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ABSTRACT

This post-occupancy evaluation of Martha Lake Elementary School in the Edmonds School District, Washington, was designed to answer questions in two areas: (1) "What aspects of the facility are effectively supporting learning and the current educational program? Conversely, which aspects, elements, or components of the facility appear to be inhibiting learning activities?" and (2) "What do students, staff, and teachers think and feel about the building's character and functioning?" The report includes statistical data generated from responses to a questionnaire, and documentation of observations made by the evaluation teams. The report is organized to present a general overview of the site, common areas, and classrooms, followed by more detailed analyses of particular spaces in the school. (Appendices contain the school site plan, interview questions, and survey form.) (EV)

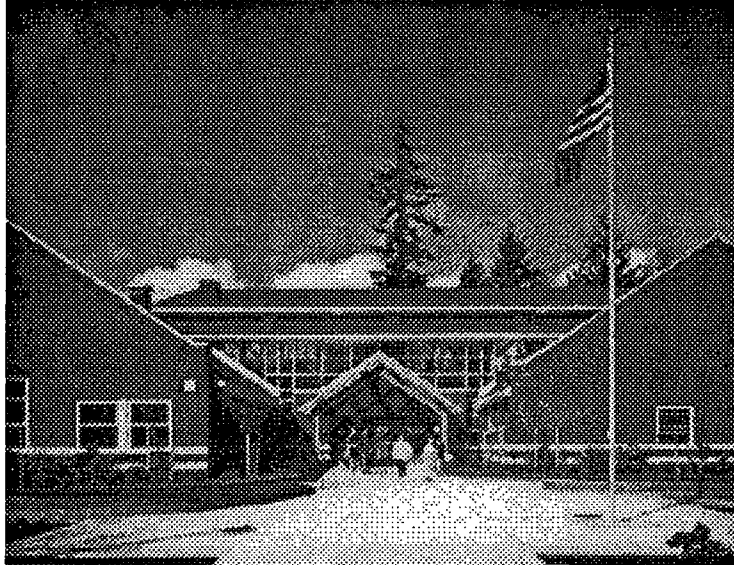
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ED 473 983



# Martha Lake Elementary School Post Occupancy Evaluation

17500 Larch Way Lynnwood, WA 98037, USA

Edmonds School District  
Bassetti Architects

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## ACKNOWLEDGMENTS

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**INTRODUCTION**

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What is a post-occupancy evaluation or POE? While most people would never start to build something as complicated and expensive as a school building without first investing time in planning the work, the value in determining how well a finished building serves the people who use it and the programs it houses is not as immediately apparent. Evaluating a building's performance after it has been occupied for a year or two yields information of two distinct types:

first, suggestions for adjustments to the facility to improve the way it supports educational programs; this is especially valuable in a building designed with flexibility and long-term adaptability in mind. And,

second, suggestions for improvement in both the building program and the design which should be incorporated in future projects of a similar type.

Martha Lake Elementary School opened its doors to students in January, 1993, replacing the old school of the same name, located on the same site, constructed in 1953. The new school was an instant success with teachers, students, and community alike, not an unexpected reaction when the new building's appointments are contrasted with the old building's leaking roofs, moldering carpets, and minimal electrical services. Programming -- defining the number, size, and qualities of spaces needed for educational programs -- for the new building had been completed nearly three years earlier. The years 1990- 93 were filled with the work of designing and constructing the new school.



Population growth in the Edmonds School District has continued to be significant since construction of Martha Lake Elementary School, due in no small part to the District's reputation for providing an excellent education to students. In 1994, voters approved another capital improvements bond issue to build a new high school and modernize an elementary school and another high school.

Recognizing the value of thorough planning and preparation to define the desired characteristics and performance of these new projects before committing funds to design and construction, the District decided to involve the community in its planning efforts. The District Facilities Design Team (DFDT) included representatives from every part of the community: teachers, administrators, maintenance and food service staff, students, local business owners and employees, governmental officials and parents. At one of its first meetings, the DFDT group urged the District to learn as much as possible about how well its most recent projects were serving its educational mission:

*To advocate for all students by providing a learning environment which empowers students, staff, and the community to maximize their personal, creative, and academic potential in order to become lifelong learners and responsible world citizens.*

As a result, the District asked Bassetti Architects to perform a post occupancy evaluation of Martha Lake Elementary School in an effort to better understand the needs of the District's elementary program and how facility design can best support the program's goals and objectives. This post occupancy evaluation was designed to answer questions in two areas:

1. What aspects of the facility are effectively supporting learning and the **current** educational program? (Note that traditional POE methodology compares the functioning facility to **programmed** use and activities, not **actual** ones.) Conversely, what aspects, elements, or components of the facility appear to be inhibiting learning activities?
2. What do students, staff, and teachers think and feel about the building's character and functioning? People's feelings about a space often influence their perceptions of its utility.

To answer these questions, a POE group of ten members, formed of representatives from the District's Capital Projects Office, Bassetti Architects, and the University of Washington's Center for Architecture and Education, visited Martha Lake Elementary School on 10 June, 1994. Divided into two teams, they conducted interviews with teachers, administrators, librarians, and other staff; they visited classrooms to listen to students' thoughts and opinions; and they observed activities as the school throughout the day, including morning arrival of teachers and students, an all-school assembly, regular and specialty classes, lunch service, and outdoor play during recesses and lunch. During the day, POE teams had the opportunity to observe how corridors, alcoves, lobbies, and other spaces were used by students and teaching aides for small group and individual work. In addition, thanks to Principal Michael Green's enthusiastic support of the team's efforts, they observed a remarkably calm and efficient fire drill.

This report includes statistical data generated by responses to a questionnaire, documentation of observations made by the POE teams. (Statistical data are compiled from all questionnaires returned to the POE group in the weeks after our visit to the school; eleven of twenty-eight questionnaires, or 39%, were returned.)



The report (first published by Bassetti Architects in booklet format,) is organized to present a general overview of site, common areas, and classrooms, followed by more detailed analysis of particular spaces in the school. The web version of the report does not include some wonderful student drawings made for the team the week before their visit, but does include many of the photographs that illustrated the original document.

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# Martha Lake Elementary School Post Occupancy Evaluation

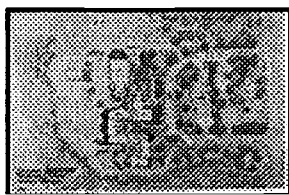
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## OVERVIEW

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### Overview: A. Site:

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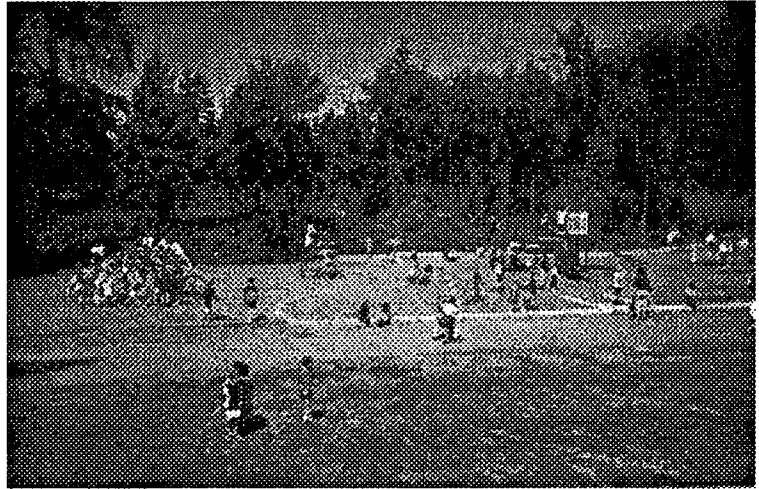


Martha Lake Elementary School's site is large, with several forested areas near the school. The school building is set back from 10th Avenue West and the entry drive winds through the trees to the parking and student drop-off areas. Behind the school are the playground, a large all-weather field, and the woods.

Both students and teachers commented on how refreshing it is to see trees and plantings from most rooms in the school building. The playground islands of undisturbed soil, rocks and vegetation are favorite play areas for students, although some staff feel that these areas are hard to supervise. The all-weather field also received a good deal of positive comment: from students for its size and from teachers for the elimination of recess-muddied clothing.



The funds required to construct the all-weather field meant that the district could not construct a covered outdoor play area for the school. This decision is still controversial with strong opinions amongst faculty supporters of either side of the question. Older boys criticized the decision to leave natural island in the playground close to the school, preferring additional paved space for basketball and wall ball.

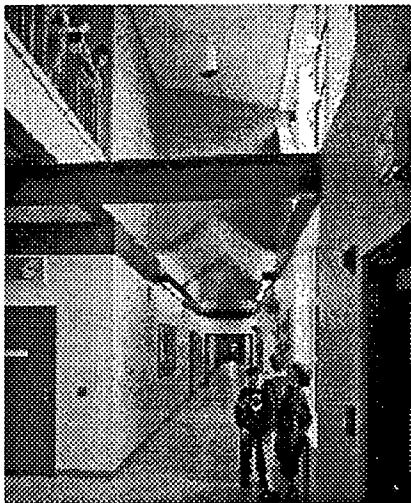


Generally, the site layout of arrival parking and drop off, delivery, and play areas is working well for all users. A few exceptions to this generalization follow. The traffic paths from entry doors to play areas follow the shortest route, not always the paved one. Playground supervisory staff noted the need for additional outdoor storage areas for recess play equipment. Finally, fire drills take place in wet as well as dry weather and require students and staff to gather some distance from the building. Paved areas should be provided in these areas as a matter of course when planning facilities; at Martha Lake they were not provided, making fire drills in the rain a messy affair.

### **Overview: B. Common Areas**

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Common areas of the school include the library, computer lab, gymnasium, corridors, and entries, and administrative offices. The sense of abundant light and the high quality of daylighting in common spaces were the most frequently repeated comments from building users. Conversely, temperature control and ventilation were frequently mentioned as problems in common spaces. The two story spaces around the stairs and entries bestow a sense of spaciousness and movement upon those spaces and are felt to create a greater sense of unity among students when compared to the old building's spaces.



The building plan locates most of the large common spaces at one end of the building, producing large traffic flows through the narrow corridors, sometimes damaging displays on the bulletin boards. One teacher thought the corridors should be twice as wide. The librarian noted that the flexible use of space requires lightweight furniture which can be easily moved by students; he felt that the library furniture was "clunky" and difficult to reconfigure, though the low pile carpet was the right choice in this regard. The corridor spaces outside each classroom pod were felt by teachers to be perfect for small group instruction. Others felt that these spaces are too small and that the space should be added to

the classrooms, increasing their size.

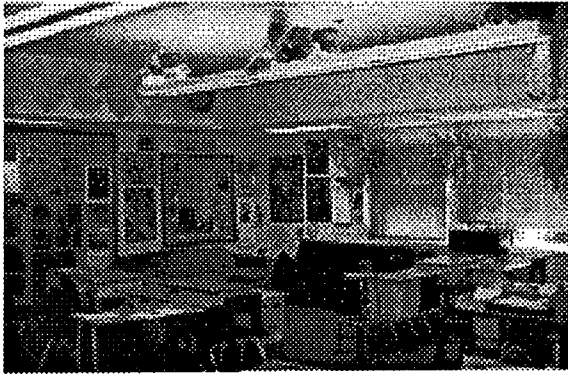
The gymnasium is generally a success; the gym teacher called the new rubber floor a "miracle" which has significantly reduced gym class injuries. On the other hand, she viewed the double doors with security mullions as definite safety hazards and wanted to know if they could be removed. She also noted that she would prefer to have heat in her office if any alterations were planned for the building.



### Overview: C. Classrooms:

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There are 24 general classrooms at Martha Lake Elementary School in addition to music and art/flex rooms. The most frequent comment from teachers and students concerned the size of the classrooms: too small! This was especially true for older students who need more space, even when standing or sitting still. Generally, building inhabitants liked the classroom spaces a great deal. Abundant daylight, a sense of spacious volume in the rooms and good electrical services were consistently mentioned as positive attributes. Teachers usually would like more floor space, blackboard and display space, and more storage.



Furniture selection generated a lively discussion, many teachers preferring individual student desks to the large tables supplied, because of greater flexibility in room arrangements and less dispute resolution between tablemates. The operable walls were mostly appreciated for their potential; very few teacher actually opened them to join their space to an adjoining room. Some teachers complained about the inferior sound isolation

inherent in an operable partition and would prefer fixed walls. Several teachers mentioned how much they would like direct access to outdoors (only the kindergarten rooms have this) not only for playground access but also for environmental education projects and study blocks. One teacher noted that the floor is as important a learning surface as a table or desk top.

Space for the educational aides or assistants to prepare lessons and to work with students was not provided and should be considered in any future elementary school planning the District undertakes.

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## USER SURVEYS

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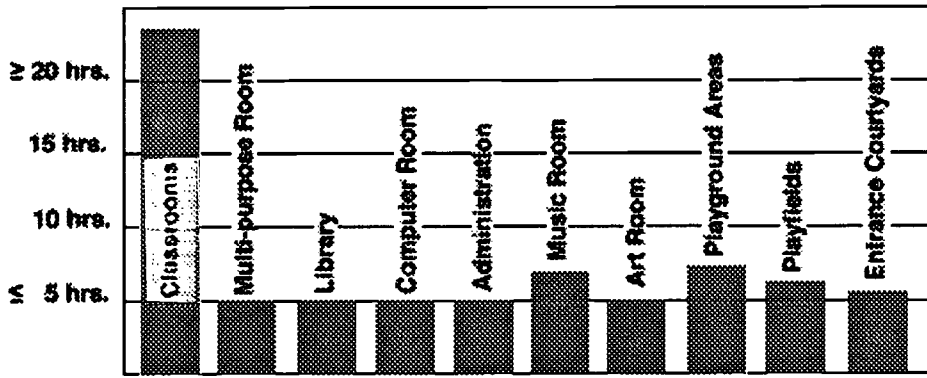
### User Surveys: A. Overall Facility Review:

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The amount of time spent in a particular space often influences building users' perceptions of how well or how poorly that space supports their activities. With increased exposure, difficulties which begin as small annoyances can become major flaws. Conversely, thoughtful touches which enhance convenience in use can set new performance standards for the space type in question.

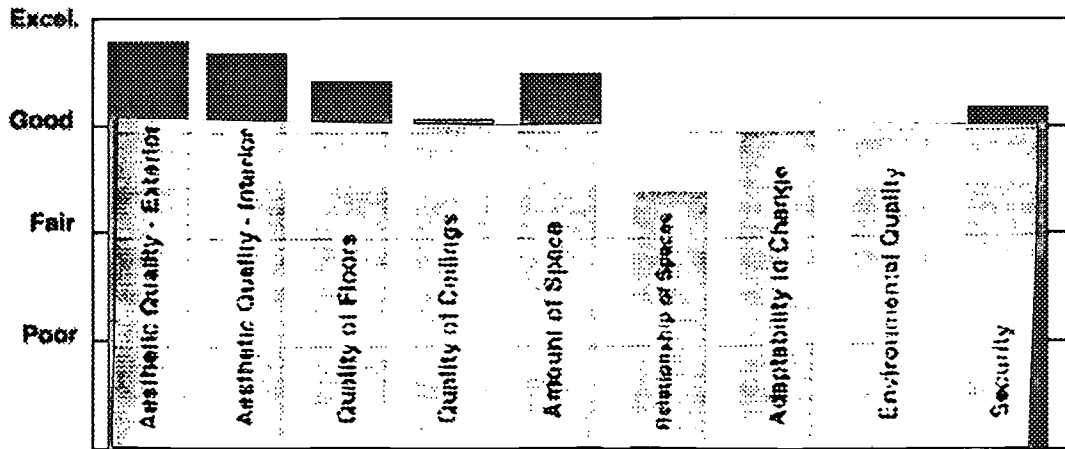
**In an average week, how many hours do you spend in the following spaces?**





People who use a building day-to-day in their work often form a generalized opinion regarding its success: "It's great!" or "This is terrible!" This question asks building users to consider some specific aspects of the building's construction and functioning in order to reveal how their experience of the facility influences their overall opinion.

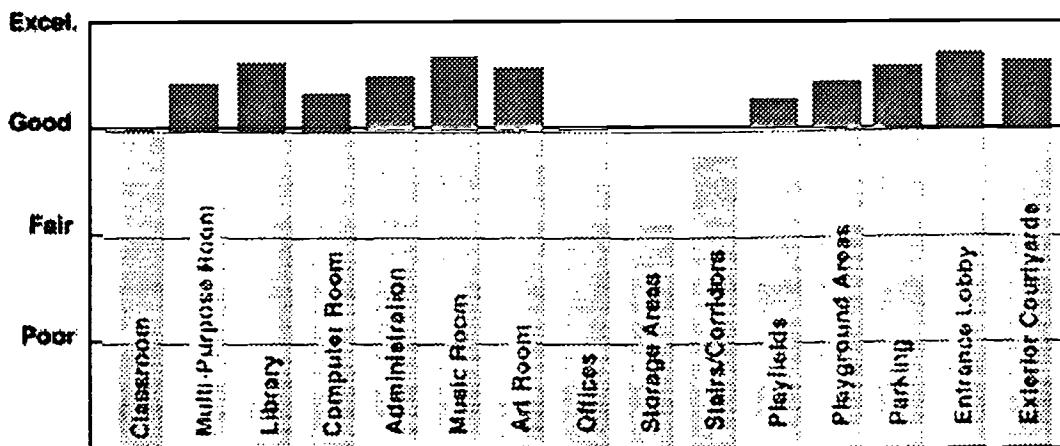
**Rate the overall quality of design in this building**



On a more specific level than the previous question, this question asks respondents to rate the general quality of each space that comprises the school as a whole. By identifying users' perceptions of a space's general quality, spaces which merit further evaluation can be identified.

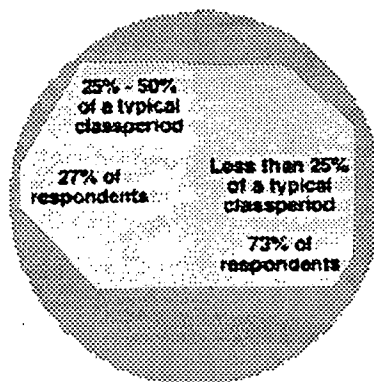
**Rate the overall quality of the following spaces in this building**

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Contemporary classroom teaching is no longer the traditional, rigid method it once was. Today's model is ever changing, closely following advances in technology and knowledge about how children learn. This question attempts to measure the frequency with which teachers use a traditional lecture format in contrast to contemporary teaching methods.

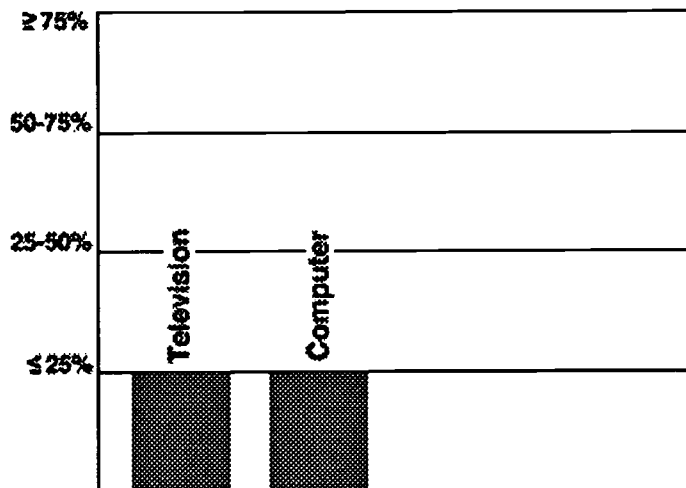
**What percentage of a typical class period is spent in a lecture format?**



Tools to facilitate learning have substantial implications for classroom design. This question looks at the use of two separate tools used in today's classrooms. New technologies for teaching require learning spaces that comfortably support the use of a variety of learning media.

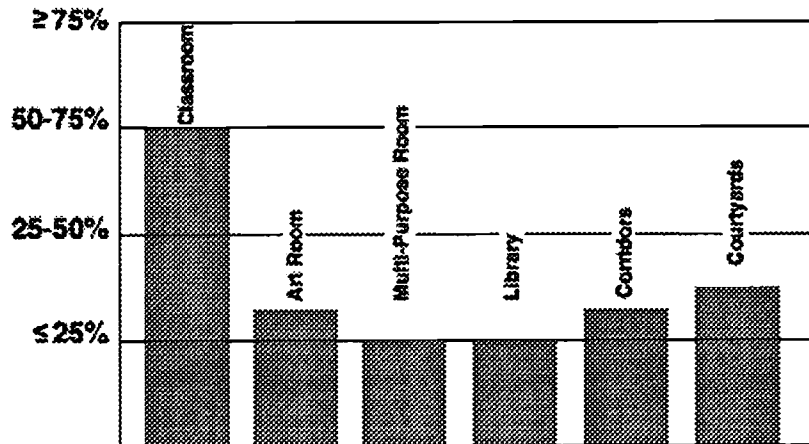
**What percentage of a typical school day is spent using television for instruction?  
Computers?**

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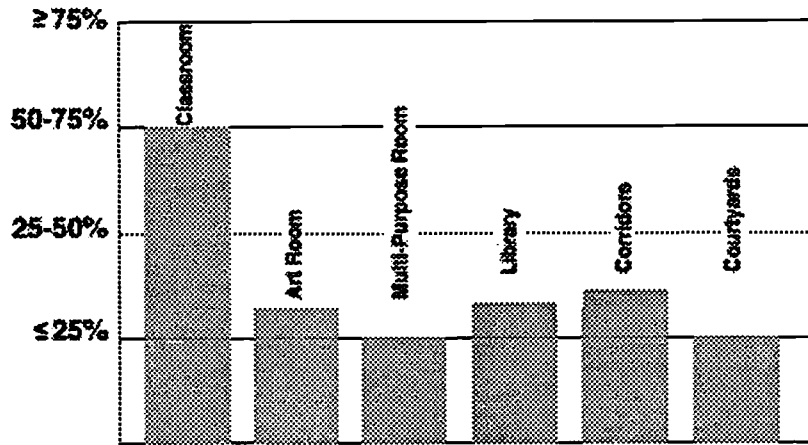
Educational practice places increasing emphasis on interpersonal learning skills and group projects. This question focuses on team based or group learning and asks respondents to identify spaces in which this most often occurs.

**When classwork is performed in teams or study groups, where do you meet -- how often?**



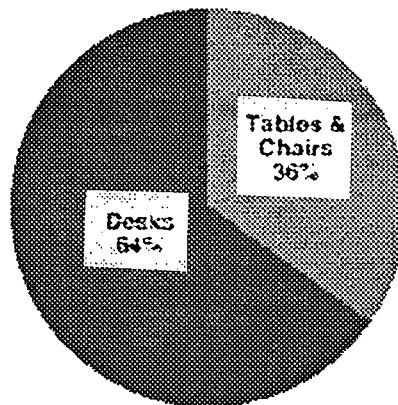
Identifying spatial qualities which encourage students' use of a space for group or individual study makes it possible to develop buildings which support informal, individually directed study. This question asks respondents to identify spaces in this facility which best support this activity.

**Informal study groups or individual study takes place in which of the following spaces -- how often?**



Classroom furniture - its size and the ease with which it can be moved about - is a fundamental element in the classroom's organization, reflecting the character of the teaching process itself. The data obtained from this question graphically displays teachers' preferences for desks or tables and chairs.

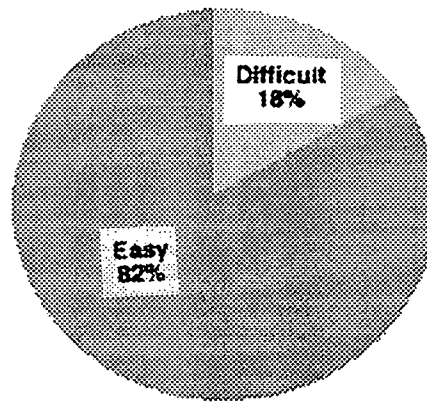
### What type of furniture do you prefer in the classroom?



Classroom furnishings that can be easily rearranged to accommodate a variety of activities can provide new learning opportunities. On the contrary, when classroom furnishings are difficult to move, the classroom has a fixed spatial structure that limits the variety of possible learning activities.

### When rearranging furniture in the classroom, how easily is this accomplished?

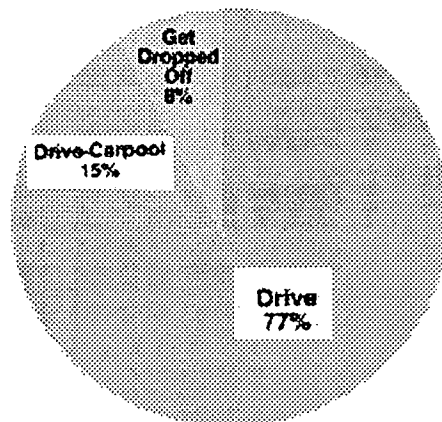




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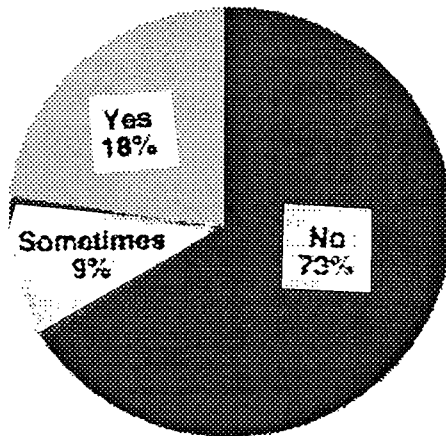
The majority of faculty and staff currently use private automobiles to commute to and from the school. The first question identifies other possible modes of transportation.

**A. How do you get to school?**



The second commuting-related question attempts to assess the future demand for public transportation.

**B. If community transit were more readily available would you use it to commute to school?**

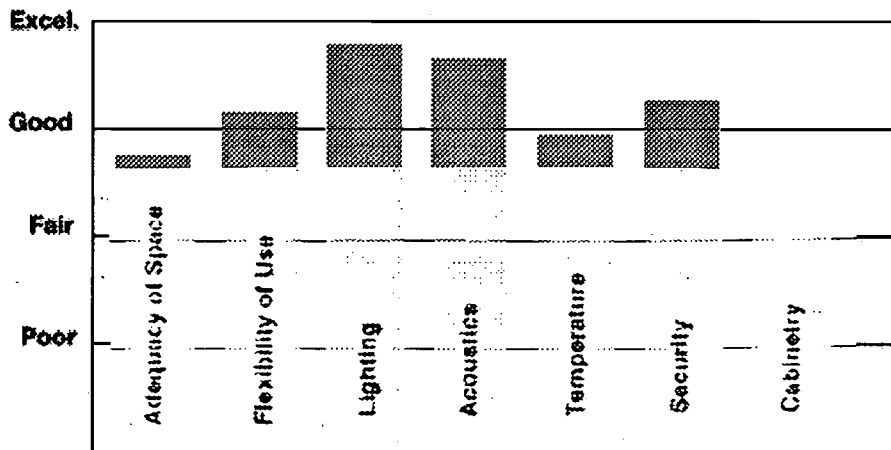


## Specific Area Reviews

### Specific Area Review: Classrooms

Classroom design should maximize usable space, as well as provide the flexibility to configure space to each teacher's instructional methods. In this way the classroom itself becomes a teaching tool supporting expanded educational possibilities. This question asks building users to rate the success of seven specific aspects of the classroom spaces. As displayed by the graph, there was widespread consensus that more cabinetry / storage space is needed.

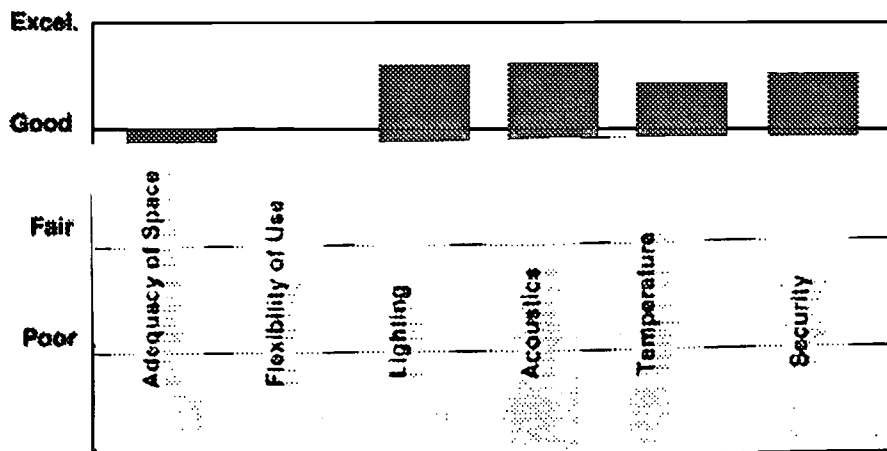
**Rate the quality of Classrooms in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



### Specific Area Review: Administration Offices

The school administrative offices should support the school's organizational structure. In doing so, these offices should help individual staff work together as a cohesive unit. In addition to this general requirement, there are numerous specific functional requirements for these spaces as well. Among these requirements is a provision for teacher workspace. Although workspace is provided, one teacher commented on the need for an additional sit-down workstation.

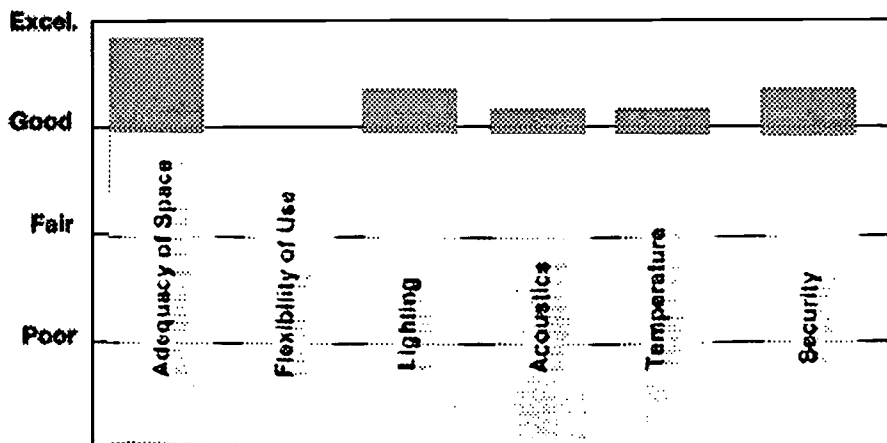
**Rate the quality of Administration/Office Space in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



### Specific Area Review: Gym/Multi- Purpose

Flexibility is the single most important design issue for the multi-purpose room. Lunch, school plays, and all-school assemblies must be accommodated without compromising its function as a physical education classroom. Not only is it important for this space to serve equally well for numerous functions, but this flexibility must also occur with relative ease and convenience. The following question addresses the success of this space in terms of flexibility, space allocation, and building systems. One specific improvement suggested by respondents was the addition of direct stage access from the gym floor.

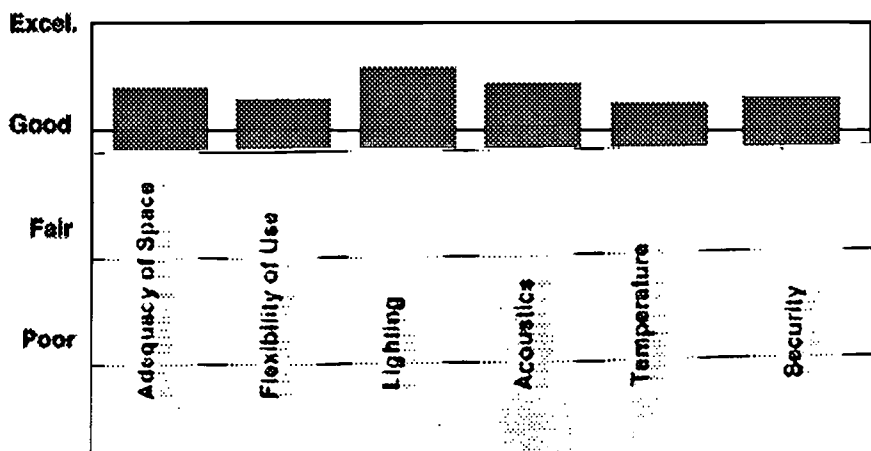
**Rate the quality of Gym / Multi- Purpose Room in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



### Specific Area Review: Library

The Library hosts a variety of activities ranging from individual research to group story hour. To successfully accommodate this range of activities, the library space and building systems serving it must be flexible. This question asks users to rate the general performance of these systems and the allotted space.

**Rate the quality of the Library in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



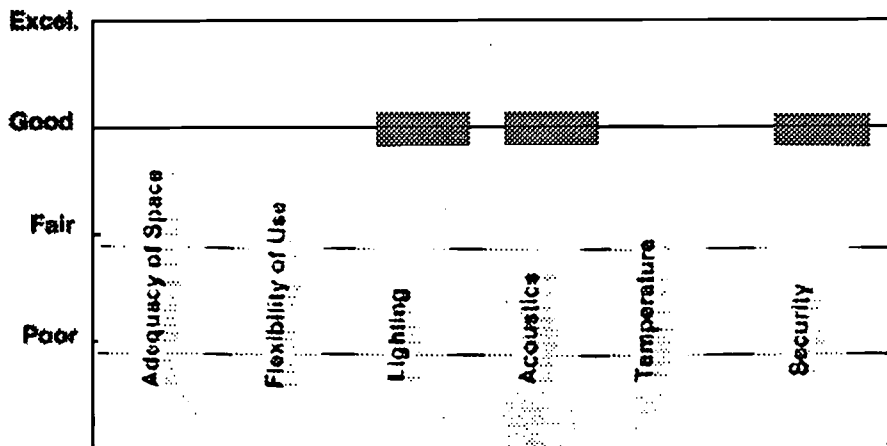
### Specific Area Review: Computer Room

Developments in technology and changes in the way it is used for learning occur at a rapid rate and have an impact on the spatial and systems support requirements for the computer room. This classroom space, perhaps above all others, must provide a large degree of



flexibility in order to successfully meet both service requirements today and those of the future. The results shown in this graph depict respondent's general impressions of the space and how well it functions. Comments submitted were critical of the size of this space. It is generally thought to be too small to serve a school of Martha Lake's size.

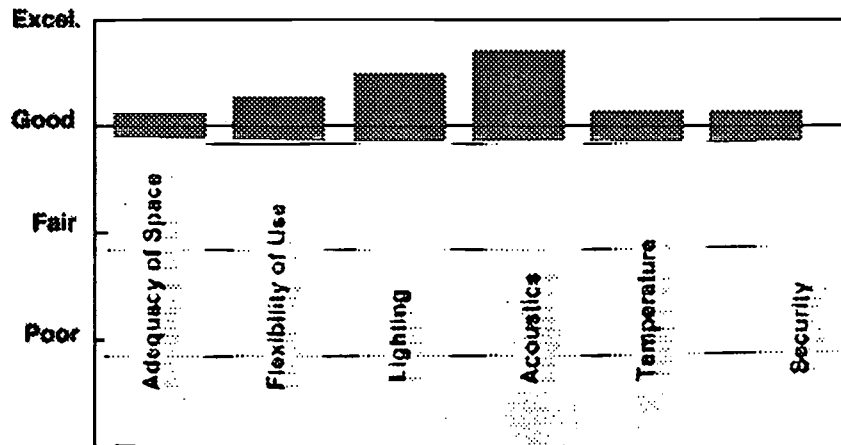
**Rate the quality of the Computer Room in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



**Specific Area Review: Music Room**

Acoustics and security are two primary concerns in the design of the music room. Activities in this space include: singing and dancing (both large and small groups), listening to music, playing instruments and occasional written work. The ceiling was mentioned by the music teacher as performing particularly well. In contrast, the floor surface is very hard; consequently it performs poorly from an acoustic standpoint. The double door between the music room and the stage is apparently difficult to lock securely, compromising the security of valuable equipment.

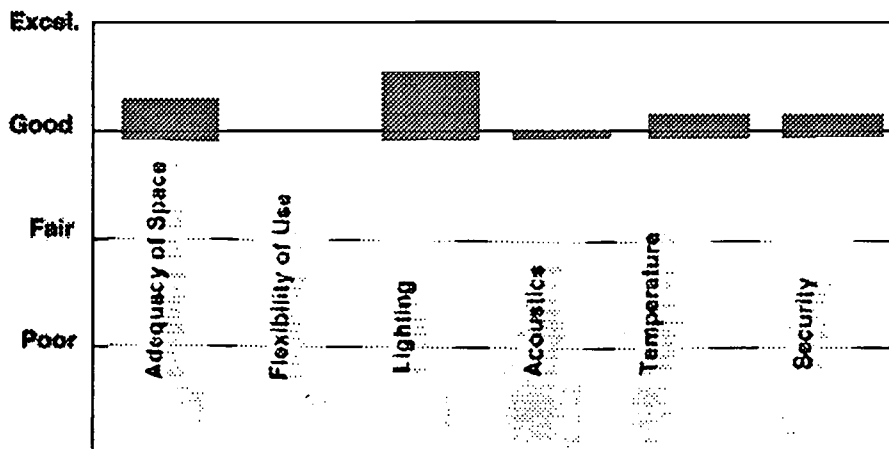
**Rate the quality of the Music Room in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



### Specific Area Review: Art Room

The art room was designed as a "flex-space" to support specialized activities in art, science, or technology instruction that are not well supported in a typical classroom. The graph shown below demonstrates that the space functions relatively well but gives no indication of the numerous comments by respondents regarding the difficulty of sharing an unassigned flex-space.

**Rate the quality of the Art Room in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**

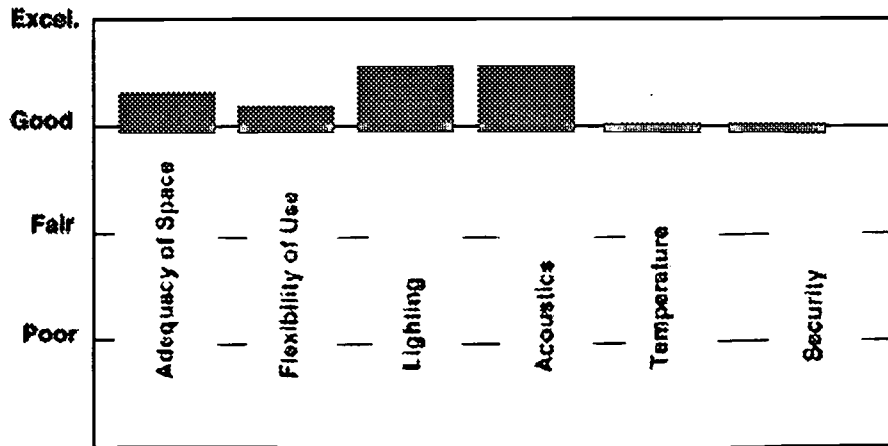


### Specific Area Review: Playground

Respondent's written comments regarding the playground facilities were more telling than responses to the question itself: students would prefer more space for basketball and

wall-ball, while teachers enjoy the trees that were spared during site development. Interestingly, one teacher commented that the surrounding woods were a security threat. Suggested improvements included the addition of a play area sheltered from the rain.

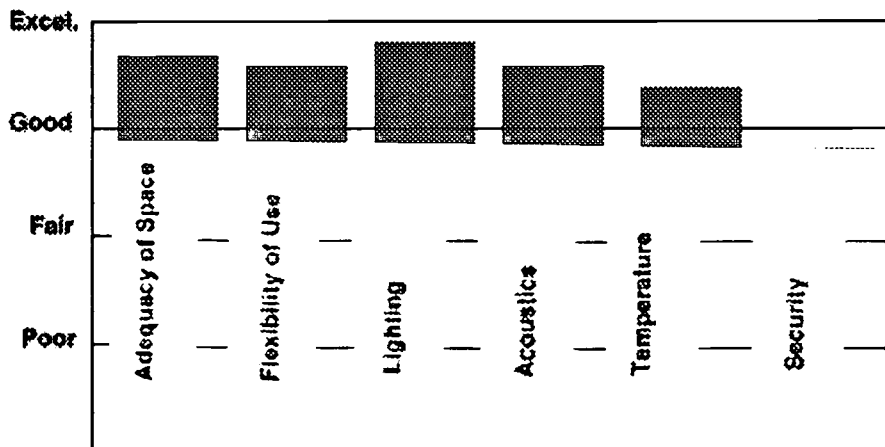
**Rate the quality of Playground Facilities in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



**Specific Area Review: Playfield**

The playfield facilities were generally rated very high. Singled out as particularly successful was the play field itself: even after heavy rain the day before Field Day, the surface was in "fine shape" for all of the events, even wheel barrow races. Two separate respondents did note, however, that the addition of a backstop would make playing baseball much safer.

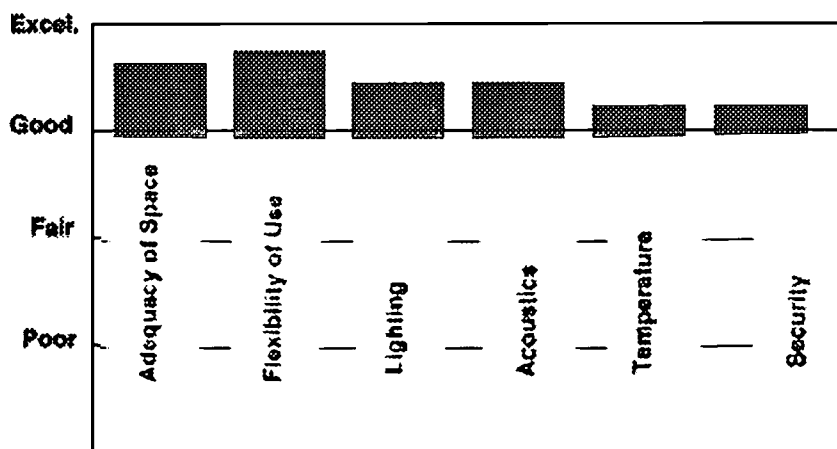
**Rate the quality of Playfield Facilities in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**



### Specific Area Review: Exterior Court

The exterior courts at Martha Lake Elementary School's main entries act as thresholds to the building and as small garden retreats from activities inside. In either case the building should project a welcoming image that not only invites users into the court, but embraces students and teachers gathered there as well. The data graphed below reflect teachers' overall perception of the exterior court spaces' success.

**Rate the quality of Exterior Court Spaces in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**

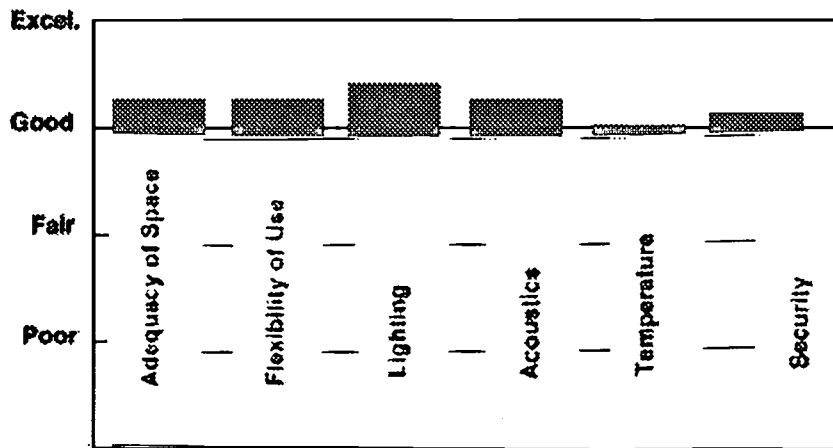


### Specific Area Review: Corridors

A school's corridor spaces are at once transition zones between the rooms of a building and spaces in their own right. Lighting, both natural and artificial, signage, and space for small groups to work are some principle issues which must be considered in the design of a corridor that serves multiple uses well. The evaluation revealed overall high ratings for the corridor spaces; however, it was suggested that more light be provided over the work table areas in corridors near the classrooms.

**Rate the quality of Corridor Spaces in terms of: Adequacy of Space, Flexibility of Use, Lighting, Acoustics, Temperature, Security.**





**APPENDIX**

- **Appendix: School Site Plan**
- **Appendix: Interview Questions**
- **Appendix: Survey Form**

**ACKNOWLEDGMENTS**

The Post Occupancy Evaluation of Martha Lake Elementary School-and the activities which it documents-owes its existence to a remarkable group of people. Bassetti Architects is grateful to each of them for the opportunity to study the realization of our designs from an essential point of view: that of the user after several years of experience in the building.

For this opportunity we first offer our thanks to Mike Warden, Facilities Director for the Edmonds School District. His commitment to a comprehensive understanding of how Martha Lake Elementary School functions before committing the taxpayers' money to new designs and new buildings was the impetus for this study. Steve Hoyt and Cheri Hendricks, with the Edmonds School District's Capital Projects Office, ably and generously supported our efforts to fulfill the mission which Mike set for us.

The participation and objective viewpoint of POE team members from the Center for Architecture and Education, an institute within the College of Architecture and Urban Planning's Institute for Interdisciplinary Studies, played a pivotal role in the success of the project. To Paul Schell, Dean of the College, Jim Donnette, Director of the Center and Jeanne Erlichman- Blueschel, who worked tirelessly as members of the POE team, we owe

a debt of gratitude which will be difficult to repay.

To Professor Wolfgang F.E. Preiser of the University of Cincinnati we offer our thanks and our respect for his seminal work on the theory and practice of post-occupancy evaluation of buildings. Without his published work as a guide, we would have spent considerably more time building the foundation for this document. And to his student John Barton who has labored mightily toward the publication of the POE during an internship with Bassetti Architects, we extend our gratitude for his knowledge of post-occupancy evaluation technique and of the software necessary for this document to become a reality.

Our thanks also go to Martha Lake Elementary School's leader, Principal Michael Green, who offered us an in depth understanding of the school's strengths and weaknesses and arranged for us to spend time with teachers and students at the school. Lastly, we extend a heartfelt thank you to the students and staff of Martha Lake Elementary School for their thoughtful, insightful, and sometimes humorous points of view regarding the functioning of their school.

*Mark J. Johnson, AIA*  
*Bassetti Architects, PS*

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Design of Learning Environments  
University of Washington  
Box 355750  
Seattle WA 98195  
(206) 685-3361  
E-Mail: [arc4educ@u.washington.edu](mailto:arc4educ@u.washington.edu)

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