
Audit of the Temporary Classroom Program

A Report to the
Governor
and the
Legislature of
the State of
Hawaii

Report No. 95-19
September 1995



THE AUDITOR
STATE OF HAWAII

The Office of the Auditor

The missions of the Office of the Auditor are assigned by the Hawaii State Constitution (Article VII, Section 10). The primary mission is to conduct post audits of the transactions, accounts, programs, and performance of public agencies. A supplemental mission is to conduct such other investigations and prepare such additional reports as may be directed by the Legislature.

Under its assigned missions, the office conducts the following types of examinations:

1. *Financial audits* attest to the fairness of the financial statements of agencies. They examine the adequacy of the financial records and accounting and internal controls, and they determine the legality and propriety of expenditures.
2. *Management audits*, which are also referred to as *performance audits*, examine the effectiveness of programs or the efficiency of agencies or both. These audits are also called *program audits*, when they focus on whether programs are attaining the objectives and results expected of them, and *operations audits*, when they examine how well agencies are organized and managed and how efficiently they acquire and utilize resources.
3. *Sunset evaluations* evaluate new professional and occupational licensing programs to determine whether the programs should be terminated, continued, or modified. These evaluations are conducted in accordance with criteria established by statute.
4. *Sunrise analyses* are similar to sunset evaluations, but they apply to proposed rather than existing regulatory programs. Before a new professional and occupational licensing program can be enacted, the statutes require that the measure be analyzed by the Office of the Auditor as to its probable effects.
5. *Health insurance analyses* examine bills that propose to mandate certain health insurance benefits. Such bills cannot be enacted unless they are referred to the Office of the Auditor for an assessment of the social and financial impact of the proposed measure.
6. *Analyses of proposed special funds* and existing *trust and revolving funds* determine if proposals to establish these funds and existing funds meet legislative criteria.
7. *Procurement compliance audits* and other *procurement-related monitoring* assist the Legislature in overseeing government procurement practices.
8. *Fiscal accountability reports* analyze expenditures by the state Department of Education in various areas.
9. *Special studies* respond to requests from both houses of the Legislature. The studies usually address specific problems for which the Legislature is seeking solutions.

Hawaii's laws provide the Auditor with broad powers to examine all books, records, files, papers, and documents and all financial affairs of every agency. The Auditor also has the authority to summon persons to produce records and to question persons under oath. However, the Office of the Auditor exercises no control function, and its authority is limited to reviewing, evaluating, and reporting on its findings and recommendations to the Legislature and the Governor.



THE AUDITOR STATE OF HAWAII

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OVERVIEW

THE AUDITOR
STATE OF HAWAII

Audit of the Temporary Classroom Program

Summary

The State Auditor initiated this audit to review the timeliness, efficiency, and cost of the temporary classroom program.

To meet shifting school population needs, approximately 60 temporary wood classrooms are constructed each year at a cost of about \$4 million. The Department of Education (DOE) determines the number and locations of the temporary classrooms and the Department of Accounting and General Services (DAGS) is responsible for their design and construction. The governor approves the allotment of funds for design and construction after the Department of Budget and Finance (B&F) reviews the allotment request.

We found that the process entails unnecessary analysis and reviews by B&F and approvals by the governor. The temporary classroom program is repeated every year without significant variation and the analysis and review required for design allotment and permission to advertise were unwarranted. The redundancy adds almost two months to the time needed to complete the classrooms.

Engineering consultants were employed for every temporary classroom regardless of design complexity or lack thereof. Typically, the temporary classroom requires a simple connection to existing electrical and mechanical utilities that could be designed by the licensed contractor or DAGS' own staff. The cost of engineering consultants added \$429,000 to the cost of 104 temporary classrooms this past fiscal biennium.

The four to six-week selection process for consulting engineers is time consuming and inefficient. The process requires three DAGS staff to review and recommend three finalists. This process is repeated for each temporary classroom subproject.

We also found that alternative delivery methods and construction technologies were not seriously considered by DAGS. Design-build construction and modular classrooms are two possible alternatives that could be explored. We estimated the State could have saved about \$10 million over the past eight years if modular classrooms had been used.

Recommendations and Response

We recommend that DAGS and B&F streamline the approval process for the allotment of design funds and the permission to advertise for temporary classroom projects. We also recommend that DAGS reduce the use of engineering consultants

by using staff electrical and mechanical engineers as appropriate. In addition, we recommend that DAGS consider using the revolving list method for the selection of qualified engineering consultants for temporary classroom projects.

Finally, we also recommend that DAGS and DOE explore alternative cost effective methods and technologies to fulfill the need for temporary classrooms.

The Department of Education expressed its satisfaction with the report and generally concurred with our recommendations.

The Department of Budget and Finance responded to our recommendation to streamline the approval process by stating it has begun to combine the permission to advertise with the allotment request for construction funds. We believe the process could be streamlined even further by limiting the review and approval process now followed for the release of design funds for these classrooms.

The Department of Accounting and General Services is in general agreement with some of the recommendations and has implemented some changes. It also states that the design allotment approval procedure has been shortened. The selection process for consulting engineers will be shortened by using a pre-qualified list. And, lastly, a pilot project using alternative materials is being pursued. It responded also that it pursued the use of modular classrooms in 1988 and 1989 to no avail. This does not directly address our recommendation to consider using modular or pre-fabricated structures, nor does it take into account the successful use of modular classrooms nationally, by private local schools, and by the public school system on Kauai after Hurricane Iniki.

DAGS does not agree with our recommendation that it use its own electrical and mechanical engineers for temporary classrooms. It states that its design branch does not have electrical or mechanical engineers on its staff and says that "The total amount of electrical and mechanical design work throughout the year does not justify the hiring of full time electrical and mechanical engineers."

We believe DAGS should rethink this issue. Since consulting engineering fees amounted to \$429,000 for the fiscal biennium 1993-95, DAGS should examine cost effective alternatives including the possibility of using electrical and mechanical engineers from other branches within the department.

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Submitted by

THE AUDITOR
STATE OF HAWAII

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Foreword

This is a report of our audit of the temporary classroom program for the public school system. The audit was conducted pursuant to Section 23-4, Hawaii Revised Statutes, which requires the State Auditor to conduct post audits of all departments, offices, and agencies of the State.

We wish to express our appreciation for the cooperation and assistance extended to us by the officials and staffs of the Departments of Education, Accounting and General Services, and Budget and Finance.

Marion M. Higa
State Auditor

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Chapter 1

Introduction

The Department of Accounting and General Services (DAGS) constructs approximately 60 *portable* wood classrooms for the Department of Education (DOE) each year. These classrooms are constructed to meet the demands of Hawaii's increasing public school population. This program has been criticized for producing classrooms that are too costly and time consuming to complete. To determine the validity of these criticisms, the Auditor, under Section 23-4, Hawaii Revised Statutes, initiated an audit of this program.

Historically, most of the portable classrooms are never moved and remain on their original site until demolition. With recent changes to Hawaii's building codes, which require more permanent, hurricane resistant structures, the term *portable* has been changed to *temporary* classrooms.

Background

School administrators in Hawaii and throughout the United States face changing classroom needs caused by changing neighborhood demographics. Typically, a neighborhood has 10 to 25 years of an exceptionally large number of school age children. As the neighborhood population changes, the number of school age children decreases to what is considered a normal or average number. To accommodate this 10-25 year "bubble" of school age children, many school administrators chose to construct temporary classrooms rather than permanent facilities.

Temporary classrooms are not designed to be moved like portables. Their life span is 20 to 30 years versus the 50 to 60 year life span of permanent school construction. Temporary classrooms are wood structures similar to residential quality construction with less durable interior finishes. Permanent school structures use primarily concrete and masonry construction.

Funding temporary classrooms is cost effective

Appropriations for temporary classroom relocation and construction have been about \$4,000,000 per year. The Department of Education State Education Facilities Improvement Fund receives the appropriations but DAGS expends the funds. Temporary classrooms require a shorter construction period than do permanent classrooms and result in a lower per student cost.

Permanent school structures take three to four years to complete and on a per student basis are costly. The cost of a new school includes land acquisition and infrastructure costs. New schools also require support facilities such as cafeterias, gymnasiums, and libraries. A complete new elementary school designed for 750 students costs an estimated \$22,000,000 or \$29,000 per student. A complete intermediate school for 900 students costs approximately \$40,000,000 or \$44,000 per student. A complete high school for 1,500 students costs approximately \$72,000,000 or \$48,000 per student. Permanent classrooms without support facilities cost approximately \$300,000 each or \$12,000 per student.

On the other hand, temporary classrooms are quicker and cheaper to construct than permanent classrooms. A temporary classroom costs approximately \$100,000 and seats 25 students for a per student cost of \$4,000. The use of residential construction standards reduces the price per classroom. They can accommodate rapid changes in student populations effectively. According to DAGS, temporary classrooms take from 9 to 12 months for planning, designing, and construction compared with three to four years for permanent classrooms.

Historic costs of temporary classrooms

In FY1993-94, the actual costs of constructing 65 temporary classrooms and relocating 3 others amounted to \$6,501,685 for an average cost of \$95,600 per unit. In FY1994-95, 29 new temporary classrooms were built and 7 were moved for a total cost of \$3,454,348, or \$96,000 per classroom.

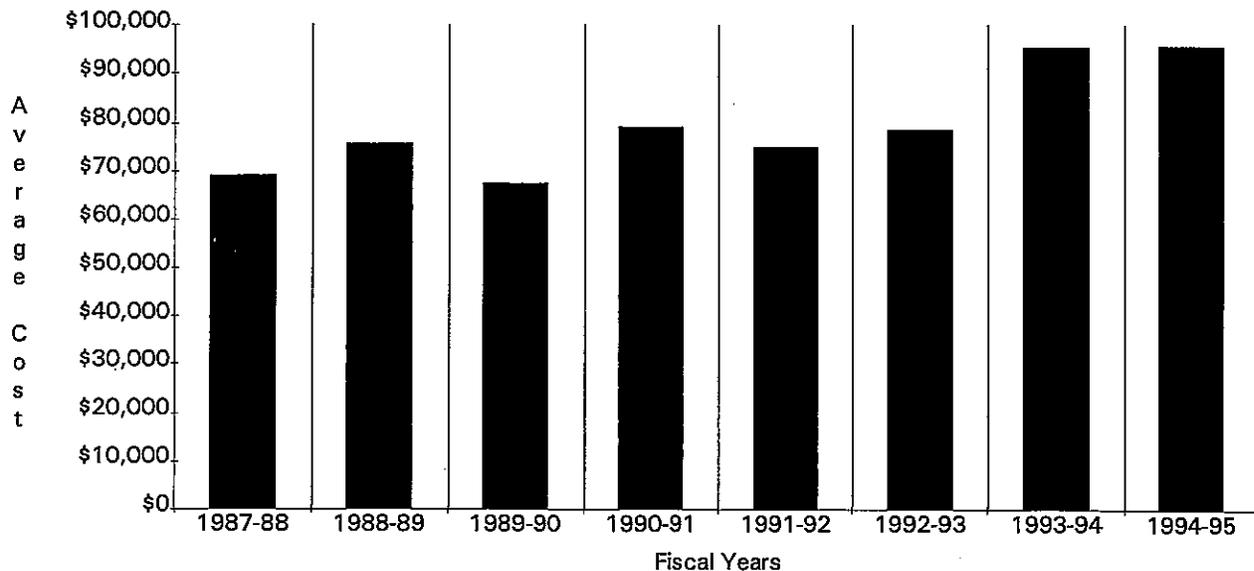
In the past eight years, over \$40,000,000 has been expended on temporary classrooms. The average cost per classroom has increased by 39 percent. Exhibits 1.1 and 1.2 show increasing state expenditures for temporary classrooms from 1988 to 1995.

Exhibit 1.1
Cost of Temporary Classrooms
Fiscal Years 1987-88 - 1994-95

| Fiscal Year | Expenditures | Temporary Classrooms Constructed | Temporary Classrooms Relocated | Average Cost |
|---------------|---------------------|----------------------------------|--------------------------------|-----------------|
| 1987-88 | \$8,029,000 | 93 | 23 | \$69,216 |
| 1988-89 | 3,637,000 | 40 | 8 | 75,771 |
| 1989-90 | 4,725,247 | 53 | 17 | 67,504 |
| 1990-91 | 4,830,000 | 46 | 15 | 79,180 |
| 1991-92 | 4,881,309 | 60 | 5 | 75,097 |
| 1992-93 | 4,721,480 | 60 | 0 | 78,691 |
| 1993-94 | 6,501,685 | 65 | 3 | 95,613 |
| 1994-95* | 3,454,348 | 29 | 7 | 95,954 |
| TOTALS | \$40,780,069 | 446 | 78 | \$77,825 |

*Data as of May 1995.

Exhibit 1.2
Average Cost of Temporary Classrooms
Fiscal Years 1987-88 - 1994-95



Objectives of the Audit

1. Assess the management of the temporary classroom program in producing classrooms on an economical and timely basis.
2. Make recommendations as appropriate.

Scope and Methodology

We reviewed the temporary classroom projects for the fiscal biennium 1993-95.

We reviewed the process by which DOE determines the number, locations, and design needs of temporary classrooms. We reviewed the process by which the divisions and branches in DAGS manage the design and construction of temporary classrooms. We also reviewed the design standards and the alternative solutions that are available in the construction industry.

Fieldwork included interviews with the facility planners of DOE and the appropriate staffs of DAGS and the Department of Budget and Finance. We interviewed the users of temporary classrooms and the providers of modular buildings.

We reviewed and analyzed DOE and DAGS design and construction policies, files, reports, allotment requests, and procedures and practices relating to the construction of temporary classrooms. We visited several temporary classrooms produced by this program and several modular classrooms being used in Oahu.

Our work was performed from January 1995 through June 1995 in accordance with generally accepted government auditing standards.

Chapter 2

Findings and Recommendations

In this chapter we assess the efficiency of the process that delivers temporary classrooms. We find the process to be cumbersome and not open to alternative possibilities. We present recommendations on how to improve the process and suggest alternatives to explore.

Summary of Findings

1. Unnecessary analysis of project data lengthens the time required to construct temporary classrooms.
2. The use of electrical and mechanical engineering consultants is not always warranted.
3. The selection process for consultants is time consuming and inefficient.
4. Alternative classroom delivery methods and construction technologies should be considered.

Program Is Stymied

Since the 1960s, approximately 1200 temporary classrooms have been constructed and approximately 350 of these have been relocated from one school to another. Annual appropriations are provided by the Legislature to finance the construction and/or relocation of temporary classrooms. The program is stymied by a lengthy approval process and questionable consultant costs. In addition, the need for classrooms is never filled because only 25 to 50 percent of the requests by school principals are met.

Program unable to meet demand

Temporary classrooms are generally built only after enrollment exceeds classroom capacity. Every September, DOE reviews individual school enrollment and principals submit requests for temporary classrooms needed for the following school year. The schools annually submit requests for 100 to 200 temporary classrooms for the next school year. These requests are reviewed by district offices and the DOE facilities planning office.

The DOE facilities planning office determines the number and location of temporary classrooms to be constructed. This determination is based upon funds available and relative need. Because of funding limitations,

requests from schools whose current enrollment exceeds current classroom capacity are given priority. Normally 50 to 60 of the 100 to 200 requests can be built with the funds available. After the decisions concerning numbers and locations are made, the project follows the same pattern as previous years.

Description of the process

The Department of Education's facilities planning office analyzes existing classroom space requirements and determines (a) which temporary classrooms are to be relocated, and (b) the number of new temporary classrooms needed. The planning, designs, and cost patterns and information do not vary from year to year. DOE informs DAGS officially in November of its requirements. The temporary classrooms are expected to be completed in August of the following year.

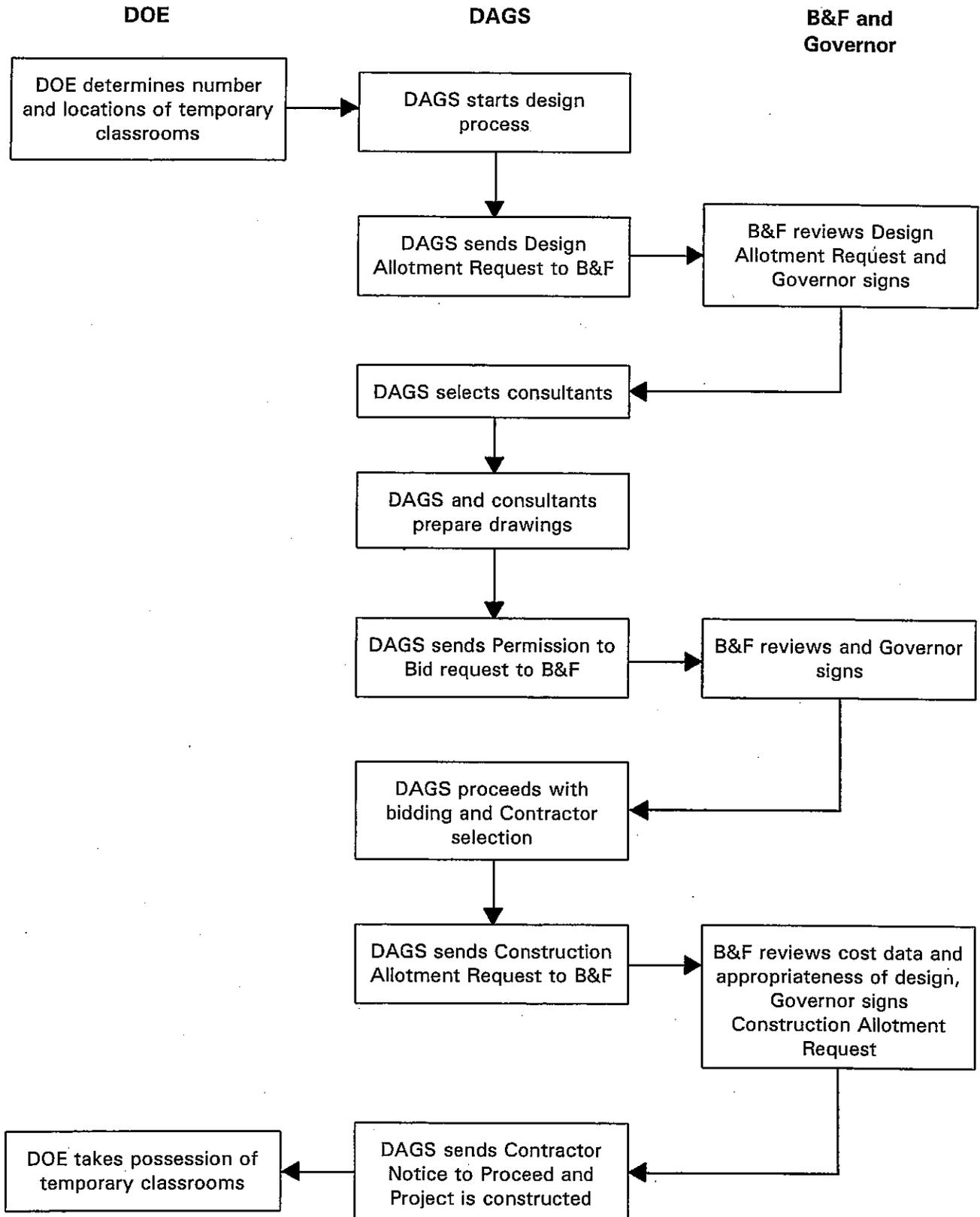
DAGS is responsible for supervising the relocation of existing temporary classrooms as well as designing and constructing new ones. Staff architects in the Design Branch of the Division of Public Works design the temporary classrooms, coordinate and confer with DOE, and if needed, employ and supervise consultants, usually electrical and mechanical engineers. DAGS selects and monitors the construction contractors and is responsible for completion of the classrooms. Exhibit 2.1 presents a flowchart of the process.

Unnecessary Analysis of Project Data

Temporary classroom projects must follow the capital improvement project approval process established by directives of the governor. The process requires three specific approvals for all capital improvement projects regardless of size, complexity, or repetitive nature (such as temporary classroom relocation and construction). The three approval processes, also noted on Exhibit 2.1, are as follows:

1. **Design allotment approval.** The design allotment request is a package of letters, expenditure forms, cost estimates, and other such information prepared by DOE and DAGS and is forwarded to Budget and Finance (B&F) for review. B&F reviews and analyzes these documents for the governor and prepares the allotment advice which is forwarded to the governor for approval. The signed allotment advice releases funds for design expenditures.
2. **Permission to advertise.** After the contract drawings, specifications and revised cost estimates are prepared, another package of letters, forms, cost estimates, and other documents are prepared by DAGS and sent to B&F. Again B&F reviews and

Exhibit 2.1
Overview of the Temporary Classroom Process



analyzes the package and prepares a short report to the governor explaining the project. A letter prepared by B&F is signed by the governor to approve solicitation of bids.

3. **Construction allotment approval.** After bids from contractors have been opened, reviewed, and ranked, and the winning contractor has been determined, a package of letters, forms, cost analysis, and other documents are prepared by DAGS and forwarded to B&F. B&F reviews and analyzes these documents and prepares a report and an allotment advice for the governor. The signed allotment advice releases the construction funds for the project.

Approval steps are unnecessarily lengthy

Each of the three approvals requires documentation including analysis of the design and need, cost estimates, and other commentary. The documentation is: (1) assembled by DAGS; (2) sent to B&F for review and approval; and (3) sent to the governor for approval. The analyses and cost estimates for temporary classrooms are perfunctory and assembled from previous temporary classroom submittals.

For the first two approval steps, almost two months of the project's nine months are wasted waiting for approval. For temporary classrooms constructed in 1994, 25 days elapsed from the time the first design allotment request was submitted to B&F to the time it was signed and returned to DAGS. For the second request, permission to advertise, the elapsed time was 24 days. These times do not include the DAGS preparation time or the time lost due to the interruption of the work flow. We believe steps 1 and 2 can be shortened considerably without loss of administrative control of the process.

Conditional design allotments are routinely approved and designs do not vary

The governor always permits the planning and design to proceed despite the incomplete information and analysis. At this first approval stage, the number, locations, and cost of temporary classrooms are not determined in the request sent to the B&F by DAGS. But the design funds are released regardless. The governor's authorization letter permitting release of the design funds customarily requests that DAGS forward additional project information to B&F as it becomes available.

The analyses conducted for the first and second approvals, the design allotment request and the permission to advertise, are usually limited because only preliminary cost estimates are available. Also, the amounts involved are relatively small compared to total construction costs. In 1993, the allotment for design costs amounted to \$283,000; in 1994, the allotment amounted to \$257,000.

The analyses are conducted to comply with procedural requirements imposed on all CIP projects. In the case of the temporary classrooms, however, these analyses could be eliminated or shortened significantly to speed up the process, without ceding administrative oversight responsibility for the overall project. For example, the analysis could be limited to a comparison of current year request with the prior years' requests. If the requests are for reasonably similar amounts, they could be approved.

The project time delay caused by the design allotment request could be avoided if B&F processed it as an annually recurring request as opposed to a one-time CIP project. Based on our interviews with DAGS and DOE personnel, we found the planning, designing, and construction of temporary classrooms did not vary significantly from year to year and therefore extensive scrutiny is unwarranted.

'Permission to advertise' adds no control or accountability

Since the design of temporary classrooms vary insignificantly between projects, the permission to advertise letter, signed by the governor, adds no additional control and accountability to the process. Funds are not released at this time and the forms and data submitted by DAGS to B&F to advertise the project for bids do not provide significant or new information. Further, the governor always grants permission to advertise for bids. The value of the additional analysis conducted by B&F is questionable and unnecessarily adds 24 days to the total time to construct temporary classrooms.

Construction allotment request needs review

The review and approval of the construction allotment request is, however, a necessary control. The request for the construction allotment occurs after the design has been completed and a low bid construction price has been accepted. The review and analysis at this point is essential to the funding of the project. Because bids often exceed estimated costs and the need for the classrooms is pressing, B&F must finance a portion of the costs of the temporary classroom through cost savings from the CIP budget. The budget analysis is essential and the approvals of B&F and the governor are warranted.

Unnecessary Use of Engineering Consultants

DAGS' use of engineering consultants for every temporary classroom built is unnecessary. An electrical engineer is always employed because some electrical service is required for every classroom constructed or moved. A mechanical engineer is employed if a sink, toilet or other plumbing fixture is part of the design. These consultants also inspect work and resolve unforeseen site problems. DAGS uses other types of engineers for specific needs, such as site analysis if there is a potential

drainage or flood plain problem. However, consultants are not needed when electrical or mechanical systems are standardized and already prescribed in building codes. They add to the total project costs and review time.

Further design for electrical and mechanical systems are not needed

Using engineers to design systems already prescribed in building codes is an unnecessary expense. The electrical and mechanical systems used in temporary classrooms are very similar to those used in houses. Existing building codes already specify the sizes and other design requirements for these types of electrical and mechanical items. For example, the electrical code determines the size and type of wire and conduit and the installation work standards. The electrical and mechanical elements of the temporary classroom could be shown on standardized architectural drawings and reviewed and approved by DAGS engineers. Further design is not needed.

A licensed contractor or a DAGS engineer is needed for the construction phase. The point at which the electrical and mechanical systems connect to the existing site utilities is unique to each classroom and requires expertise. Existing building codes specify the sizes, materials, and installation standards that are required to connect the classrooms to existing utilities. As part of the construction contract, the licensed contractor should be capable of designing these connections. DAGS staff engineers could also review the design of these connections and approve the drawings submitted to the building department. In complex cases where staff expertise or time availability is an issue, a consultant could be employed.

Design costs can be reduced

For 104 temporary classrooms built or moved in the summers of 1994 and 1995, the engineering consultant fees for design costs averaged \$4,100 per classroom or a total of \$429,000. A significant amount of this money could be saved if electrical and mechanical engineers were not employed. Additional DAGS staff work in inspecting and administering the project would offset some of these savings.

Selection Process for Consultants Is Inefficient and Adds to the Delay

The temporary classroom project is divided into four separate sub-projects, one for each major island. DAGS engages different consultants for each of the four sub-projects. Selection of these consultants takes four to six weeks from the time the governor's authorization for planning and design is received. The process begins with advertising for consultants that sometimes results in 20 to 30 responses. A DAGS committee of three reviews the qualifications of these consultants and chooses the three finalists. These finalists are interviewed by the

committee and then ranked one through three. The committee forwards the results to the comptroller. The comptroller customarily approves the number one ranked finalist.

This time consuming process to select electrical engineers and mechanical engineers is repeated for each temporary classroom sub-project. This process is also followed for every CIP project. The number of interested and qualified engineers is limited in Hawaii, especially on the neighbor islands. The experience records and qualifications of the consultants do not change sufficiently over the short run to justify these repetitive reviews.

DAGS staff and consultant time is not efficiently used

The present selection process not only uses a considerable amount of staff time and effort on every project but also wastes the time and effort of consultants. DAGS uses this same selection process many times each year and requires interested consultants to apply and be processed for every project. In each case the non-selected consultants invest time without receiving benefits. Highly qualified and respected consultants may avoid these small projects because the time and effort invested in them may not make much business sense.

Revolving consultant list method is efficient

Significant time could be saved by DAGS and by the consultants if the consultant selection process were performed only once a year. Using a revolving consultant list would achieve this result. The present review committee and approval procedures would still be followed. Each consultant speciality would have its own list. Consultants would get onto a list by submitting their qualifications and experience to a review committee as they do now. The committee would evaluate the consultants for the lists using present standards.

When a project requires a certain type of consultant, DAGS would select and negotiate with the next consultant on that specialty list. If the consultant is not interested in the project, the next consultant on the list would be used.

Under this method, a maximum fee should be established by DAGS that would ensure staff efficiency and minimize the risk of employing inexperienced consultants. The list could be opened annually for enrolling new consultants. Consultants on the list would update their experience records annually. If a consultant did not perform satisfactorily, the review committee could remove his or her name from the list.

For projects that require unusual consultant skills or where the fee would be above the maximum permitted under the Hawaii Public Procurement Code, Chapter 103D, HRS, the alternate procurement selection method, request for proposals, could be used.

Alternative Delivery Methods Are Not Used

The present methods of delivering temporary classrooms are not time and cost efficient. Designing and constructing temporary classrooms requires significant staff supervision throughout the process. Responsibility is divided among varied staff, designers, and contractors. DAGS architectural staff designs the buildings with engineering consultants. DAGS staff sends out the designs for public bid, reviews the bids, and chooses the qualified low bidder. DAGS' inspection branch supervises construction and, in a limited way, the engineering consultants assist in that supervision. Alternative design and construction methods can expedite the process and offer cost savings.

Design-build method offers efficiencies

An alternative method of project delivery is the design-build method. Under this method, a single contract is signed with a qualified company to both design and build a structure to existing state specifications. Having one source responsible for the design and construction phases of a project requires less time to coordinate and execute a project.

The design-build method facilitates cost control because a fixed price is agreed to at the beginning of the project. There are no surprises at a bid opening after a significant amount of time has been spent on designing the project and estimating its cost. A firm price agreement early in the project would enable DOE and DAGS to determine if any funds remain for the construction of additional classrooms and to make plans accordingly.

Modular classrooms are cost effective

The modular classroom is another alternative that offers cost and time savings. Modular classrooms are completely fabricated elsewhere and installed at the schools. They are often referred to as "trailers" because modular classrooms were originally modeled after trailer homes.

Nationally, modular facilities have been used extensively and play an important role in the master planning of many school districts. For example, in California, a minimum of 30 percent of all newly-constructed classrooms have to be constructed as modular and be relocatable. This mandate accommodates the dynamics of the rapid population growth and shifts in California school districts.

Over 100 modular classrooms have been installed in Hawaii for public schools and private schools. The quality of construction and the level of acceptance by school personnel are similar to the typical temporary classroom.

Cost savings could be substantial

Modular classrooms could result in savings of 25 percent over the present method which averages \$95,000 per classroom. A typical modular classroom costs approximately \$50,000 installed on level ground. This price does not include site utility costs, handicap ramps, or special foundations which could add another \$20,000 per classroom. We estimate that the State could have saved about \$10,000,000 over the past eight years if modular classrooms had been used.

Construction time can be reduced significantly

Modular classrooms can be manufactured and installed in Hawaii within three months of receiving notice to proceed. Site preparation, which usually requires six to eight weeks, is done while the modular units are being manufactured and shipped. School principals often request that classroom construction begin in June after school is recessed. Due to the short on-site construction time for modular classrooms, construction can start in mid-June and be completed by mid-August.

Asset Schools, an Oahu private school with 400 students from kindergarten to the twelfth grade, is entirely composed of modular construction. Offices, libraries, restrooms and other support facilities as well as classrooms are housed in modular units that are typically 24 feet by 60 feet. The completed school opened one year after deciding to use modular construction. The school administration states that it saved a considerable amount of money and time by using modular technology. Faculty and students are very satisfied with their campus. DOE also successfully used modular classrooms in Kauai after Hurricane Iniki. Both faculty and students are very satisfied with the modular facilities.

Portability meets changing needs

The modular classroom's steel frames are designed to be moved efficiently. Moving crews normally are able to separate, move, and reunite both halves of a modular unit in three or four days. Total cost to relocate a unit, including all necessary site work, is estimated to be \$25,000 to \$35,000. This compares favorably with the current cost of \$40,000 to \$70,000 to relocate existing temporary classrooms.

Pre-fabricated buildings is another alternative

Pre-fabricated buildings, another alternative, are factory built in sections and assembled on the site. They differ slightly yet share many of the cost benefits of the modular units. They can be designed and fabricated in such a manner as to make relocation relatively simple and cost effective.

Conclusion

The temporary classroom program is necessary to accommodate shifts and peaks in school populations in a cost effective manner. They are easier, faster, and more cost effective to process and construct than permanent classrooms. They differ from permanent school classrooms in both concept and cost. The review and approval process for temporary classrooms should be different from that for permanent classrooms. The process from design to construction of temporary classrooms should be modified to reduce the review time and effort by state personnel and reduce the overall project completion time. As costs of providing temporary classrooms continue to rise, alternative methods of project delivery should be considered.

Recommendations

1. The Department of Budget and Finance should streamline the approval processes for allotment of design funds and permission to advertise for temporary classroom projects.
2. The Department of Accounting and General Services should reduce the use of engineering consultants by using DAGS electrical and mechanical engineers as appropriate.
3. DAGS should also consider using revolving lists of pre-approved, qualified engineering consultants for temporary classroom projects.
4. DAGS and DOE should explore alternative methods of providing temporary classrooms.

Responses of the Affected Agencies

Comments on Agency Responses

We transmitted a draft of this report to the Departments of Education, Accounting and General Services, and Budget and Finance and the Board of Education on August 23, 1995. A copy of the transmittal letter to the Department of Education is included as Attachment 1. Similar letters were sent to the other departments and the board. The responses of the Departments of Education, Accounting and General Services, and Budget and Finance are included as Attachments 2, 3, and 4 respectively. The Board of Education did not respond.

The Department of Education expressed its satisfaction with the report and generally concurred with our recommendations.

The Department of Budget and Finance responded to the recommendation to streamline the approval process by stating it has begun to combine the permission to advertise with the allotment request for construction funds. We believe the process could be streamlined even further by limiting the review and approval process for the release of design funds for temporary classrooms.

The Department of Accounting and General Services is in general agreement with some of the recommendations and has implemented some changes. It also states that the design allotment approval procedure has been shortened. The selection process for consulting engineers will be shortened by using a pre-qualified list. And, lastly, a pilot project using alternative materials is being pursued. It responded also that it pursued the use of modular classrooms in 1988 and 1989 to no avail. This does not directly address our recommendation to consider using modular or pre-fabricated structures, nor does it take into account the successful use of modular classrooms nationally by local private schools and by the public school system on Kauai after Hurricane Iniki.

DAGS does not agree with our recommendation that it use its own electrical and mechanical engineers for temporary classrooms. It states that its design branch does not have electrical or mechanical engineers on its staff and says that "The total amount of electrical and mechanical design work throughout the year does not justify the hiring of full time electrical and mechanical engineers."

We believe DAGS should rethink this issue. Since consulting engineering fees amounted to \$429,000 for the fiscal biennium 1993-95, DAGS should examine cost efficient alternatives including the possibility of using electrical and mechanical engineers from other branches within the department.

ATTACHMENT 1

STATE OF HAWAII
OFFICE OF THE AUDITOR
465 S. King Street, Room 500
Honolulu, Hawaii 96813-2917



MARION M. HIGA
State Auditor
(808) 587-0800
FAX: (808) 587-0830

August 23, 1995

COPY

The Honorable Herman M. Aizawa
Superintendent of Education
Department of Education
Queen Liliuokalani Building
1390 Miller Street
Honolulu, Hawaii 96813

Dear Dr. Aizawa:

Enclosed for your information are three copies, numbered 12 to 14 of our draft report, *Audit of the Temporary Classroom Program*. We ask that you telephone us by Friday, August 25, 1995, on whether or not you intend to comment on our recommendations. If you wish your comments to be included in the report, please submit them no later than Wednesday, ~~August 6, 1995.~~ ^{September}

The Directors of the Departments of Accounting and General Services and Budget and Finance, Chair of the Board of Education, Governor, and presiding officers of the two houses of the Legislature have also been provided copies of this draft report.

Since this report is not in final form and changes may be made to it, access to the report should be restricted to those assisting you in preparing your response. Public release of the report will be made solely by our office and only after the report is published in its final form.

Sincerely,

Marion M. Higa
State Auditor

Enclosures

Benjamin J. Cayetano
~~JOHN W. WAIKAI~~
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION

P. O. BOX 2360
HONOLULU, HAWAII 96804

HERMAN M. AIZAWA, PH.D.
SUPERINTENDENT

ATTACHMENT 2

OFFICE OF THE SUPERINTENDENT

September 6, 1995

Mrs. Marion M. Higa
State Auditor
Office of the Auditor
465 So. King Street, Room 500
Honolulu, Hawaii 96813-2917

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OFC. OF THE AUDITOR
STATE OF HAWAII

Dear Mrs. Higa:

SUBJECT: Draft Report of Audit of the Temporary Classroom Program

We have reviewed the draft of your proposed report to the Governor and are very satisfied with the proposal in general.

Our specific comments to portions of the report are:

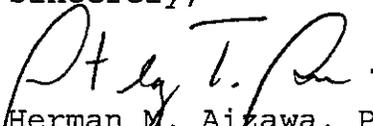
- 1) We concur that the approval steps can be shortened or eliminated as proposed to expedite the process. There are very few variations in the program and if there are, they can be treated by requiring more explanation and clarification for the Department of Budget and Finance.
- 2) If the procurement process can be expedited without circumventing the requirements of the law, we support recommendations #2 and #3 relating to engineering consultants.
- 3) The Department of Accounting and General Services (DAGS) and the Department of Education (DOE) have collaboratively initiated projects to speed up the building of temporary classrooms (TC) and to pilot temporary classrooms constructed out of alternative materials. An evaluation of the projects must be considered based on the benefits for schools and students.

Page 2
September 6, 1995

- 4) With the assistance of DAGS, the DOE would seriously be interested in the use of more modular temporary classrooms. There are many advantages which will benefit students and schools which are our major focus. This recommendation also appeared in the recent MGT of America report for improving facilities. More cost analysis will be required to evaluate the feasibility of this option.

The DOE appreciates the efforts of the Office of the Auditor and has positive expectations that this report will result in a more effective and efficient program. We will continue to make every effort to assure that the temporary classrooms are built each year on time.

Sincerely,


Herman M. Aizawa, Ph.D.
Superintendent

HMA:jml

cc: A. Suga
G. Matsuoka, DAGS

BENJAMIN J. CAYETANO
GOVERNOR



ATTACHMENT 3

~~SAM CALLEJO~~
~~COMPTROLLER~~

MARY PATRICIA WATERHOUSE
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. D-1088.5

SEP 6 1995

The Honorable Marion M. Higa
State Auditor
Office of the Auditor
465 S. King Street Room 500
Honolulu, Hawaii 96813-2917

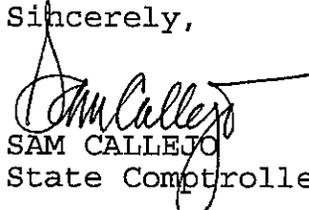
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STATE OF HAWAII

Dear Ms. Higa:

Thank you for the opportunity to review the draft of your report, "Audit of the Temporary Classroom Program," and to submit comments on your recommendations. Our comments are included in the attachments.

Please be assured that we will continue to strive to reduce the cost of our portable classrooms while meeting the needs of the DOE at the same time. Your audit has been very helpful and constructive in this regard.

Sincerely,


SAM CALLEJO
State Comptroller

Attachments

AUDIT OF THE TEMPORARY CLASSROOM PROGRAM

COMMENTS ON RECOMMENDATIONS

RECOMMENDATION NO. 1 - "The Department of Budget and Finance should streamline the approval processes for allotment of design funds and permission to advertise for temporary classroom projects"

The administrative processes of capital improvement projects (CIP) were streamlined after extensive discussions between DAGS and DB&F. Accordingly, the three DB&F approvals (allotment of design funds, approval to advertise, and allotment of construction funds) were reduced to two by combining the approval to advertise with the approval of the allotment of construction funds. This action to shorten the process was documented in the State Comptroller's June 27, 1995 memorandum to the Governor and is the current process followed by DAGS and DB&F.

DAGS met with DB&F on August 29, 1995 to further shorten the approval process for the allotment of design funds. Accordingly, DAGS will shorten the transfer of documents between departments by hand delivering requests and approvals. Also, DB&F will streamline their internal processes to shorten their approval turnaround time.

RECOMMENDATION NO. 2 - "The Department of Accounting and General Services should reduce the use of engineering consultants by using DAGS electrical and mechanical engineers"

The in-house design of the portable classrooms is handled by the Design Branch of the Public Works Division. The staff architects and civil engineers prepare the architectural and civil designs. However, there are no mechanical or electrical engineers on the Design Branch staff. The total amount of electrical and mechanical design work throughout the year does not justify the hiring of full time electrical and mechanical engineers.

RECOMMENDATION NO. 3 - "DAGS should also consider using revolving lists of pre-approved, qualified engineering consultants for temporary classroom projects"

This recommendation is based upon the auditor's observation of the length of time it was taking to go through the consultant selection process under the original Hawaii Public Procurement Code. However Act 178, 18th Legislature 1995, amended the Hawaii Public Procurement Code effective July 1, 1995. The

amendment has simplified and streamlined the procurement process by eliminating the requirements for advertising for consultant services for particular projects and by eliminating the requirements for the interviewing of prospective consultants. This has resulted in a revised consultant selection process which closely resembles that which is being recommended by the auditor, i.e., a master list of qualified consultants is formulated and the selection is made from that master list.

RECOMMENDATION NO. 4 - "DAGS and DOE should explore alternative methods of providing temporary classrooms"

This is a process that was pursued vigorously in 1988 and still continues today. In 1988 a contingent from the DOE and DAGS visited premanufactured classroom building factories in California, Oregon, and Idaho to determine whether these buildings were a viable alternative and if the manufacturers would bid on portable classroom projects. Bid documents were prepared with the standard wood structures and the premanufactured structures as competing alternatives on three occasions in 1988. The advertisements notified contractors and other interested firms of the State's intention to entertain and prequalify alternate means to construct the most economical buildings. In the first instance, bids submitted on wood portable buildings were less than bids for premanufactured buildings. In the second instance there were no bids submitted for premanufactured buildings. In the last instance a bidder was successful in providing premanufactured buildings.

In 1989 alternative bids were again solicited but none were submitted. Feedback from prospective bidders indicated that local representatives of premanufactured buildings were not interested in submitting bids due to cost factors. Furthermore, the local representative who provided premanufactured buildings the previous year did not bid in 1989 because of logistics and cost problems encountered during the previous year.

Since then the State has not solicited bids for alternative designs for buildings. During fiscal year 1995-96, however, the State will be soliciting bids for a pilot project for temporary buildings using alternative materials such as cold formed steel and composite materials.

The efforts of the past as well as our present plans are indicative of our ongoing attempt to minimize the cost of temporary buildings.

BENJAMIN J. CAYETANO
GOVERNOR



EARL I. ANZAI
DIRECTOR

NEAL MIYAHIRA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE

P. O. BOX 150

HONOLULU, HAWAII 96810-0150

EMPLOYEES' RETIREMENT SYSTEM
HAWAII PUBLIC EMPLOYEES HEALTH FUND
HOUSING FINANCE AND DEVELOPMENT
CORPORATION
OFFICE OF THE PUBLIC DEFENDER
PUBLIC UTILITIES COMMISSION
RENTAL HOUSING TRUST FUND COMMISSION

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND
MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
INFORMATION AND COMMUNICATION
SERVICES DIVISION

September 5, 1995

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OFFICE OF THE AUDITOR
STATE OF HAWAII

Ms. Marion M. Higa
State Auditor
Office of the Auditor
465 South King Street, Room 500
Honolulu, Hawaii 96813-2917

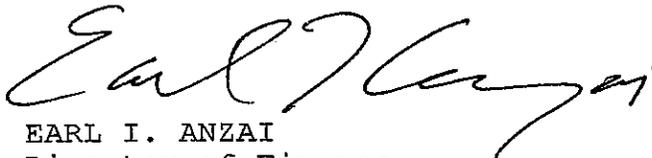
Dear Ms. Higa:

We have reviewed your draft report regarding "Audit of the Temporary Classroom Program," and offer the following comments:

1. Page 9, Chapter 2, regarding the "planning, designing, and construction of temporary classrooms did not vary significantly from year-to-year and therefore extensive scrutiny is unwarranted." This department's review is conducted based on Department of Accounting and General Services' requests for funds to redesign the same temporary classroom every year for each temporary classroom constructed.
2. Page 9, Chapter 2, regarding the "permission to advertise" review adds no control or accountability. We agree with this statement and therefore have proposed combining the "permission to advertise" and "release of construction funds" review by the Department of Budget and Finance (for the Governor) in the proposed changes to the Executive Memorandum which guides implementation of CIP projects.

Thank you for the opportunity to review this draft report.

Aloha,


EARL I. ANZAI
Director of Finance

