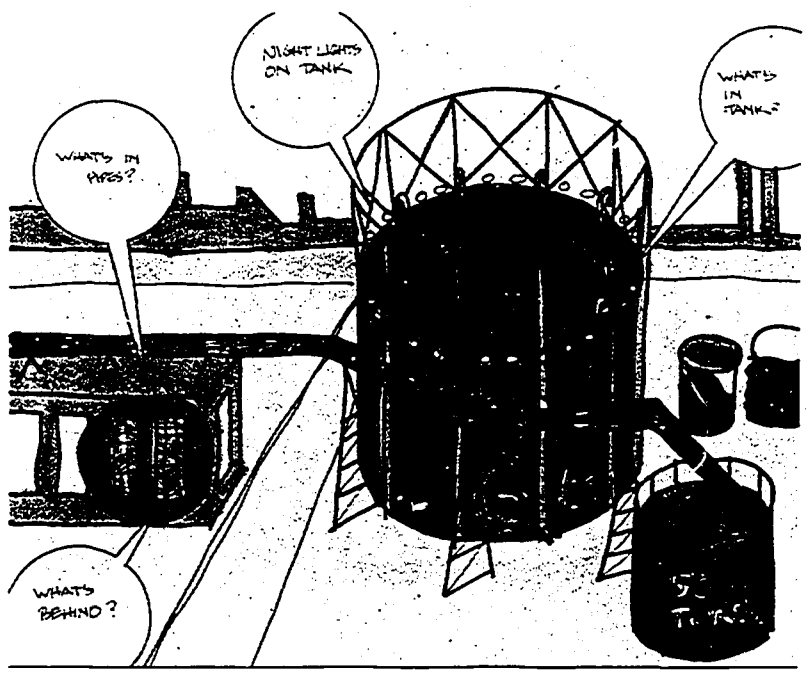
The Everywhere School

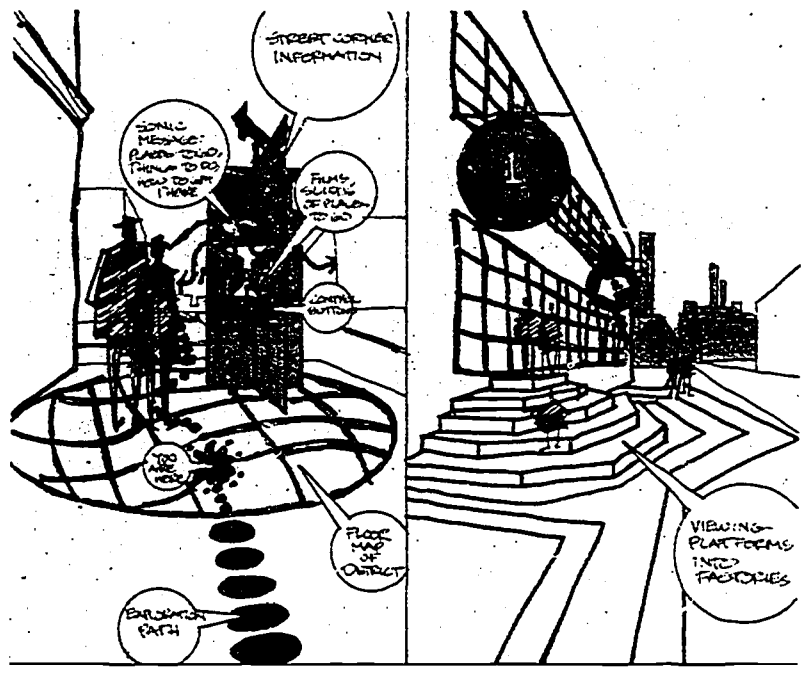
Lowell, Msss., is planning a considerably more ambitious everywhere school. It intends to turn this old industrial city into a huge Human Development Center, a great educational complex which will cover everything from the schooling of expectant mothers and infant education through post-graduate college studies. The plan will provide a series of paths criss-crossing the city and furnished with all manner of informational settings, primarily related to the history of Lowell. Outdoor digs and neighborhood museums, furnished with relics of Lowell's origins and past, will dot the landscape; an old mill will be converted into instructional centers, relating to the old and new industries in Lowell, as well as into workshops and laboratories for every phase of learning. It is a project which will use found (old) space rather than building from scratch. It will use all the resources of the city, churches, historical architecture, railyards and factories, even its old jail, for a kind of total education for all its citizens.



THE LOWELL SCHOOL-CITY PLAN
Write: Patrick J. Mogan
Director
Education Component
Lowell Model Cities
400 Merrimack Street
Lowell, Mass. 01852

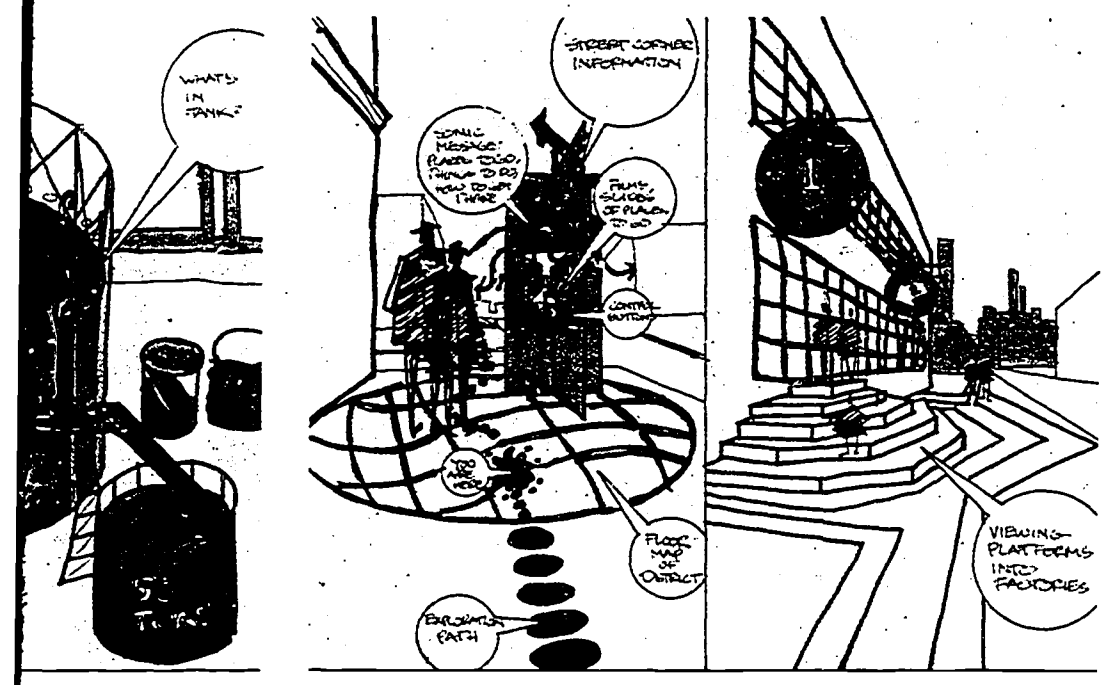


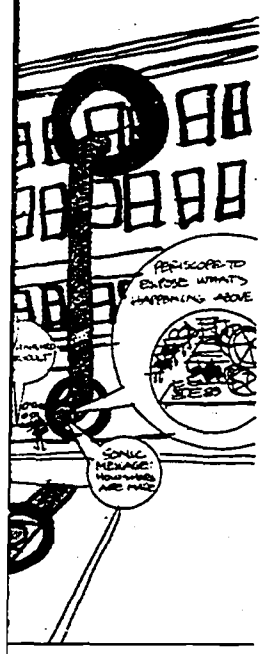




WITH PAINT, GRAPHICS, PLATFORMS, MONEY AND A GREAT DEAL OF INGENUITY, LOWELL PLANS TO DESIGN THE CITY AS A MAMMOTH TEACHING TOOL.

Summing up, the reachout school is still new experiment in education, but the open base schools, the non-school schools, the and the incipient everywhere schools have strated the values to be reaped by breaki confines of the traditional school buildi curriculum. Students have always been se community, the broader city and beyond, t perience and broaden their education. Bu been done on a day-in day-out basis; rath done without a sense of continuity and th these areas has been rather limited and s reachout schools move into the community The neighborhood and the city become an i of education; the students become more aw to real problems, and certainly better ed with them, perhaps discover solutions for school also serves the excellent purpose problem of the overcrowded classroom, the and helps cut community capital construct substantially.





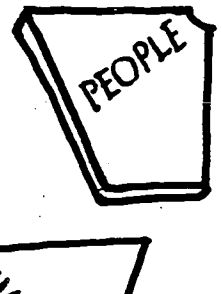
FORMS,
INGENUITY,
CITY AS

Summing up, the reachout school is still a comparatively new experiment in education, but the open campus, the home base schools, the non-school schools, the resource centers and the incipient everywhere schools have already demonstrated the values to be reaped by breaking out of the confines of the traditional school building and its curriculum. Students have always been sent out into the community, the broader city and beyond, to enrich their experience and broaden their education. But rarely has this been done on a day-in day-out basis; rather, it has been done without a sense of continuity and the learning in these areas has been rather limited and superficial. The reachout schools move into the community and remain there. The neighborhood and the city become an integral element of education; the students become more aware, more sensitive to real problems, and certainly better equipped to cope with them, perhaps discover solutions for them. The reachout school also serves the excellent purpose of alleviating the problem of the overcrowded classroom, the lack of school space, and helps cut community capital construction expenditures substantially.

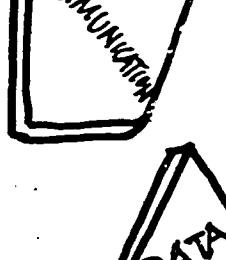
7. PLANNING / PROCEDURES

In the 1950's, planning and building were simple. Schools were a series of classrooms strung together by corridors to which were added libraries, cafeterias, offices and gymnasiums. Architects were hired by school boards and made most planning decisions with the superintendent and the chairman of the school building committee. When the architect finished the drawings and specifications, contractors bid competitively for the construction contract. This linear sequence of events finished with the installation of furniture and equipment.

Today, as the first six sections of this report demonstrate, the nature of the schoolhouse has changed dramatically. This section reports on the changing planning and building procedures for creating the new educational facilities. New techniques and methods have been developed for a new set of conditions which include:



A great number of people are involved in the decisions affecting school planning. Called community control, decentralization, user input, or whatever, the direct users - teachers and students - and the indirect users - parents and community - give their views on education and the facilities that house it.



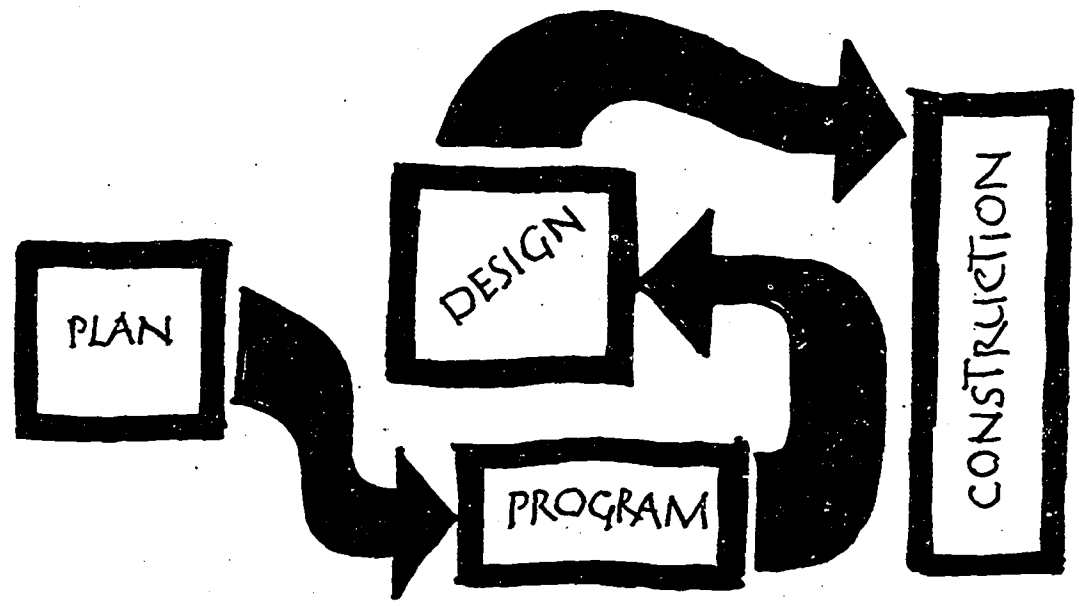
With more people involved, it's difficult to reach a consensus on proposals unless the public is well informed. This requires improved communications using architectural models, simulations and other graphic techniques.

The mounds of information on which critical decisions are made require efficient collection, storage and retrieval of data.

Public participation in planning complicated facilities requires a lot of time. But time costs money and delays delivery of the facilities. Therefore, new management techniques are used to shorten the design and building process.

NG/
JRES

ing were simple. Schools
g together by corridors to
erias, offices and gymnasiums.
oards and made most planning
and the chairman of the
the architect finished the
ractors bid competitively for
linear sequence of events
furniture and equipment.



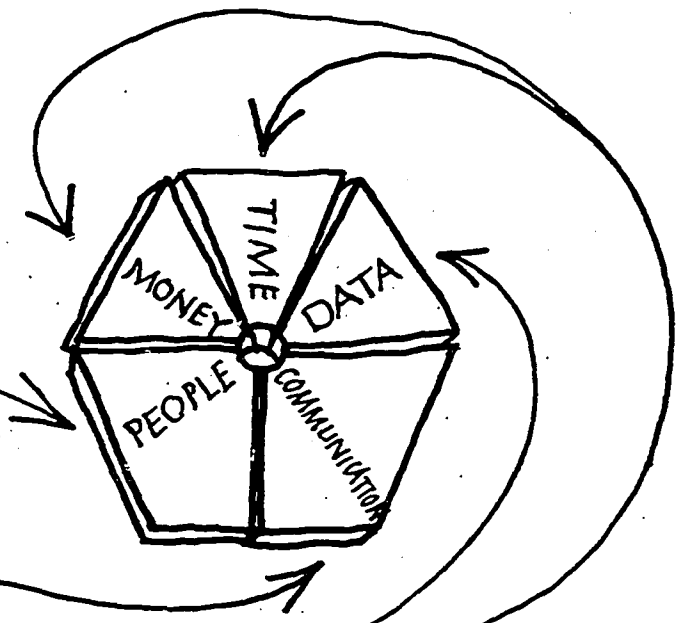
of this report demonstrate, the
anged dramatically. This sec-
nning and building procedures
facilities. New techniques
for a new set of conditions which

people are involved in the deci-
school planning. Called community
lization, user input, or whatever,
- teachers and students - and the
parents and community - give their
on and the facilities that house it.

involved, it's difficult to reach
roposals unless the public is well
requires improved communications
ral models, simulations and other
es.

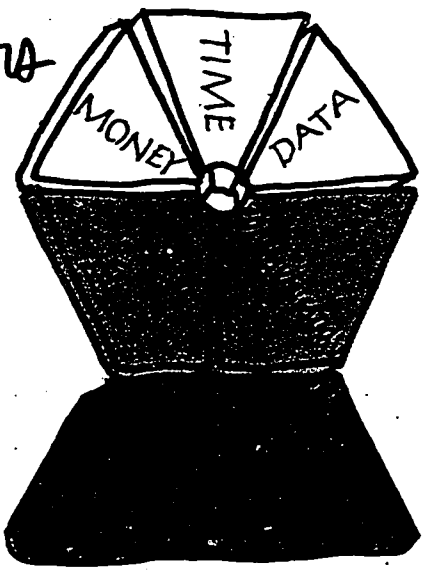
formation on which critical decisions
efficient collection, storage and
a.

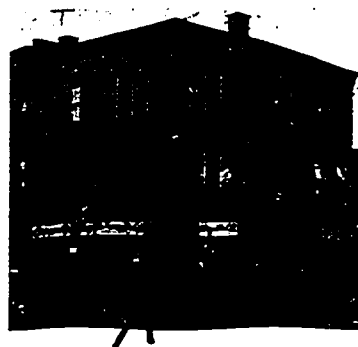
tion in planning complicated
res a lot of time. But time costs
delivery of the facilities.
anagement techniques are used to
gn and building process.



The following new techniques for planning/procedures do not completely solve the problems, but they are presented because they can facilitate school building programs, and more important, they may seed new approaches to a growing set of problems.

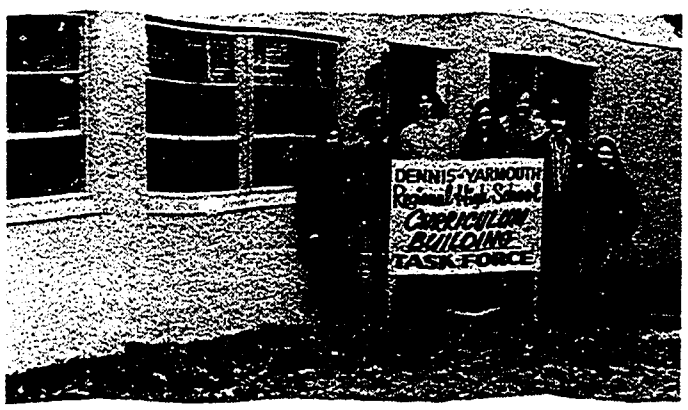
Community Planning Centers





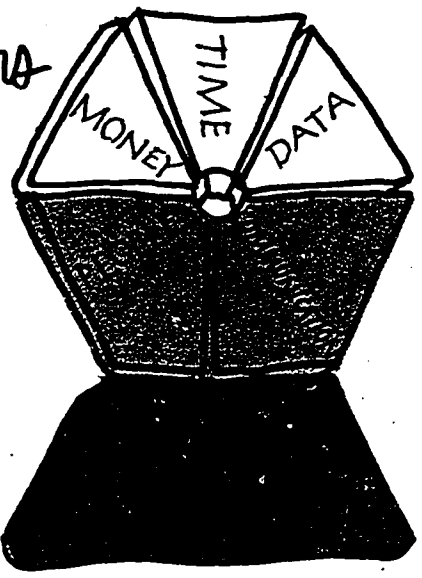
Each community approaches the problem of planning its schools in a manner best suited to its character and its finances. Often this calls for the creation of a local, or community, board planning center. As an example, East Orange, N. J., found a way to involve the whole community when the school board started on a new middle school. It rented a store for the architect for five months while he designed the school. Several people dropped in each day to see what was going on, ask questions, make recommendations. The keen interest in and desire for recreational facilities influenced the location and accessibility of the gymnasium and pool. Even the overall design -- the use of ramps to relate inside and out, the provision of additional rooftop play-space, the decentralized circulation pattern so children can pop into school from any direction -- evolved from the dialogue between architect and community. Write: Russell A. Jackson, Superintendent, East Orange Public Schools, 21 Winans Street, East Orange, N. J. 07017.

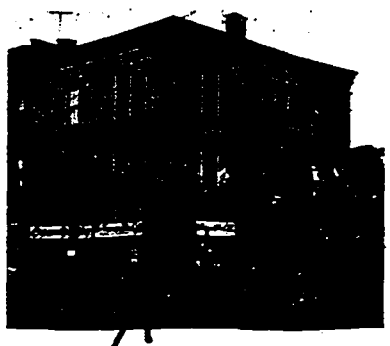
THE EAST ORANGE M
RESULTED FROM THE
GENERATED IN THE



THE DENNIS-YARMOUTH HIGH SCHOOL
COMMUNITY PLANNING CENTER
Write: John A. Murphy, Superintendent
Dennis-Yarmouth Union 11 School District
Professional Building
South Yarmouth, Mass. 02664

For an addition to a regi
school district has rente
for a community planning
center are expected to re
uation, vocational-techni
adult education and the u
of new construction. A t
leaders, six parents, six
will hold public meetings
be staffed for at least t

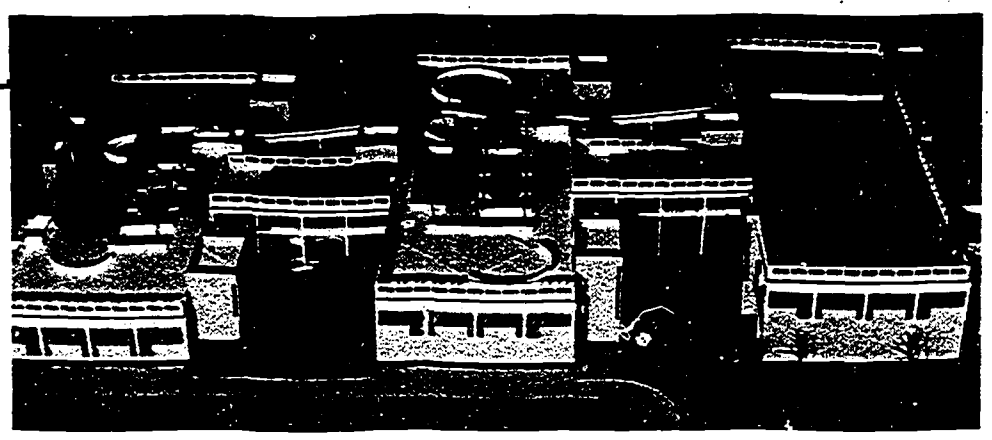




The planning is completed; now the space is an ice cream store.*

* See: 1.FOUND SPACE, p.4

THE EAST ORANGE MIDDLE SCHOOL DESIGN RESULTED FROM THE INCREASED USER INPUT GENERATED IN THE COMMUNITY PLANNING CENTER.



enters

ls
s

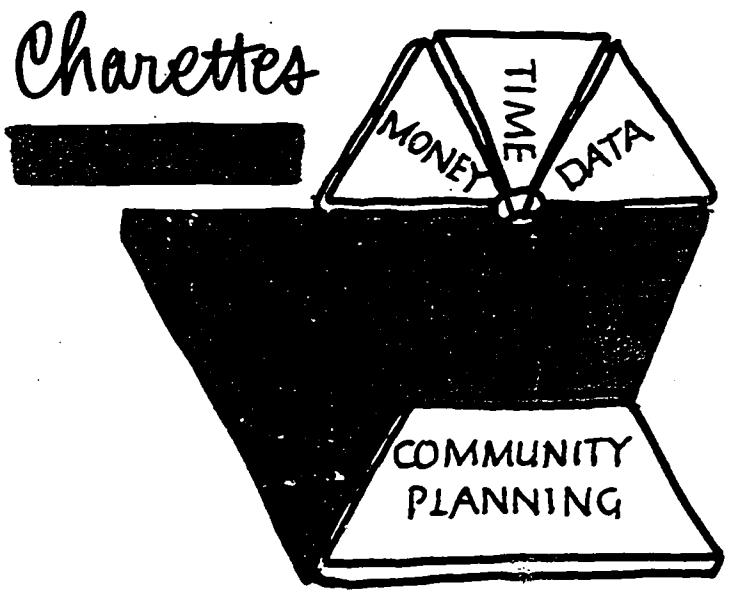
tion
rd
le,
y to
hen
new
tore for the architect
gned the school. Several
see what was going on,
lations. The keen interest
l facilities influenced
y of the gymnasium and pool.
e use of ramps to relate
of additional rooftop play-
ulation pattern so children
direction -- evolved from
t and community. Write:
endent, East Orange Public
ast Orange, N. J. 07017.

OOL

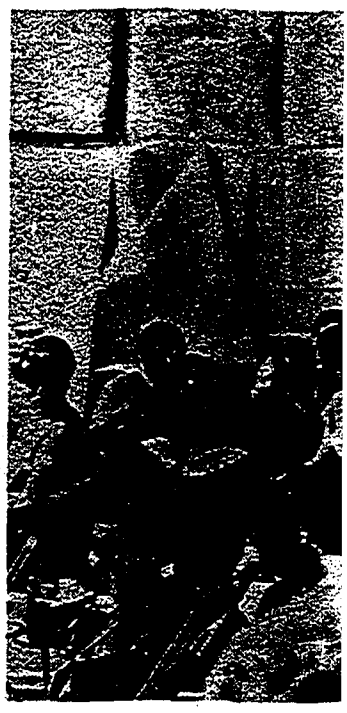
intendent
11 School District

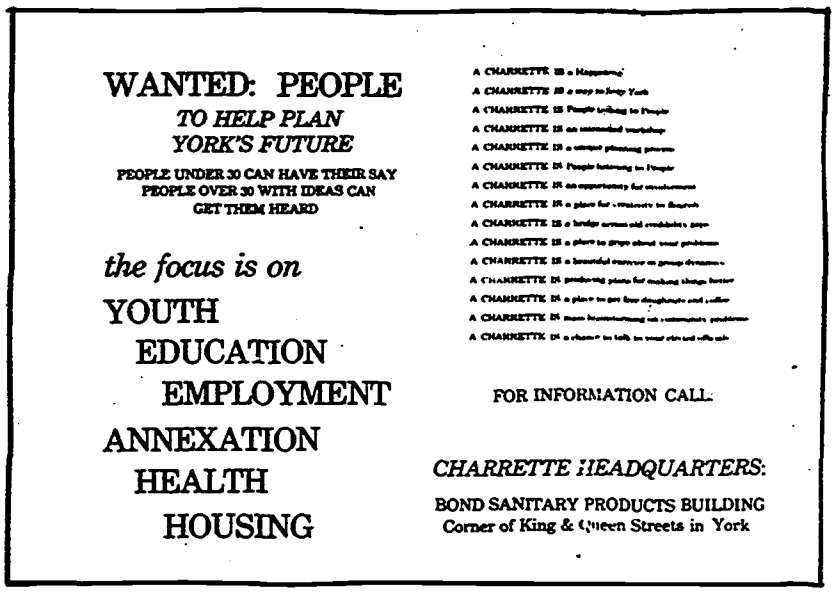
02664

For an addition to a regional high school, a Massachusetts school district has rented a storefront in a shopping mall for a community planning center. Citizens who visit the center are expected to react to issues of curriculum evaluation, vocational-technical planning, alternative scheduling, adult education and the use of community resources in lieu of new construction. A task force composed of six community leaders, six parents, six students and six faculty members will hold public meetings in the planning center, which will be staffed for at least three months by the project's planners.

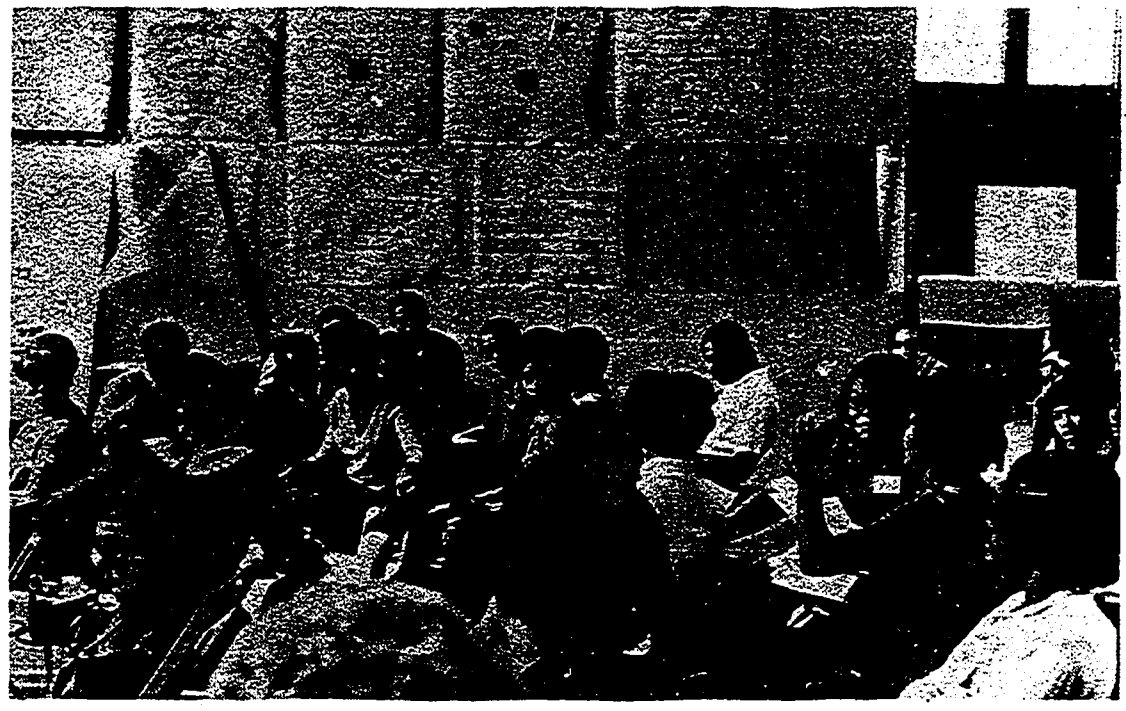


A charette is an intensified planning session where a community, with the guidance of consultants, thrashes out the problems of planning and designing educational facilities. Communication between the community and the professionals gives direction to further action. In fact, the charette's greatest value frequently is the ad hoc follow-up committee which coordinates a charette's findings and keeps interest in a new school alive. The U. S. Office of Education no longer funds charettes but is an excellent source of general information on the subject. Write: William W. Chase, Deputy Director, Facilities Development Staff, U. S. Office of Education, 400 Maryland Avenue, S. W., ROB - 3, Room 2600, Washington, D. C. 20202.





York, Pa., had a charette to try to solve community social problems -- it was successful in part because of the use of posters such as this one, buttons, bumper stickers and circulars. Write: Cliss Keslar
725 G. Hardwick Place
York, Pa. 17404



WANTED: PEOPLE

TO HELP PLAN
YORK'S FUTURE

PEOPLE UNDER 30 CAN HAVE THEIR SAY
PEOPLE OVER 30 WITH IDEAS CAN
GET THEM HEARD

the focus is on

YOUTH
EDUCATION
EMPLOYMENT
ANNEXATION
HEALTH
HOUSING

A CHARRETTE IS a Happening
A CHARRETTE IS a way to help York
A CHARRETTE IS People talking to People
A CHARRETTE IS an intensified workshop
A CHARRETTE IS a creative planning process
A CHARRETTE IS People listening to People
A CHARRETTE IS an opportunity for involvement
A CHARRETTE IS a place for residents to discuss
A CHARRETTE IS a bridge across old roadblocks gaps
A CHARRETTE IS a place to grips about your problems
A CHARRETTE IS a beneficial manner in group discussion
A CHARRETTE IS pondering plans for making things better
A CHARRETTE IS a place to get free doughnuts and coffee
A CHARRETTE IS more brainstorming on contemporary problems
A CHARRETTE IS a chance to talk to your elected officials

FOR INFORMATION CALL:

CHARRETTE HEADQUARTERS:

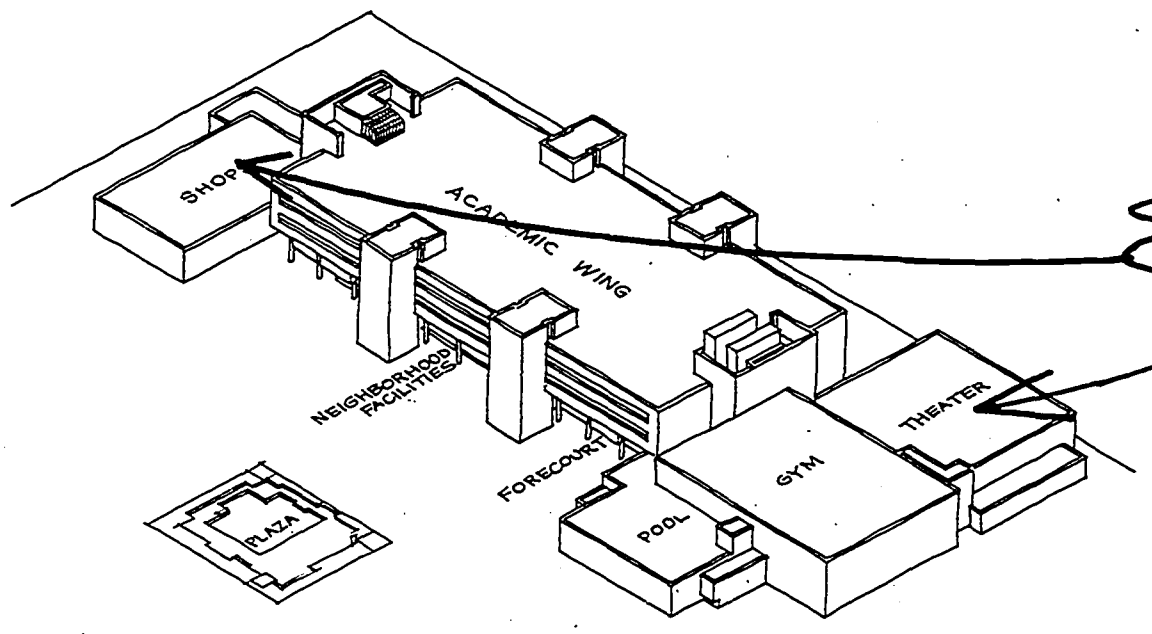
BOND SANITARY PRODUCTS BUILDING
Corner of King & Queen Streets in York

York, Pa., had a charette to try to solve community social problems -- it was successful in part because of the use of posters such as this one, buttons, bumper stickers and circulars.

Write: Cliss Keslar
725 G. Hardwick Place
York, Pa. 17404

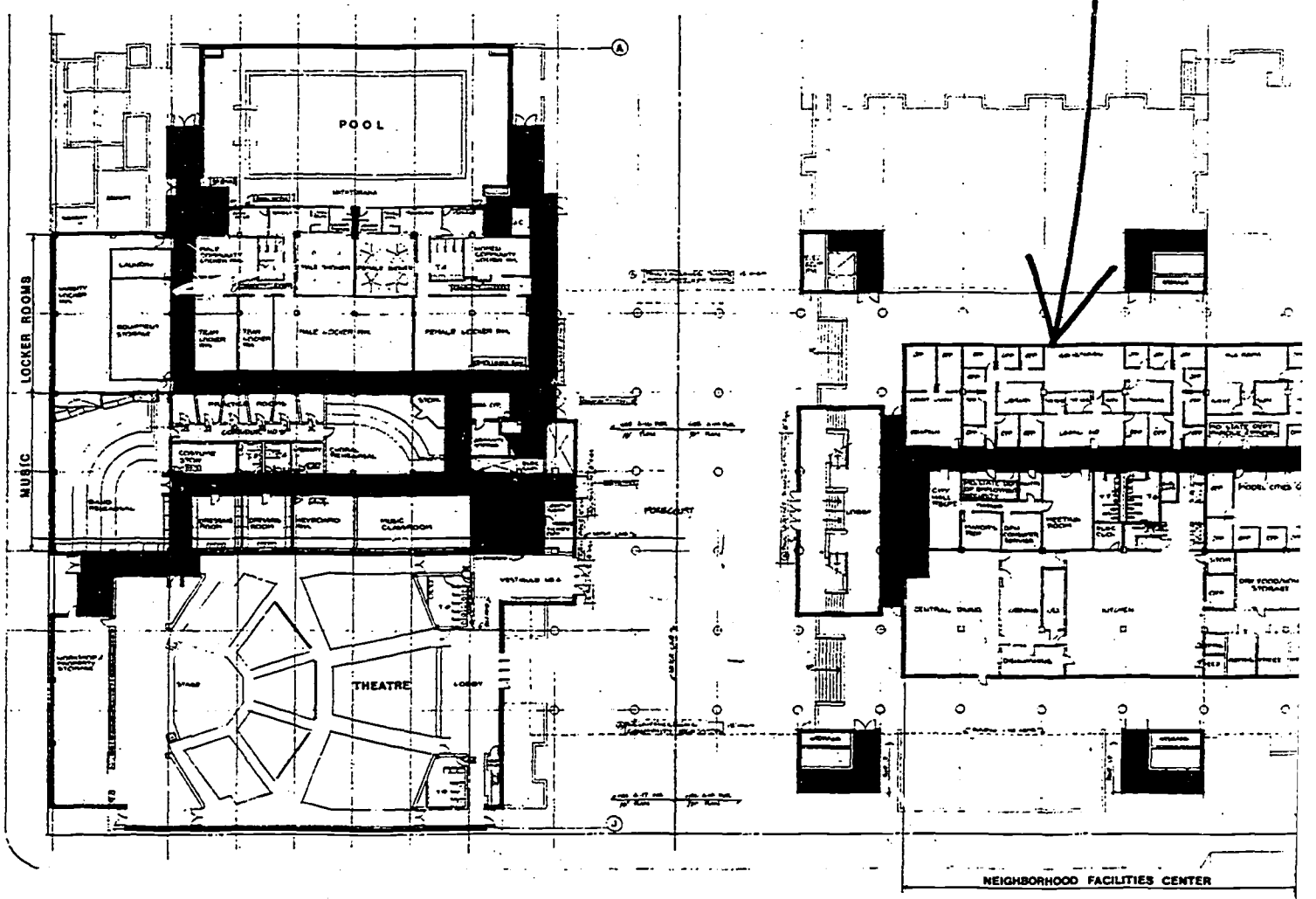
In early 1969, initial planning for a new Paul Dunbar Community High School in Baltimore was accomplished through a two-week charette. A wide-ranging and free-wheeling discussion among students and faculty, community representatives, city officials and professional consultants made John Hopkins Medical Center aware of community resentment, and the hospital subsequently offered the use of its laboratories and personnel for a new curriculum involving training for paramedical occupations.

PAUL LAURENCE DUNBAR
COMMUNITY HIGH SCHOOL
Write: Raymond P. Carpenter
Principal
Paul Laurence Dunbar High School
500 North Caroline Street
Baltimore, Md. 21205



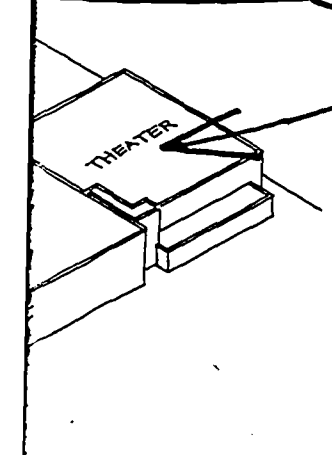
Another result of the Baltimore
of a Neighborhood Facilities Ce
Office of the Mayor, the Bureau
Cities, Legal Aid, Department o
others. Some facilities of the
community use during non-school
show movies, the dining room wi
shops will be available. The f
cannot be assessed until the sc
but the standards and the spiri
continuing via planning committ
and staff and management proced

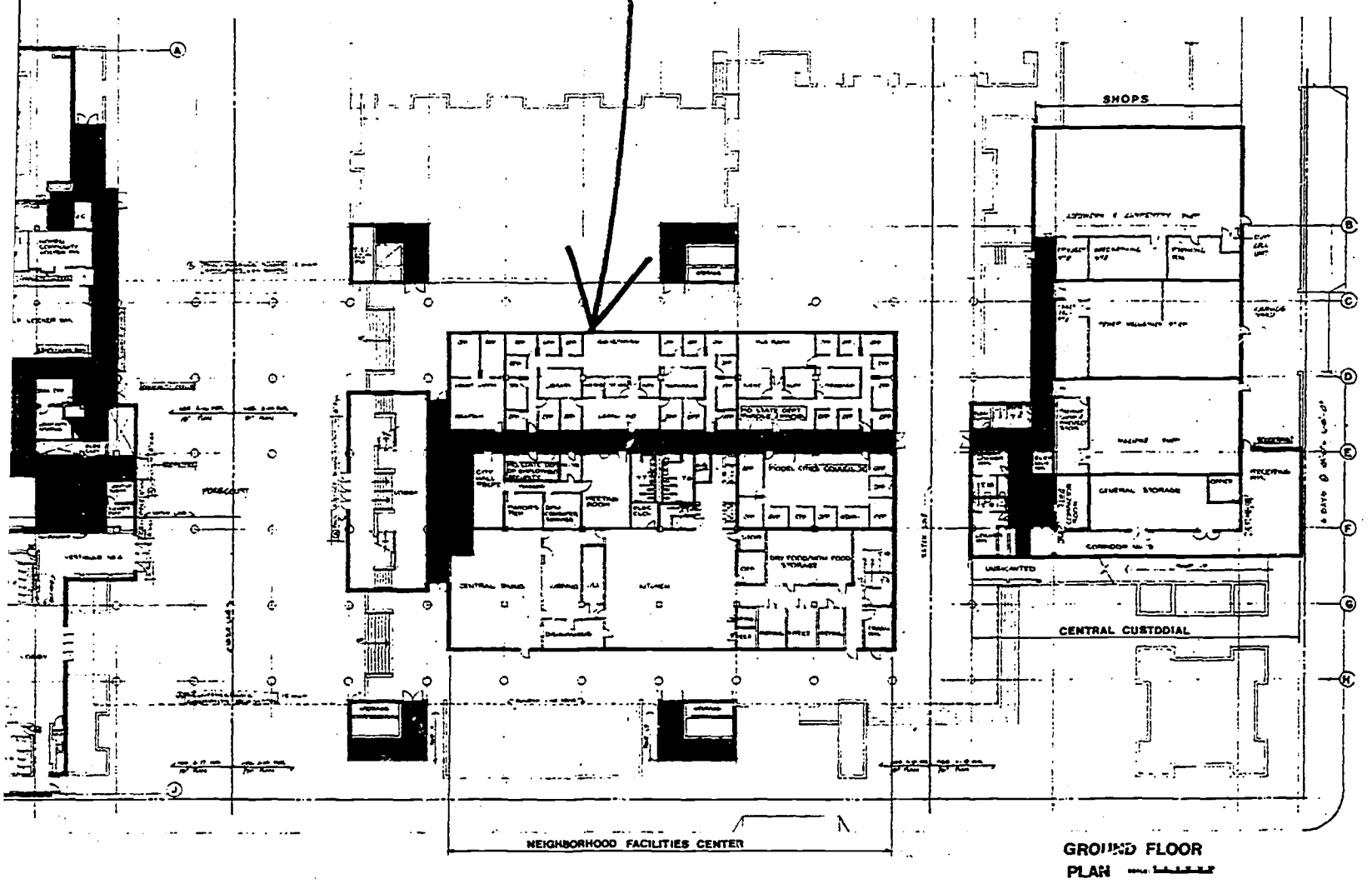
Write for: The
EFL
477
New



Another result of the Baltimore Charette was the inclusion of a Neighborhood Facilities Center with space for an Office of the Mayor, the Bureau of Consumer Services, Model Cities, Legal Aid, Department of Parole and Probation and others. Some facilities of the school will be available for community use during non-school hours -- the theater will show movies, the dining room will be open, and vocational shops will be available. The final value of the charette cannot be assessed until the school is opened in January 1974, but the standards and the spirit of the original effort are continuing via planning committees for curriculum development and staff and management procedures.

Write for: The Baltimore Charette
EFL
477 Madison Avenue
New York, N. Y. 10022

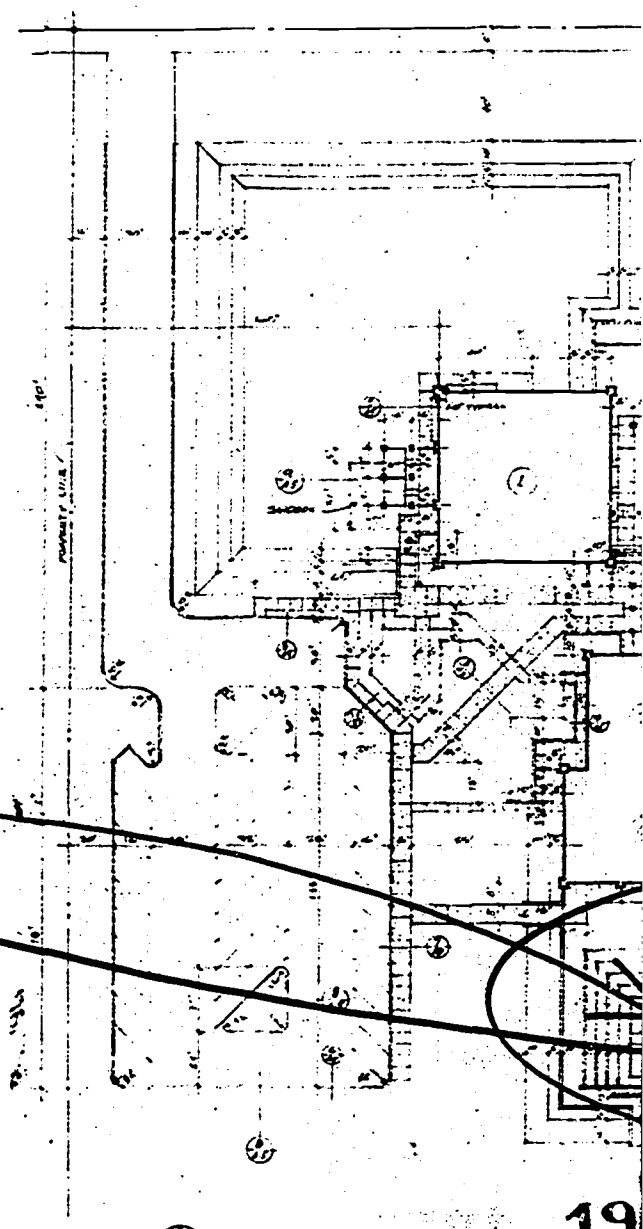




Charettes

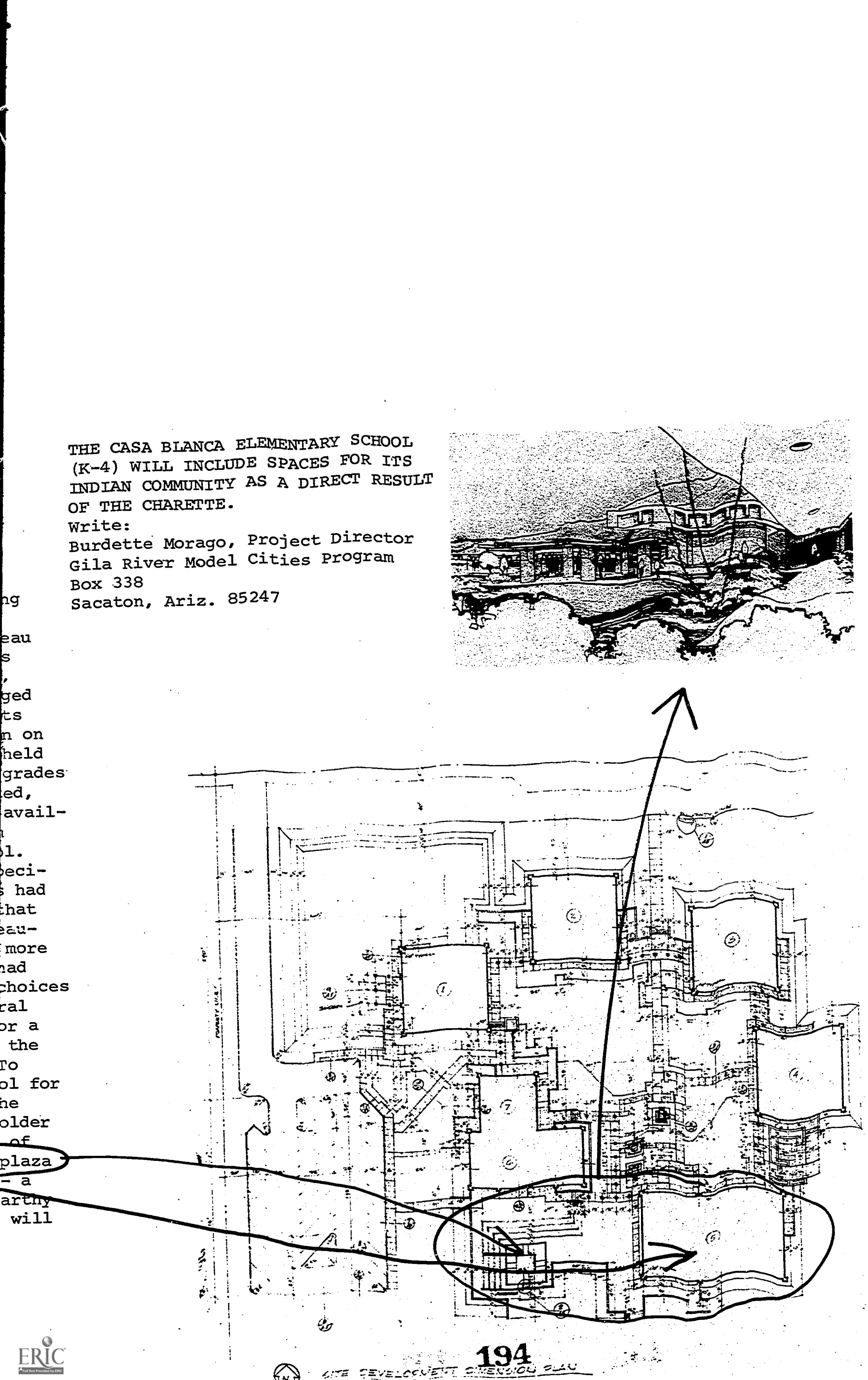
THE CASA BLANCA ELEMENTARY SCHOOL (K-4) WILL INCLUDE SPACES FOR ITS INDIAN COMMUNITY AS A DIRECT RESULT OF THE CHARETTE.
Write:
Burdette Morago, Project Director
Gila River Model Cities Program
Box 338
Sacaton, Ariz. 85247

The Gila River Indian Reservation in Arizona was faced with replacing or expanding an old K-4 school in the town of Casa Blanca. The Bureau of Indian Affairs usually controls building programs on reservations, but for the first time it encouraged the Gila River Tribe to develop its own education program for children on the reservation. A charette was held in April, 1971 to determine what grades and programs should be accommodated, and whether community facilities available under a model cities program should be included with the school. Within two months, educational specifications and architectural plans had been prepared. It is estimated that a year was cut off the usual bureaucratic process of approval. And more important, the Gilas themselves had made the choices. One of these choices was to hire an Indian architectural firm, which developed a design for a community school in keeping with the customs and life of the tribe. To encourage adults to use the school for education or other activities, the design includes areas where the older Indians will feel at ease. Some of these are an outdoor ceremonial plaza and a "cultural heritage" room -- a depressed area with a cavelike, earthy atmosphere where tribal folklore will be exhibited.

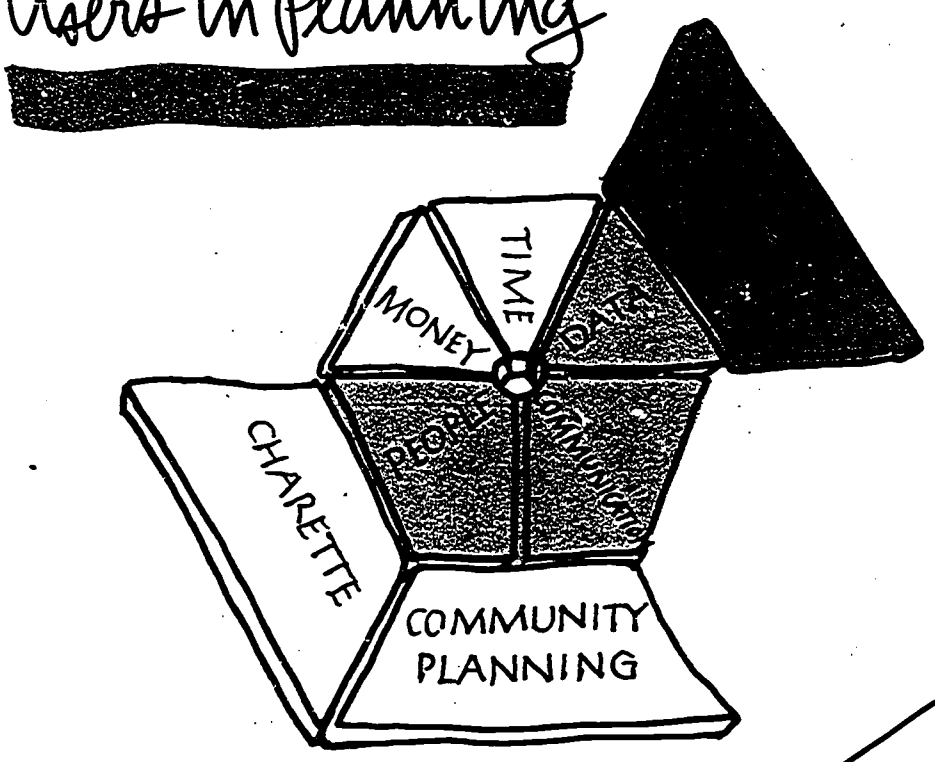


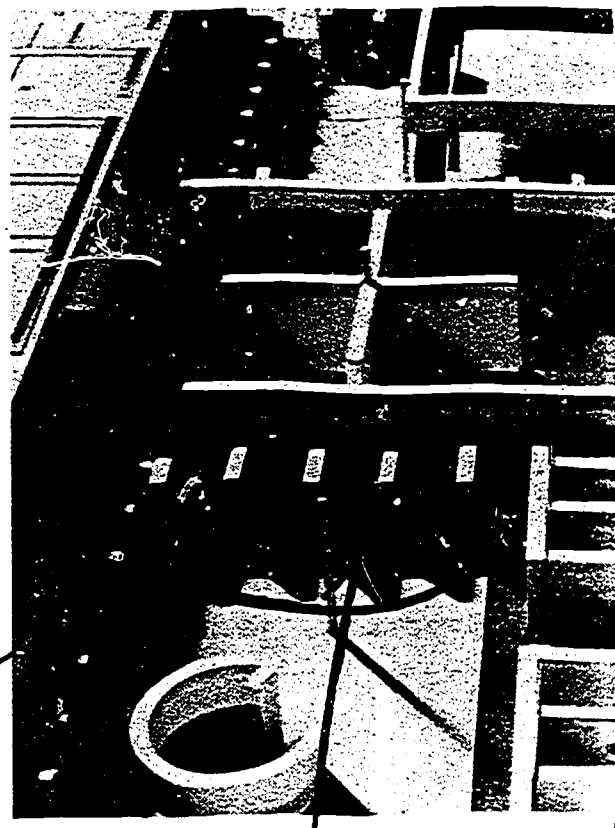
THE CASA BLANCA ELEMENTARY SCHOOL (K-4) WILL INCLUDE SPACES FOR ITS INDIAN COMMUNITY AS A DIRECT RESULT OF THE CHARETTE.

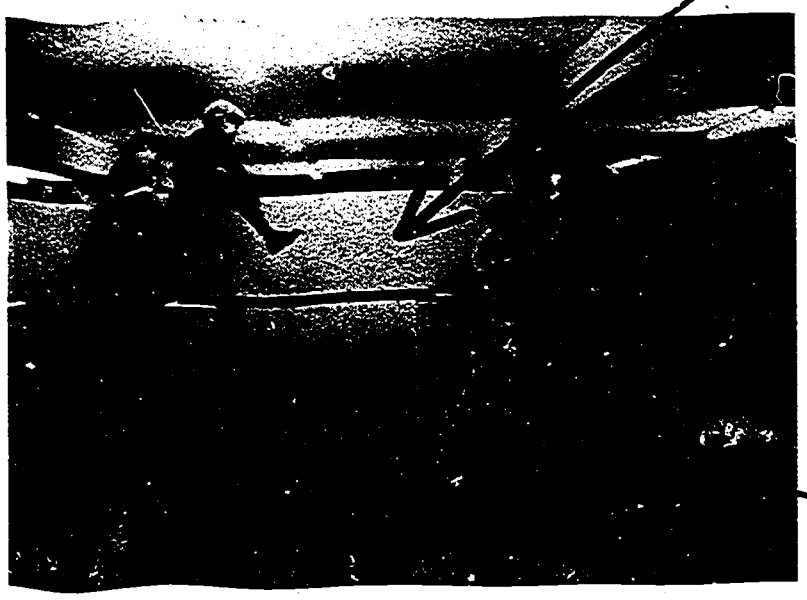
Write:
Burdette Morago, Project Director
Gila River Model Cities Program
Box 338
Sacaton, Ariz. 85247



Users in Planning

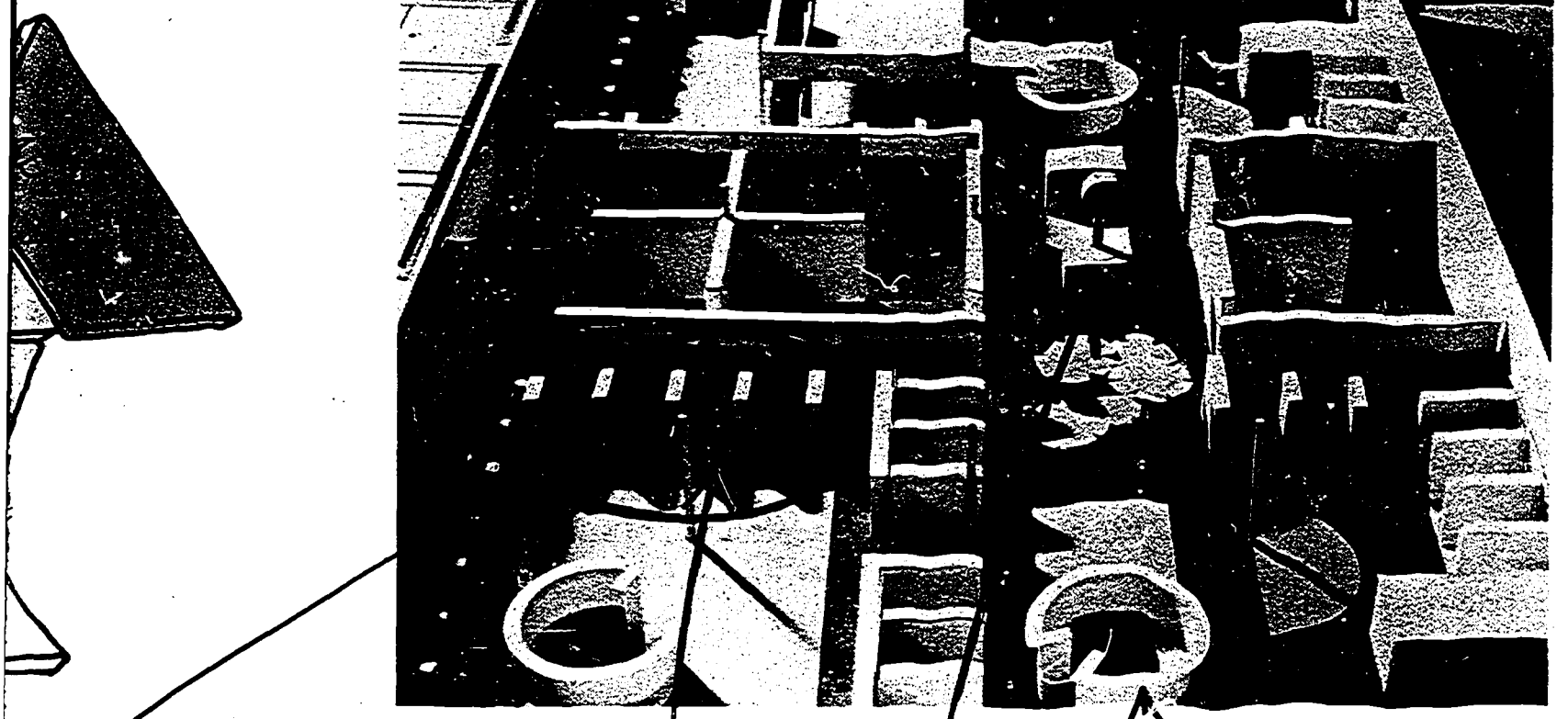






Users of schools, students a
in the planning process alon
have participated in charett
dents have been given a larg
environment. The Warehouse
Mass., for example, allowed
create their own environment
The parents asked the archit
to evolve a floor plan based
of the proposal was built by
like a town with a "city hal
mail, kitchen, mirror and
group activities and "neighb
age groups. These are compe
"houses" providing each pupi
he can effect change in his
are altered frequently, and
bridges, roofs or wood worki

Write:



Users of schools, students and teachers, are often involved in the planning process along with the community. They have participated in charettes, but in some cases the students have been given a larger role in planning their school environment. The Warehouse Cooperative School in Roxbury, Mass., for example, allowed pupils to design and, in effect, create their own environments within a converted warehouse. The parents asked the architect to work with pupils and staff to evolve a floor plan based on user requirements. A model of the proposal was built by the pupils. The result was much like a town with a "city hall" for public utilities (telephone, mail, kitchen, mirror and clock), "community centers" for group activities and "neighborhoods" for the separation of age groups. These are composed of a series of carrels called "houses" providing each pupil with a private space in which he can effect change in his environment. Pictures and graffiti are altered frequently, and scraps of lumber are available for bridges, roofs or wood working.

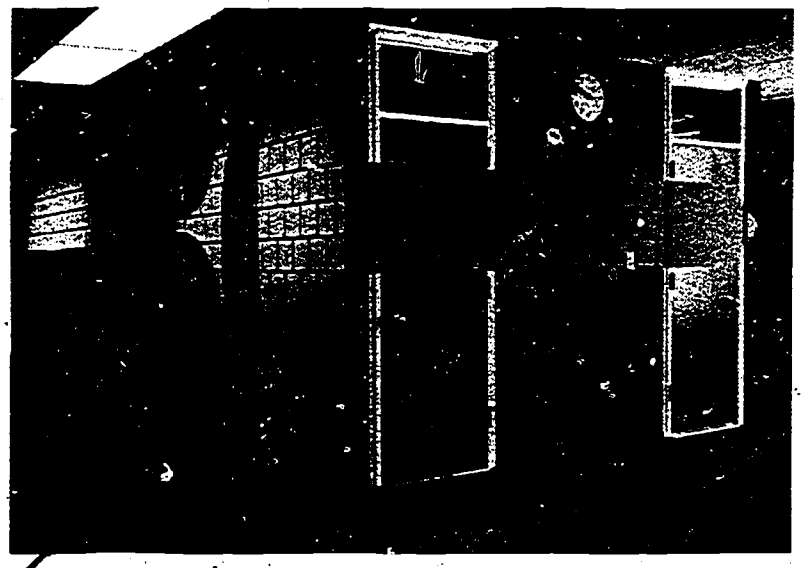
Write: Knowles & Darlene Daugherty
Warehouse Cooperative School
100 Magazine Street
Roxbury, Mass. 02119

Users in Planning

In planning the new North High School in Minneapolis, a class of sixteen students assisted the educational planning consultant for a couple of months. The students distributed questionnaires and tabulated the resulting student ideas and reactions to proposals for the new facility. Ideas were drawn from the community (primarily parents) during early design, when a week was set aside for people to come in to the school office to talk with staff from the Department of School Building Planning about plans for the new school. Later, during the preliminary design phase, the architects set up shop for two weeks in a drafting room of the school. Students, faculty and members of the community were free to visit, ask questions and make suggestions.

Write: Lawre
Admin
North
1719
Minne

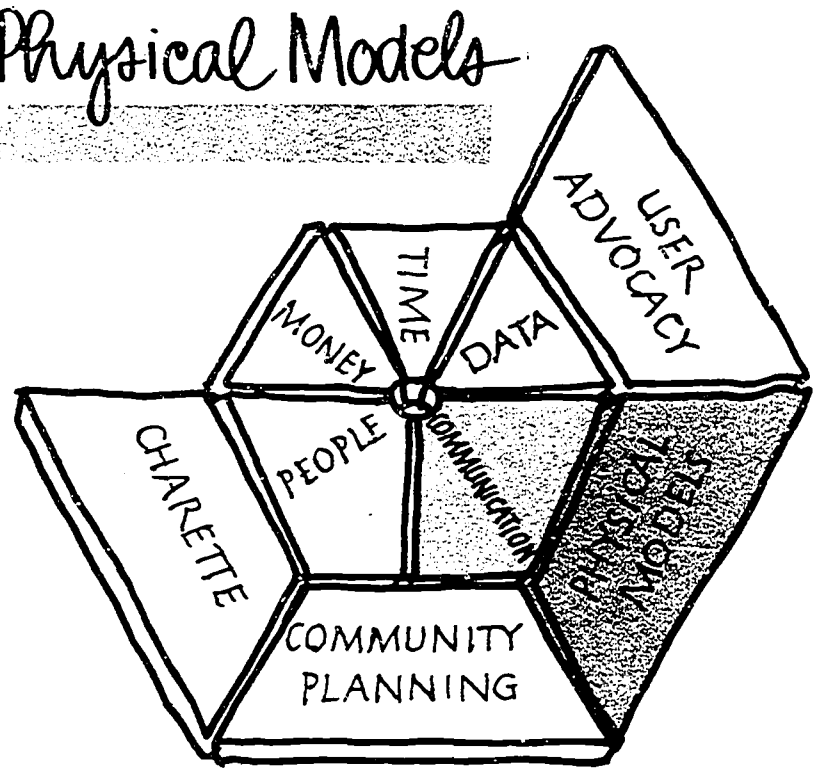
Several towns in Massachusetts have elicited the ideas of children for design of their schools. For an addition to the Brooks School now under construction in Lincoln, the architect held workshops with the sixth, seventh and eighth graders to discuss what they wanted in their future classrooms. As a direct response to student requests, colorful supergraphics are included. Many schools have placed view-windows and hardware for the convenience of the children rather than adults.



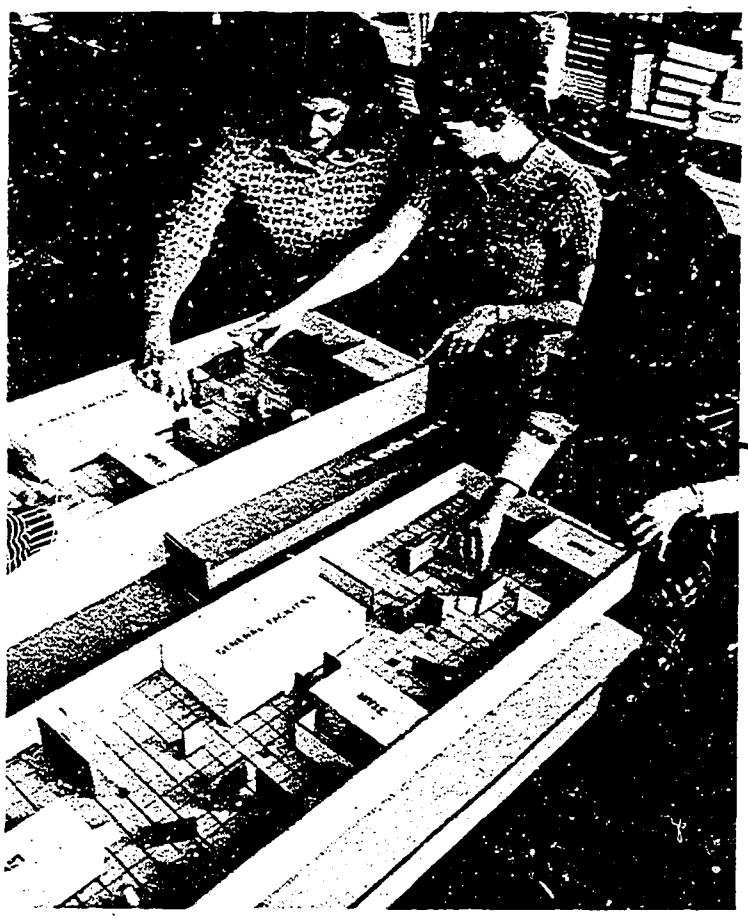
Write:
Randolph Brown
Superintendent
Center School
Lincoln, Mass. 01773

DISTRICT-WIDE K
Sketch of a typ
windows and sto
of kindergarten
Superintendent,
P. O. Box 428,

Physical Models



A model is an excellent technique to dra planning process and to give a comprehen proposed. Students at Harlem Prep in Ma them in the interior design of their sch Starting with general discussions on des interior designers worked with the stude using small-scale furniture and their ne of students and a few members of the fac method to arrive at an arrangement to satisfy the modus operandi of the curriculum. The students selected the furniture and determined its placement. Write: Edward Carpenter, Headmaster, Harlem Prep High School, 2535 Eighth Avenue, New York, N. Y. 10039.



Furniture models in drawer come complete with prices and name of manufacturer

Write:
John Z. Soso, Principal
Paul Revere School
555 Tompkins Avenue
San Francisco, Calif. 94110

For the Paul Revere School in representatives of the PTA are interior layout in the renovat the architect built a model wi and put the variable elements furnishings) in a drawer. An determine how much money is le individual pieces will be pric arrange the interior space to What they decide will be made for the project.

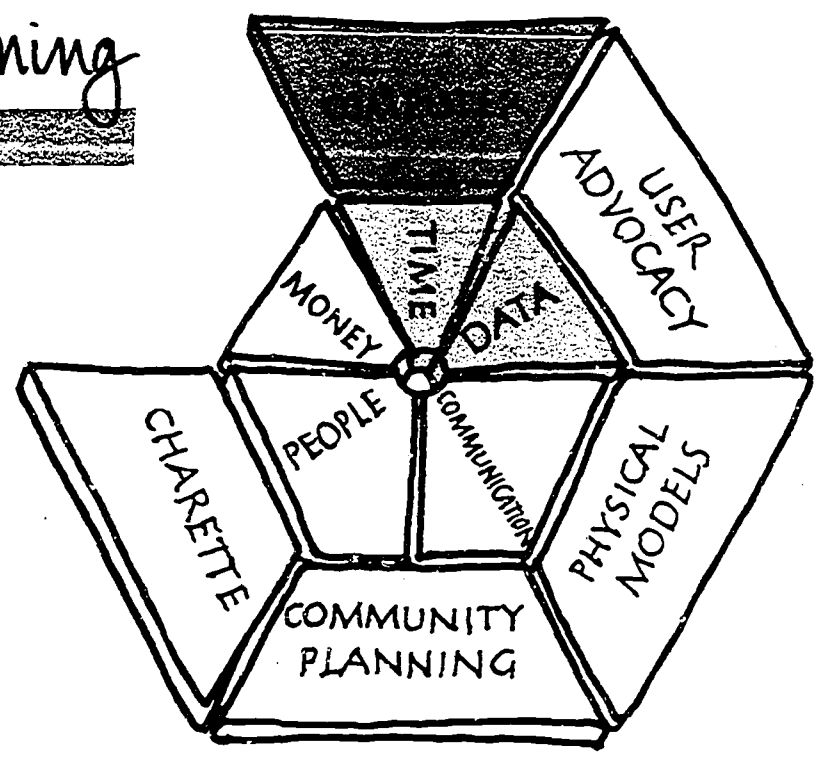
A model is an excellent technique to draw the uninitiated into the planning process and to give a comprehensible picture of what is proposed. Students at Harlem Prep in Manhattan built a model to assist them in the interior design of their school in a former supermarket. Starting with general discussions on design and quality of space, interior designers worked with the students and faculty for three days. Using small-scale furniture and their newly acquired knowledge, a group of students and a few members of the faculty used a trial and error method to arrive at an arrangement to satisfy the modus operandi of the curriculum. The students selected the furniture and determined its placement.
Write: Edward Carpenter, Headmaster, Harlem Prep High School, 2535 Eighth Avenue, New York, N. Y. 10030.

Furniture models in drawer come complete with prices and name of manufacturer

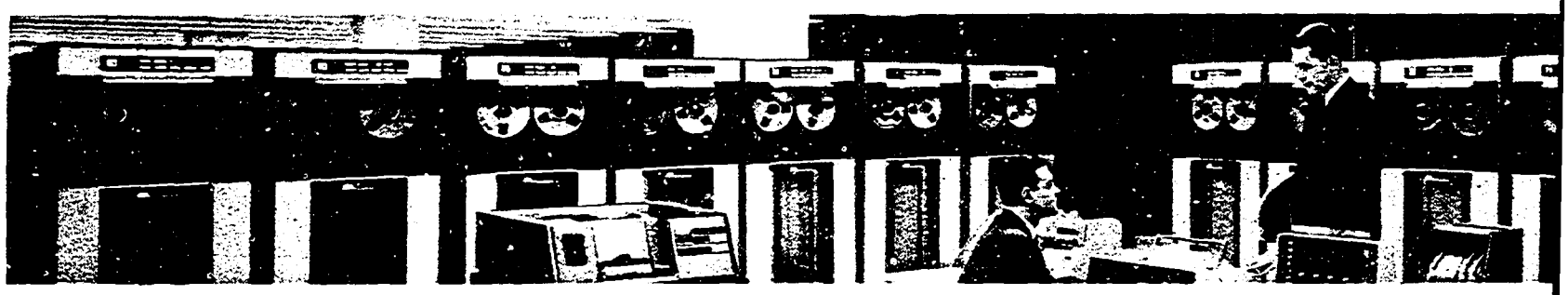
Write:
John Z. Soso, Principal
Paul Revere School
555 Tompkins Avenue
San Francisco, Calif. 94110

For the Paul Revere School in San Francisco, faculty and representatives of the PTA are using a model to plan the interior layout in the renovated open plan school. For this, the architect built a model with all fixed elements in place and put the variable elements (partitions and interior furnishings) in a drawer. An early construction bid will determine how much money is left over for furnishings, and individual pieces will be priced. Teachers and parents will arrange the interior space to fit their needs and budget. What they decide will be made a part of the working drawings for the project.

Use of Data in Planning



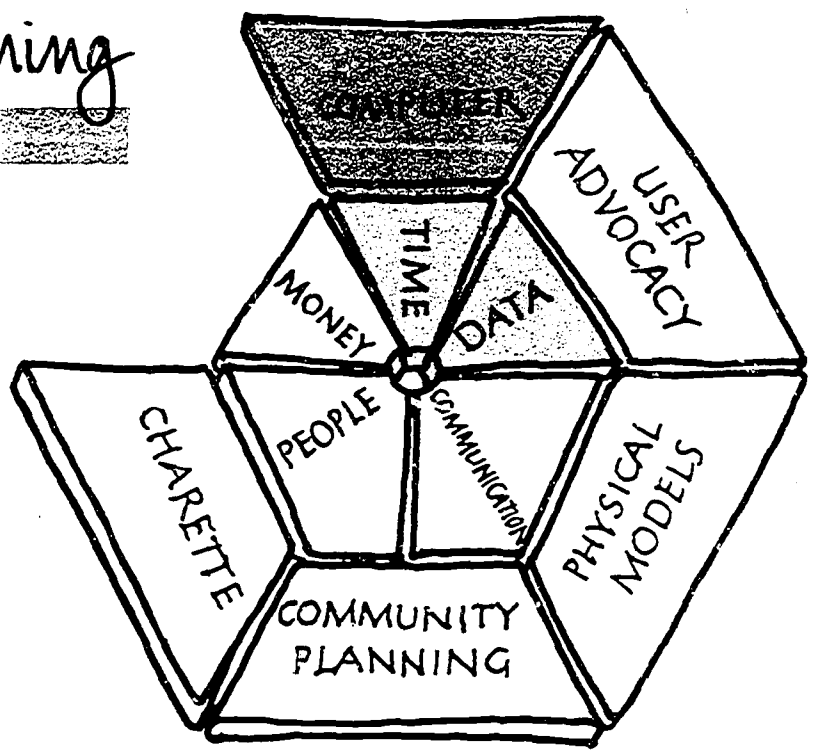
To plan for
necessary t
quantities
to predict
tions requi
mation. Wh
population?
dren live?
graded or n
will they b
4-4-4? Wha
of existing
the new sch
Because of
data involv
some citie
computers



In Ann Arbor, a system is being set up to make a computerized map of population densities and educational facilities. The computer program should automatically change district lines as changes in population or facilities occur. With information about the existing facilities also stored in the computer, the ultimate goal is to predict required facilities so as to aid in capital programming and financing. Write: Philip McIlnay, Deputy Superintendent for Planning, Ann Arbor Public Schools, 2555 South State Street, Ann Arbor, Mich. 48104.

Baltimore uses a data system
planning study of the school
students by census tract and
assign each student to a scho
and for a particular program.
formation, the system can eas
staff inventory from which th
and teaching staff can be pro
formation gives a better basi
budget and allows easy analys
organizational patterns for t
students. Write: Francis He
Physical Plant, Baltimore Cit
Street, Baltimore, Md. 21218.

ning

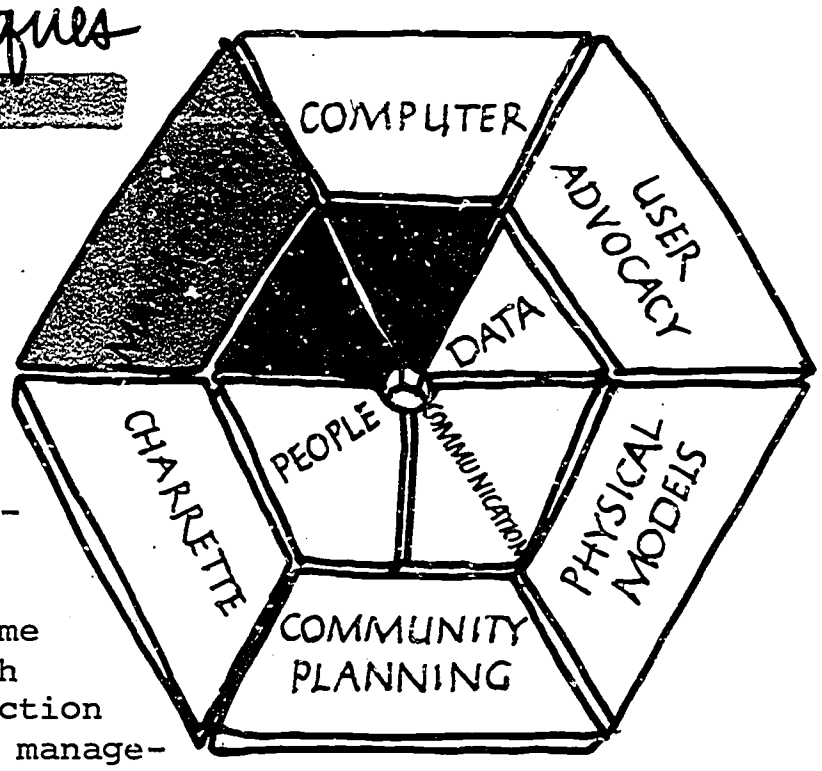


To plan for schools, it is necessary to deal with vast quantities of data; in effect, to predict the future. Predictions require a lot of information. What is the school population? Where do the children live? Will the schools be graded or non-graded; if graded, will they be 6-3-3, 6-2-4 or 4-4-4? What is the condition of existing schools? How are the new schools to be financed? Because of the vast amount of data involved in school planning, some cities are turning to computers for assistance.

is being set up to
of population densi-
acilities. The com-
utomatically change
ges in population or
n information about
s also stored in the
goal is to predict
as to aid in capital
ing. Write: Philip
ntendent for Planning,
ls, 2555 South State
h. 48104.

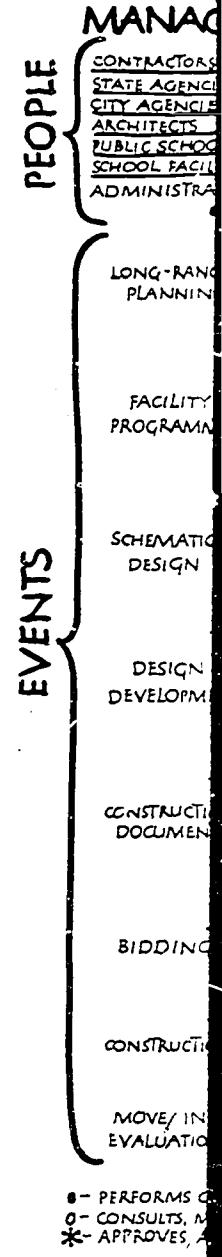
Baltimore uses a data system developed from its management planning study of the school system. The computer locates students by census tract and determines feeder patterns to assign each student to a school at the appropriate level and for a particular program. With this computerized information, the system can easily make a current space and staff inventory from which the requirements for facilities and teaching staff can be projected. The up-to-date information gives a better basis for planning the capital budget and allows easy analysis of the effect of different organizational patterns for the schools or reassignments of students. Write: Francis Hellstern, Programmer, Office of Physical Plant, Baltimore City Public Schools, 2330 St. Paul Street, Baltimore, Md. 21218.

New Management Techniques

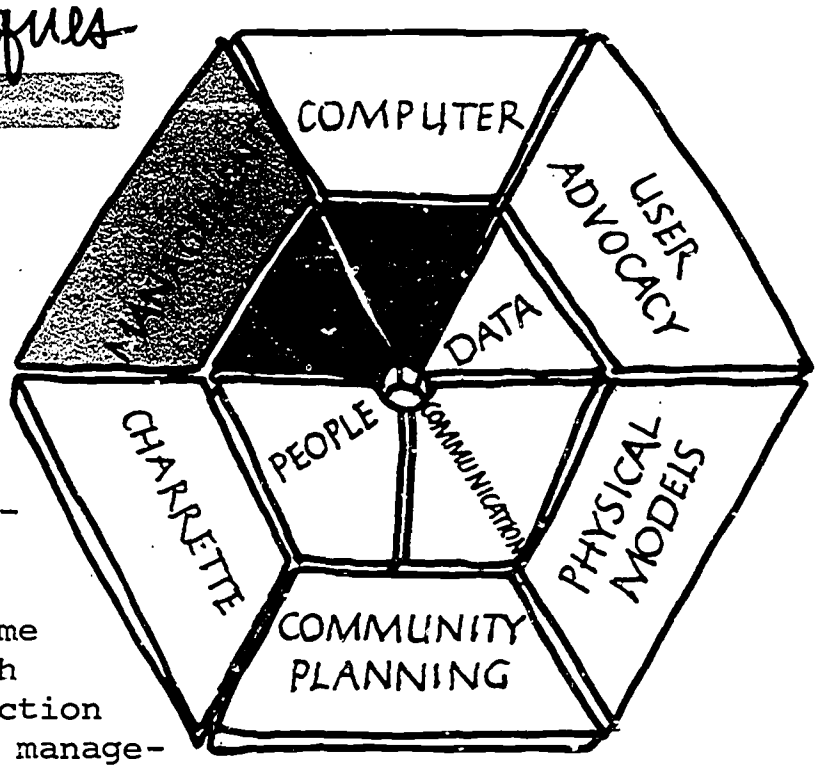


Planning schools, once the complete responsibility of the school board, superintendent and architect, has now become a community affair. Unfortunately, with so many more people involved, it takes longer to reach agreements, and this lengthened time schedule causes a financial problem. Current construction costs have risen so fast that each hour's delay on a $10-million building costs $500. So it has become essential to develop procedures which cut down on the total design-construction time. There are two new techniques, management information system and fast-tracking.

Last year, the Baltimore City Public Schools established an Office of Physical Plant which has three major responsibilities --programming and long-range planning, design and construction coordination, and maintenance and operations. Because the city's $80-million school construction program involves 90 city and state agencies, the Office of Physical Plant developed a program that defines each agency's responsibilities and details for all agencies the sequence of events from initial planning to construction. The program, called the Management Information System for Facilities Planning, is plotted on a "network" which includes planning and specification guidelines, cost and area analysis techniques, cost control procedures, facility evaluation procedures, as well as countless items of a reference nature. So that participants know their exact roles in the overall construction project, a final document is distributed to all involved parties. The city believes this will result in fewer delays and lead to a substantial cost savings. Write: Curtis Lantz, Assistant Superintendent, Office of Physical Plant, Baltimore City Public Schools, 2330 St. Paul Street, Baltimore, Md. 21218.



echniques

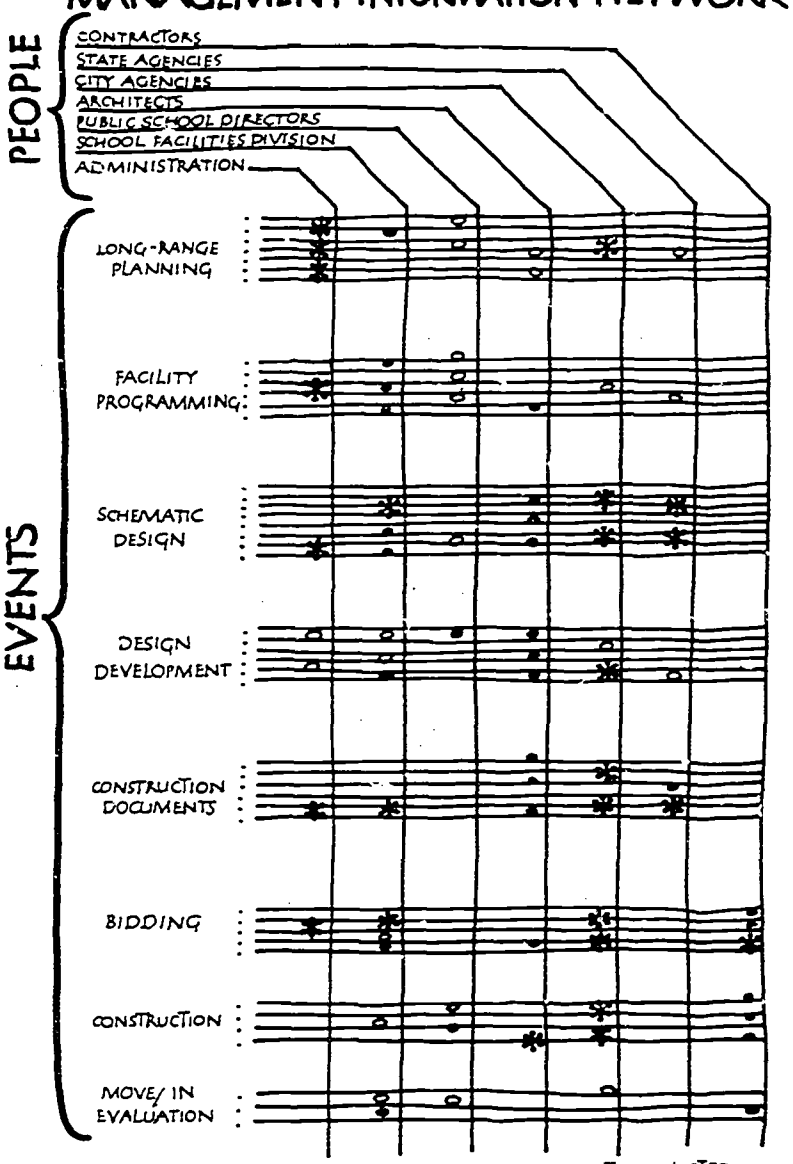


omplete
board,

ffair.
more
nger
s
ses a
construc-
t that
illion
has become
res which
-construction
hniques, manage-
fast-tracking.

y Public Schools established an
ch has three major responsibilities
planning, design and construction
e and operations. Because the
nstruction program involves 90
Office of Physical Plant developed
agency's responsibilities and
sequence of events from initial
he program, called the Management
ities Planning, is plotted on a
anning and specification guidelines,
iques, cost control procedures,
es, as well as countless items of a
articipants know their exact roles
project, a final document is
parties. The city believes this
and lead to a substantial cost
ntz, Assistant Superintendent, Office
e City Public Schools, 2330 St. Paul
3.

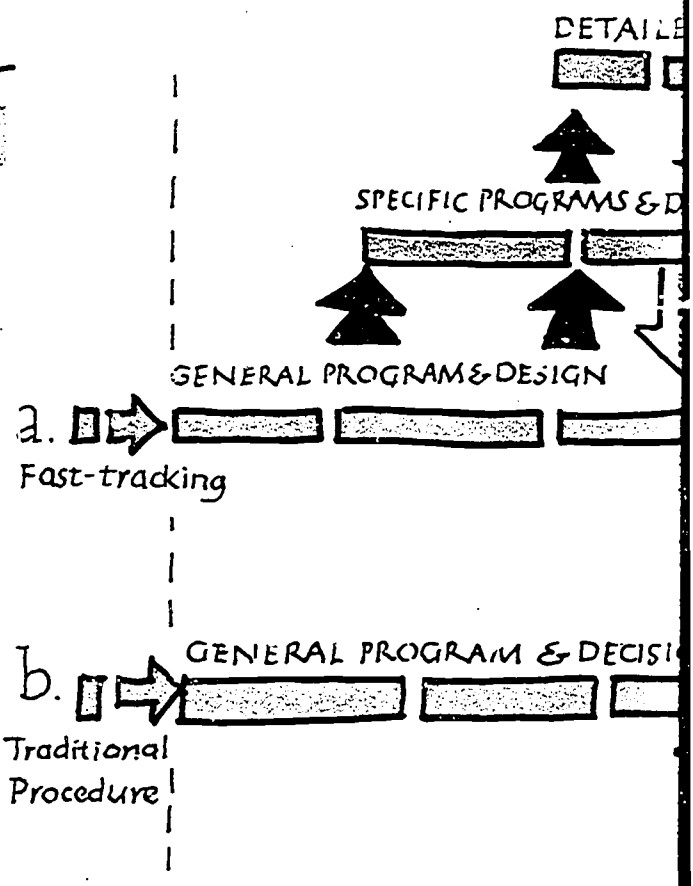
MANAGEMENT INFORMATION NETWORK



●- PERFORMS OR IS RESPONSIBLE FOR THAT PARTICULAR ACTIVITY LISTED.
O- CONSULTS, MONITORS OR ASSISTS THE LISTED ACTIVITY.
✱- APPROVES, AUTHORIZES OR SIGNS.

New Management Techniques

Individual building programs can be shortened by overlapping several of the tasks that traditionally are done one after another. Most of this overlapping is done by letting a contractor start work before an architect completes the design drawings. The simplest example is for a contractor to commence excavating the foundations as soon as an architect determines the size and height of the building. It's no longer necessary to wait for carpet colors to be selected before breaking ground.

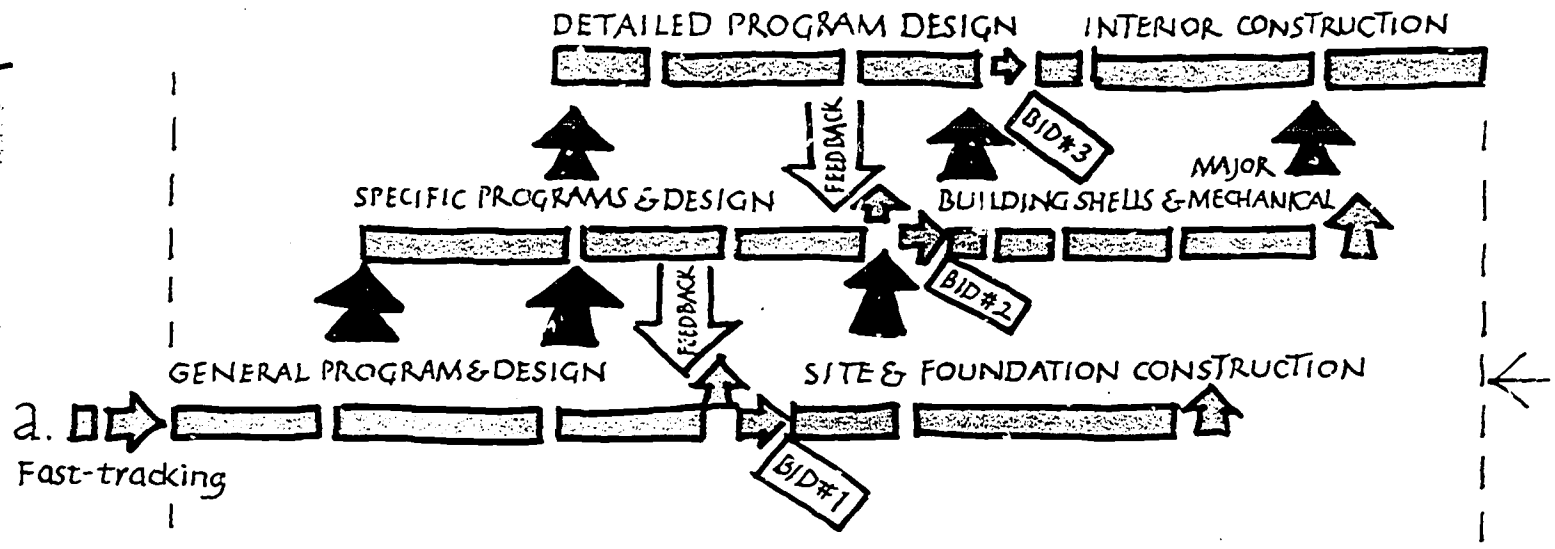


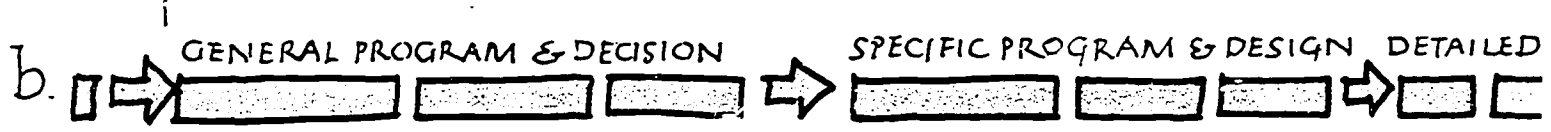
Working in overlapping sequences could cause chaos if the operation is not carefully controlled. A management technique popularly called fast-tracking (also called time/cost control, unified team action program or phased bidding)* is used to organize all the steps of design and construction in order to reduce delivery time of the building, and thereby decrease the cost of financing construction. By fast-tracking several levels of overlapping schedules at one time, a large, experienced architectural firm says it can reduce the design and construction time of a building by up to 50%. Fast-tracking, however, is illegal in some states, because the finished cost of a building must be known at the outset of a project. In addition, fast-tracking requires the active participation of the owner-client, who must be prepared to make binding decisions on overall space concepts during preliminary design. The development, however, proceeds during the time-consuming initial construction phases, and changes in interior arrangements and finishes are possible for a much longer period than in conventional construction.

* See also Systems Building

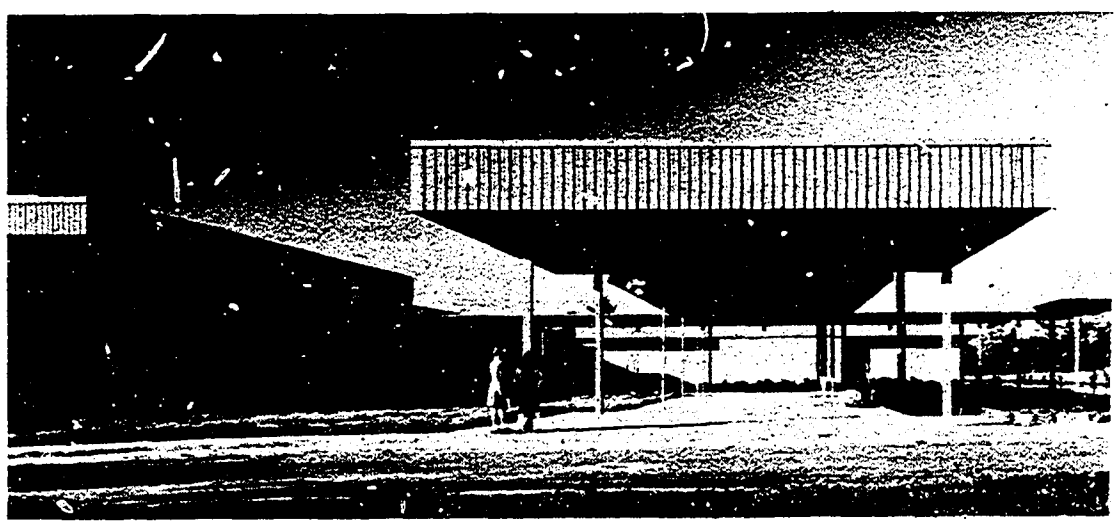
chniques

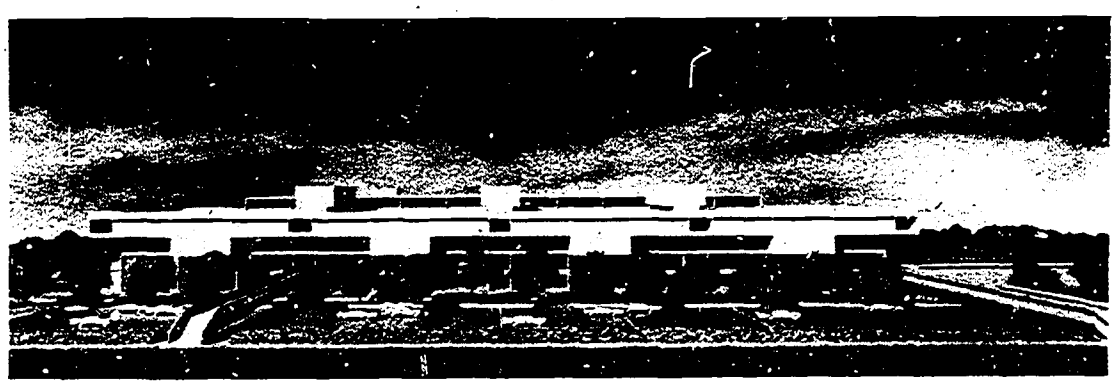
an be short-
the tasks
e after
ping is
tart work
the design
e is for
ating the
itect
of the
ssary to
elected





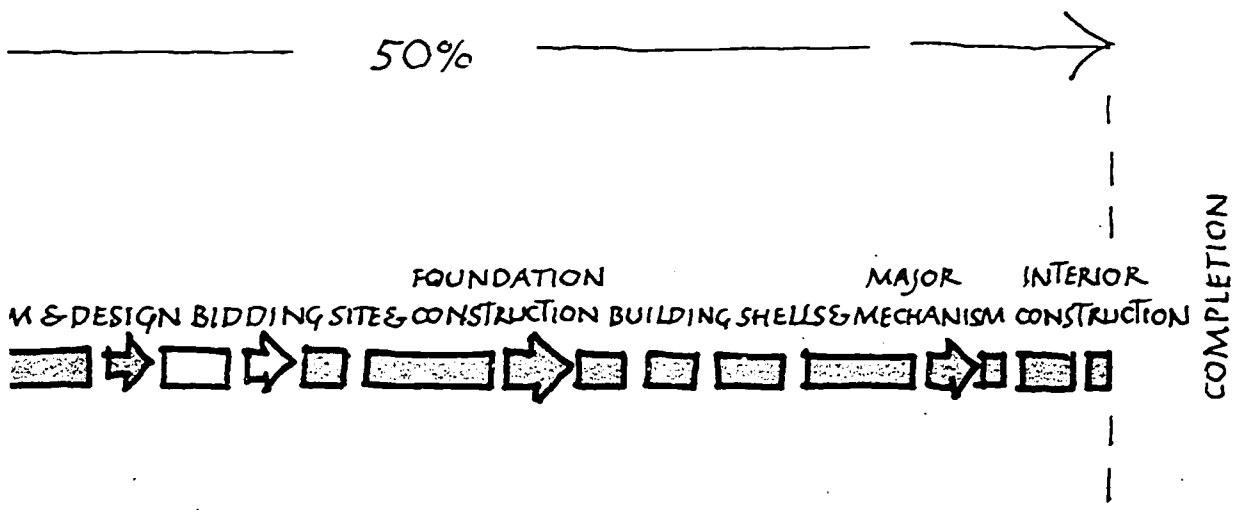
es could cause
carefully controlled.
ly called fast-
t control, unified
bidding)* is used to
gn and construction
me of the building,
of financing construc-
l levels of overlapping
, experienced architec-
the design and construc-
to 50%. Fast-tracking,
ates, because the
st be known at the out-
, fast-tracking requires
e owner-client, who
ng decisions on overall
ary design. The develop-
the time-consuming
nd changes in interior
possible for a much
onal construction.





DESIGN & PROGRAMMING
ACTUAL CONSTRUCTION

Fast-tracking ("a") schedules procedures so that tasks can be performed simultaneously and in coordination with each other. The traditional building procedure ("b") schedules program and construction tasks in a linear sequence requiring one or two years to complete. Fast-tracking can save up to 50% of the total time.



FAST-TRACK, COMBINATION SYSTEMS & CONVENTIONAL

PIPER HIGH SCHOOL
Write: Benjamin C. Willis
Superintendent
School Board of Broward County
1320 Southwest 4th Street
Fort Lauderdale, Fla. 33312

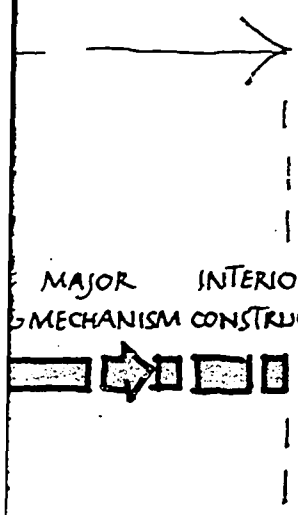
FAST-TRACK, CONVENTIONAL CONSTRUCTION

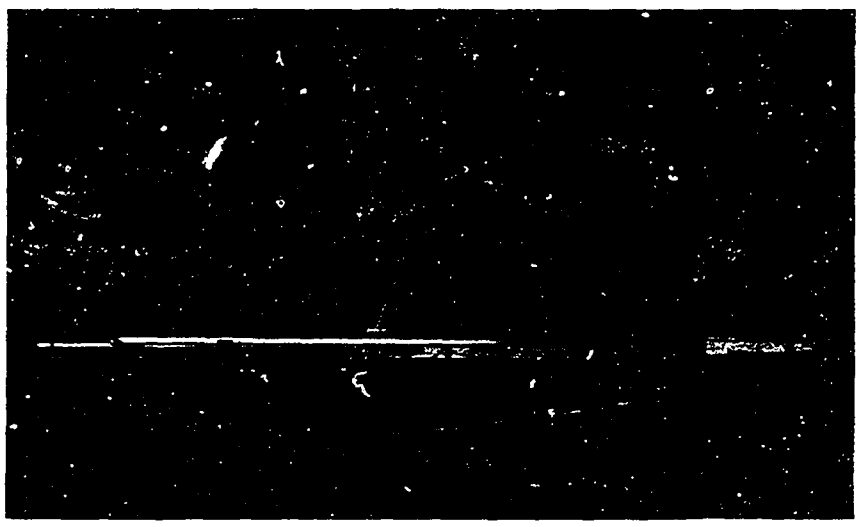
EASTWICK HIGH/
GEORGE PEPPER MIDDLE SCHOOL
Write: Glen Earthman, Executive Director
School Facilities
Philadelphia Public Schools
21st and the Parkway
Philadelphia, Pa. 19103

FAST-TRACK, SYSTEMS BUILDING

FOWLER DRIVE ELEMENTARY SCHOOL
Write: Charles McDaniel
Superintendent
Clarke County School District
P. O. Box 1708
Athens, Ga. 30601

ures so that tasks can be
dination with each other.
"b") schedules program and
nce requiring one or two
n save up to 50% of the total time.





ON

FAST-TRACK, SYSTEMS BUILDING

FOWLER DRIVE ELEMENTARY SCHOOL
Write: Charles McDaniel
rector Superintendent
Clarke County School District
P. O. Box 1708
Athens, Ga. 30601

In a time of expanding options and multiple decisions, the process of <u>how</u> a school gets to be is as important as <u>what</u> the school wants to become. These procedures are not guaranteed to satisfy the problems, but obviously the traditional methods have slowed the design and construction process to a point where a change in techniques must be made. At the same time, the rights of users to be heard during planning of public buildings is now firmly established and cannot be ignored. Therefore, combinations of these techniques as well as new procedures yet to come must accommodate the extra burden of interpreting, assimilating, and fulfilling the wishes of many new voices in school design.

INDEX

Acoustics

Controlling the sounds made by people and things is an important part of designing today's schools because of new kinds of spaces and new ways of using them. Many schools are being built without partitions, and in these open plan schools independent groups should be able to pursue their activities uninterrupted by noise from others even though no physical barriers separate them. Also, school space is often used for different purposes at different times of day. City schools have an additional need to be insulated from outside sounds of sirens, airplanes, traffic, and so on.
See: 3.OPEN PLAN, p. 32
See: 5.COMMUNITY/SCHOOLS, p. 64
See also Auditoriums

With the development of new kinds of school spaces, attitudes towards noise have changed slightly; in open plan schools, a fairly high level of background noise is acceptable, though high-frequency noises and unwanted but understandable conversation are not. Features of a building and its furnishings often help reduce sound -- carpet, acoustical ceilings, furniture, space definers and movable walls, and even people. The low, steady hum of airconditioning equipment helps mask more piercing sounds, and the airconditioned building is sealed against outside noise.
See: Acoustics and Educational Facilities, obtainable from the division of Educational Facilities Planning, State Education Department, Albany, N.Y. 12224
See also Airconditioning

Criteria (called performance specifications) for the design of school airconditioning systems have been developed in connection with systems-built school projects across the country. Although they were developed to meet the specific needs of the projects they are part of, they can be of value to others.
See also Performance Specifications
See also Systems Building for a list of projects that have generated performance specifications and places to write for detailed information about them

Air Conditioning

Airconditioning -- heating, ventilating cooling, and humidity control -- is becoming standard equipment for school buildings. Already 8% of the nation's schools are airconditioned, and 30% of all new schools built each year are equipped with airconditioning. Reasons for airconditioning schools include:

o Extended school year. Schools opera through the summer months.
See also Rescheduling

o Community use. Schools make their facilities available to community grou after school hours. Adults accustomed airconditioned movies, department stor and offices will resist attending comm nity functions held in schools that ar not airconditioned.
See: 5.COMMUNITY/SCHOOLS, p.64

o Open plan. Because open plan schoo contain large areas of space located a long way from windows, the interiors o the buildings require mechanical venti lation. Airconditioning not only solv this problem, but also helps to improv the acoustical quality of large spaces
See: 3.OPEN PLAN, p. 32
See also Acoustics

When airconditioning is installed in a compact, open plan school, its cost is often partly offset by building on les land, with shorter exterior walls, les glass, and no operable windows. Insta airconditioning in older schools is mo economical when other changes are made the same time; it is especially econon when it is part of a modernization pro because it allows the designer to rea traffic patterns, move or eliminate p

See also Performance Specifications
See also Systems Building for a list of projects that have generated performance specifications and places to write for detailed information about them

Air Conditioning

Airconditioning -- heating, ventilating, cooling, and humidity control -- is becoming standard equipment for school buildings. Already 8% of the nation's schools are airconditioned, and 30% of all new schools built each year are equipped with airconditioning. Reasons for airconditioning schools include:

o Extended school year. Schools operate through the summer months.
See also Rescheduling

o Community use. Schools make their facilities available to community groups after school hours. Adults accustomed to airconditioned movies, department stores and offices will resist attending community functions held in schools that are not airconditioned.
See: 5.COMMUNITY/SCHOOLS, p.64

o Open plan. Because open plan schools contain large areas of space located a long way from windows, the interiors of the buildings require mechanical ventilation. Airconditioning not only solves this problem, but also helps to improve the acoustical quality of large spaces.
See: 3.OPEN PLAN, p. 32
See also Acoustics

When airconditioning is installed in a new, compact, open plan school, its cost is often partly offset by building on less land, with shorter exterior walls, less glass, and no operable windows. Installing airconditioning in older schools is most economical when other changes are made at the same time; it is especially economical when it is part of a modernization program, because it allows the designer to rearrange traffic patterns, move or eliminate partitions, or fill in windows without fear of destroying natural ventilation patterns.
For help in designing airconditioning systems, see performance specifications developed in conjunction with systems building projects. These are listed with names and addresses under Systems Building.
See: Airconditioning for Schools, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: 2.MODERNIZATION, p. 16
See also Performance Specifications

Air Rights

Air rights is a legal term embodying the idea that owning a plot of land means owning the space above the land as far up as it is possible to build. The owner of land with buildings on it can sell or lease the space above his buildings to other builders. In densely populated urban areas, the lease or sale of air rights can be a financial boon. A school district can build a school on land it owns, then lease or sell the air rights on top of the school to another developer who will build a second structure above the school. The school district can use rental or sale income to defray the cost of purchasing the land. Or schools themselves can be built in air rights over publicly owned property, such as railroad yards or highways.
Write: Samuel Kaplan, Director of Development, New York City Education Construction Fund, 250 Broadway, New York, N. Y. 10007
See also Financing School Construction
See also Joint Occupancy
See also Sites for Schools

Notes

Air Structures

Gyms, field houses and student activity centers are among the more expensive kinds of educational facilities. In recent years a new kind of structure has been developed that will house these facilities, and although it can span long distances, it is light and economical. These air structures, or bubbles, are made of durable membranes held up by air pressure supplied by a pump. Cables anchored to the ground prevent the larger air structures from floating away. Characteristics of air structures include:

o Cost. Air-supported structures can be considerably less expensive to build than conventional buildings.

o Relocatability. Bubbles can be taken down, folded up and stored or removed to a new location -- just like large tents.

o Durability. Materials now available for fabricating air structures can withstand the effects of constant exposure to sunlight and are not easily punctured. These new materials may make it possible for manufacturers to offer bonds on their products' durability, as do manufacturers of conventional roofing systems.

o Construction time. Once the manufactured components have been delivered, it takes only a day or two to inflate a bubble.

o Size. Air structures can be large enough to enclose a fieldhouse or an entire college campus.

o Interior quality. The space enclosed by a bubble can be as bright as outdoors, since the membranes may be opaque, clear or translucent. The advantage is in not being exposed to rain or extreme temperatures.

Air structures have been, or will soon be, used for:

o Covering tennis courts, an all-purpose athletic building and a swimming pool. Air structures do not deteriorate with long exposure to moisture, and water from the pool that condenses on the structure's interior surface either evaporates or flows down walls instead of dripping directly down onto spectators.
Write: William H. Truitt, Headmaster, The Forman School, Norfolk Road, Litchfield, Conn. 06759

o Building a greenhouse and adding an athletic facility to a high school.
Write: Robert Finley, Superintendent of Schools, Glen Cove Public Schools, Glen Cove, N. Y. 11542

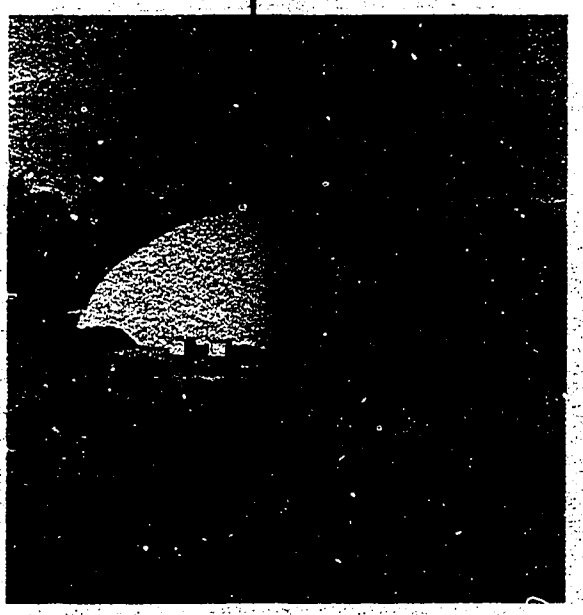
o An open plan early childhood education center.
Write: Edward C. Pino, Superintendent, Cherry Creek Schools, 4700 South Yosemite Street, Englewood, Colo. 80110

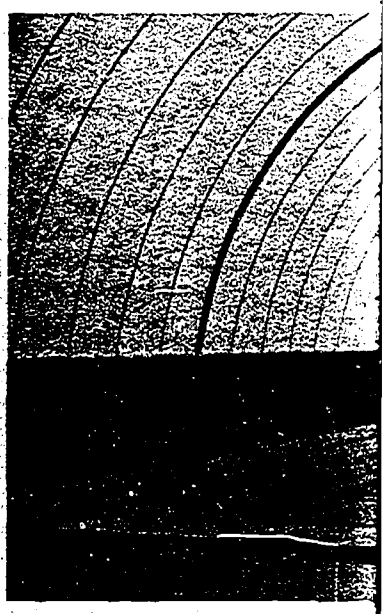
o Encapsulating an entire campus center. A California college plans to encapsulate its main academic facilities with a 3-acre air-supported structure.
Write: Leland Newcomer, President, LaVerne College, 1950 Third Street, LaVerne, Calif. 91750

o Building
branch of
Columbia,
of air-inf
built and
Write: Bla
Environ
Columbi

o Enclosi
Polytechni
school hem
accommodat
on the roo
letic faci
by an air-
Write: Pau
Physica
Polytec
Brookly

For additi
structures
See: Air S
availab
New Yor
See: An In
Inexper
Areas,
Avenue,
See: The I
Rip-Off
Sausali





Air structures have been, or will soon be, used for:

o Covering tennis courts, an all-purpose athletic building and a swimming pool. Air structures do not deteriorate with long exposure to moisture, and water from the pool that condenses on the structure's interior surface either evaporates or flows down walls instead of dripping directly down onto spectators.
Write: William H. Truitt, Headmaster, The Forman School, Norfolk Road, Litchfield, Conn. 06759

o Building a greenhouse and adding an athletic facility to a high school.
Write: Robert Finley, Superintendent of Schools, Glen Cove Public Schools, Glen Cove, N. Y. 11542

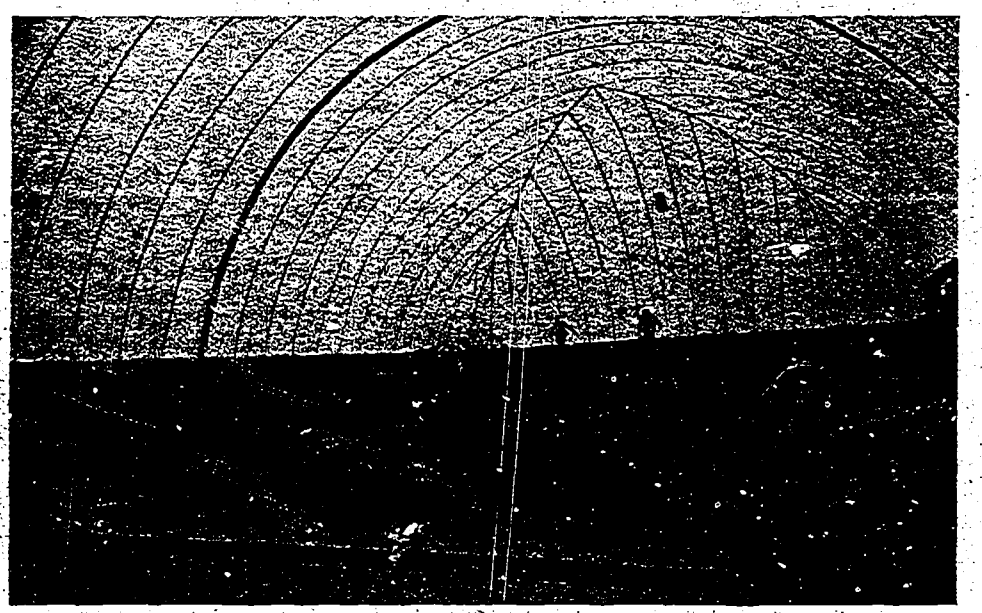
o An open plan early childhood education center.
Write: Edward C. Pino, Superintendent, Cherry Creek Schools, 4700 South Yosemite Street, Englewood, Colo. 80110

o Encapsulating an entire campus center. A California college plans to encapsulate its main academic facilities with a 3-acre air-supported structure.
Write: Leland Newcomer, President, LaVerne College, 1950 Third Street, LaVerne, Calif. 91750

o Building a new college campus. The new branch of Antioch College located in Columbia, Md., will be housed in a series of air-inflated structures designed to be built and maintained by students and faculty.
Write: Blair Hamilton, Department of Environmental Design, Antioch College, Columbia, Md. 21043

o Enclosing a rooftop sports area. The Polytechnic Institute of Brooklyn, a city school hemmed in by other buildings, can accommodate year-round athletic activities on the roof. Basketball and other athletic facilities on the roof are covered by an air-supported structure.
Write: Paul R. DeCicco, Director of Physical Planning, Brooklyn Polytechnical Institute, 333 Jay Street, Brooklyn, N.Y. 11201

For additional information on air-supported structures:
See: Air Structures for School Sports, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: An Investigation of Costs of Inexpensive Enclosures for Recreational Areas, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: The Inflatocookbook, available from Rip-Off Press, 247 Gates Road, Sausalito, Calif. 91965



Artificial Playing Surfaces

Artificial playing surfaces are the basis for a whole new set of ideas about play, physical education and recreation. They're used to increase the amount of usable space within the school building or on school grounds (on rooftops and parking lots) and to allow available space to serve multiple needs (in cafeterias and gyms). There are three major types of artificial playing surfaces:

o Artificial ice. Made of vinyl plastic, artificial ice is applied to floors with an epoxy adhesive, just like conventional vinyl flooring. It is slick only when a special conditioner is applied; when the conditioner is removed, the "ice" is suitable for recreational activities, such as basketball, or for ordinary use in well-trafficked areas.
Write: Robert Finley, Superintendent of Schools. Glen Cove Public Schools, Glen Cove, N. Y. 11542

Plastic ice is installed in 3-ft by 3-ft sections a quarter of an inch thick. Game lines are applied separately. Write: Charles H. Stotes, Executive Director, West Suburban YMCA, 31 East Ogden Avenue, La Grange, Ill. 60525.

o Artificial turf. Suitable for installation indoors or out, artificial turf consists of individual synthetic blades protruding from a resilient base. It's usually installed over a paved surface and used for all kinds of grass sports.
Write: A. D. Walker, Principal, Woodstock Academy, Academy Road, Woodstock, Conn. 06281

o Other artificial surfaces. These may be hard or soft. Some are portable; others must be made to adhere to a permanent base. Most of these products will take cleated shoes without damage and can be used indoors or out. Costs vary directly with the thickness of the material.
Write: Luther C. Schwich, University of West Florida, Pensacola, Fla. 32504
See also Physical Education

Notes

Audio-Visual Equipment

A great deal of the information children receive in school is presented through pictures rather than print. Films, slides and television are only a few of the techniques used to enrich the learning process. For a review of new audio-visual equipment:
See also Instructional Technology
For information about places for using a-v equipment:
See also Auditoriums and Resource Centers

o Artificial turf. Suitable for installation indoors or out, artificial turf consists of individual synthetic blades protruding from a resilient base. It's usually installed over a paved surface and used for all kinds of grass sports.
Write: A. D. Walker, Principal,
Woodstock Academy, Academy Road,
Woodstock, Conn. 06281

o Other artificial surfaces. These may be hard or soft. Some are portable; others must be made to adhere to a permanent base. Most of these products will take cleated shoes without damage and can be used indoors or out. Costs vary directly with the thickness of the material.
Write: Luther C. Schwich, University
of West Florida, Pensacola,
Fla. 32504
See also Physical Education

Notes

Audio-Visual Equipment

A great deal of the information children receive in school is presented through pictures rather than print. Films, slides and television are only a few of the techniques used to enrich the learning process. For a review of new audio-visual equipment:
See also Instructional Technology
For information about places for using a-v equipment:
See also Auditoriums and Resource Centers

Auditoriums

Places for assembly have always been a part of the school plant -- for school assemblies, films, plays and for limited community use. Since World War II, these places have often been designed for combined use - as cafeterias and auditoriums, gymnasiums and auditoriums, or cafeterias and "gymatoriums." More recently, assembly places have been used for large group instruction. Sometimes information can be most efficiently and effectively communicated to large groups of students by a well-prepared lecturer aided by audio-visual materials. This kind of use has given assembly places a formal educational function that, together with more intensive community use, has generated several new planning concepts for contemporary school facilities.

o Large Group Lecture-Demonstration Rooms. Large group instruction can take place in the ordinary teaching space of an open plan school, or it may (especially when the presentation involves sophisticated audio-visual equipment) take place in facilities designed specifically to ensure that each student can see and hear clearly.
Write: Robert Dunn, Principal,
Hall High School, 60 South Main
Street, West Hartford, Conn. 06103

See: Planning for Educational Technology and New Spaces for Learning: Multi-Media Facilities Revisited, Center for Architectural Research, Rensselaer Polytechnic Institute, Troy, N. Y. 13281
See: Educational Facilities with New Media, DAVI-NEA, 1201 -- 16th Street, Northwest, Washington, D. C. 20036
See: Design for ETV, available from EFL, 477 Madison Avenue, New York, N. Y. 10022

Notes

o Divisible Auditoriums. Through skillful planning and the introduction of soundproof, operable partitions, a large auditorium can be divided into several small spaces for simultaneous instruction, thus increasing the use of the total space.
Write: William McCormick, Principal, Boulder High School, 1101 Fifth Avenue, Boulder City, Nev. 89005
Write: Scott G. Richardson, Principal, Ridgewood High School, Ridgewood High School District #234, 7500 West Montrose Street, Norridge, Ill. 60634

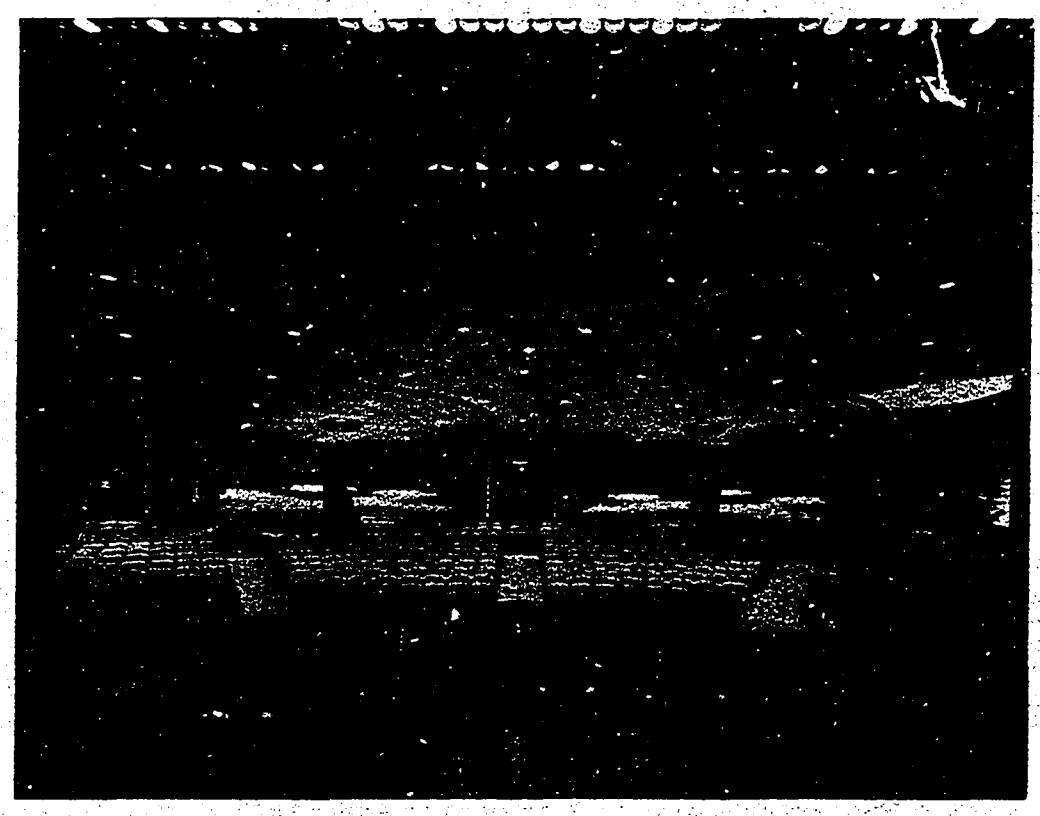
o Rotating Seating. A variation on divisible auditoriums is provided by sections of seating on turntables which can be rotated to create several smaller instructional spaces.
Write: Richard D. Hupper, Principal, Lake Villa Intermediate School, P.O. Box 205, Mckinley Avenue, Lake Villa, Ill. 60046
Write: D.R. Goodson, Principal, South Mountain High School, 5401 South 7th Street, Phoenix, Ariz. 85012

o Combined Theater, Auditorium and Lecture Hall. Creative designs can permit combining these functions, although there is always the hazard that the result will serve none of the intended functions well. One such facility that seems potentially successful is the auditorium/theater/large group instructional center for the Mount Olive High School, Chester, N. J.
Write: Robert W. Young, Superintendent of Schools, Berttey-Naughright Road, Chester, N. J. 07930

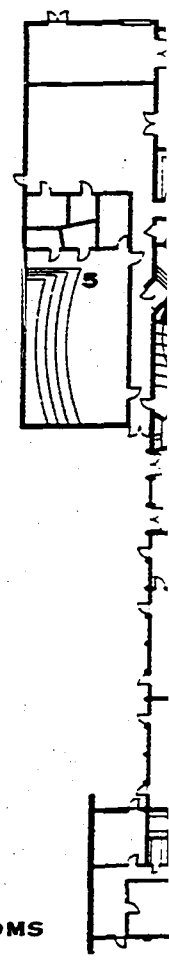
o School Auditoriums/Theaters Built with Non-School Funds. As schools and other public agencies merge funds and programs to create community/school centers, auditoriums and theaters for both school and public use may be included. This has been done in the Human Resources Center, Pontiac, Mich., and in Manor High School, Portsmouth, Va.

Write: Dana
of School
Pontiac,
Write: Charl
Manor High
Lane, Port
See: 5.COMMU

o Rehabilita
Existing audi
ized to make
instruction a
See: The High
Six Design
available
Avenue, Ne
See: 2.MODERN



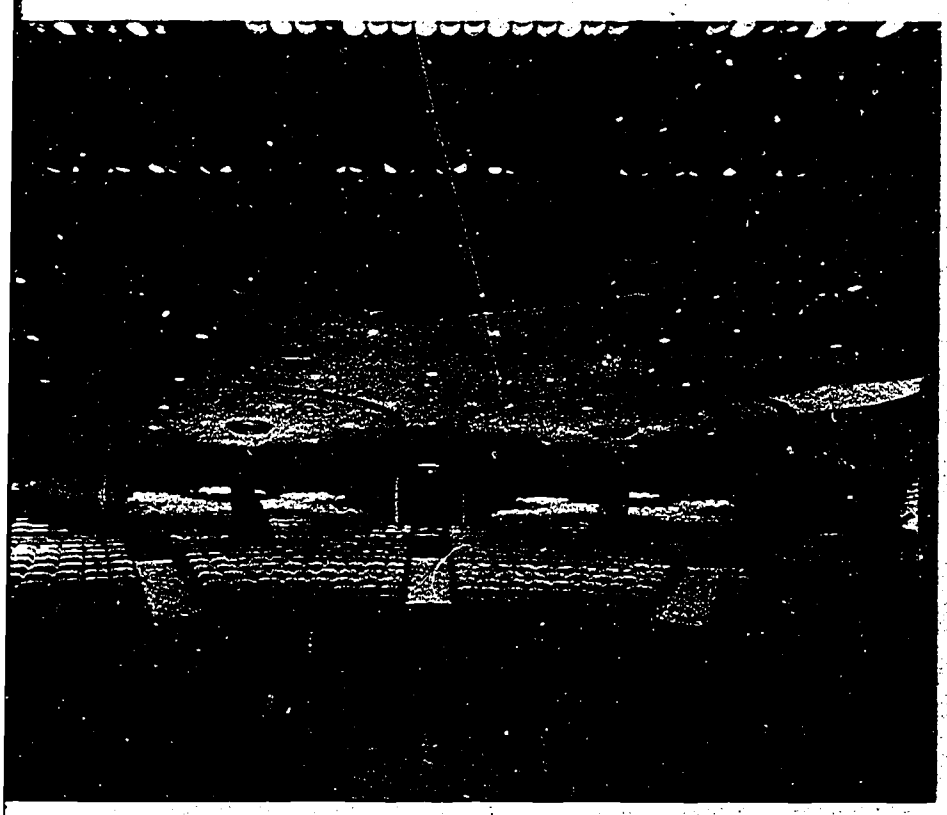
Turntable divisible auditorium at Agua Fria Union High School has two sections of rotating seats. Back walls of these sections rotate with seats to become sound-proof dividers.
Write: Harold W. Poiter, Principal, Agua Fria Union High School, Box 818, Avondale, Ariz. 85323.

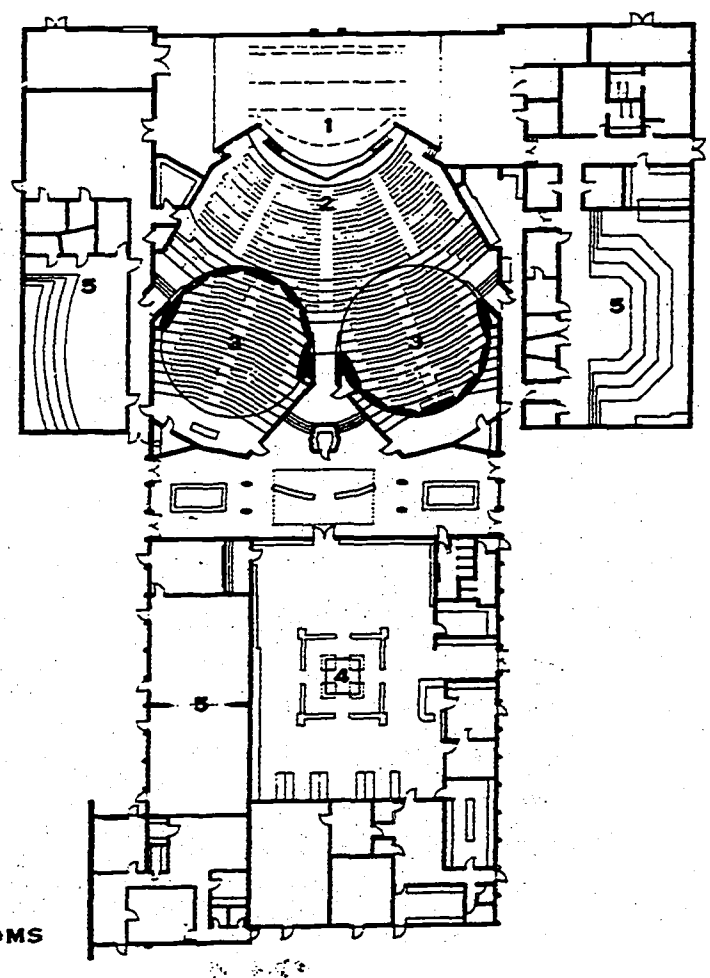


o Combined Theater, Auditorium and Lecture Hall. Creative designs can permit combining these functions, although there is always the hazard that the result will serve none of the intended functions well. One such facility that seems potentially successful is the auditorium/theater/large group instructional center for the Mount Olive High School, Chester, N. J.
Write: Robert W. Young, Superintendent of Schools, Berttey-Naughright Road, Chester, N. J. 07930

o School Auditoriums/Theaters Built with Non-School Funds. As schools and other public agencies merge funds and programs to create community/school centers, auditoriums and theaters for both school and public use may be included. This has been done in the Human Resources Center, Pontiac, Mich., and in Manor High School, Portsmouth, Va.
Write: Dana P. Whitmer, Superintendent of Schools, 350 Wide Track Drive, Pontiac, Mich. 48058
Write: Charles K. Price, Principal, Manor High School, 1401 Elmhurst Lane, Portsmouth, Va. 23701
See: 5.COMMUNITY/SCHOOLS, p. 64

o Rehabilitation of Existing Auditoriums. Existing auditoriums can often be modernized to make them more effective for instruction and other purposes.
See: The High School Auditorium: Six Designs for Renewal, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: 2.MODERNIZATION, p. 20





1 STAGE
2 AUDITORIUM
3 T.T. LECTURE HALL
4 LIBRARY
5 CLASSROOMS

Carpet

With the development of open plan schools and buildings designed for maximum flexibility, carpet has become an important educational facility -- as important as lighting or furniture. In fact, carpet itself often becomes an extension of the furniture when children are not required to sit upright in chairs and desks. Some of the factors that make carpet an excellent floor covering for most school situations are:

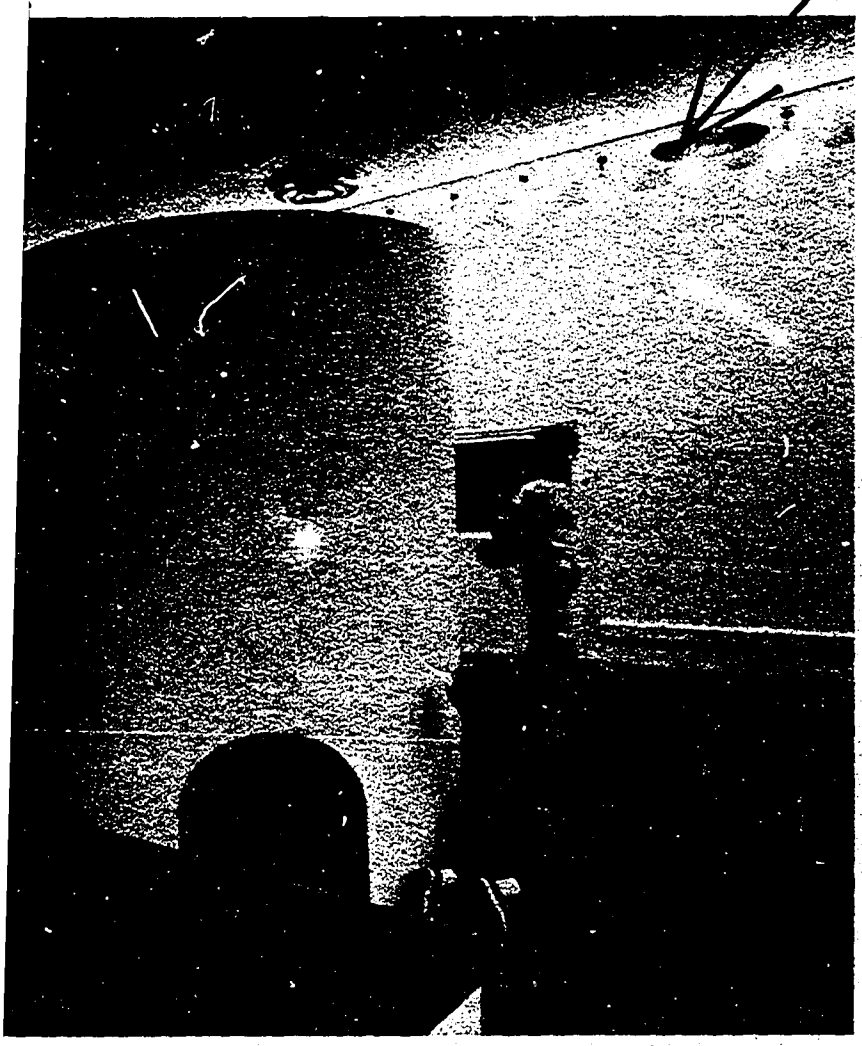
o Acoustics. In large instructional spaces where a number of activities take place at once, covering the floor with carpet prevents sound from reverberating throughout the room.
See also Acoustics

o Ease of maintenance. It takes less time and manpower to vacuum carpet thoroughly than it does to wet-mop tiled areas. Maintenance costs can therefore be lower for carpet than for other floor coverings.
Write: Brodie Hutchinson, Principal, Andrews High School, 405 Northwest Third Street, Andrews, Tex. 79714

o Warmth. Carpet not only looks warmer than wood or tile -- it feels warmer. It warms more quickly and is more comfortable at lower temperatures, so children can sit on the floor without catching cold, and heating costs may be slightly reduced.
Write: Henry Wright, The City College of the City University of New York, Convent Avenue and West 139th Street, New York, N. Y. 10031

o Ease of maintenance. It takes less time and manpower to vacuum carpet thoroughly than it does to wet-mop tiled areas. Maintenance costs can therefore be lower for carpet than for other floor coverings.
Write: Brodie Hutchinson, Principal, Andrews High School, 405 Northwest Third Street, Andrews, Tex. 79714

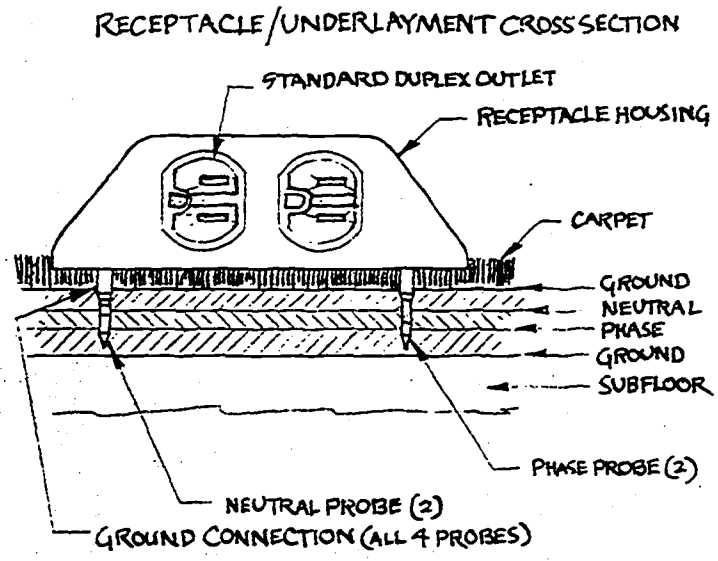
o Warmth. Carpet not only looks warmer than wood or tile -- it feels warmer. It warms more quickly and is more comfortable at lower temperatures, so children can sit on the floor without catching cold, and heating costs may be slightly reduced.
Write: Henry Wright, The City College of the City University of New York, Convent Avenue and West 139th Street, New York, N. Y. 10031



o Extension of instructional space. In libraries and learning spaces, children can spread materials on the floor or simply curl up with a book. The whole floor can be used as desk, seating, or table space. Carpeted mounds or depressions in the floor create new kinds of seating for a variety of purposes -- depressions are good places for story-telling or group discussions, and mounds can be used as stages, display areas, or places to sit.

Day care center, Office of Education.
Write: Martin Engel, United States Office of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

o Character. Carpeting makes a school. Instead of the cold, stark appearance of other floor coverings, carpet adds warmth and comfort.



Note: An invention that will be a real boon to users of open plan schools is expected to be on the market within two years. It's electric carpet -- actually, a panel that underlies ordinary carpet and carries both current and electronic signals. The system does away with electrical outlets and phone jacks by allowing you to plug appliances into the floor wherever it's convenient.

Carrels

Independent study and individualized learning have made study carrels common in schools at all levels of education. They are no longer restricted to libraries or resource centers. Fifth and sixth grade children in one middle school use carrels instead of desks in all teaching areas.

Write: Maxine Koelling, Principal,
East Orange Intermediate School,
East Orange, N. J. 07017

Carrels provide about 6 sq ft of work surface and a degree of visual privacy. Often, they include storage space, light, and book shelves. They can be "wet" or "dry"; that is, with or without wiring and electrical connections for use with instructional machines or audio-visual equipment. "Wet" carrels are often designed with acoustical paneling to reduce sound transmission.

Basic Design Considerations

o Components. Carrels can be built with standard, interchangeable parts that make replacement and repair easy.

o Modularity. If component parts are designed on a modular basis, carrels can be clustered to make use of fewer components -- e.g., two carrels side by side need only three side pieces, not four.

o Safety. Outlets and sharp edges should be protected--plastic caps will serve the purpose.

o Convertibility. If a school isn't sure it needs "wet" carrels or can't afford them initially, it should buy dry carrels designed to be converted later on for use with electrical or electronic equipment.

o Flexibility. With "wet" carrels, it's important to consider how the carrels will be connected to the building's power source. Simple plug-in connections are preferable so that carrels can be moved without the services of electricians. Whether, and how far, "wet" carrels can be moved will depend upon the power distribution system of the building.

Write: G. B. McClelland, Superintendent,
Rich-Mar Union School District,
274 San Marcos Avenue, San Marcos,
Calif. 92069

See: Educational Product Report,
Volume II, Number 2, November,
1968, on "dry" carrels,
published by the Educational
Products Information Exchange
Institute, 386 Park Avenue
South, New York, N. Y. 10016

See: Library Technology Report,
March, 1971, on "dry" carrels,
available from the American
Library Association, 50 East
Huron Street, Chicago, Ill. 60611

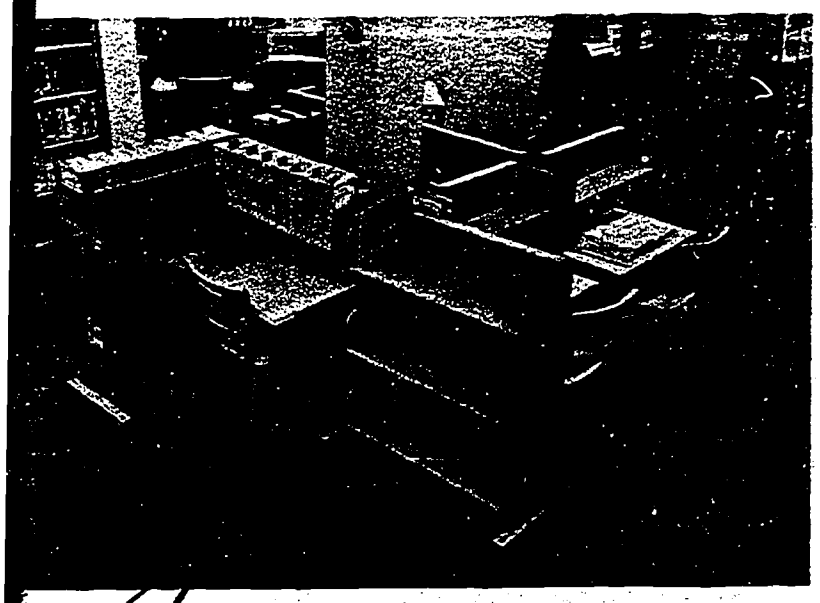
Charette

The term
architect
indicates
a project
planning,
intensive
represent
teachers,
contribut
to resolv
process h
communiti
See: 7.PL

Notes

Comput

Computers
for schoo
through t
simply st
organize,
dict. A
Regional
State's E
Services)
can be be
enable it
But it's
jobs to b
specific
Small dis
usually f
terminals
specific
report on
efficient
prepared
Schools.
Write: Ia
of Sch



o Safety. Outlets and sharp edges should be protected--plastic caps will serve the purpose.

o Convertibility. If a school isn't sure it needs "wet" carrels or can't afford them initially, it should buy dry carrels designed to be converted later on for use with electrical or electronic equipment.

o Flexibility. With "wet" carrels, it's important to consider how the carrels will be connected to the building's power source. Simple plug-in connections are preferable so that carrels can be moved without the services of electricians. Whether, and how far, "wet" carrels can be moved will depend upon the power distribution system of the building.
Write: G. B. McClelland, Superintendent, Rich-Mar Union School District, 274 San Marcos Avenue, San Marcos, Calif. 92069

See: Educational Product Report, Volume II, Number 2, November, 1968, on "dry" carrels, published by the Educational Products Information Exchange Institute, 386 Park Avenue South, New York, N. Y. 10016
See: Library Technology Report, March, 1971, on "dry" carrels, available from the American Library Association, 50 East Huron Street, Chicago, Ill. 60611

Charettes

The term "charette" is borrowed from the architectural profession, where it indicates an intensive effort to finish a project before a deadline. In school planning, it denotes a session of intensive group planning, with community representatives, school officials, teachers, students and designers each contributing suggestions and all working to resolve conflicting desires. This process has been used in dozens of communities across the country.
See: 7.PLANNING/PROCEDURES, p. 94

Notes

Computers

Computers can perform a variety of tasks for schools, ranging from bookkeeping through teaching. They do more than simply store information -- they can organize, compare, extrapolate and predict. A large district or a cooperative regional organization (such as New York State's Boards of Cooperative Educational Services) frequently has enough jobs that can be best performed by computer to enable it to own and run one economically. But it's important to be sure that the jobs to be done are all compatible with the specific computer model to be purchased. Small districts or individual schools usually find it more economical to rent terminals and time on a machine or to have specific jobs done by computer firms. A report on how computers can be used most efficiently within a school system has been prepared for the Barrington, R. I. Public Schools.
Write: Ian D. Malcolm, Superintendent of Schools, Barrington, R. I. 02806

Scheduling

Since the early 1960's, high schools have been using computer programs such as GASP to do the tedious job of arranging class schedules. Recently, however, the New England School Development Council (NESDEC) has produced a supplementary system that increases the flexibility of the school's master schedule. Since the most complex scheduling jobs take only a few hours on the computer (in addition to time for tabulating information, such as number of students enrolled, and so on), most schools rent computer time for scheduling from nearby commercial organizations or universities.

See: School Scheduling by Computer/The Story of GASP, available from EFL, 477 Madison Avenue, New York, N.Y. 10022

Write: Richard W. Willard, NESDEC, 55 Chapel Street, Newton, Mass. 02160

Furnishings and Equipment

In large school systems, the job of specifying and ordering furniture for new schools can be almost as great as that of designing the buildings themselves. To cope with the problem, New York City uses a set of standards that are coded and stored in a computer. Every type of space at every grade level is assigned a facilities number and an activity number. When these numbers are fed to a computer, it produces a list of recommended furniture for each type of space. The list includes class number, item number, unit price, and recommended quantity for each piece of furniture. Working from a set of suggested standards for room layouts, the computer can also print out all possible combinations and arrangements of furnishings for different types of spaces. And the school system's Bureau of Supplies (the purchasing agency) uses the same number code in its catalogues.

Write: Marian Pasnik, School Facilities Standards Coordinator, Board of Education, 110 Livingston Street, Brooklyn, N. Y. 11201

Maintenance

At least one school system keeps a computerized record of all emergency repairs in each of its schools throughout the year. Over a period of time, the computer can tell when emergencies are most likely to occur (some have turned out to be seasonal), what kind of equipment is most frequently involved, and so on. With this kind of information, the school system has reduced the number of emergency repairs, because it is able to replace inferior equipment, revise maintenance procedures, and anticipate seasonal problems.

Write: F. E. Oswalt, Assistant Superintendent, Department of Plant Management, Board of Education, 2597 Avery Avenue, Memphis, Tenn. 38112

For information about computers in school planning,
See: 7.PLANNING/PROCEDURES, p. 100
For a brief review of computers in instruction,
See also Instructional Technology

Notes

Maintenance

At least one school system keeps a computerized record of all emergency repairs in each of its schools throughout the year. Over a period of time, the computer can tell when emergencies are most likely to occur (some have turned out to be seasonal), what kind of equipment is most frequently involved, and so on. With this kind of information, the school system has reduced the number of emergency repairs, because it is able to replace inferior equipment, revise maintenance procedures, and anticipate seasonal problems.

Write: F. E. Oswalt, Assistant Superintendent, Department of Plant Management, Board of Education, 2597 Avery Avenue, Memphis, Tenn. 38112

For information about computers in school planning,
See: 7.PLANNING/PROCEDURES, p. 100
For a brief review of computers in instruction,
See also Instructional Technology

Notes

Day Care Centers

Day care in the narrowest sense means just baby sitting; but today, most day care centers do more than that. Increasingly, they provide opportunities for learning in the same way as schools for early childhood education. The main difference between day care centers and schools for early learning is that day care centers operate all year round; early learning schools are open only during the school year.
See also Early Childhood Education

Dial Access Systems

Dial access systems are sophisticated means of bringing audio-visual material directly to the individual student. Students sitting in specially designed carrels equipped with microphones, headsets and often video display screens use an ordinary telephone dial to request a-v programs from a central library. Scheduling and sorting of stored programs is often done by a computer. Dial access systems have frequently been used for instruction in foreign languages.
See also Instructional Technology

Dispersed Facilities/Sites

To run a full educational program taking advantage of resources in the community and to overcome the difficulty of finding an appropriately large site for a new school, some districts have scattered portions of a whole school over a number of small sites — e.g., grades 5 and 6 at one site, grades 3 and 4 at another.
See: 6.REACHOUT SCHOOLS, p. 78
See also Mini-schools

Early Childhood Education

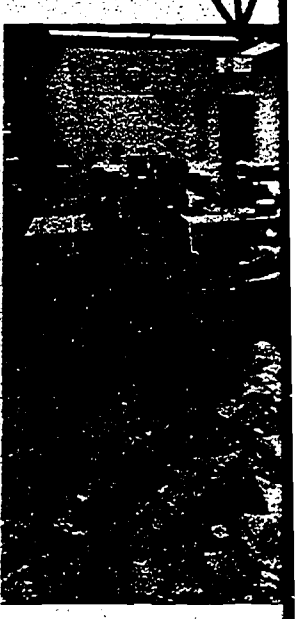
In recent years, psychologists, educators, and parents have recognized the inherent capacity and eagerness of very young children to learn. The result of this recognition has been the growth in numbers of schools for early learning. Even day care centers, formerly just places where children were looked after, increasingly provide educational opportunities.

For those who want to start a new day care or early learning center, it may be wise to look into franchised or other commercial early learning enterprises. A number of corporations, both small regional ones and some that are divisions of national companies, operate early childhood education centers for profit. Many are of very high quality, but all charge slightly higher tuition fees than subsidized operations.
Write: Child Welfare League of America, 44 East 23rd Street, New York, N. Y. 10010
Write: National Association for the Education of Young Children, 1834 Connecticut Avenue, N. W., Washington, D. C. 20009

Whether starting your own early education center or setting up a franchise, you can look for unused or underused space in existing buildings. A stimulating environment isn't necessarily a brand new one. It is less expensive to remodel an existing space than to build a new structure, and some kinds of space are available almost for the asking. Successful early learning centers are now operating in: churches and synagogues, housing projects, old houses, office buildings, storefronts, warehouses, public schools.
See: Found Spaces and Equipment for Children's Centers, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: 1.FOUND SPACE, p. 6
See: 5.COMMUNITY/SCHOOLS, p. 64
See also Joint Occupancy

If no suitable space can be found, you can build your own facility.
See: Patterns for Designing Children's Centers, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Designing the Child Development Center, by Ronald W. Haase, available from the U. S. Office of Education, 400 Maryland Avenue, Southwest, Washington, D. C. 20202
See: Day Care Centers, by Karen E. Hapgood, The American Society of Planning Officials, Chicago, Ill., June, 1970

Not only does found space work well for early learning, but so do found objects. Often, young children find discarded materials and comfortable but outmoded furniture more fascinating than many slick, new products on the market. Since the trend in early learning environments is toward a more home-like atmosphere and away from the atmosphere of the institution, old overstuffed sofas to climb on, big old rockers and the like fit in well. Other found objects that can be turned to a good purpose include packing crates, utility poles, cable spools, carpet rolls, construction forms (used ordinarily to mold fresh-poured concrete).
See: 4.FURNITURE, p. 48



ction

ists, educators,
d the inherent
very young
sult of this
rowth in
ly learning.
merly just places
after, increas-
opportunities.

t a new day care
it may be wise to
her commercial
s. A number of
regional ones and
f national
childhood education
are of very high
lightly higher
zed operations.
ue of
Street,

on for
Children,
e, N. W.,
9

early educa-
a franchise,
underused
gs. A stimu-
necessarily
ess expensive
ace than to
d some kinds
most for the
learning
in: churches
rojects, old
storefronts,
s.
ipment
,
7 Madison
. 10022

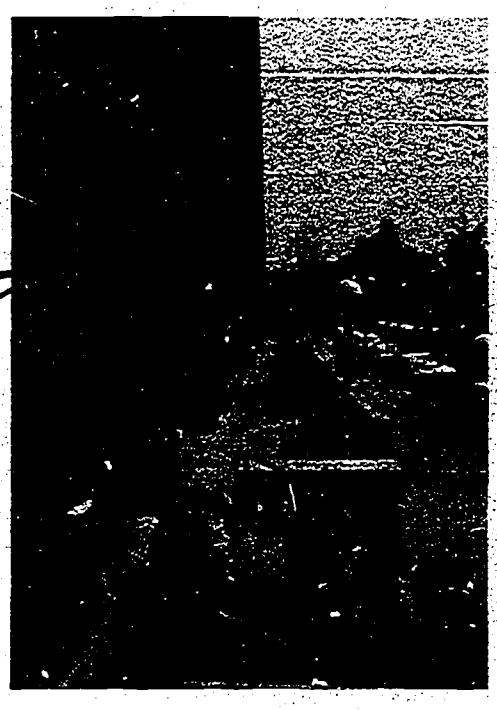
p. 64

If no suitable space can be found, you can build your own facility.
See: Patterns for Designing Children's Centers, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Designing the Child Development Center, by Ronald W. Haase, available from the U. S. Office of Education, 400 Maryland Avenue, Southwest, Washington, D. C. 20202
See: Day Care Centers, by Karen E. Hapgood, The American Society of Planning Officials, Chicago, Ill., June, 1970

Not only does found space work well for early learning, but so do found objects. Often, young children find discarded materials and comfortable but outmoded furniture more fascinating than many slick, new products on the market. Since the trend in early learning environments is toward a more home-like atmosphere and away from the atmosphere of the institution, old overstuffed sofas to climb on, big old rockers and the like fit in well. Other found objects that can be turned to a good purpose include packing crates, utility poles, cable spools, carpet rolls, construction forms (used ordinarily to mold fresh-poured concrete).
See: 4.FURNITURE, p. 48

Outdoor play is important to young children, too. In cities where land is scarce, look for: rooftop space, vacant lots, backyards tucked away behind older buildings. And, to equip the playground, there are old tires (these can be used for swings or simply heaped in a mound), utility poles (which can support swings or become part of a larger makeshift structure), rope for ladders, fruit crates, old tubs for sandboxes and rock gardens.
See also Playgrounds

See: An Annotated Bibliography on Early Childhood, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Some European Nursery Schools and Playgrounds, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Memorandum on: Facilities for Early Childhood Education... and Instructions for Those Interested in Day Care, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Schools for Early Childhood, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: Day Care Nightmare: A Child-Centered View of Child Care, by Patricia Gerald Bourne and others, Institute of Urban and Regional Development, University of California, Berkeley, Calif., 1971.
See "Room to Learn," a film available for loan from Association Films, 866 Third Avenue, New York, N. Y. 10022, or for purchase from The Early Learning Center, Inc., 12 Gary Road, Stamford, Conn. 06903



The Acorn Montessori School found space in a large apartment building. Inside, some of the furnishings are found objects, like the light fixture that extends from the wall. It was originally part of a truck. Write: Doris Schwartz, Director, The Acorn Montessori School, 330 East 26th Street, New York, N. Y. 10010.

Education Parks

An education park is a complex of schools (elementary, secondary, college and sometimes others) on a common site sharing common facilities, such as athletic fields and buildings, libraries, dining and kitchen areas, auditoriums and halls, art studios, mechanical and electrical services, and so on. Reasons for establishing an education park include:

o Integration. Drawing students of all ages from all neighborhoods, the education park could bring together children from a wide range of backgrounds and cultures.

o Quality of staff and services. Large size and concentration of staff and facilities make possible the provision of specialized services, specialized personnel and expensive equipment that no one school could acquire on its own.

o Flexibility of programming. With children of all ages learning in one place, organization of grades can be flexible.

On the other hand, education parks have disadvantages.

o Transportation. If public transportation is poor or if teachers and students have to travel very great distances, concentration of educational facilities might be harmful.

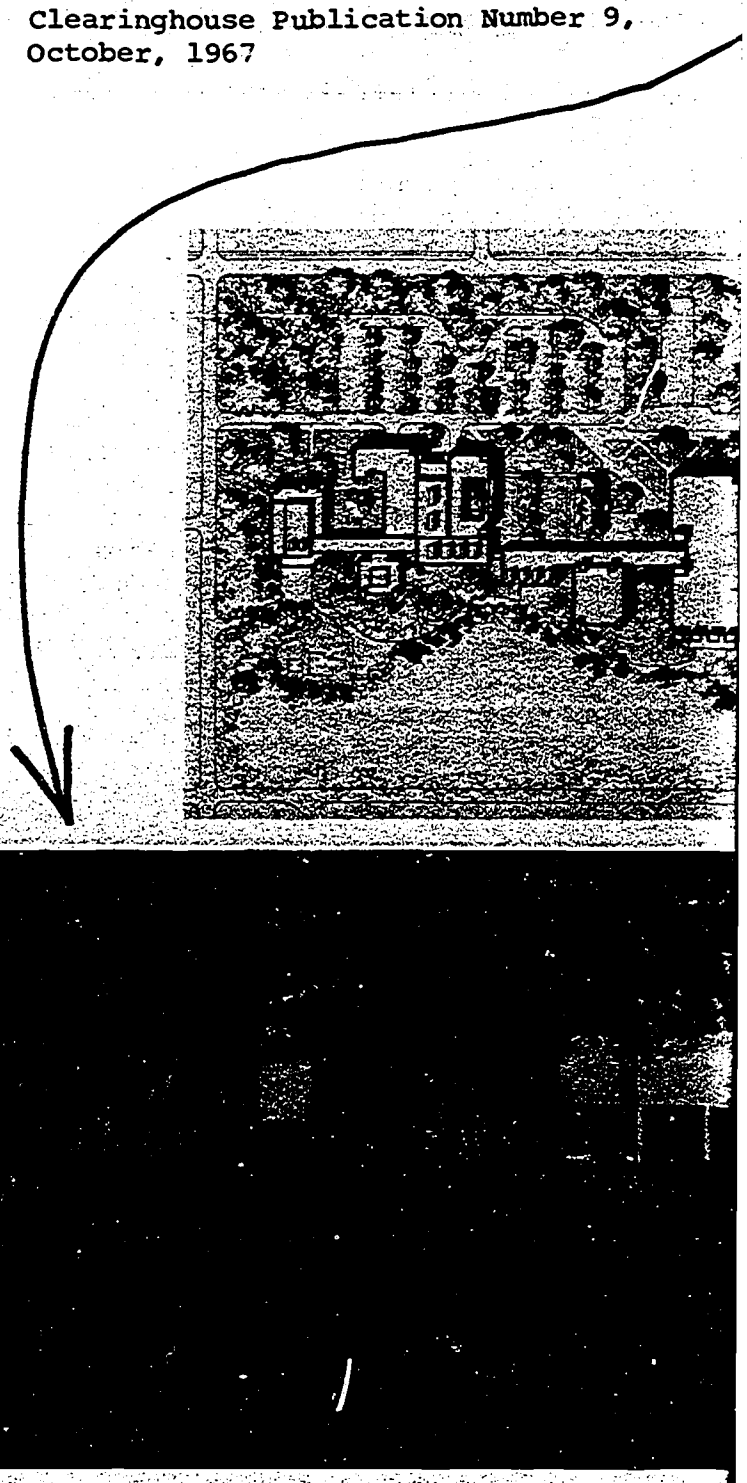
o Alienation. Taking children out of their own neighborhoods might produce a feeling of separation from their home lives, and parents might feel less connection with a large, remote school than to a smaller neighborhood facility.

o Bureaucracy. Such a large complex of school programs and school buildings would need a large administrative organization, and the larger the organization, the less likely it is to be flexible.

See: The Education Park, by Max Wolff and Benjamin Rudikoff, The Center for Urban Education, New York, 1970

See: Educational Park Development in the United States - 1969: A Survey of Current Plans with a List of Reports and References, by Max Wolff and Benjamin Rudikoff, The Center for Urban Education, New York, 1970

See: Education Parks, United States Commission on Civil Rights Clearinghouse Publication Number 9, October, 1967



schools
nd some-
aring
ic
dining
d halls,
rical
estab-
e:

s of all
edu-
chil-
ounds

. Large
and fa-
sion of
d per-
hat no
own.

With chil-
place,
exible.

ks have

ranspor-
nd students
nces,
cilities

out of
roduce
eir home
ess
school
facility.

omplex of
dings would
ganization,
n, the less

See: The Education Park, by Max Wolff and Benjamin Rudikoff, The Center for Urban Education, New York, 1970

See: Educational Park Development in the United States - 1969: A Survey of Current Plans with a List of Reports and References, by Max Wolff and Benjamin Rudikoff, The Center for Urban Education, New York, 1970

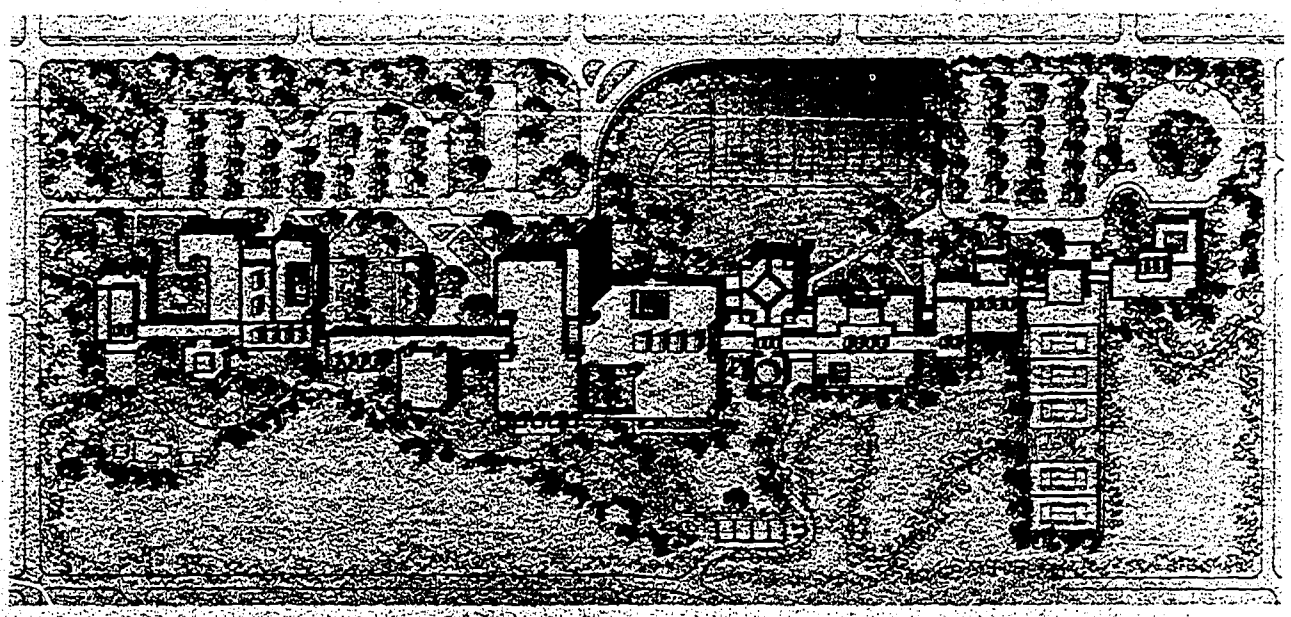
See: Education Parks, United States Commission on Civil Rights Clearinghouse Publication Number 9, October, 1967

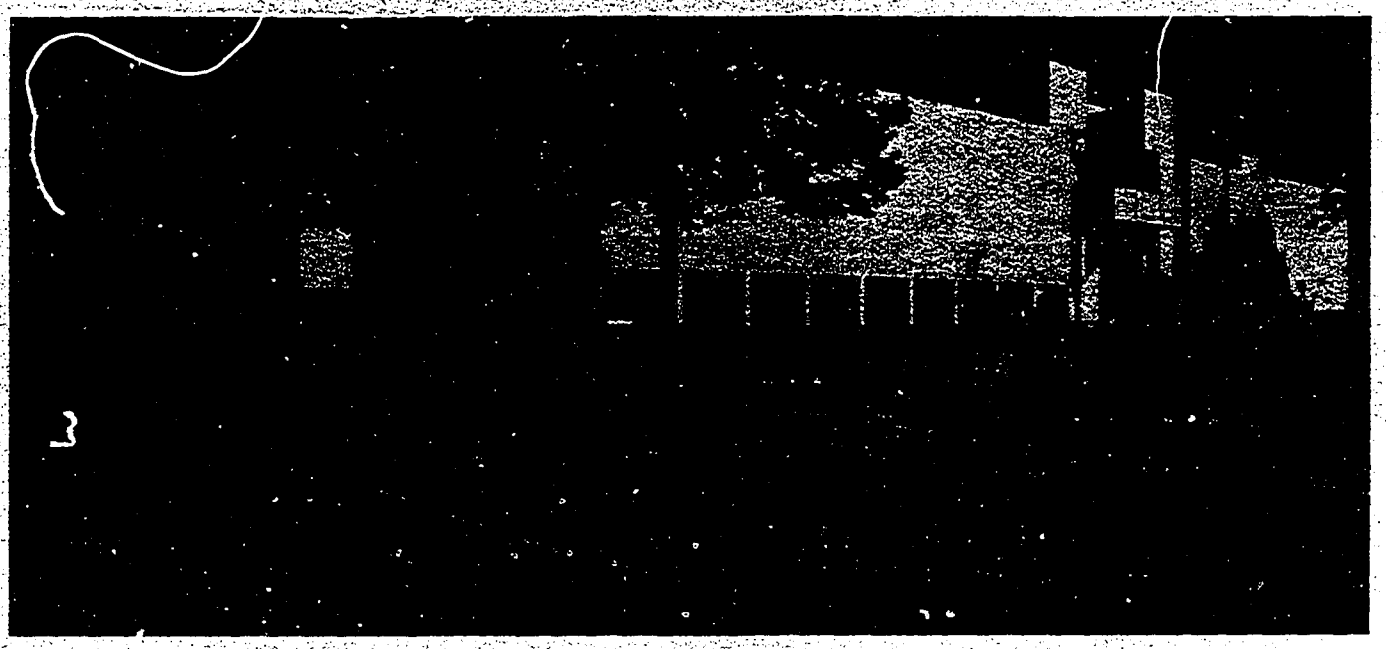
Write: Gerald Tirozzi, Community Service Building, 1 State Street, New Haven, Conn. 06511 (The Conte School)

Write: Jack Landman, Principal, North Bronx Educational Park, Baychester Avenue, Bronx, N. Y. 10475

Write: George L. Layton, Superintendent of Schools, 1429 Woodstock Avenue, Anniston, Ala. 36201 (Anniston Education Park)

Education Park at Anniston, Ala., includes one academic high school, one vocational high school, a middle school, an elementary school, an early childhood education center and athletic facilities.





Encapsulated Space

Some school needs can best be met by enclosing large amounts of space inexpensively. Two main categories of structures are suitable for this purpose. For reviews of each, see Air Structures and Inexpensive Space Enclosures.

Notes

Environmental Education

Environmental education means learning about your surroundings, whatever they may be. Whether your school is surrounded by fields and trees or by buildings and traffic, there's an opportunity to learn how people affect and are affected by the world they live in. Start inside your own building. Children can examine pipework, ducts, boilers and burners to see how air, water, wastes and fuel enter and leave the building. Why does the furnace produce smoke? What happens to the waste that leaves the building? Investigate the school grounds, too. Find out what kind of plant life grows around asphalt, what grows in hard-packed dirt? What is the dirt made of? What kinds of insects live between cracked concrete slabs? And what about the street -- are there lots of cars, fumes, noise? Most important, how do all these environmental factors affect the quality of life in the community?

A bit farther afield, there are many sources of additional information about the local environment: power plant, planetarium, factory, weather station, zoo, busy street corner, aqueduct, river or stream, natural history museum.

The Group for Environmental Education is now developing a program to help teachers and students see the school building as an environmental system.
Write: Richard Wurman, Group for Environmental Education, 1214 Arch Street, Philadelphia, Pa. 19107

Just beyond the city limits are day camps that provide opportunities for learning about the natural environment. Some are even equipped with environmental laboratories, including microscopes and noise and air pollution measuring devices. Such facilities can be shared and jointly supported by a number of school districts or by schools and organizations such as the Boy Scouts, Girl Scouts, or Parks and Recreation Departments.
Write: Ken Horn, Administrator, Balarat Camp for Environmental Studies, Denver Public Schools, 1521 Irving Street, Denver, Colo. 80204

A number of school systems operate, sometimes jointly, in two-, three-, four- or five-day resident camp programs for environmental studies.
Write: Harry Thompson, Board of Cooperative Education Services, 625 Jericho Turnpike, Jericho, N. Y. 11753

Some school systems use specially equipped vans, buses or boats for day- or week-long excursions. Vehicles contain equipment for measuring air, water and noise pollution and aids for recognizing various kinds of plant and animal life.
Write: Roy Swenson, Coordinator, Outdoor Education, Milwaukee Public Schools, 5225 West Vliet Street, Milwaukee, Wis. 53201

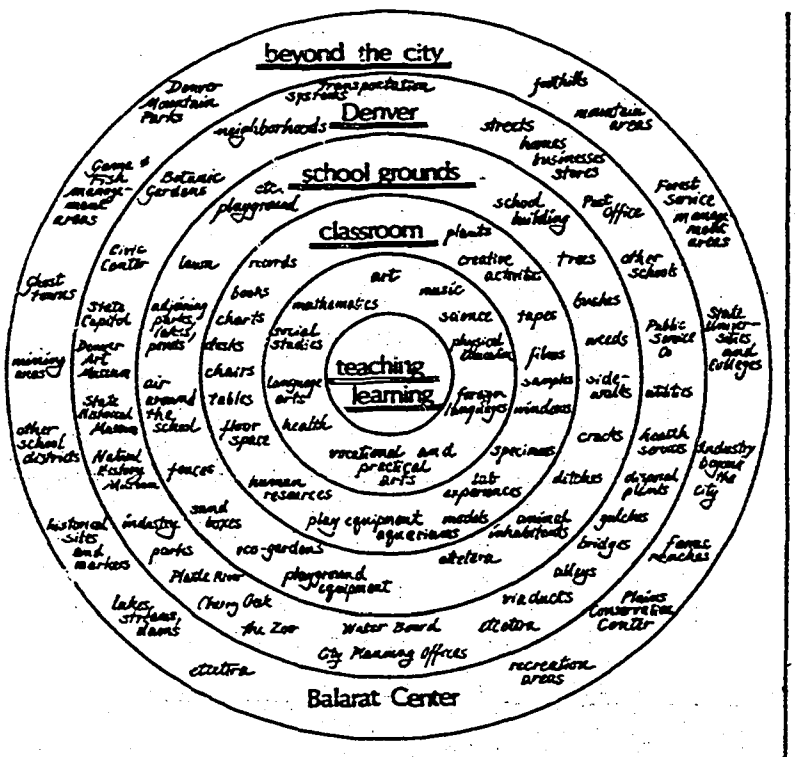
A bit farther afield, there are many sources of additional information about the local environment: power plant, planetarium, factory, weather station, zoo, busy street corner, aqueduct, river or stream, natural history museum.

The Group for Environmental Education is now developing a program to help teachers and students see the school building as an environmental system.
Write: Richard Wurman, Group for Environmental Education, 1214 Arch Street, Philadelphia, Pa. 19107

Just beyond the city limits are day camps that provide opportunities for learning about the natural environment. Some are even equipped with environmental laboratories, including microscopes and noise and air pollution measuring devices. Such facilities can be shared and jointly supported by a number of school districts or by schools and organizations such as the Boy Scouts, Girl Scouts, or Parks and Recreation Departments.
Write: Ken Horn, Administrator, Balarat Camp for Environmental Studies, Denver Public Schools, 1521 Irving Street, Denver, Colo. 80204

A number of school systems operate, sometimes jointly, in two-, three-, four- or five-day resident camp programs for environmental studies.
Write: Harry Thompson, Board of Cooperative Education Services, 625 Jericho Turnpike, Jericho, N. Y. 11753

Some school systems use specially equipped vans, buses or boats for day- or week-long excursions. Vehicles contain equipment for measuring air, water and noise pollution and aids for recognizing various kinds of plant and animal life.
Write: Roy Swenson, Coordinator, Outdoor Education, Milwaukee Public Schools, 5225 West Vliet Street, Milwaukee, Wis. 53201



ENVIRONMENTAL EDUCATION STARTS AT THE SCHOOLHOUSE AND RADIATES OUT INTO THE COMMUNITY AND THE REGION. Write:
Kenneth Horn, Administrator
Balarat Center for Environmental Studies
Denver Public Schools
1521 Irving Street, Denver, Colo. 80204

See: Places for Environmental Education, a booklet available from EFL, 477 Madison Avenue. New York, N. Y. 10022

Fast-Track Planning

Fast-track planning is a construction management technique for scheduling the planning, design and construction process so that they overlap; the whole job is analyzed in such detail that construction can be started before final designs are complete, and furnishings ordered before construction is finished. The method, often assisted by a computer, reduces planning and construction time, and so saves money.
See: 7.PLANNING/PROCEDURES, p. 102

Financing School Construction

Each of the following methods of financing site acquisition, new building or a modernization project has been successfully used in the United States. Some of them are highly innovative, and some can succeed only under special circumstances. Your own legal counsel, state school authorities, or the state attorney general can help you determine the legality of a given method and its applicability to your needs.

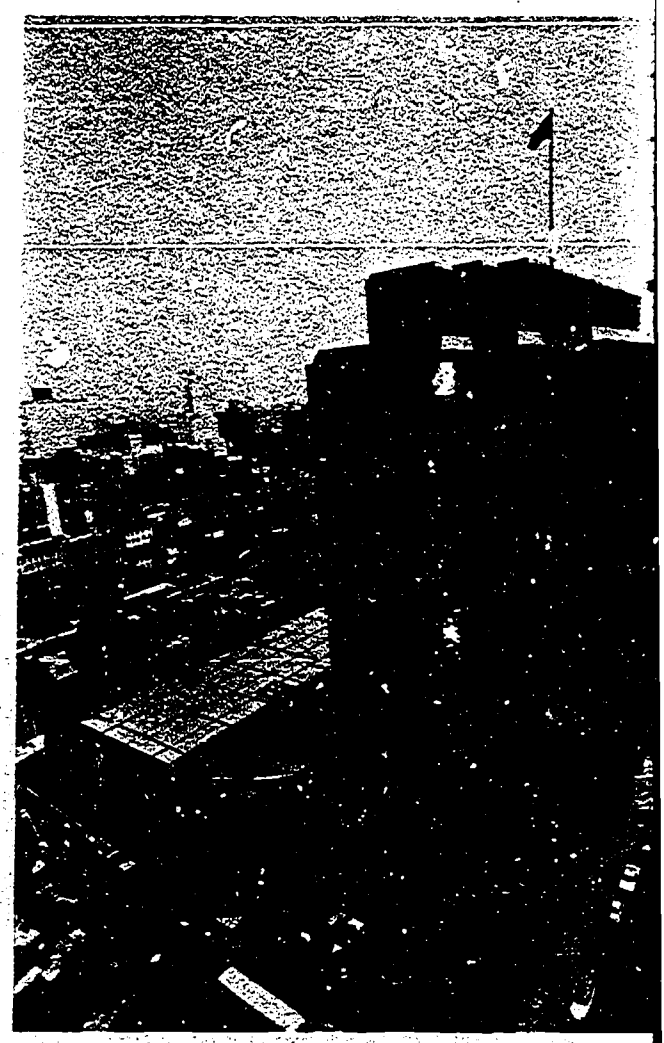
o Aid from the federal government. At present, School Aid to Federally Impacted Areas is the only form of federal assistance available to public schools for construction. This program aids communities whose school enrollments have been increased by the establishment of federal government installations.
Write: Donald J. D'Amico, Superintendent, School District 86, 420 North Raynor Street, Joliet, Ill. 60436

o Urban renewal credits. If a school site can be found on land within a city's declared urban renewal area, you may acquire the site with no outlay of funds.
Write: Joseph S. Foust, Superintendent, Greater Clark County School Corp., 2710 Highway 62, Jeffersonville, Ind. 47130

o Air rights over public property. Site acquisition costs may be avoided if schools are built over existing public facilities such as highways or transit lines.
Write: Samuel Kaplan, Director of Development, Educational Construction Fund, 250 Broadway, New York, N. Y. 10007

o Shared facilities. You may be able to cooperate with other public agencies, such as public libraries, park departments, or health agencies, to build facilities for common use.
Write: Ralph A. Long, Director, John F. Kennedy School and Community Center, 225 Chestnut Street, N. W., Atlanta, Ga. 30314

o Raising money on school-owned prop
ty. A school district may sell its l
outright or lease it to a developer.
Leasing air rights to commercial deve
ers is economically advantageous to h
parties in densely populated urban ar
where high-rise construction is econo
ical.
Write: Robert J. Vey, Director, Boston Public Facilities Department, City Hall, Boston, Mass. 02201



To raise money for a new school building, Friends Select Schoo leased one-third of its property, an office tower, to a business enterprise.
Write: G. Laurence Blauvelt, Headmaster, Friends Select School, Seventh and Parkway, Philadelphia, Pa. 19103.

truction

ds of financ-
uilding or a
een success-
ates. Some of
and some
ial circum-
unsel, state
state
ou determine
hod and its
.

ernment. At
rally Impacted
ederal assis-
chools for
aids commu-
ents have been
ent of federal

uperintendent,
North Raynor
36

If a school
ithin a city's
, you may
tlay of funds.
erintendent,
ool Corp.,
sonville,

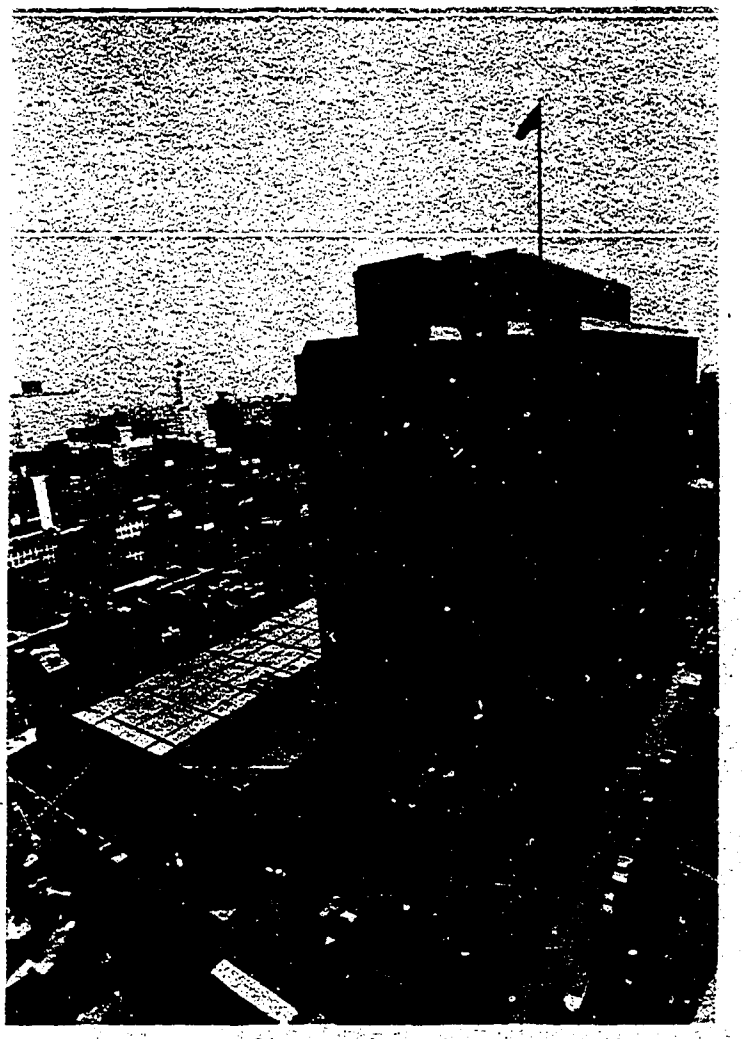
roperty. Site
ided if
ting public
or transit

or of
Construction
ork, N. Y.

ay be able
ic agencies,
rk depart-
o build

or,
d
stnut
a.

o Raising money on school-owned property. A school district may sell its land outright or lease it to a developer. Leasing air rights to commercial developers is economically advantageous to both parties in densely populated urban areas where high-rise construction is economical.
Write: Robert J. Vey, Director, Boston Public Facilities Department, City Hall, Boston, Mass. 02201



To raise money for a new school building, Friends Select School leased one-third of its property, an office tower, to a business enterprise.
Write: G. Laurence Blauvelt, Headmaster, Friends Select School, Seventh and Parkway, Philadelphia, Pa. 19103.

o Building space to rent. You may be able to build rentable space in conjunction with a new school.
Write: Dana P. Whitmer, Superintendent of Schools, 350 Wide Track Drive, Pontiac, Mich. 48058

o Selling bonds directly to local citizens. Some districts have successfully sold limited bond issues directly to community members.
Write: S. J. Davis, Superintendent of Schools, 10700 Page Avenue, Fairfax, Va. 22030

o Leasing facilities from private enterprise. If a need for space is temporary or if population within a school district is shifting rapidly, it may be economical to lease facilities. A lease-purchase plan can also substitute for long-term financing. Leases may be arranged with municipal or state building commissions, nonprofit organizations set up for this purpose, or from various kinds of commercial firms. Rent can be paid from operating funds so the school district incurs no capital debts.
Write: John Hunt, Superintendent, East Windsor Regional School District, Administration Building, Stockton Street, Hightstown, N. J. 08520

See: Guide to Alternatives for Financing School Buildings, available from EFL, 477 Madison Avenue, New York, N. Y. 10022
See: The Economics and Financing of Education, second edition, Prentice Hall, Englewood Cliffs, N. J. 1969
See: Financing Public Schools in the United States, Harper, New York, 1957
See: The Theory and Practice of Public School Finance, Rand McNally, Chicago, 1967
Write: W. Montfort Barr, Office of the Coordinating Secretary, Indiana University, Box E, Bloomington, Ind. 47401

Notes

Food Service

Schools are serving more meals to more people at more times during the day. Broad federal subsidy programs are expanding food services and reshaping facilities. Federal programs are available to public and many private educational organizations and may apply to other service groups. For a current list of federal programs and suggestions about applying for them, see School Food Service, a publication available from: Croft Educational Services, Inc., 100 Garfield Avenue, New London, Conn. 06320

Trends

o Breakfast programs. A growing number of schools offer breakfast (usually fruit or juice, cereal or bread and milk, with a protein food whenever possible). It's served in classrooms or lunchrooms before or after the school day begins.
Write: Marian Cronan, Director of Food Service, Brookline Public Schools, Brookline, Mass. 02139

o Universal free lunch. Legislation now pending in Congress may guarantee a free lunch to every school child, regardless of ability to pay. Already, many states (Massachusetts is one) require that lunch be available to all children, with free or reduced price meals for pupils who can't afford the regular price.
Write: National Food Service Association, P. O. Box 1932, Columbus, Ohio 43216

o Meals for the elderly. Several school districts serve lunch at reduced prices to elderly members of the community. One district also prepares lunches for shut-ins.
Write: Geraldine Harsh, Supervisor, Food Service, Eau Claire Area Board of Education, 122 Napa Street, Eau Claire, Wis. 54701

Meals for the elderly are served in Brookline, Mass., school cafeterias. Write: Marion Cronan, Director of Food Service, Public Schools, Brookline, Mass. 02139.

c Continuous service. Day, evening, and round-the-clock centers for young children must provide meals at frequent intervals. Some centers offer three meals plus snacks in between.
Write: Reverend Samuel Windham, Director, Samuel's Temple Day Care Center, 75 East 125th Street, New York, N. Y. 10035
Write: Elsie King, Director, Food Service, Sunnyside Schools, Tucson, Ariz. 85702

Facilities

o Manufacturing kitchens. Some large school districts operate kitchens equipped to process raw and bulk food into finished hot meals. The advantage is that the school district can make full use of government surplus commodities, such as grain.
Write: Food Service, Board of Education, 450 North Grand Avenue, Los Angeles, Calif. 90012

o Meals for the elderly. Several school districts serve lunch at reduced prices to elderly members of the community. One district also prepares lunches for shut-ins.
Write: Geraldine Harsh, Supervisor, Food Service, Eau Claire Area Board of Education, 122 Napa Street, Eau Claire, Wis. 54701

Meals for the elderly are served in Brookline, Mass., school cafeterias. Write: Marion Cronan, Director of Food Service, Public Schools, Brookline, Mass. 02139.

o Continuous service. Day, evening, and round-the-clock centers for young children must provide meals at frequent intervals. Some centers offer three meals plus snacks in between.
Write: Reverend Samuel Windham, Director, Samuel's Temple Day Care Center, 75 East 125th Street, New York, N. Y. 10035
Write: Elsie King, Director, Food Service, Sunnyside Schools, Tucson, Ariz. 85702

Facilities

o Manufacturing kitchens. Some large school districts operate kitchens equipped to process raw and bulk food into finished hot meals. The advantage is that the school district can make full use of government surplus commodities, such as grain.
Write: Food Service, Board of Education, 450 North Grand Avenue, Los Angeles, Calif. 90012

o Central kitchens. In almost every food service operation that involves more than one school, meals are prepared in a central facility and distributed to satellite schools.
Write: Superintendent, Public Schools, Administration Service Center, Burwell and Montgomery, Bremerton, Wash. 98310

o Satellite kitchens. The kinds of equipment needed in receiving schools depend on the type of meal prepared in central kitchens and on the means of delivery. Most satellites require ovens for re-heating meals.

o Convenience foods. Canned, frozen, and freeze-dried foods that require minimal preparation cut down both labor and facility costs.
Write: School Lunch Program, Board of Education, 110 Livingston Street, Brooklyn, N. Y. 11201

o Pre-packaging. Food prepared in central kitchens or purchased in heat-and-serve form from food processors can be packaged in compartmented aluminum foil or styrofoam containers. Throw-away utensils eliminate washing facilities.
Write: Superintendent, Public Schools, Administrative Service Center, Burwell and Montgomery, Bremerton, Wash. 98310

o Contract service. Private contractors can provide complete meal service. Some food management companies offer a broad range of services that may include equipment owned by the company or leased or purchased by the school.
Write: Robert Ohlzen, Food Service Director, State Department of Education, Evanston, Ill. 62204

o Snack bars. New open plan schools and some schools on modular scheduling have installed continuous food service facilities that resemble commercial snack bars. Convenience foods and sandwiches are common items, but are selected for nutritional value.
Write: Elsie King, Director, Food Service, Sunnyside Schools, Tucson, Ariz. 85702

o Vending machines. Vending machines installed and serviced by outside contractors can relieve schools of the entire food service burden. Machines now dispense sandwiches, soups, fruit, beverages, and candy, and some have been designed to offer the standard lunch approved for federal subsidy.
Write: D. L. Ihrman, Superintendent, Public Schools, Holland, Mich. 49423

Student choice is another trend in school food service. Even in a district that serves only one standard meal each day, students can be given a choice. At annual tasting sessions, student panels join district dietitians in planning menus for the coming year.
Write: Thomas J. Farley, Director, Food Service, Public Schools, 5225 West Vliet Street, Milwaukee, Wis. 53201

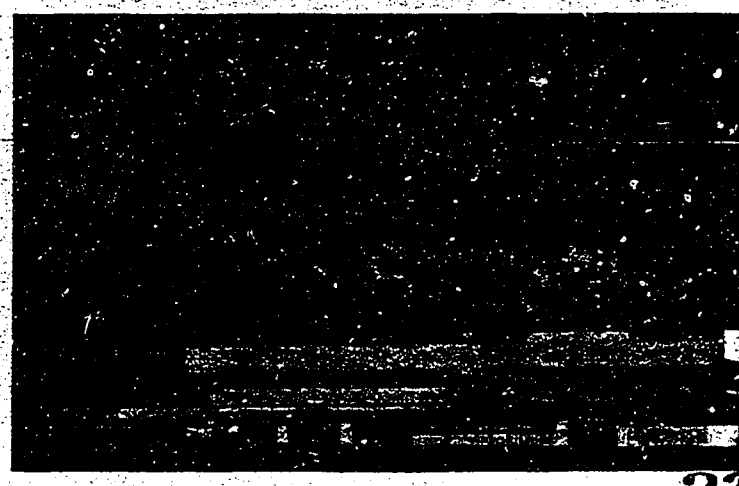
Notes

Home Base Schools

Some schools increase their capacities by scheduling a part of their student body to be away from the school at all times. This is made possible by establishing programs that take advantage of community organizations such as museums and businesses. Home base refers to the place to which all students report at some time during the day or week.
See: 6.REACHOUT SCHOOLS, p. 80

House Plan Schools

Schools are sometimes divided administratively into a number of separate units, with the organizational division reflected in the building's physical plan. The division is sometimes made across grade levels; that is, each "house" contains representatives of all grade levels. But sometimes, each grade has a house to itself, or students are assigned to houses according to their interests in science, for example, or the arts, or vocational education. This type of organization is called the "school-within-a-school." Usually the house plan is established in order to reduce the scale of the school and to deinstitutionalize and reduce the number of students and teachers responsibl to a single administrative unit.
See: Schools Within Schools, by Karl R. Plath, Teachers College, Columbia University, New York, 1965



machines
side con-
of the
Machines
s, fruit,
e have been
d lunch

endent,
ich.

nd in school
rict that
each day,
e. At
ent panels
lanning

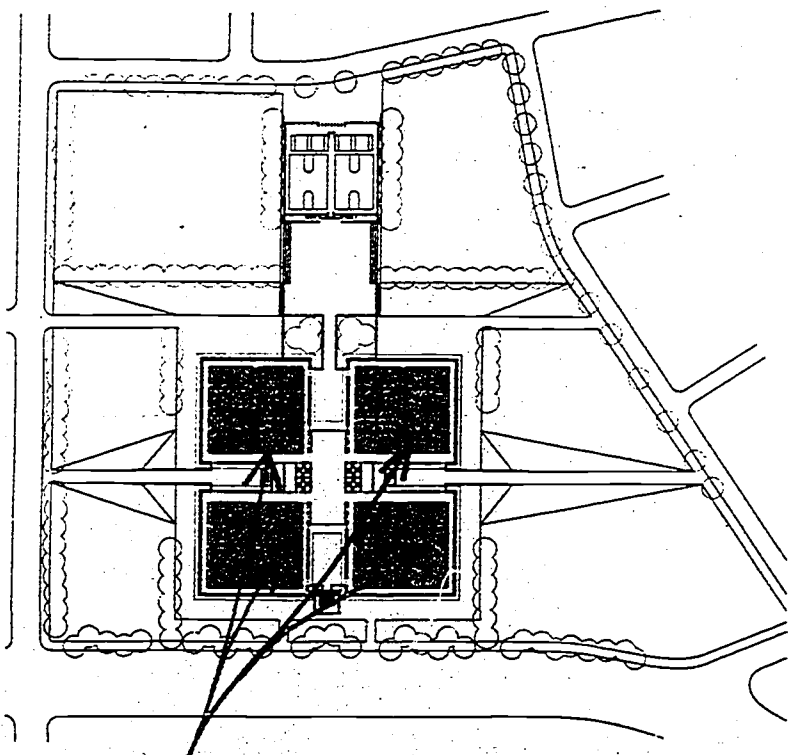
ctor,
ls,

Home Base Schools

Some schools increase their capacities by scheduling a part of their student body to be away from the school at all times. This is made possible by establishing programs that take advantage of community organizations such as museums and businesses. Home base refers to the place to which all students report at some time during the day or week.
See: 6.REACHOUT SCHOOLS, p. 80

House Plan Schools

Schools are sometimes divided administratively into a number of separate units, with the organizational division reflected in the building's physical plan. The division is sometimes made across grade levels; that is, each "house" contains representatives of all grade levels. But sometimes, each grade has a house to itself, or students are assigned to houses according to their interests in science, for example, or the arts, or vocational education. This type of organization is called the "school-within-a-school." Usually the house plan is established in order to reduce the scale of the school and to deinstitutionalize and reduce the number of students and teachers responsible to a single administrative unit.
See: Schools Within Schools, by Karl R. Plath, Teachers College, Columbia University, New York, 1965



Four houses of Richard C. Lee High School share gymnasium and athletic fields. Write: Robert Schreck, Principal, Richard C. Lee High School, 100 Church Street South, New Haven, Conn. 06511.

Inexpensive Space Enclosures

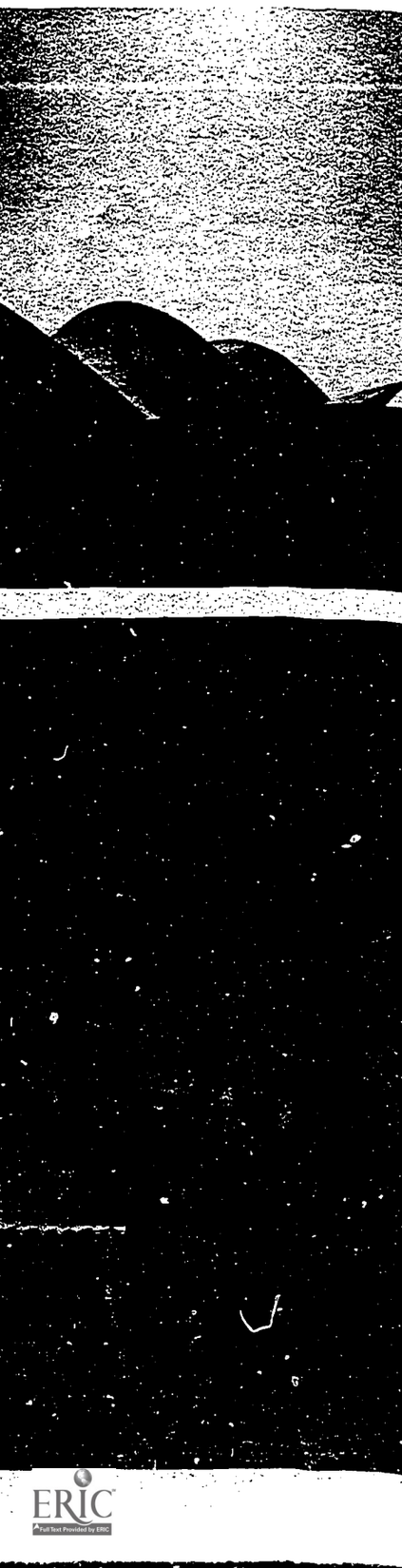
Often schools need to enclose large amounts of space inexpensively. Air structures are one building type that fills this need, but there are many other new building methods and materials that make this possible. Lightweight materials, more efficient structural designs and simplified construction processes enable designers to enclose large spaces without obtrusive columns, to build quickly and to build inexpensively. Among the new structures are: geodesic domes, cable structures whose walls are made of thin fabric-like membranes, or lightweight concrete shells. New materials include plastics, such as urethane foam. Construction methods that save time and money include prefabrication and a variety of special techniques for erecting specific kinds of structures.

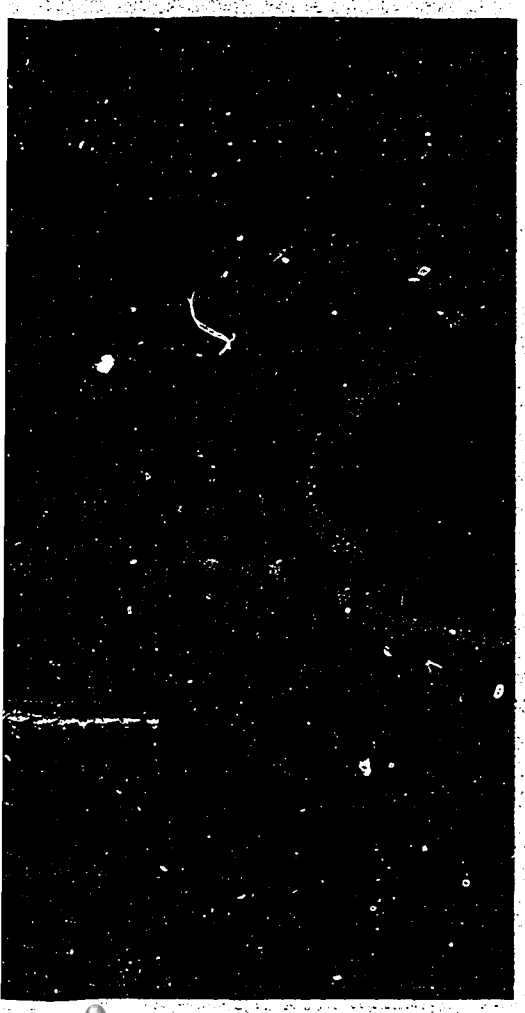
o Geodesic domes.
Write: Eugene Maxwell, Cleveland State University, Euclid Avenue at 24th Street, Cleveland, Ohio 44115

o Prefabricated space frames.
Write: John Winken, Athletic Director, Colby College, Mayflower Hill, Waterville, Me. 04901

o Urethane foam structure.
Write: William T. Hegdon, President, Graceland College, Lamoni, Iowa 50140

o Tensile membrane structure.
Write: Leland B. Newcomer, LaVerne College, 1950 Third Street, LaVerne, Calif. 91750





Instructional Technology

Any tool used in the teaching/learning process -- from book and pencil to computer and light pen -- can be included in a definition of instructional technology. But the technological tools of greatest value to most schools are the simplest, least expensive, and most accessible ones. And industry is beginning to provide devices that make films, slides, and sound as inexpensive and easy to handle as books. Aside from low cost, the main advantage of this kind of equipment is its immediate availability. It is important that there be room for it in the teaching area -- it does not belong in a box or a closet, and certainly not in a different room. Because no special arrangements are necessary for use, a-v material can be integrated with other lesson material or used by an individual student without causing the slightest fuss.

Portable Hardware

o Hand-held projectors. One manufacturer will soon make a model available at less than $5. retail; it uses a silent super-8MM film cartridge, is hand-cranked, and cordless. It needs no special light source and weighs practically nothing, so can be used anywhere, anytime. A more expensive model permits the use of silent filmstrip and sound movies on the same cartridge. It can be held in the hand or mounted on a small table tripod. Hand-held projectors allow the viewer to hold a frame or slide, reverse, and turn the film in slow motion.

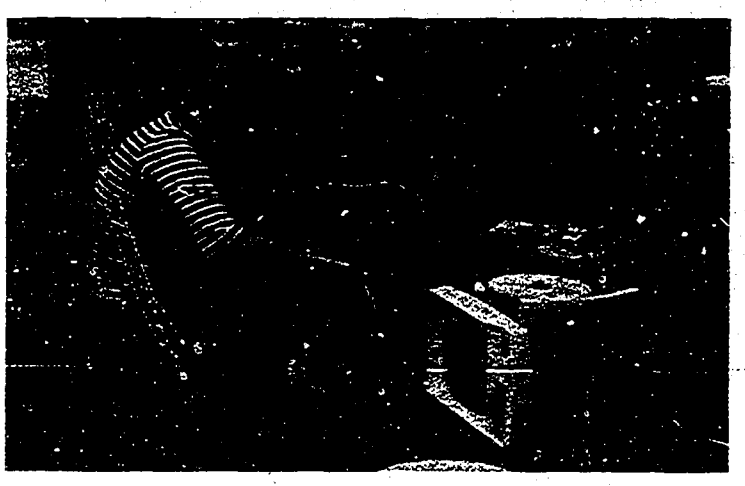
o Audio cassettes. Cassette recorders have become more useful since software producers have made available pre-recorded cassettes in all traditional curriculum areas and at all grade levels. They're small, portable, sturdy, and can be used by groups or individuals.

o Individual microfiche reader. Microfiche readers will soon be available in book size - 8½" x 10". They will weigh about 3½ lb. and are designed to be held in the lap. Portable equipment for storing, retrieving, and duplicating microforms is coming too, and even smaller, cheaper readers are expected to be on the market soon.

o Portable language lab. Essentially a cassette recorder, the portable language lab provides multi-track cassettes, one of which carries the lesson. Students cannot erase the prerecorded lesson, but can record and erase their own responses as often as they wish. The whole package weights about 5 lb.

o Video cassettes. Manufacturers have not yet standardized TV cassette players, so cassette tapes are not interchangeable among players made by different manufacturers. Players are portable.

o Videotape recorders. Recorders and duplicators are coming down in both size and cost. They are now probably the most practical form of TV equipment for schools that do not want or need to receive live telecasts.
Write: Educational Products Information Exchange Institute, 386 Park Avenue South, New York, N. Y. 10016



Portable video tape players are among the many kinds of electronic hardware children can easily operate.
Write: Dorothy Bumpers, Secretary, Matzke Elementary School, 13102 Jones Road, Houston, Tex. 77040.

Hardware Systems

o Dial access. Study carrels equipped with headphones, video screen, and telephone dial enable students in large schools or school systems to receive audio-visual programs stored and played at a remote location. A small computer handles requests and aids in scheduling programs. Specially designed carrels are needed (usually in the resource center), and the computer and a-v equipment need a room that is airconditioned and acoustically isolated.
Write: Ira Singer, Assistant Superintendent of Schools, West Hartford Public Schools, 7 Whiting Lane, West Hartford, Conn. 06607
Write: Russell Fuog, Superintendent, Oak Park-River Forest Consolidated High School, District 200, 201 North Scoville Avenue, Oak Park, Ill. 60302

o Computers in instruction. At present, computers aid instruction in three different ways. They manage learning progress, administer drill and practice programs, and play games that stimulate real-life situations. Computers can be leased, purchased, or leased with an option to buy. Schools can rent computer terminals and buy time on a large computer at a remote location. Often, school districts acquire computer facilities on a cooperative basis. Terminals may be stationed in classrooms or in resource centers, and are often installed in specially designed carrels.
Write: Carl Zinn, Director, Project CLUE, 1315 Hill Street, Ann Arbor, Mich. 48184

o Closed-circuit television. Closed-circuit TV can make available to all students within a district live lectures, demonstrations, or dramatic presentations produced at a centrally located studio.

o Cable television. Cable TV is a form of closed-circuit, but it serves entire communities instead of a single school or school district. Cable TV offers great potential for educational programming

because of th
available and
take advantag
at the same t
needs of part
addition, cab
of two-way co

o Open-circu
Ultra-High Fr
quency channe
structional t
by public age
The amount of
broadcast var
is especially
isolated area
To receive th
ordinary sets
are adequate.
information a
are listed un

o Language l
language labs
tape recorder
stations and
control panel

Software

No instructio
price without
educational m
processes. B
equipment, it
what kind of
and whether e
material is a
ular equipmen
films and tap
quantity for
recorders, pr
sophisticated
if a school w
educational s
be sure they
expensively.
extensive use
operate centr
facilities or
instructional
software) fro
One such faci
Materials Pro
all schools i

Hardware Systems

o Dial access. Study carrels equipped with headphones, video screen, and telephone dial enable students in large schools or school systems to receive audio-visual programs stored and played at a remote location. A small computer handles requests and aids in scheduling programs. Specially designed carrels are needed (usually in the resource center), and the computer and a-v equipment need a room that is airconditioned and acoustically isolated.
Write: Ira Singer, Assistant
Superintendent of Schools,
West Hartford Public Schools,
7 Whiting Lane, West Hartford,
Conn. 06607
Write: Russell Fuog, Superintendent,
Oak Park-River Forest Consolidated
High School, District 200, 201
North Scoville Avenue, Oak Park,
Ill. 60302

o Computers in instruction. At present, computers aid instruction in three different ways. They manage learning progress, administer drill and practice programs, and play games that stimulate real-life situations. Computers can be leased, purchased, or leased with an option to buy. Schools can rent computer terminals and buy time on a large computer at a remote location. Often, school districts acquire computer facilities on a cooperative basis. Terminals may be stationed in classrooms or in resource centers, and are often installed in specially designed carrels.
Write: Carl Zinn, Director, Project
CLUE, 1315 Hill Street, Ann Arbor,
Mich. 48184

o Closed-circuit television. Closed-circuit TV can make available to all students within a district live lectures, demonstrations, or dramatic presentations produced at a centrally located studio.

o Cable television. Cable TV is a form of closed-circuit, but it serves entire communities instead of a single school or school district. Cable TV offers great potential for educational programming because of the large number of channels available and because its programming can take advantage of commercial studios and at the same time be tailored to suit the needs of particular communities. In addition, cable TV offers the possibility of two-way communication.

o Open-circuit instructional television. Ultra-High Frequency and Very High Frequency channels are available for instructional television programs produced by public agencies, including schools. The amount of material available for broadcast varies across the country, but is especially large and helpful in such isolated areas as the Rocky Mountains. To receive this type of broadcast, ordinary sets with UHF and VHF reception are adequate. Sources of additional information about television in schools are listed under Television.

o Language laboratories. Electronic language labs consist of a series of tape recorder/players located at student stations and connected to a master control panel at the teacher's desk.

Software

No instructional hardware is worth its price without good software -- the educational material that the hardware processes. Before buying instructional equipment, it's imperative to decide what kind of software you want to use and whether enough good instructional material is available for that particular equipment. Commercially produced films and tapes are available in great quantity for use with portable tape recorders, projectors of all kinds, and sophisticated dial access systems. But if a school wants to produce its own educational software, it's important to be sure they can do it easily and inexpensively. Some districts that make extensive use of audio-visual equipment operate central software production facilities or supply all requests for instructional materials (hardware and software) from a central clearinghouse. One such facility is the Instructional Materials Processing Center, which serves all schools in Greece, N. Y. At the

IMPC, all materials, including books, are catalogued, new films and kits containing materials relevant to particular subjects are produced, and, whenever necessary, materials are duplicated.
Write: Sue Whan, Instructional Materials Processing Center, P. O. Box 7197, North Greece, N. Y. 14515

Notes

Joint Occupancy

Joint Occupancy means sharing a site or a building with a private or public enterprise. Often, this is accomplished through lease or sale of air rights above school-owned land, depending on local economic conditions and state law. Where land is scarce and credit tight, joint occupancy has the following advantages:

o Eases problem of acquiring sites. Schools share instead of compete with other enterprises for land.

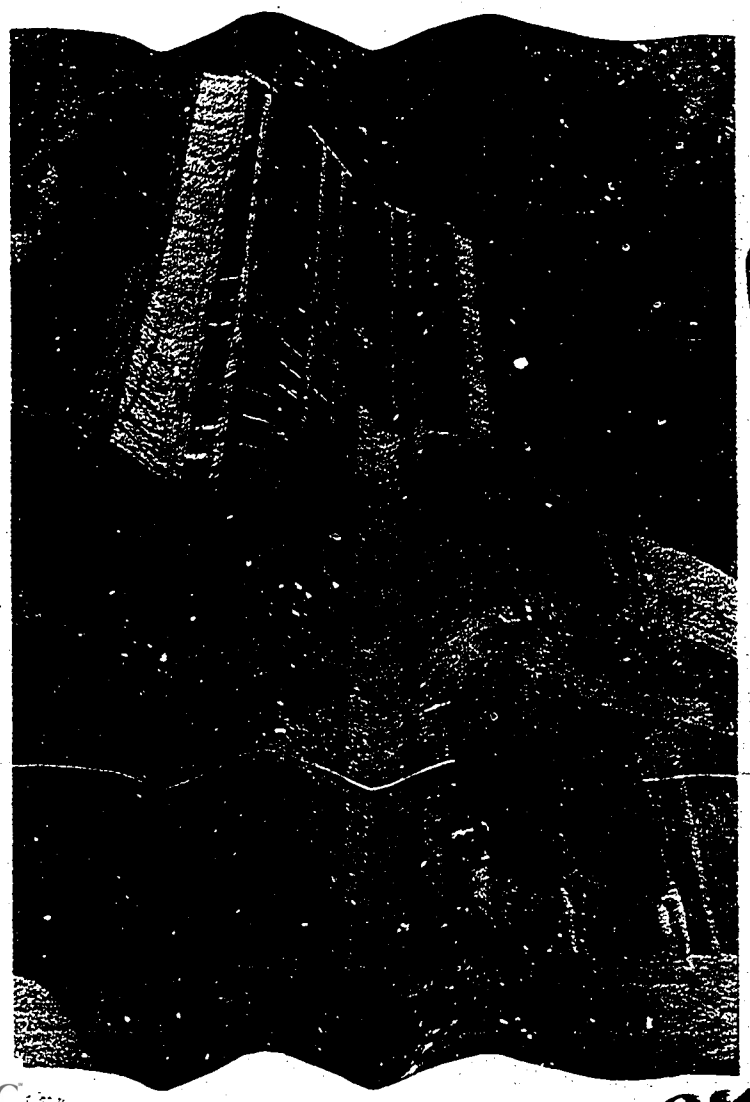
Apartments rise above the new Trinity School. School acted as developer for the state-subsidized housing.

Joint Occupancy

Joint Occupancy means sharing a site or a building with a private or public enterprise. Often, this is accomplished through lease or sale of air rights above school-owned land, depending on local economic conditions and state law. Where land is scarce and credit tight, joint occupancy has the following advantages:

o Eases problem of acquiring sites. Schools share instead of compete with other enterprises for land.

Apartments rise above the new Trinity School. School acted as developer for the state-subsidized housing.



o Can increase city's tax base. Commercial owners of air rights above school structures pay property taxes or make payments to the city in lieu of taxes. The rent not only defrays land acquisition or credit costs, but provides income for the city after these costs have been repaid.

o Enables city to acquire sites for other public or subsidized facilities. When schools are combined with subsidized housing, libraries, or health centers, joint occupancy generates little income, but it eliminates the need to acquire additional sites and remove more land from the tax rolls.

o Provides opportunities for sharing facilities and programs. Building an office building on top of a commercial high school makes possible convenient work/study programs; residents of apartments built over schools can share recreational facilities.

New York City's Educational Construction Fund (see chart) is one of the most active sponsors of joint occupancy projects. The Fund is a public authority whose most important powers are the ability to issue its own bonds outside the city's debt limit and to retire the bonds with income it receives from the lease of air rights and with payments in lieu of taxes equal to what the commercial partner would normally pay the city. After the bonds have been paid off, all income reverts to the city. The Fund selects the commercial developer and supervises the entire project. The developer is responsible for construction of both the school and the non-school portions of the development.

Joint Occupancy

SCHOOL	PARTNER	PLACE	COMPLETION DATE	REFERE
Friends Select School	Commercial Offices (Pennwalt Chemical)	Philadelphia, Pa.	1969	G. Laurence Blou Friends Select S Seventh and Park Philadelphia, Pa
P.S. 99 cafeteria/ auditorium addition	Commercial apartments	New York, N.Y.	planning	Samuel Kaplan, D Development, New Education Constr 250 Broadway, Ne 10007
P.S. 126	Subsidized apartments	New York, N.Y.	1971	Same as above
P.S. 169	Commercial apartments	New York, N.Y.	1972	Same as above
Trinity School	Subsidized apartments	New York, N.Y.	1969	Richard M. Garte Trinity School, New York, N.Y.
Quincy School	Public agencies and private organizations	Boston, Mass.	planning (1974?)	Herman H. Field, Planning, Tufts- Medical Center, Boston, Mass. 0
Drake South Commons School	Shopping center, church and housing	Chicago, Ill.	1971	Richard Firman, Drake Elementar 2722 Martin Lut Chicago, Ill. 6

R	PLACE	COMPLETION DATE	REFERENCE
Offices Chemical)	Philadelphia, Pa.	1969	G. Laurence Blouvelt, Headmaster, Friends Select School Seventh and Parkway Philadelphia, Pa. 19103
	New York, N.Y.	planning	Samuel Kaplan, Director of Development, New York City Education Construction Fund, 250 Broadway, New York, N.Y. 10007
	New York, N.Y.	1971	Same as above
	New York, N.Y.	1972	Same as above
d s	New York, N.Y.	1969	Richard M. Garten, Headmaster, Trinity School, 139 W. 91st St., New York, N.Y. 10024
encies te ions	Boston, Mass.	planning (1974?)	Herman H. Field, Director of Planning, Tufts-New England Medical Center, 37 Bennett St., Boston, Mass. 02111
center, nd	Chicago, Ill.	1971	Richard Firman, Principal, Drake Elementary School 2722 Martin Luther King Drive Chicago, Ill. 60616

Language Laboratories

Language laboratories consist of a series of student carrels or stations equipped with earphones and tape recorder/players; each carrel is wired to a teaching station equipped with master controls. Students listen to taped language instruction and record their own voices; teachers can listen in on individual students, correct them, and elicit responses.
See also Instructional Technology

Library

So many different kinds of materials are housed in what used to be the school library that the term "library" has been replaced in most new schools by resource center and instructional media center.
See also Resource Centers

Lighting

Research in lighting performance and changes in educational programs have overturned some of the traditional assumptions about lighting in schools.

o Glare. More important than the amount of light may be the angle at which it strikes the work surface. Light that shines directly onto the page of a book, for example, may produce reflections on the paper that interfere with the ability to read. Special polarized lamps in fixtures that direct light at an angle instead of straight down have been developed to solve the glare problem.
See: Contrast Renditions in School Lighting, available from EFL, 477 Madison Avenue, New York, N.Y. 10022

o Flexibility. Educational programs that emphasize individual study and the use of instructional technology demand the ability to raise or lower lighting levels in specific areas within large rooms. When children can choose their own spots for reading or viewing, it may be desirable to provide independent light sources throughout the room. Small, surface-mounted fixtures can be used as supplements to the general light source and at the same time soften the institutional character of large school spaces. This effect is helped by the warm color of incandescent and the newer mercury vapor lamps. See also performance specifications developed for use in systems building projects. These projects are listed under Systems Building.
See: IES School Lighting Handbook, available from the Illuminating Engineering Research Institute, 345 East 47th Street, New York, N.Y. 10017
See also Performance Specifications

Middle Schools

Middle schools accommodate children in grades five or six through grade eight. They are part of a pattern of school system reorganization that includes small neighborhood schools for grades one through four or five and larger, four-year high schools. Reasons for establishing middle schools often include dissatisfaction with conventional junior high schools and a desire to maintain or restore the four-year high school. Middle schools vary in program and organization, but are all designed especially to suit the development patterns of early adolescents.
See: The Effective Middle School, by Joseph C. De Vita, Philip Pumerantz and Leighton B. Wiklow, Parker Publishing Company, West Nyack, N.Y., 1970
See: Perspectives on the Middle School, by M. Ann Grooms, Merrill Books, Columbus, Ohio, 1967
See: The Intermediate Schools, by Leslie W. Kindred and Associates, Prentice-Hall, Englewood Cliffs, N.J., 1968

Mini-Schools

Mini-schools are small structures, usually designed to fit small plots of land left open when small buildings are de-

own spots for reading or viewing, it may be desirable to provide independent light sources throughout the room. Small, surface-mounted fixtures can be used as supplements to the general light source and at the same time soften the institutional character of large school spaces. This effect is helped by the warm color of incandescent and the newer mercury vapor lamps. See also performance specifications developed for use in systems building projects. These projects are listed under Systems Building.

See: IES School Lighting Handbook, available from the Illuminating Engineering Research Institute, 345 East 47th Street, New York, N.Y. 10017

See also Performance Specifications

Middle Schools

Middle schools accommodate children in grades five or six through grade eight. They are part of a pattern of school system reorganization that includes small neighborhood schools for grades one through four or five and larger, four-year high schools. Reasons for establishing middle schools often include dissatisfaction with conventional junior high schools and a desire to maintain or restore the four-year high school. Middle schools vary in program and organization, but are all designed especially to suit the development patterns of early adolescents.

See: The Effective Middle School, by Joseph C. De Vita, Philip Pumerantz and Leighton B. Wiklow, Parker Publishing Company, West Nyack, N.Y., 1970

See: Perspectives on the Middle School, by M. Ann Grooms, Merrill Books, Columbus, Ohio, 1967

See: The Intermediate Schools, by Leslie W. Kindred and Associates, Prentice-Hall, Englewood Cliffs, N.J., 1968

Mini-Schools

Mini-schools are small structures, usually designed to fit small plots of land left open when small buildings are demolished. Often, they house only two or three grade levels. They help meet parents' demands for small neighborhood schools, and their size makes it easy for teachers and students to know one another and avoid the kind of tension that often characterizes large schools. The size of mini-schools makes them easily marketable for another use (such as housing) when they are no longer needed for children.

Write: Grinnell Locke, Staff Architect, Baltimore City Schools, 2330 St. Paul Street, Baltimore, Md. 21218

Mobile Facilities

Although they have been used to provide temporary classroom space under emergency crowding conditions, mobile facilities are best used to supplement the instructional resources of a number of schools in a cooperative program. Structure and size of mobile units is similar to that of trucks, buses, or mobile homes, so they're not ideal as classrooms. But they are used successfully to bring art galleries, vocational training workshops, libraries, and teacher training programs to individual schools over a wide geographic area.

Write: Suzanne Cohan, Supervisor of Art Education, State Office of Public Instruction - Room 1400, 188 West Randolph Street, Evansville, Ill. 62242

Write: J. Marion Adams, Associate Commissioner for Vocational, Technical and Adult Education, Arkansas State Department of Education, Arch Ford Education Building, Little Rock, Ark. 72201

Notes

New Towns

Construction of new communities creates unique opportunities for implementing innovations in school design. Because no set way of doing things exists and because people go to new towns with a desire for better facilities and services than established cities could offer, new towns are ideal proving grounds for new ideas in education. It's a good idea, therefore, to investigate educational planning in each new town as it occurs. New towns that have already built innovative schools include Reston, Va. (house plan) and Columbia, Md. (middle schools). Other new towns worth watching for planned innovations are Litchfield Park, Ariz., Welfare Island in New York City, and Irvine, Calif.

Performance Specifications

Specifications of any kind are the requirements given by an architect to suppliers of building materials and furnishings. They tell the supplier what is wanted. Ordinarily, specifications describe exactly the item desired, and sometimes specify brand names. Performance specifications, on the other hand, tell the supplier how the material is to be used and what it is expected to do -- how much weight it must support if it is a structural material, how much wear it must withstand, and so on. Performance specifications leave room for the supplier to use its expertise to offer the best and least expensive solution. The buyer, of course, can require proof that the materials will perform to specifications.
See also Systems Building

Physical Education

New attitudes toward physical fitness are reflected in programs and facilities for physical education. The three most significant trends are:

- Emphasis on lifetime sports, such as tennis or swimming, rather than on team games.

- Making physical education fun for all children, not just those with exceptional athletic ability.

- Making it easy for children to participate in physical education activities, instead of putting them through the ritual of changing clothes, taking showers and lining up in squads.

A variety of equipment, some of it new, some of it new only in its present setting, encourages the new trends:

- Chinning bars, jumping mats and rope ladders in school corridors. Children can be encouraged to exercise throughout the day -- on their way to class or during breaks between periods of instruction. Rowing machines, running machines and stationary bicylces in classrooms or designated areas of open plan schools.

Ordinarily, specifications describe exactly the item desired, and sometimes specify brand names. Performance specifications, on the other hand, tell the supplier how the material is to be used and what it is expected to do -- how much weight it must support if it is a structural material, how much wear it must withstand, and so on. Performance specifications leave room for the supplier to use its expertise to offer the best and least expensive solution. The buyer, of course, can require proof that the materials will perform to specifications.
See also Systems Building

Physical Education

New attitudes toward physical fitness are reflected in programs and facilities for physical education. The three most significant trends are:

o Emphasis on lifetime sports, such as tennis or swimming, rather than on team games.

o Making physical education fun for all children, not just those with exceptional athletic ability.

o Making it easy for children to participate in physical education activities, instead of putting them through the ritual of changing clothes, taking showers and lining up in squads.

A variety of equipment, some of it new, some of it new only in its present setting, encourages the new trends:

o Chinning bars, jumping mats and rope ladders in school corridors. Children can be encouraged to exercise throughout the day -- on their way to class or during breaks between periods of instruction. Rowing machines, running machines and stationary bicylces in classrooms or designated areas of open plan schools. These can be used the same way independent study carrels or other special equipment is used in self-directed learning situations.
Write: Maxine Koelling, Principal, Intermediate School, East Orange, N.J. 07017

o Universal gyms. Large structures that include some of the equipment named above can be used by several students performing different kinds of athletic exercises at the same time.
Write: P. Richard Thiebert, Athletic Director and Special Assistant to the President, Hofstra University, Hempstead, N.Y. 11550

o Portable pools. You don't need an olympic-size swimming pool to teach young children basic water safety. Portable pools can be set up anywhere there's space, and removed as easily.
Write: W.G. Campbell, Superintendent, Carrol County Schools, Carrolton, Miss. 38917

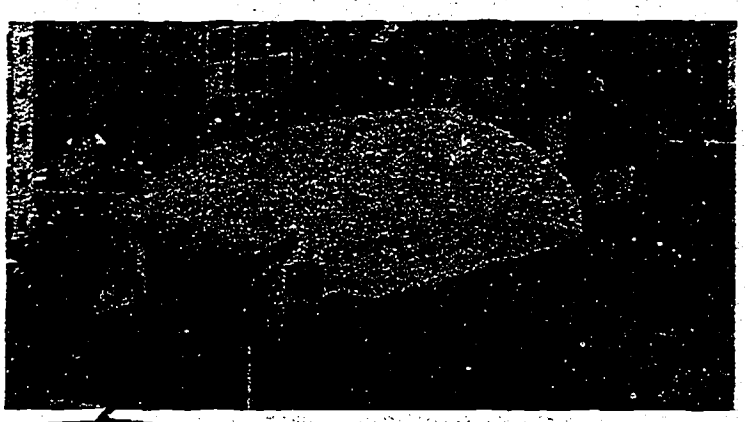
o Artificial ice. Children can skate on synthetic surfaces that become as slick as ice when a conditioner is applied. Panels can be laid in gyms or cafeterias.
Write: Robert Finley, Superintendent of Schools, Glen Cove Public Schools, Glen Cove, N.Y. 11542
See also Artificial Playing Surfaces

o Artificial turf. Synthetic grass substitute can be applied indoors or out -- even on rooftops in cities. It's used for all types of grass sports, including golf and tennis.
Write: Woodstock Academy, Academy Road, Woodstock, Conn. 06288
See also Artificial Playing Surfaces

With the new attitudes toward physical education, high schools don't really need to construct expensive gyms designed first and foremost for inter-scholastic basketball. To achieve economies in physical education structures (the gym can account for as much as 30 per cent of the cost of a new high school), more flexible facilities are being designed and schools are working out ways to share facilities

that do require substantial investments. For example:

o Air structures. Instead of building gyms, some schools simply cover their recreation-athletic areas with translucent material supported by air.
See also Encapsulated Space



Air structure makes rooftop athletic facilities usable all year round. Write: Paul R. De Cicco, Director of Physical Planning, Brooklyn Polytechnical Institute, 333 Jay Street, Brooklyn, N. Y. 11201.

o Inexpensive space enclosures. A number of lightweight, long-span structures designed to enclose large amounts of space economically are used today for physical education activities. They include domes, tensile structures (tents), and prefabricated types.
See also Inexpensive Space Enclosures

o Sharing with other schools. In Providence, R.I., several schools use the athletic facilities of Brown University and Pembroke College.
Write: Dorothy Brightman, Chairman, Physical Education, Mary C. Wheeler School, 216 Hope Street, Providence, R.I. 02906

o Sharing with the community. Rooftop play and athletic areas can be used after school hours by the public, and the cost of their maintenance can be shared by Parks and Recreation Departments.
Write: Joseph Ringers, Assistant Superintendent, Arlington County Public Schools, 1426 North Quincy Street, Arlington, Va. 22207
See: 5.COMMUNITY/SCHOOLS,p.64
See also Joint Occupancy

Playgrounds

Recent experience has shown that the ingenious use of ordinary places and things is more important to the success of a playground than expensive equipment or fancy architectural design.

When planning a playground, consider the following:

o Accessibility. Playgrounds should be located where children can get to them anytime, and parents or teachers can supervise them easily.

o Programs. Playgrounds should not just keep children busy -- they should offer opportunities for children to discover new experiences, things, skills.

o Places for adults. Playgrounds shouldn't be designed to exclude adults altogether. Children need some supervision, and if there's no place where adults can be comfortable, they won't take their children as often as they could.

o Safety. No place children play can be guaranteed to be completely safe. Eliminating all possible dangers would result in a boring place to play, but obvious hazards should be avoided.

o Impermanence. Playgrounds don't have to stay in one place forever; they can be moved from one empty lot to another as neighborhood buildings are torn down and replaced.

o Design. Children prefer loosely structured spaces that can be used in a variety of ways, rather than carefully planned architectural spaces.

o Portability. Furnishings and equipment shouldn't be built in, nailed down, or so big a child can't move them. There are exceptions, of course, but children prefer things they can get their hands on, manipulate, change, even destroy.

o Materials. To give children the opportunity for new experiences, for learning responsibility, and for developing skills, and to be sure they'll have fun, three basic elements are ideal: fire, water and

Playgrounds

Recent experience has shown that the ingenious use of ordinary places and things is more important to the success of a playground than expensive equipment or fancy architectural design.

When planning a playground, consider the following:

o Accessibility. Playgrounds should be located where children can get to them anytime, and parents or teachers can supervise them easily.

o Programs. Playgrounds should not just keep children busy -- they should offer opportunities for children to discover new experiences, things, skills.

o Places for adults. Playgrounds shouldn't be designed to exclude adults altogether. Children need some supervision, and if there's no place where adults can be comfortable, they won't take their children as often as they could.

o Safety. No place children play can be guaranteed to be completely safe. Eliminating all possible dangers would result in a boring place to play, but obvious hazards should be avoided.

o Impermanence. Playgrounds don't have to stay in one place forever; they can be moved from one empty lot to another as neighborhood buildings are torn down and replaced.

o Design. Children prefer loosely structured spaces that can be used in a variety of ways, rather than carefully planned architectural spaces.

o Portability. Furnishings and equipment shouldn't be built in, nailed down, or so big a child can't move them. There are exceptions, of course, but children prefer things they can get their hands on, manipulate, change, even destroy.

o Materials. To give children the opportunity for new experiences, for learning responsibility, and for developing skills, and to be sure they'll have fun, three elements are ideal: fire, water and earth. Children love to mold and sift earth, especially mud and sand, and splash in a tub of water or sail toy boats in a shallow pool. Fires are fascinating to any child, but especially to the city child who sees them only on construction sites. A good way to teach children fire safety is to let them build one in a suitable container -- an old oil drum, for example. What's junk to adults is often more fascinating to children than any piece of shiny new equipment. Anything that can be used to build huts or other child-devised structures is good material. Junk materials ideal for equipping playgrounds include: wheels, boards, bedsprings, tires, furniture, balls, bricks, cartons, buckets, pieces of cloth, stones and pebbles, suitcases, broken ladders, garbage cans.

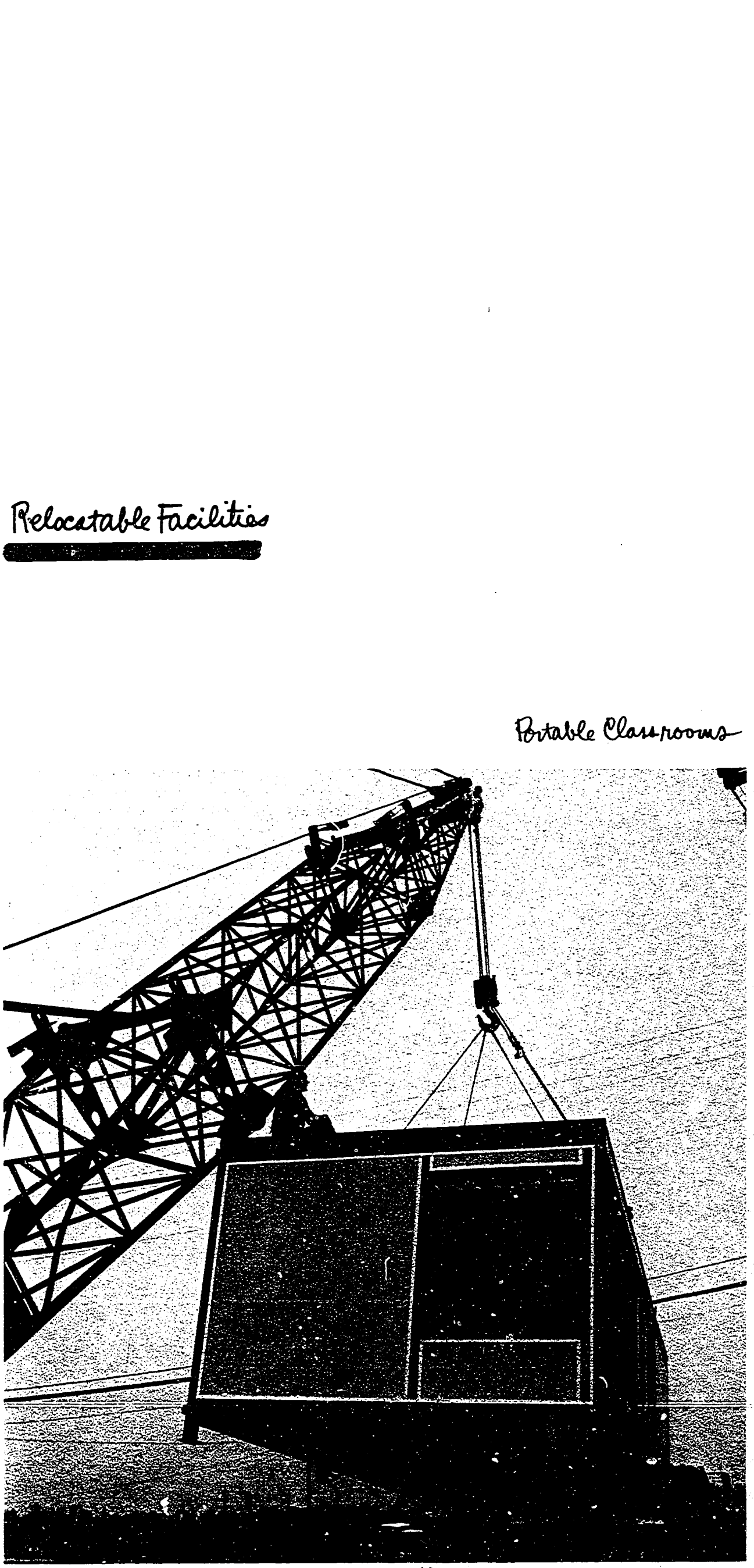
o Responsibility. Letting children make their own rules about playground behavior makes them feel the place belongs to them. And children are far more conscientious in obeying their own rules than in adhering to a set of "No's" posted on a sign.

See: Play and Playgrounds, a publication available from EFL, 477 Madison Avenue, New York, N.Y. 10022
Write: The Parks Council, 80 Central Park West, New York, N.Y. 10023
See also Physical Education
See also Early Childhood Education

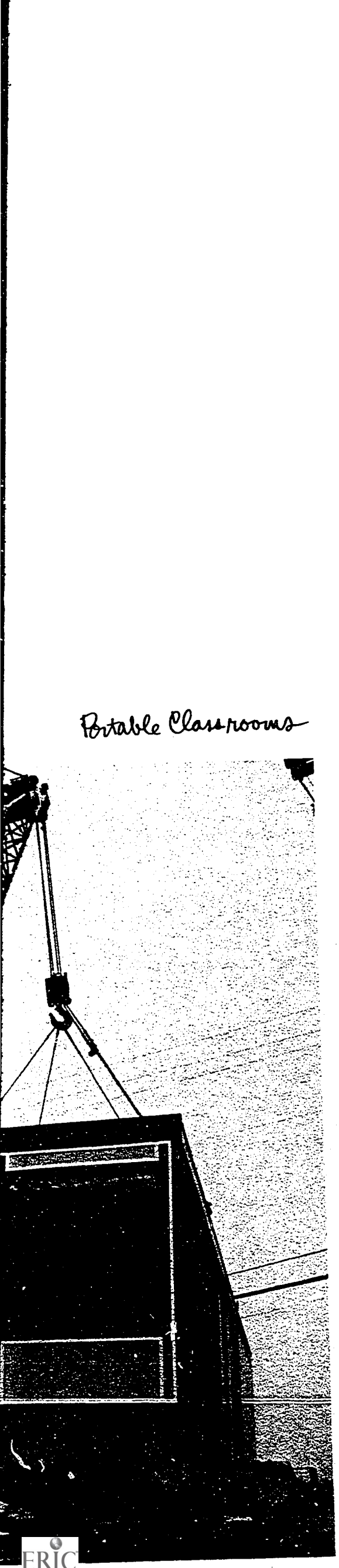
Dome and other equipment for playground at U. S. Office of Education were designed to be produced from easily available materials and constructed by small local shops.
Write: Martin Engel, United States Office of Education, 400 Maryland Avenue, S. W., Washington, D. C. 20202.

Relocatable Facilities

Portable Classrooms



Portable Classrooms



Relocatable Facilities

The need to provide a school space quickly -- to relieve overcrowding or to meet a sudden rise in enrollment -- has led many school districts to buy or lease relocatable structures. There are many varieties of relocatable facilities, but all are designed for temporary use until a permanent facility has been provided. Most relocatables are limited to the size of a single classroom and offer neither the flexibility nor the communal atmosphere and resources of a permanent building. If sufficient units are required, the client can commission an architect to design a facility and then call for bids from manufacturers, or the architect can develop performance specifications for manufacturers to meet with their own designs. Developing performance specifications is usually the better choice, if there's time. When only a few units are wanted, it will be necessary to settle for a stock model.

See also Performance Specifications
See also Mobile Facilities
See also Encapsulated Space
See also Inexpensive Space Enclosures

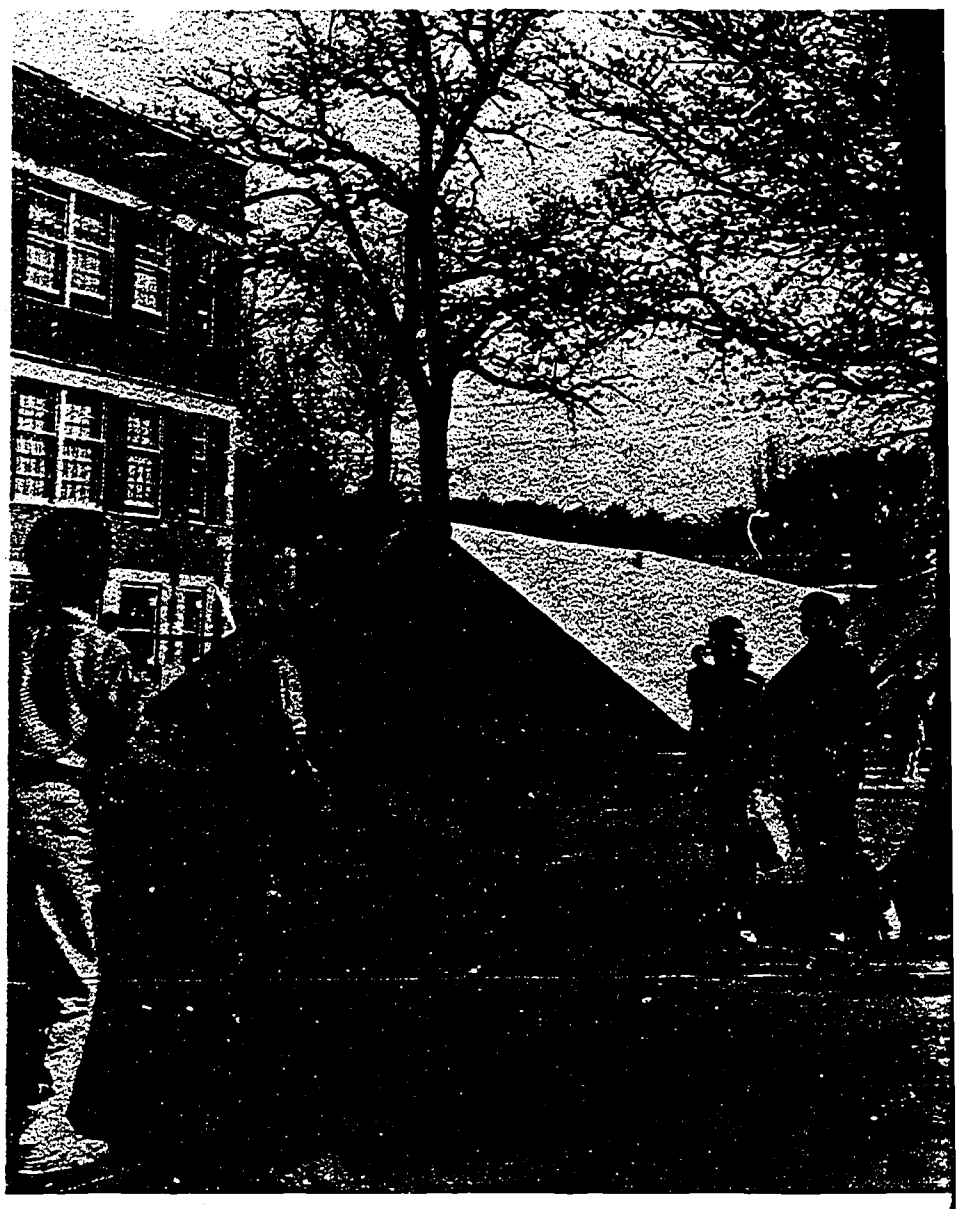
Types

o Portable. These are single or double classroom units that can be transported in one piece from place to place. They're moved the same way houses are -- that is, they're jacked up and lifted onto a flatbed truck, so size is limited by width of streets, height of power lines, and so on. Their size and weight usually limit their relocatability to relatively short distances. Portable units can be used as self-contained classrooms or supplementary facilities.
Write: Wayne F. Betts, School Architect, School Facilities Planning Division, State Department of Education, Tallahassee, Fla. 32304

o Divisible. These structures are easily moved in sections. Some separate into halves, each built much like a mobile home; others are wood, steel, or concrete frames with a wide range of exterior and interior finishes. Although each section is quite narrow, joining them provides a reasonable amount of flexibility for planning interior space.
Write: Curtis Henson, Assistant Superintendent for Instructional Services, Independent School District 203, Atlanta, Ga. 30303

o De
are
that
pile
unit
there
ning
locat
time
term
Write
na
Sc
Av

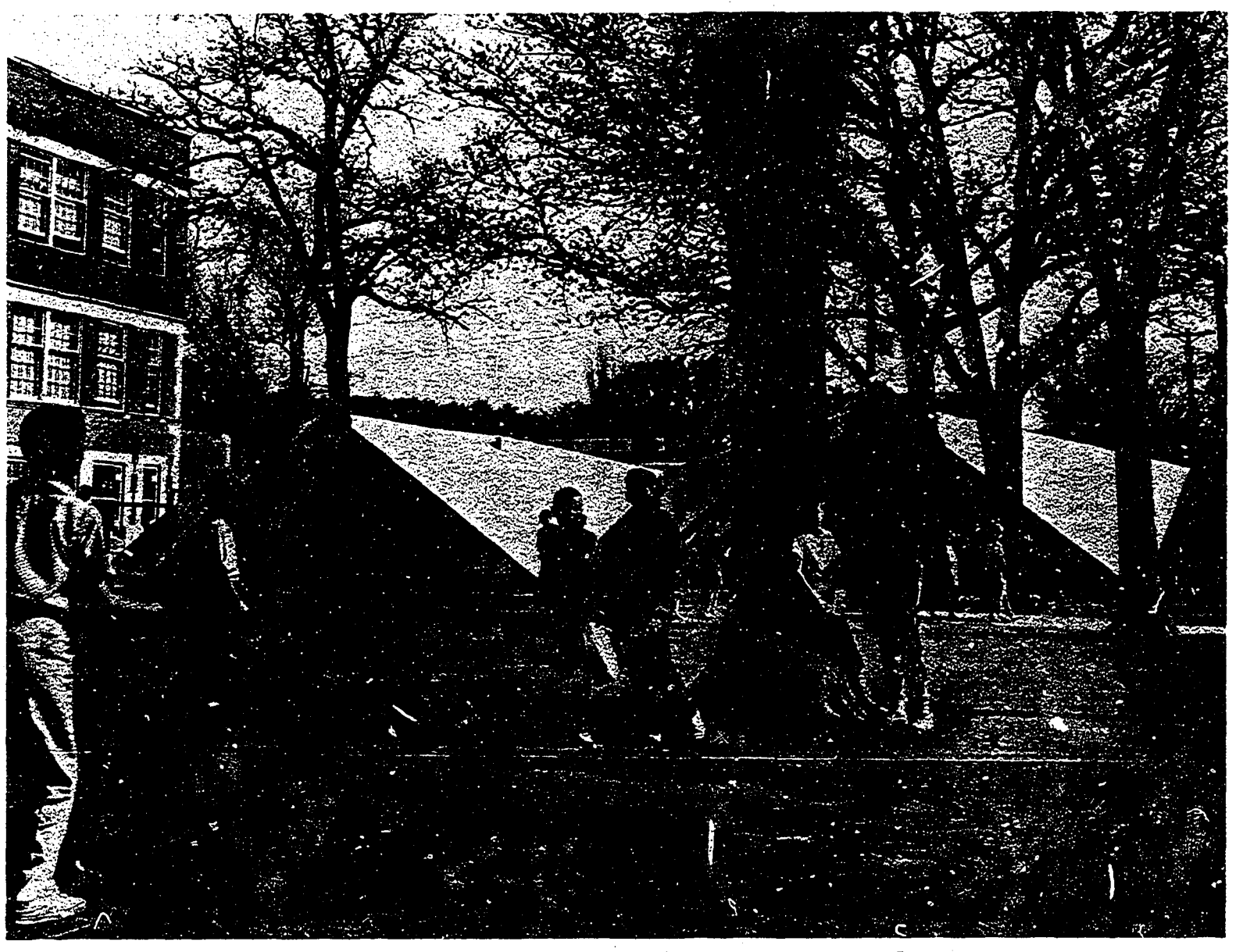
MINNEAPOLIS HAS USED DEMOUNTABLE FACILITIES
Write: James Clubb, Special School District
Broadway, Minneapolis, Minn. 55413



o Divisible. These structures are easily moved in sections. Some separate into halves, each built much like a mobile home; others are wood, steel, or concrete frames with a wide range of exterior and interior finishes. Although each section is quite narrow, joining them provides a reasonable amount of flexibility for planning interior space.
Write: Curtis Henson, Assistant Superintendent for Instructional Services, Independent School District 203, Atlanta, Ga. 30303

o Demountable. Demountable facilities are usually made of a series of panels that can be detached from one another and piled on a truck for moving. Demountable units can take a variety of shapes, and therefore permit a greater degree of planning flexibility than other types of relocatables. But because they take more time to move, they're best used as long-term installations.
Write: Jack Kramer, Director of Maintenance and Facilities, Goleta Union School District, 5689 Hollister Avenue, Goleta, Calif. 93017

MINNEAPOLIS HAS USED DEMOUNTABLE FACILITIES FOR MANY YEARS
Write: James Clubb, Special School District #1, 807 Northeast Broadway, Minneapolis, Minn. 55413



Rescheduling

Rescheduling alters students' and teachers' attendance patterns to increase classroom capacity, reduce schoolhouse operation costs, improve flexibility of programs and better use the learning resources.* Many schools faced with little money, overcrowded classes, or community opposition to traditional split sessions are turning to the calendar for relief. Without lowering educational standards or using double sessions, schools are rescheduling the day, the week, the year, and the length of courses in an effort to use the classrooms more fully. Each alternative has a large number of variations, but, in general, the extended day plan and the shortened week plan have fewer complications and can be implemented quickly. The extended year and extended subject programs are more complex and require more planning.

See: 7.PLANNING/PROCEDURES, p.100

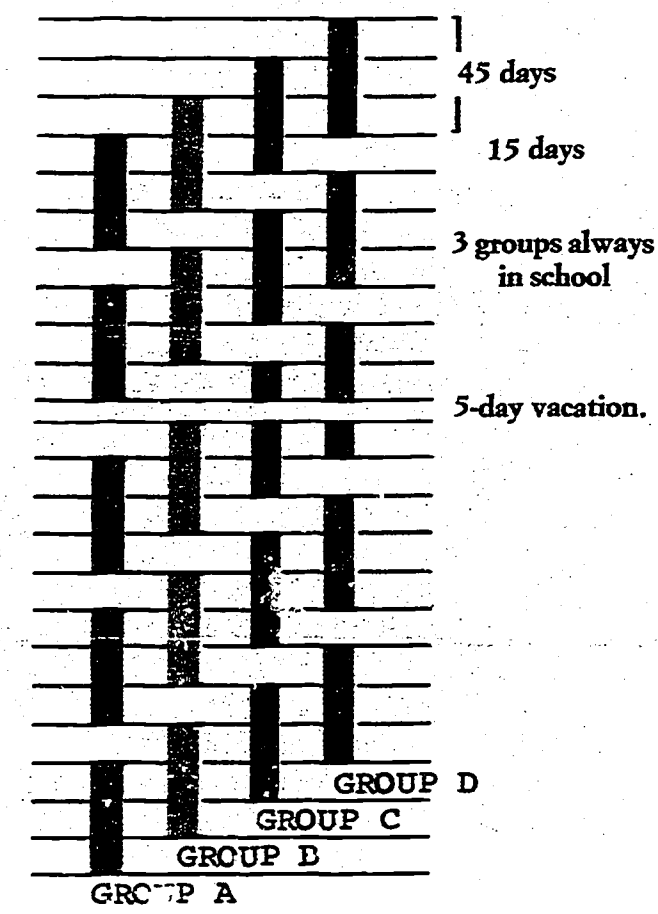
*See also Computers

o Extended school day. Traditional double sessions that overlap in the middle of the day are not true extended programs. However, a high school can divide its enrollment and create two separate schools. In the mornings, one 'school' would attend regular classes while some students from the second 'school' took extra-curricula work. In the afternoons the roles would reverse. A Las Vegas high school runs a second 'school' starting at 4 p.m. for students who prefer late hours. This type of scheduling enables schools to reach dropouts or students who need to work.**

**See: 6.REACHOUT SCHOOLS, p.78

o The shortened school week. A school district in Maine combines a four-day week with a slightly longer school day. This plan has saved $13,000 on transportation, food service and maintenance in its first half year of operation. With 1,650 K-12 students free on Fridays, the schools use the extra day for teacher training. Although this plan has saved money, schools in the future will have to accept some responsibility for students on their day off.

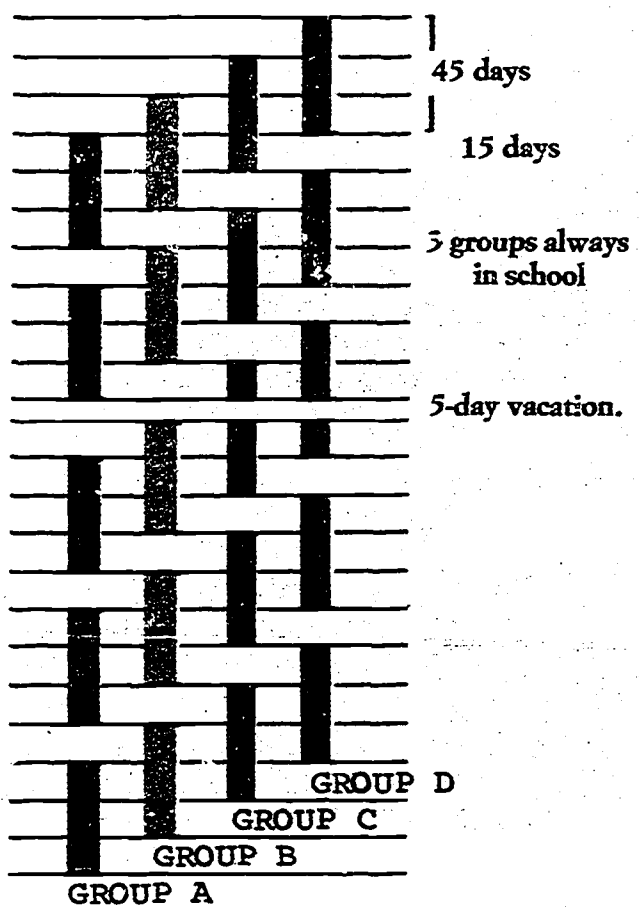
o The extended school year. Year-round schools fall into two broad categories: voluntary summer school programs, and compulsory staggered sessions. Summer school plans aid students wanting to extend their school experience, but are clearly more expensive despite some students' early graduation. The compulsory staggered sessions have more promise of savings but experience has shown that the balance between operating and capital funds is changed so that money saved by not constructing a new school is spent in running the new program. Two plans are used; both offer 180 school days. The compulsory four quarter plans assign students to three consecutive quarters of school. The staggered sessions plans divide the student population into four groups, each attending four 9-week sessions per year interspersed with 3-week vacations. These plans are called 9-3 (for the weeks) year-round plans or 45-15 (for the days). They may save little money, but teacher recruitment, multiple vacations, and better educational and community involvement make them attractive.



o The
the Gi
using
year i
studer
It has
in the
it has
ing on
use of
tion.
use of
travel
studie
and al
by abo

*See:

o The extended school year. Year-round schools fall into two broad categories: voluntary summer school programs, and compulsory staggered sessions. Summer school plans aid students wanting to extend their school experience, but are clearly more expensive despite some students' early graduation. The compulsory staggered sessions have more promise of savings but experience has shown that the balance between operating and capital funds is changed so that money saved by not constructing a new school is spent in running the new program. Two plans are used; both offer 180 school days. The compulsory four quarter plans assign students to three consecutive quarters of school. The staggered sessions plans divide the student population into four groups, each attending four 9-week sessions per year interspersed with 3-week vacations. These plans are called 9-3 (for the weeks) year-round plans or 45-15 (for the days). They may save little money, but teacher recruitment, multiple vacations, and better educational and community involvement make them attractive.



o The extended school subject. Called the Gill Plan for the private school now using it, this alternative divides the year into eight 5-week units in which students study only one subject per unit. It has not yet demonstrated any savings in the first half year of operation, but it has some distinct advantages. Studying one subject at a time makes maximum use of the faculty and individual instruction. The plan lends itself to a better use of regional resources.* Students travel to other states for in-depth studies which allows them more flexibility and also increases the school's capacity by about 30%.

*See: 6.REACHOUT SCHOOLS, p.78

Notes

Rescheduling

	SCHOOL	CITY	METHOD	GRADE	NUMBER OF STUDENTS	DATE INSTITUTED	WRITE:
THE EXTENDED SCHOOL DAY	Las Vegas Urban High School	Las, Vegas, Nev.	Night School	High School	500	Aug. 1970	Kenny C. G 2832 East
	Jones High School	Beeville, Tex.	Night School	High School	230	Sept. 1970	Lester W. Jones High
	John Adams High School	Portland, Ore.	Night School	High School	50	Sept. 1970	Patricia A John Adams
THE SHORTENED SCHOOL WEEK	School Administrative District #3	Thorndike, Me.	4-Day Week	K-12	1,650	Sept. 1971	David Day, District #1
THE EXTENDED SCHOOL YEAR	Fulton County Schools	Atlanta, Ga.	Voluntary 4-Quarter	High School	1,150	June 1968	Douglas Mac 786 Clevela
	Dallas City Schools	Dallas, Tex.	Voluntary 4-Quarter	Elementary, Jr. & High	4,000	Aug. 1972	Robert B. 3700 Ross
	Lawrence High School	Falmouth, Mass.	Voluntary 4-Quarter	High School	500	June 1969	Harry S. Me Falmouth Pu
	Rochester Area Schools	Rochester, Pa.	Voluntary 4-Quarter	K-12	2,500	Sept. 1971	Matthew P. 540 Reno St
	Jefferson County Schools	Louisville, Ky.	Compulsory 4-Quarter	1-12	90,000	Aug. 1972	J. C. Cantr 2[illegible]2 Newbur
	Molalla Elementary School District	Molalla, Ore.	Compulsory 4-Quarter	Elementary	1,000	June 1971	Sam D. Wils Molalla, Or
	St. Charles School District	St. Louis, Mo.	Compulsory 9-3	Elementary	3,000	July 1969	Alan O'Dell Route #2, S
	Alamedia County Unified School District	Hayward, Calif.	Compulsory 9-3	Elementary	600	Sept. 1968	Robert Will Alamedia Co
	Valley View School District 11	Lockport, Ill.	Compulsory 45-15	Elementary	7,200	June 1970	Kenneth Her School Dist
	Chicago Elementary School District	Chicago, Ill.	Compulsory 45-15	Elementary	2,000	July 1971	Evelyn F. C 228 North L
	Chula Vista Elementary School District	Chula Vista, Calif.	Compulsory 45-15	Elementary	3,800	July 1971	Burton C. T Schools, P.
	Prince William County	Dale City, Va.	Compulsory 45-15	Elementary & Jr. High	3,500	June 1971	Earnest Mue County Scho
THE EXTENDED SCHOOL SUBJECT	The Gill School	Bernardsville, N. J.	Extended Subject 5-Week Courses	9-12	126	Sept. 1971	John H. Wri Claremont R

	METHOD	GRADE	NUMBER OF STUDENTS	DATE INSTITUTED	WRITE:
gas, Nev.	Night School	High School	500	Aug. 1970	Kenny C. Guinn, Superintendent, Clark County School District, 2832 East Flamingo Road, Las Vegas, Nev. 89109
e, Tex.	Night School	High School	230	Sept. 1970	Lester W. McCoy, Principal, Jones High School, Beeville, Tex. 78102
d, Ore.	Night School	High School	50	Sept. 1970	Patricia A. Wertheimer, Director of Clinical Division, John Adams High School, Portland, Ore. 97211
ke, Me.	4-Day Week	K-12	1,650	Sept. 1971	David Day, Special Projects Coordinator, School Administrative District #3, Unity, Me. 04988
, Ga.	Voluntary 4-Quarter	High School	1,150	June 1968	Douglas MacRae, Deputy Superintendent, Fulton County Schools, 786 Cleveland Avenue, S. W., Atlanta, Ga. 30315
Tex.	Voluntary 4-Quarter	Elementary, Jr. & High	4,000	Aug. 1972	Robert B. Harris, Director of Secondary Programs, 3700 Ross Avenue, Dallas, Tex. 75204
h, Mass.	Voluntary 4-Quarter	High School	500	June 1969	Harry S. Merson, Superintendent, Administration Building, Falmouth Public Schools, Teaticket, Mass. 02536
er, Pa.	Voluntary 4-Quarter	K-12	2,500	Sept. 1971	Matthew P. Hosie, Superintendent, Rochester Area Schools, 540 Reno Street, Rochester, Pa. 15074
lle, Ky.	Compulsory 4-Quarter	1-12	90,000	Aug. 1972	J. C. Cantrell, Director, Elective Quarter Plan, 3332 Newburg Road, Louisville, Ky. 40218
a, Ore.	Compulsory 4-Quarter	Elementary	1,000	June 1971	Sam D. Wilson Superintendent, P. O. Box 107, Molalla, Ore. 97038
uis, Mo.	Compulsory 9-3	Elementary	3,000	July 1969	Alan O'Dell, Assistant Superintendent for Elementary Instruction, Route #2, St. Louis, Mo. 63301
d, Calif.	Compulsory 9-3	Elementary	600	Sept. 1968	Robert Williams, Director of Elementary Education, Alamedia County Schools, P. O. Box 5000, Hayward, Calif. 94544
rt, Ill.	Compulsory 45-15	Elementary	7,200	June 1970	Kenneth Hermansen, Superintendent of Schools, Valley View School District, 590 Belmont Drive, Lockport, Ill. 60441
o, Ill.	Compulsory 45-15	Elementary	2,000	July 1971	Evelyn P. Carleson, Board of Education, City of Chicago, 228 North LaSalle, Chicago, Ill. 60601
Vista, Calif.	Compulsory 45-15	Elementary	3,800	July 1971	Burton C. Tiffany, District Superintendent, Chula Vista City Schools, P. O. Box 907, Chula Vista, Calif. 92012
ity, Va.	Compulsory 45-15	Elementary & Jr. High	3,500	June 1971	Earnest Mueller, School Community Relations, Prince William County Schools, Box 389, Manassas, Va. 22110
dsville, N. J.	Extended Subject 5-Week Courses	9-12	126	Sept. 1971	John H. Wright, Jr. Headmaster, The Gill School, Claremont Road, Bernardsville, N. J. 07924

Resource Centers

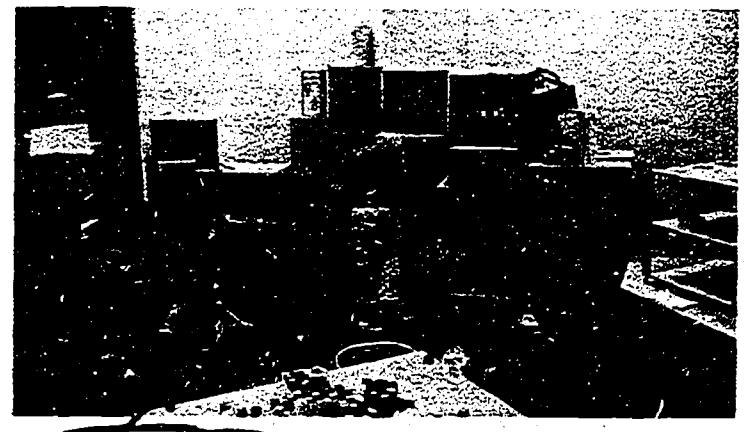
Libraries nowadays contain so much more than books that they're seldom called libraries -- instructional media center and resource center are often used instead. (The term resource center is also used to denote a special-purpose building shared by a number of schools.) In addition to storing a diversity of materials, such as books, film projectors, microfilms and readers, periodicals and slides, the librarian must face the challenge of making whatever the resource center offers attractive and accessible to students. Here are some ideas for coping with two major tasks.
See: 6.REACHOUT SCHOOLS, p. 78

o Decentralizing. Open plan schools have attempted to spread the resource center's contents throughout the building so that they are accessible wherever the students happen to be. It's hard to predict where books on any given subject will be needed, and keeping track of books is a problem, but if a school has good copying equipment there is no reason why all materials should be kept in one place.
Write: Hilton Lewis, Principal, Nova Junior-Senior High School, 3600 Southwest 70 Avenue, Fort Lauderdale, Fla. 33314

o Making the whole school a resource center. One school has built the library around the students, saturating the students with books. The problem of keeping track of resource center materials is equally difficult in this case, but students are less likely to rely only on the books that happen to be nearest them if they think of the whole building as a resource center.
Write: Edward C. Pino, Superintendent, Cherry Creek Schools, 4700 South Yosemite Street, Englewood, Colo. 80110

o Modular storage. Manufacturers are recognizing the problem of interfiling books and a-v materials, and have begun producing interchangeable shelving units designed to accommodate books, slides, films and microforms.
Write: Educational Products Information Exchange Institute, 386 Park Avenue South, New York, N.Y. 10016

o The thing library. Some libraries store not only print and a-v materials, but a wide variety of equipment in various curriculum areas. Globes and maps, costumes, microscopes, telescopes, dioramas, musical instruments, business machines and toys are kept on open shelves for school use or for overnight loan. This kind of resource center should be open to the community after school.
Write: Richard N. Suprina, Principal, Hauppauge High School, Hauppauge, N.Y. 11787



The toy library lends educational toys and games to parents of preschool children and shows them how to use the materials. So far, there are thirty-two toy libraries in remote Alaskan villages and approximately fifteen in the continental U.S.
For information about the way they work and where they are located, write: Betty Tuck, Far West Laboratory for Educational Research and Development, Hotel Claremont, 1 Garden Circle, Berkeley, Calif. 94705

o The school store. This kind of facility can be so stimulating that it becomes more effective than a free library. School stores range from paperback stores to facilities much like a department store where mail order catalogs and order forms are displayed alongside how-to manuals, photographic equipment, scientific instruments, fabrics, yarn and hardware. The more expensive equipment can be rented or loaned. It's like a catalog in three dimensions and is open to the community as well as the students.

Write: Educational Products Information Exchange Institute, 386 Park Avenue South, New York, N.Y. 10016

o The thing library. Some libraries store not only print and a-v materials, but a wide variety of equipment in various curriculum areas. Globes and maps, costumes, microscopes, telescopes, dioramas, musical instruments, business machines and toys are kept on open shelves for school use or for overnight loan. This kind of resource center should be open to the community after school.
Write: Richard N. Suprina, Principal, Hauppauge High School, Hauppauge, N.Y. 11787

The toy library lends educational toys and games to parents of preschool children and shows them how to use the materials. So far, there are thirty-two toy libraries in remote Alaskan villages and approximately fifteen in the continental U.S.

For information about the way they work and where they are located, write: Betty Tuck, Far West Laboratory for Educational Research and Development, Hotel Claremont, 1 Garden Circle, Berkeley, Calif. 94705

o The school store. This kind of facility can be so stimulating that it becomes more effective than a free library. School stores range from paperback stores to facilities much like a department store where mail order catalogs and order forms are displayed alongside how-to manuals, photographic equipment, scientific instruments, fabrics, yarn and hardware. The more expensive equipment can be rented or loaned. It's like a catalog in three dimensions and is open to the community as well as the students.
Write: Robert Metzler, Superintendent, Clear Creek School District, Idaho Springs, Colo. 80452

o Display. Making the contents of the resource center known to its users can sometimes be accomplished through exhibits related to curriculum or current events. One school has an exhibit gallery at the library entrance; another runs a continuous multi-media show on the walls of its centrally located resource center. Students constantly pass on their way to classes and are not only familiarized with some aspect of the resource center collection, but attracted by the presentation of new ideas.
Write: Frederick F. Clark, Principal, The Kate School, P.O. Box 68, Carpinteria, Calif. 93013
Write: F.W. Robinson, Jr., Principal, Beverly Hills High School, 241 Moreno Drive, Beverly Hills, Calif. 90212

o Book carts. In open plan schools, book carts may be the appropriate compromise between the central resource center and the totally dispersed collection. If a group is working on a particular subject, the librarian can pull together a selection of appropriate materials, stack it on a cart, and get the whole collection back in a day or two.
Write: Robert Fitzgibbon, Assistant Superintendent for Instruction, Kirk Road Elementary School, 1790 Latta Road, Greece, N.Y. 14612

o Paperback collections. Paperback collections are still relatively rare in schools, probably because of fear that the books will disappear. However, experience shows that instead of stealing, students often increase the original collection with their own paperbacks. Records need not be kept, since you can assume the contents will fluctuate but not diminish, and that means the books are being read. Special display shelving is available from manufacturers, and sometimes from the publishers or distributors of paperbooks.
Write: Richard N. Suprina, Principal, Hauppauge High School, Hauppauge, N.Y. 11787

o Instructional hardware. Special equipment, such as computer terminals, dial access carrels, projectors, and even teletype machines, is most often housed in the resource center. The area of the center where such equipment is to be used must be acoustically separated from reading space, and special lighting or lighting controls may be needed. Sometimes glassed-in spaces are suitable; sometimes special rooms must be provided.
Write: H.P. Kushta, Principal, South Shore High School, 7627 South Constance Avenue, Chicago, Ill. 60649
See also Large-Group Instruction
See also Instructional Technology

Sites for Schools

Finding a school site that's both suitable and economically within reason can be a difficult task. A number of unconventional solutions to the site problem have been successful. But because they often involve special structural designs, unusual excavating costs, or, occasionally, inconvenience to students and staff, they are recommended only where no other solution is possible.
See also Joint Occupancy
See also Mini-Schools
See also Air Rights
See also Financing School Construction
See also Physical Education

o Build above or below publicly owned structures. Land under an elevated expressway or air rights over a train yard, for example, may be obtainable at little or no cost. And, using land already occupied by public structures avoids the necessity of displacing families or removing more land from the municipal tax rolls.
Write: J.H. Matteson, Dade County School Board, 1410 Northeast Second Avenue, Miami, Fla. 33132

o Build underground. One advantage of an underground building is its qualification for federal aid to air raid shelter construction. Another is that it avoids the permanent destruction of natural landscape, and, finally, it is a good way to insulate a school's occupants against the rigors of a desert climate.
Write: H.F. Allrer, Superintendent of Schools, 200 West Chisum Street, Roswell, N.M. 88201

o Share land and/or buildings with another enterprise. Income from sale or lease can defray site acquision costs.
See also Joint Occupancy

o Disperse facilities. If no adequate site is available for a school, the school can be broken up into separate parts, or students can be scheduled for work away from school during some part of each day.
See also Dispersed Facilities

o Share special facilities with other organizations. Rooftop athletic facilities or down-to-earth playgrounds can be used jointly by schools and recreation departments or Boy Scouts, for example.
See: 5.COMMUNITY SCHOOLS, p.64
See also Physical Education
See also Joint Occupancy

Notes

Systems Building

Systems building is a rapidly proliferating method of school construction. Since there is some confusion in the terminology employed, we introduce the subject with the following five basic definitions.

o Systems Building. The application of the systems approach to construction, normally resulting in the organization of

scape, and, finally, it is a good way to insulate a school's occupants against the rigors of a desert climate.
Write: H.F. Allrer, Superintendent of Schools, 200 West Chisum Street, Roswell, N.M. 88201

o Share land and/or buildings with another enterprise. Income from sale or lease can defray site acquision costs.
See also Joint Occupancy

o Disperse facilities. If no adequate site is available for a school, the school can be broken up into separate parts, or students can be scheduled for work away from school during some part of each day.
See also Dispersed Facilities

o Share special facilities with other organizations. Rooftop athletic facilities or down-to-earth playgrounds can be used jointly by schools and recreation departments or Boy Scouts, for example.
See: 5.COMMUNITY SCHOOLS, p.64
See also Physical Education
See also Joint Occupancy

Notes

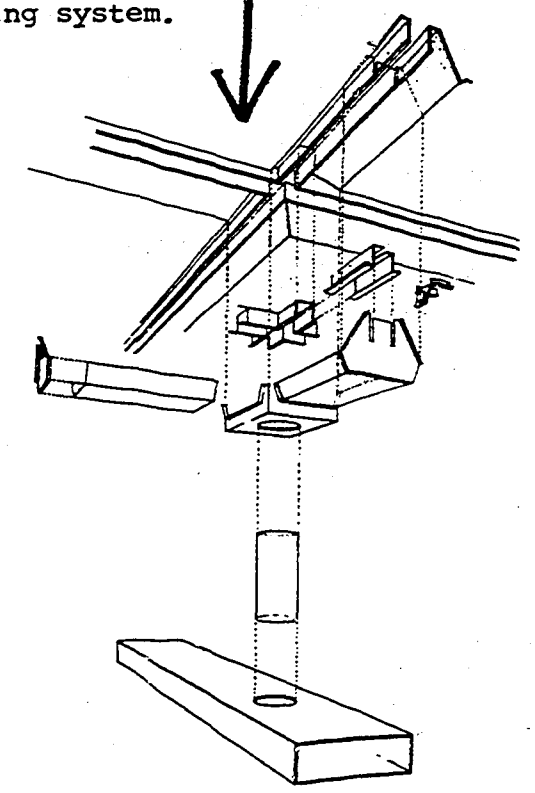
Systems Building

Systems building is a rapidly proliferating method of school construction. Since there is some confusion in the terminology employed, we introduce the subject with the following five basic definitions.

o Systems Building. The application of the systems approach to construction, normally resulting in the organization of programming, planning, design, financing, manufacturing, construction and evaluation of buildings under single, or highly coordinated, management into an efficient total process.

o Building System. A set of coordinated building elements or subsystems, intended for use as a group, performing many or all of the functions of a building.

o Subsystem. A group of building components that performs part of the total function of the entire building system; for example, a heating, ventilating and airconditioning subsystem made up of components such as energy converters, air handling units, ductwork, diffusers and controls, the first subdivision of a building system.



o Compatibility. The state of functional, dimensional, economic and aesthetic coordination between two or more building subsystems or components.

o Performance Specification. A set of written objectives which describes a building system, subsystem or component for bidding purposes, not by its physical properties, but by the desired results; in other words, not by what it is, but by what it does.

How Systems Work

Systems building begins with analyses of educational programs and planning needs which are then interpreted in preliminary building designs. The building's subsystems are defined by performance specifications -- e.g., "lighting will provide 70 footcandles of illumination on the task surfaces," "structure must allow a maximum of 7,200 sq ft of unobstructed area." Building subsystems are then provided by suppliers, usually chosen by competitive bidding. Subsystems must meet the performance criteria, be compatible with each other, and, when taken together, form a building system.

There have been several major building system development projects in the United States and Canada which have stimulated the development of systems and subsystems by industry. These include:

o California's SCSD - School Construction Systems Development
Write: John R. Boice, Director, BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025

o Toronto's SEF - Study of Educational Facilities
Write: Peter D.J. Tirion, Technical Director, Metropolitan Toronto School Board, 155 College Avenue, Toronto 2B, Ontario, Canada

o Montreal's RAS - Research in School Facilities
Write: Therese L. Roux, Chairman Montreal Catholic School Commission, 3737 Sherbrooke Street East, Montreal 36, Quebec, Canada

There have also been several major application projects which have taken these same basic performance criteria and applied them to large-volume school building programs:

o Florida's SSP - Schoolhouse Systems Project
Write: Harold L. Cramer, Director, Department of Education, State of Florida, Tallahassee, Fla. 32304

o Detroit's CSP - Construction System Project
Write: Wallace B. Cleland, Director, 51 West Hancock Avenue, Detroit, Mich. 48201

o Boston's BOSTCO - Boston Standard Component System
Write: Robert J. Vey, Director, Boston Public Facilities Department, Boston, Mass. 02201

See: Systems: An Approach to School Construction, available from EFL, 477 Madison Avenue, New York, N.Y. 10022
See: SCSD: The Project and the Schools, available from EFL, 477 Madison Avenue, New York, N.Y. 10022

Individual school buildings can now take advantage of building systems -- at latest count over 500 schools using systems have been built in 13 states, and hundreds more are in planning and construction.
See: Manufacturers' Compatibility Study, available from BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025
See: Building Systems Planning Manual
Write: John Boice, BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025

Television

Television, like many other teaching tools, is becoming easier to use. Relatively recent developments that contribute to this trend include miniature videotape recorders and players, video cassette players, and expanding educational programming through cable TV services. For help in designing educational TV facilities, see Television Facilities: A Planning Guide, by John P. Witherspoon and William Kessler, U.S. Office of Education, 1969.

For ideas about educational programming, see Television in Urban Education: HS Application to Major Educational Problems in Sixteen Cities, by Charles W. Benton and others, Praeger, New York, 1969, and Instructional Television: Bold New Venture, Richard C. Burke, ed., Indiana University

o Detroit's CSP - Construction System Project
Write: Wallace B. Cleland, Director, 51 West Hancock Avenue, Detroit, Mich. 48201

o Boston's BOSTCO - Boston Standard Component System
Write: Robert J. Vey, Director, Boston Public Facilities Department, Boston, Mass. 02201

See: Systems: An Approach to School Construction, available from EFL, 477 Madison Avenue, New York, N.Y. 10022
See: SCSD: The Project and the Schools, available from EFL, 477 Madison Avenue, New York, N.Y. 10022

Individual school buildings can now take advantage of building systems -- at latest count over 500 schools using systems have been built in 13 states, and hundreds more are in planning and construction.
See: Manufacturers' Compatibility Study, available from BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025
See: Building Systems Planning Manual
Write: John Boice, BSIC/EFL, 3000 Sand Hill Road, Menlo Park, Calif. 94025

Television

Television, like many other teaching tools, is becoming easier to use. Relatively recent developments that contribute to this trend include miniature videotape recorders and players, video cassette players, and expanding educational programming through cable TV services. For help in designing educational TV facilities, see Television Facilities: A Planning Guide, by John P. Witherspoon and William Kessler, U.S. Office of Education, 1969.

For ideas about educational programming, see Television in Urban Education: HS Application to Major Educational Problems in Sixteen Cities, by Charles W. Benton and others, Praeger, New York, 1969, and Instructional Television: Bold New Venture, Richard C. Burke, ed., Indiana University Press, Bloomington, Ind., 1971. For information about two school systems' experience with Educational TV, write: Ira Singer, Assistant Superintendent of Schools, West Hartford Public Schools, West Hartford, Conn. 06607, and W.M. Brish, Superintendent of Schools, Washington County, Hagerstown, Md. 21740
See also Instructional Technology

Notes

General Sources for Planning School Facilities

Here are a few basic texts on planning new schools. They are a good starting point when a new building is being discussed.

Schools for America, American Association of School Administrators, Washington, D.C., 1967.
Creative Planning of Educational Facilities, by Basil Castaldi, Rand McNally and Co., Chicago, Ill., 1969.
Guide for Planning Educational Facilities, Council of Educational Facility Planners, Columbus, Ohio, 1969.
Complete Guide for Planning New Schools, by Nickolaus L. Engelhardt, Parker Publishing Co., West Nyack, N.Y., 1970.
Layman's Guide to School Planning, Nation's Schools Magazine (Special publication), Chicago, Ill., 1970.
See also Systems Building

Credits

P. 5 (top) Courtesy of Pennridge Central Jr. High School Annex/(bottom) Photo by Ron Haase

P. 6 (top) Photo by George Zimbel/(bottom) Photo by Bill Maris

P. 7 Photos by George Zimbel

P. 8 Courtesy of Catlin Gabel School

P. 9 (top left) Photo by Catherine Slade/ (top middle) Photo by Eric Simpson/ (top right, right middle) Photos by George Zimbel/(bottom right) Photo by Rodney Albright

P. 10 Photo by Nancy Mason

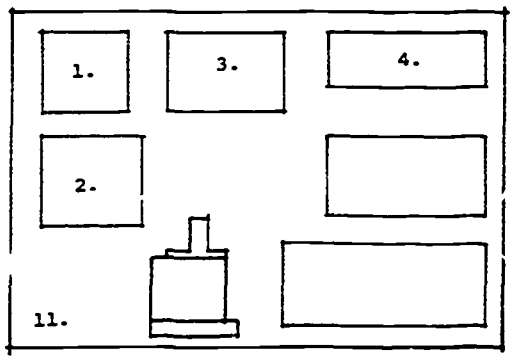


Diagram for P. 11: (1) Photo by Don Matzkin/(2) Courtesy of Vocational Village/(3) Photo by Anthony Taro/ (4) Photo by Jeff Weinstock

P. 12 (middle, bottom left) Courtesy of Maryland Institute College of Art/ (bottom right) Courtesy of Bay High School

P. 13 Courtesy of Joseph Esherick & Assoc.

P. 14 Courtesy of Caudill Rowlett Scott

P. 16 Courtesy of Warren Holmes Co.

P. 18 (bottom right) Courtesy of William B. Ittner, Inc./(bottom left and top right) Photos by Mac Mizuki

P. 19 Courtesy of Cash Associates

P. 20 Sketches by Julie Maser/(top right) Photo by Ted Williams

P. 21 Photos by Leavenworths, Courtesy of Warren Holmes Co.

P. 22 (top left, bottom right) Courtesy of Warren Ashley/ (top right, center middle) Photos by Joseph W. Molitor

P. 24-25 Courtesy of Mike Berline

P. 26-27 Courtesy of School Renovation Systems, Inc.

P. 30 Courtesy of Kissinger Holzhauer, Inc

P. 32 Photo by Frank V. Carioti

P. 33 Photos by Robert L. Nay

P. 34 Photos by Robert Perron

P. 35 Photo by George Zimbel

P. 39 Photos by Frank V. Carioti

P. 40 (top right, top left) Photos by George Zimbel/(bottom left) Photo by Larry Molloy/(bottom right) Photo by Robert Perron

P. 41 (top left, bottom left) Photos by Frank V. Carioti/(top right) Photo by Bill Maris/(bottom middle) Photo by Jonathan King/(bottom right) Photo by George Zimbel

P. 42 (top) Photo by Rush J. McCoy/(bottom) Courtesy of Pacific Lutheran Univ.

P. 43 (top left) Photo by Sam Busselle/(top right) Courtesy of Haverford Township School District/(bottom left) Photo by Raymond P. Heath

P. 44 (top right) Ridge Hill School, Hamden, Conn., Photo by Robert Perron/(bottom left) North Kingston High School, Kingston, R. I., Photo by Frank V. Carioti/(bottom middle, bottom right) Kirk Road Elementary School, Greece, N. Y., Community Learning Center, Washington, D. C., Photos by George Zimbel

P. 45 (top left, top middle) El Centro College, Dallas, Texas, Steuart Hill Elementary School, Baltimore, Md., Photos by George Zimbel

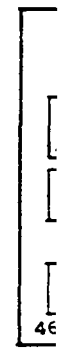


Diagram
Hi
Fr
Sc
Mo
Ki
N.
Ca
by
ta
by

Diagram
N.
vie
by
Sch
Rob
N.
Hil
Rob
Har

P. 50 Ph

P. 54 Ph

P. 60 (t
Mar
Zim

P. 20 Sketches by Julie Maser/(top right) Photo by Ted Williams

P. 21 Photos by Leavenworths, Courtesy of Warren Holmes Co.

P. 22 (top left, bottom right) Courtesy of Warren Ashley/ (top right, center middle) Photos by Joseph W. Molitor

P. 24-25 Courtesy of Mike Berline

P. 26-27 Courtesy of School Renovation Systems, Inc.

P. 30 Courtesy of Kissinger Holzhauer, Inc

P. 32 Photo by Frank V. Carioti

P. 33 Photos by Robert L. Nay

P. 34 Photos by Robert Perron

P. 35 Photo by George Zimbel

P. 39 Photos by Frank V. Carioti

P. 40 (top right, top left) Photos by George Zimbel/(bottom left) Photo by Larry Molloy/(bottom right) Photo by Robert Perron

P. 41 (top left, bottom left) Photos by Frank V. Carioti/(top right) Photo by Bill Maris/(bottom middle) Photo by Jonathan King/(bottom right) Photo by George Zimbel

P. 42 (top) Photo by Rush J. McCoy/(bottom) Courtesy of Pacific Lutheran Univ.

P. 43 (top left) Photo by Sam Busselle/(top right) Courtesy of Haverford Township School District/(bottom left) Photo by Raymond P. Heath

P. 44 (top right) Ridge Hill School, Hamden, Conn., Photo by Robert Perron/(bottom left) North Kingston High School, Kingston, R. I., Photo by Frank V. Carioti/(bottom middle, bottom right) Kirk Road Elementary School, Greece, N. Y., Community Learning Center, Washington, D. C., Photos by George Zimbel

P. 45 (top left, top middle) El Centro College, Dallas, Texas, Steuart Hill Elementary School, Baltimore, Md., Photos by George Zimbel

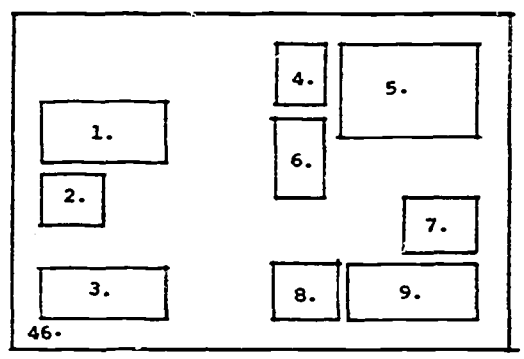


Diagram for P. 46: (1) Kearsarge Regional High School, Sutton, N. H., Photo by Frank V. Carioti/(2,3,4) Calhoun School, N. Y., N. Y., Photos by Larry Molloy/(5,6) Harlem Prep, N. Y., N. Y., Kirkwood Elementary School, Greece, N. Y., Photos by George Zimbel/(7,8) Calhoun School, N. Y., N. Y., Photos by Larry Molloy/(9) Walnut Hill Elementary School, Englewood, Colo., Photo by George Zimbel

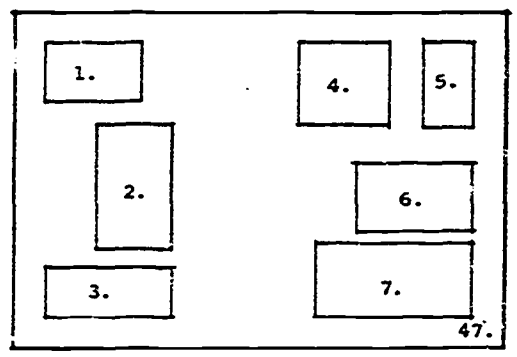


Diagram for P. 47: (1) Calhoun School, N. Y., N. Y., Photo by Larry Molloy/(2) Eastview School, Toronto, Canada, Photo by George Zimbel/(3,4) Ridge Hill School, Hamden, Conn., Photos by Robert Perron/(5) Calhoun School, N. Y., N. Y., Photo by Larry Molloy/(6) Ridge Hill School, Hamden, Conn., Photo by Robert Perron/(7) Everywhere School, Hartford, Conn., Photo by George Zimbel

P. 50 Photos by George Zimbel

P. 54 Photo by George Zimbel

P. 60 (top left, top right) Photos by Bill Maris/(bottom right) Photo by George Zimbel

P. 61 (top right, left, center, bottom left) Photos by Larry Molloy/(bottom right) Photo by Lynn Molloy

P. 65 Courtesy of Hardy Holzman & Pfeiffer

P. 66 (top) Photo by Rondal Partridge/ (bottom) Courtesy of Caudill Rowlett Scott

P. 67 (top) Photo by Charles S. Schultze/ (bottom) Courtesy of Conte Community School

P. 68-69 Courtesy of Heery & Heery

P. 70 Courtesy of Manor High School

P. 71 Photos by Laura Slade

P. 72-73 Courtesy of Urban Design Associates

P. 74-75 Courtesy of Vosbeck Vosbeck Kendrick Redinger

P. 79 Photo by Wizzy Hathon

P. 80 (middle center) Photo by Larry Risser/ (bottom left, bottom right) Courtesy of Marshall University High School

P. 81 (top center, top right) Courtesy of School Community Service, San Mateo Union School District/(middle center, bottom center, bottom right) Courtesy of Education Without Walls, Lexington Public Schools

P. 82 Photo by Hal A. Franklin, Courtesy of Ebony

P. 83 Courtesy of Parkway Program, Philadelphia Public Schools

P. 84 Photos by Frank V. Carioti

P. 85 (top center, top right) Photos by Kelly Mills/(center bottom) Courtesy of Carl Koch and Assoc., Inc.

P. 86 Photos by Timothy Ryan, courtesy of Visual Education Services, Cleveland Public Schools

P. 87 (top) Courtesy of Perkins & Will Ptnshp. (bottom) Photo by Susanne Anderson

P. 88 Photo by George Zimbel

P. 89 Courtesy of Hartford Design Group

P. 90-91 Courtesy of Michael Southworth

P. 93 (top center) Photo by Sam Busselle/ (top right, middle center) Courtesy of UNIPLAN/(bottom left) Courtesy of Dennis-Yarmouth Public Schools

P. 94 (top) Photo by Warren Anderson (bottom) Courtesy of Cliss Keslar

P. 95 Courtesy of Cochran, Stephenson & Donkerviet, Inc.

P. 96 Courtesy of Numkena Assoc., Inc.

P. 97 Courtesy of Jan Wampler

P. 98 (top) Courtesy of Walter Hill/ (bottom right, center) Courtesy of Hill, Miller, Friedlaender, Hollander, Inc.

P. 99 (top) Photo by Jeff Weinstock/(bottom) Courtesy of School Renovation Systems, Inc.

P. 101 Courtesy of Baltimore City Public Schools

P. 102 (center right) Courtesy of Heery & Heery/(bottom right) Courtesy of Caudill Rowlett Scott

P. 103 Courtesy of Heery & Heery

P. 107 Photo by George Zimbel

P. 108 Courtesy of West Suburban YMCA, La Grange, Ill.

P. 109 Courtesy of Agua Fria Sr. High School

P. 110 Photo by George Zimbel

P. 112 Courtesy of Research and Design Institute

P. 113 Photos by George Zimbel

P. 114 (top) Courtesy of Caudill Rowlett Scott/(bottom) Photo by James Brett

P. 115 Courtesy of Balarat Center for Environmental Studies, Denver Public Schools

P. 116 Photo by George Zimbel

P. 117 Courtesy of Brookline Public Schools

P. 90-91 Courtesy of Michael Southworth

P. 93 (top center) Photo by Sam Busselle/ (top right, middle center) Courtesy of UNIPLAN/(bottom left) Courtesy of Dennis-Yarmouth Public Schools

P. 94 (top) Photo by Warren Anderson (bottom) Courtesy of Cliss Keslar

P. 95 Courtesy of Cochran, Stephenson & Donkerviet, Inc.

P. 96 Courtesy of Numkena Assoc., Inc.

P. 97 Courtesy of Jan Wampler

P. 98 (top) Courtesy of Walter Hill/ (bottom right, center) Courtesy of Hill, Miller, Friedlaender, Hollander, Inc.

P. 99 (top) Photo by Jeff Weinstock/(bottom) Courtesy of School Renovation Systems, Inc.

P. 101 Courtesy of Baltimore City Public Schools

P. 102 (center right) Courtesy of Heery & Heery/(bottom right) Courtesy of Caudill Rowlett Scott

P. 103 Courtesy of Heery & Heery

P. 107 Photo by George Zimbel

P. 108 Courtesy of West Suburban YMCA, La Grange, Ill.

P. 109 Courtesy of Agua Fria Sr. High School

P. 110 Photo by George Zimbel

P. 111 Courtesy of Research and Design Institute

P. 113 Photos by George Zimbel

P. 114 (top) Courtesy of Caudill Rowlett Scott/(bottom) Photo by James Brett

P. 115 Courtesy of Balarat Center for Environmental Studies, Denver Public Schools

P. 116 Photo by George Zimbel

P. 117 Courtesy of Brookline Public Schools

P. 118 (top) Courtesy of Kevin Roche John Dinkeloo Assoc./(bottom) Courtesy of Ezra Stoller Assoc., Inc.

P. 119 Photos by Joel Strasser

P. 120 Photo by Paul Peters

P. 121 Photo by George Zimbel

P. 123 Courtesy of Arkansas State Dept. of Education

P. 125 (left) Courtesy of Brooklyn Polytechnical Institute/(right) Photo by George Zimbel

P. 126 (left and top right) Courtesy of Ziegelman and Ziegelman/(bottom right) Courtesy of Monostructures, Inc.

P. 127 Courtesy of Special School District #1, Minneapolis

P. 130 Photo by Rondal Partridge

Writing and Research:
Laurence Molloy
Catherine Slade
Jean Progner
Frances Shaw
Design: Hersch Wartik
Printing: S. D. Scott Co., Inc.

This report has been prepared under contract by the Experimental Schools program of the United States Office of Education, Department of Health, Education and Welfare, and Educational Facilities Laboratories, Inc.