REPORT TO THE LEGISLATURE ON THE USE OF PROTOTYPICAL PLANS BY LOCAL SCHOOL DISTRICTS

Section 10, Chapter 219, Laws of 1994
Regular Session
(Engrossed Substitute House Bill 2237)

DECEMBER 1994

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December 15, 1994

TO: Senate Committee on Ways and Means
House of Representatives Capital Budget Committees

FROM: Millard T. Battles, President
State Board of Education

RE: Prototypical School Design Study

In March of 1994, ESHB 2237 (Chapter 219, Laws of 1994) was passed by the legislature. This bill required the State Board of Education to study "the potential for savings by constructing common schools from prototypical construction designs" and submit its findings to the Senate Committee on Ways and Means and the House Capital Budget Committee by December 15, 1994.

The conclusion of the study is that most Washington State school districts with ongoing, multiple project construction programs are already using prototypical designs to save time, effort and money where local site conditions and educational programs will allow it. The savings on architectural fees compared to individually designed schools averages 1.18 percent of the total construction cost. Because of the widespread use of prototypical school designs, the State Board of Education will continue to encourage local school districts to achieve savings by constructing common schools from prototypical school construction designs.

If you have questions, please contact Alberta Mehring, Director of Facilities and Organization, at (206) 753-6702. The agency TDD number is (206) 664-3631.

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A REPORT TO THE LEGISLATURE
ON THE
USE OF PROTOTYPICAL PLANS BY LOCAL SCHOOL DISTRICTS

PURPOSE

Section 10 of ESHB 2237 required the State Board of Education to study the potential for savings by constructing common schools from prototypical school construction designs, and report the findings to the legislature by December 15, 1994.

DEFINITION

For purposes of this study, a prototypical school design is defined as a school building plan developed for initial use at one location and reused either concurrently or subsequently at a different site(s) by the same school district within its district boundaries. A prototypical design plan is <u>not</u> the same as a stock plan, which is defined as one standardized school design plan that is issued to and used by all school districts in the state.

SUMMARY AND RECOMMENDATIONS

Research results indicate that most Washington State school districts with ongoing, multiple project construction programs are using prototypical designs to save time, effort and money where local site conditions and educational programs will allow. Architectural fees for prototypical designs average 1.18 percent less of the total construction cost compared to individually designed schools.

Most districts which are able to utilize prototypical designs are already doing so. Because the use of prototypical school designs is already widespread among districts where local conditions and programs make it practical, there is no apparent action necessary by the State Board of Education to encourage greater use of prototypical school buildings to achieve savings in the school construction program. However, the State Board shall continue to support the use of prototypical designs as one way for local school districts to get more value for their design fees.

BACKGROUND

Prior to the 1994 legislation, the State Board of Education's Facilities Committee had directed staff of the Office of Superintendent of Public Instruction (OSPI) to survey a sample of Washington State school districts, comparing those districts that used prototypical plans with those districts that individually

designed plans for each site. The survey not only collected hard data on construction costs and design fees, but also the reasons why districts chose to use prototypical or individual designs and whether they were satisfied with the results.

A questionnaire form was prepared and distributed to four districts that used prototypes and four districts that were thought to have used individually designed schools. However, it was soon discovered that many districts that were generally believed to have individually designed their facilities actually used the same plan two, three, or four times within the same bond issue construction program. Only two districts (Kent and Spokane) repeated the same plan more than four times. To develop a "control group" of districts with custom designed plans, it was necessary to obtain data from districts that were building only one school at a time. Below are partial lists of school districts which fit the various categories:

<u>Prototype Districts</u>
Auburn (W/Upgrades)
Bethel*#
Everett
Evergreen
Federal Way
Issaquah*#
Kent*#
Lake Washington
Mukilteo
North Kitsap
Peninsula
Puyallup#
Spokane*#
Yelm

<u>Individual Design Districts</u>
Northshore
North Thurston
Seattle*#
Tacoma**#

<u>Single Project Districts</u>
Burlington-Edison#
Fife#
Highline#
Mead#
Snohomish#

* = districts responding to questionnaire
** = district responded by letter only
\# = data from district and/or OSPI used in tabulations

The data gathered included actual architectural fees and construction bids. However, design fees here are expressed as a percentage of construction cost to minimize variation. Professional design fees were also analyzed at two levels: those for basic services and for total fees. The term "basic services" is defined as the architectural and engineering design work necessary to complete most projects (schematic design, design development, construction document, bidding and award, and construction administration phases).

Total fees, in addition to the basic services amount, include those for other reimbursable costs and design costs for change orders. "Additional services" are work related to either the unique nature of the individual project such as rezoning

applications, environmental impact statements, etc., or for more than the usual architectural services, such as graphic, interior or landscape design. "Change orders" are for changes that occur during design or construction of the project due to the school district's direction, governmental regulation, or some other unanticipated condition.

The results are plotted on the attached charts comparing 22 prototypes and 15 individually designed schools. The horizontal axis is the projects and the vertical axis "two through 12" is expressed as a percent of construction costs. "Basic" on the charts refers to the term basic services as a percentage of total construction costs. "Total" on the charts is the total professional design fees as a percentage of construction costs. The black horizontal line represents 7.25 percent, the OSPI recognized limit for basic professional design fees for buildings in this category (55,000 square feet or less).

Attachment 1 compares the **basic services fees** of the prototypes (lighter shaded bars) with the equivalent fees for individually designed schools (darker bars). The prototypical basic fees ranged from 4.13 to 8.38 percent; averaging 5.49 percent. The individually designed schools' fees were in a narrower range of 5.51 to 8.28 percent, but averaged higher: 6.95 percent, still below the match limit of 7.25 percent.

Attachment 2 compares the **total professional services** for prototypical designs with the total for individually designed schools. Prototypical total fees were as low as 4.2 percent and as high as 9.04 percent, with an average of 6.33 percent, an increase of 0.84 percent over basic services. The total fees for individually designed buildings varied from 6.02 percent to 9.11 percent, averaging 7.51 percent; 0.56 percent above basic services.

CONCLUSIONS FROM DATA

- The results indicate that using prototypical designs saved local school districts an average of 1.54 percent of total construction costs in basic design fees (5.49 percent), compared to individually designed schools.

- When additional services and change orders are added, total design fees (6.33 percent) reduced the savings to about one percent of the total construction cost.

- The individually designed schools were also lower than the OSPI guidelines for basic services at 7.03 percent, and additional services and change orders were only about half of those for prototypes, raising total fees for individual designs to 7.51 percent.

CONCLUSIONS OF QUESTIONNAIRE

The questionnaire revealed that the primary reasons districts used prototypical plans were:

- Three-quarters of the districts surveyed reused building designs to save design fees.
- One-half stated the time saved was a major reason.
- One district listed savings on maintenance and purchasing.
- Repeating the design allowed the opportunity to correct problems with the original design, rather than dealing with an entirely new set.
- Reusing the same design minimized the time and effort of district staff, especially during the pre-design and educational specification phases.
- Several of these districts expressed the belief that such savings would be realized only if the repeated designs were approved and built concurrently or shortly after the initial building, i.e., within the same three-year building code cycle.

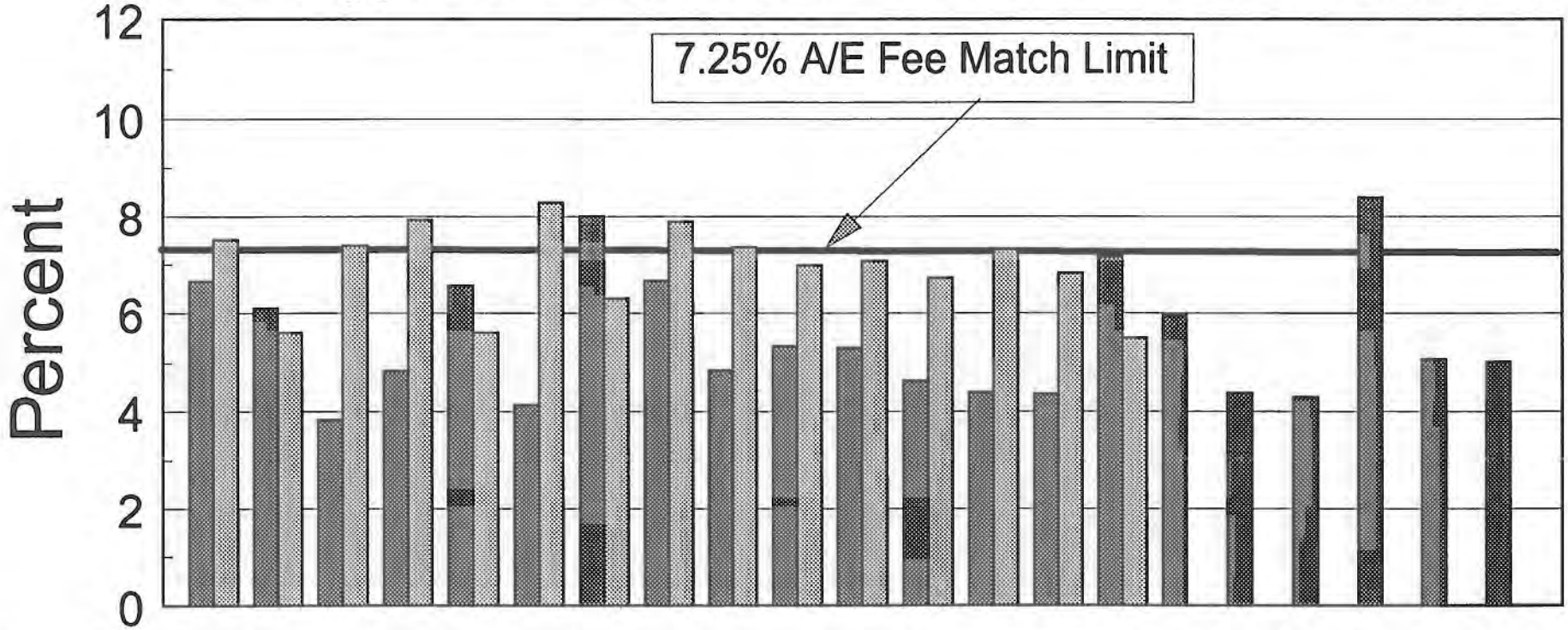
Of the districts that used individually designed schools:

- Three-quarters stated that unique site conditions mandated unique designs.
- The Seattle and Tacoma School Districts stated the problem was small urban sites constrained by surrounding development.
- Northshore, a suburban district, found the hilly geography of its area dictated individual designs.
- North Thurston is instituting a restructured educational delivery system incorporating such concepts as integrated learning and school-within-a-school. The district found the prototypical designs it previously used hindered implementing these new educational programs.

Attachment 1:

Design Fees as a Percent of Total Construction $

Prototypical Basic vs. Individual Basic Services

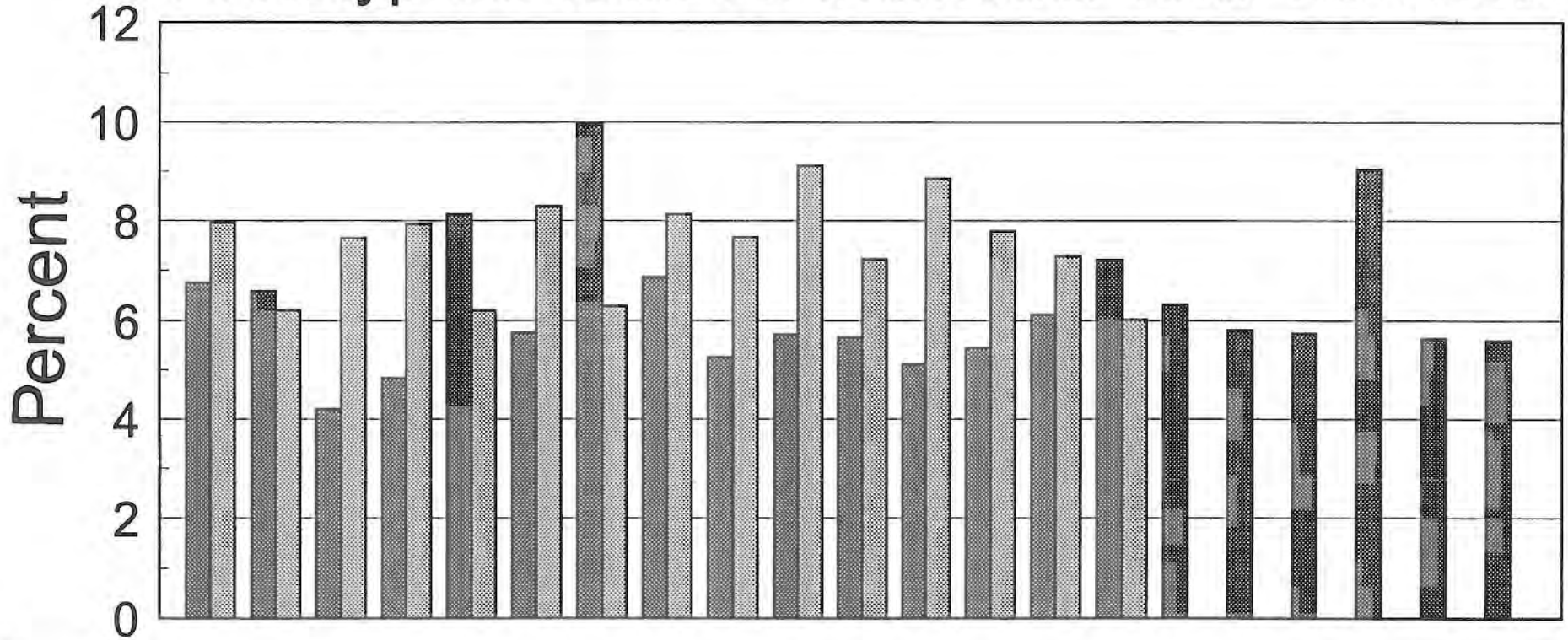


Proto Basic	6.65	6.10	3.83	4.83	6.55	4.13	8.00	6.66	4.85	5.34	5.30	4.63	4.39	4.36	7.15	5.95	4.38	4.29	8.38	5.07	5.02
Indiv Basic	7.51	5.61	7.38	7.92	5.61	8.28	6.29	7.89	7.35	6.97	7.07	6.71	7.31	6.82	5.51						

Attachment 2:

Design Fees as a Percent of Total Construction $

Prototypical Total vs. Individual Total Services



Proto Total	6.75	6.59	4.20	4.83	8.11	5.76	9.96	6.86	5.26	5.72	5.66	5.11	5.44	6.13	7.20	6.32	5.81	5.75	9.04	5.63	5.59
Indiv Total	7.95	6.21	7.64	7.92	6.21	8.28	6.29	8.12	7.66	9.11	7.21	8.85	7.78	7.28	6.02						