A Guide to Writing Educational Specifications

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Introduction

The initial step in the creation of a school facility that effectively meets the needs of students, teachers, administrators, and community members is the formation of a clear, concise, written facility program statement. This written program statement is the educator's opportunity to articulate the educational program of the school to the professional designer. The written program statement, through further development, becomes the "program for design" that articulates the scope and requirements for a completed facility. Educators have come to call this program for design an "educational specification." The success of the educational specification in communicating the school facility's needs to the professional designer plays a large part in the overall success of a school facility construction or improvement project.

The development of educational specifications is more a process of pre-design problem definition than a process of problem solving. It is important that the educational specifications, as thoroughly as possible, describe the facility's anticipated uses and identify the specific physical characteristics that will be required to house and promote the proposed activities. The educational specifications should provide detailed parameters to guide the design professional's design, rather than describe how the facility is to be constructed. A further discussion of the problem-definition process can be found in the *Guide for Planning Educational Facilities* published by the Council of Educational Facility Planners International.

The elements that all educational specifications should contain are fairly exact, however the processes used to develop the educational specifications and the manner in which the information is presented may vary. These differences in the development and presentation of the educational specifications can be attributed to a number of factors including, variations in community involvement, educational programs, and school sizes. However, it is important that all educational specifications attempt to:

- Involve educators and community representatives in the definition of educational needs;
- Enable school planners to better understand the purposes of the facility;
- Help the designers to create a building that fits the educational program and needs of the community, and;
- Eliminate oversights that are expensive to correct once construction is complete.

A well-prepared educational specification is an integral part in the creation of a building that enhances the learning environment, accommodates learning activities, and provides pleasant surroundings for occupants and visitors. A poorly developed educational specification generally results in a mediocre facility, or one that is marginally functional for education. It is the intent of this publication, *A Guide to Writing Educational Specifications – 2005 Edition*, to provide a resource for school districts and educators that:

- Identifies the essential elements which all educational specifications should contain;

Introduction (cont.)

- Outlines approaches and techniques utilized in the creation of educational specifications and overall project planning;

- Improves the quality of educational specifications and their effectiveness in communicating to the architect the current and envisioned program;

State Requirements

By regulation 4 AAC 31.010, the Alaska State Department of Education & Early Development requires the chief school administrator, under the direction of the local school board, to be responsible for preparation of educational specifications for all new public elementary and secondary schools, as well as additions and renovations of existing facilities, for which state aid is sought. The question of whether a capital project requires educational specifications often arises for there are many capital projects, such as a roof replacement or mechanical upgrades, that do not require educational specifications. It is the department's policy to require educational specifications on any project that alters the configuration of the building's spaces or the manner in which those spaces are to be used. Therefore all new school construction projects, additions, and renovations typically require educational specifications that include, at a minimum, the following elements:

- The current year and five-year post-occupancy projected attendance area enrollments in the grades *(grade levels)* affected by the facility;
- A statement of educational philosophy and goals for the facility;
- The curriculum to be housed by the facility;
- The activities that will be conducted in the facility;
- The anticipated community uses of the facility;
- The general and specific architectural characteristics desired;
- The educational spaces needed, their approximate sizes in square feet, their recommended equipment requirements, and their spatial relationships to other facility elements;
- The size, use, and condition of existing school spaces in the facility *(additions and rehabilitations only)*;
- The recommended site and utility requirements;
- The proposed budget and method of financing, and;
- The technology goals of the curriculum and their facility requirements.

Additional regulations in 4 AAC 31.020 identify guides for planning educational facilities as well as the method of determining allowable square footage for a school facility. Regulations 4 AAC 31.021 and 31.060 stipulate the process of application for state aid for school capital projects. Regulation 4 AAC 31.022 outlines the requirements for review of capital project applications. Further information regarding the review and scoring of capital project applications is available with the CIP Application & Instruction packet that is distributed to all school districts each year. Regulations 4 AAC 31.030 and 4 AAC 31.040 address the review and

approval of school construction plans. Copies of the school facility regulations are available in electronic form online as well as print form through commercial vendors.

A school district's six-year capital improvement plan (CIP) is closely related to the educational specifications for a given project. The requirements of the six-year CIP plan are identified in statute AS 14.11.011 and regulation 4 AAC 31.011. Regulations 4 AAC 31.021 and 4 AAC 31.022 address the six-year CIP plan's relationship to and integration with a school district's CIP request. The six-year CIP plan is also a component of the overall district master plan. As such, it serves as support for individual programs for design and educational specifications.

The Process

Programming is the process that elicits and systematically translates the mission and objective of an organization, group, or individual into activity settings. Facility programming, through the process of educational specification development, precedes the traditional architectural design phase in the building delivery process. The primary resources for this programming task are the building occupants or users. It is their objectives and needs that the planning team must utilize to shape the educational specifications. The ultimate success of a school capital project rests on the effective communication between those who design and those who will use the built environment. The educational specifications are the communication tool that must bridge the gap between the building's users and designers.

An essential requirement of the process is to allow adequate time for the development of educational specifications prior to the initiation of architectural design. Time is needed for people to envision, review, revise, and re-think programmatic desires that will be translated into conceptual design. A "hurry-up" process does not allow for reflection by parents, students, faculty, and community members. Without sufficient lead-time, project elements and parameters may be set too quickly that may later prove undesirable.

After the need for a project is identified, the first step in the educational specification process is to establish a school building planning team or committee. The planning team should be kept small enough so that it can function as a group and not become unwieldy, yet the planning team should be large enough to include a cross section of students, teachers, administrators, parents, and community members. A team of eight to twelve members is probably sufficient for the task, however this may vary within each community. Membership on the planning team should be voluntary. Team members should have the interest and desire to be involved in the planning of the school project and should have a stake in the outcome.

The planning team will be required to formulate, organize and prioritize all ideas and input regarding what the school should be. They will serve as the impetus in the collection of information, as a review body of what is proposed, and as a communicator regarding the educational specification effort with the school staff, the student body, and the community. It is essential that people who are going to work in the facility (building principal if known, teachers, maintenance and custodial support staff, and students), if not serving on the committee, be invited to provide input in the process that shapes the facility. These are the people who will spend the bulk of their time in the facility after it is constructed. Desirable or undesirable building features will impact their daily lives. Although all community members may eventually be affected by the project, it is the responsibility of the school building planning team to ensure the successful programming of the facility.

The task and responsibility presented to the planning team may appear daunting, and in truth a good deal of thought, time, and hard work is to be expected. It is for this reason that the team may wish to employ an experienced school planning professional to assist in the development of the educational specifications. Many times the school planning professional can provide an established structure for the educational specifications and can serve as a facilitator to convert the team's ideas and concerns into a presentable final product. If budget constraints limit the

ability to higher a consultant or when a qualified individual is available from the school district staff, a local or in-house person may fill the position of facilitator.

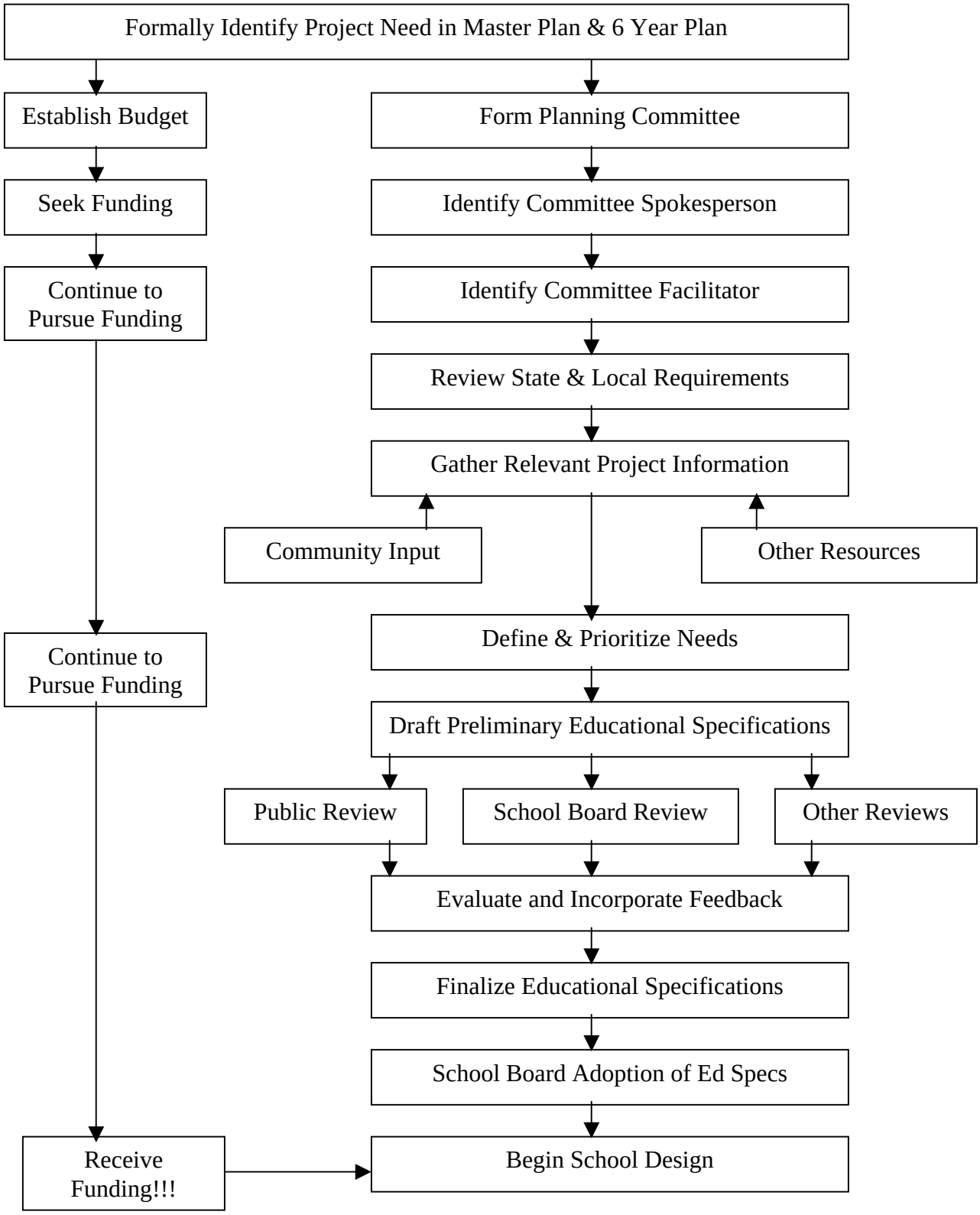
There are advantages and disadvantages to either approach. The local person has intimate familiarity with the community, understands the school district and its educational programs, and may be well known to the members of the planning team. However, the local individual may hold provincial views and biases that could reduce their effectiveness in resolving issues where planning team members hold conflicting views. The planning professional, "the expert from out of town," can point out provincial thinking without fear. The out of town expert can also bring new ideas for the group's consideration from planning experiences in other locations. However, the expert may not be intimately familiar with the community's social and political makeup, thus they may not be able to fully understand the community's perspective.

Regardless of the planning team's approach to the development of the educational specifications, the planning team and school planning professional, if used, must consider the following essential factors influencing educational specifications that are discussed in detail on the following pages:

- Project Rationale
- The Community
- Student Population Projections
- Educational Philosophy & Instructional Plans
- The School Site
- Environment for Learning
- General Design Considerations
- Activity Setting Descriptions
- Spatial Relationships
- Space Requirements Summary
- Furnishings & Equipment Summary
- Project Budget & Financing
- Scheduling & Assignment of Responsibility

These essential factors mirror the required elements of an educational specification as defined in 4 AAC 31.010; however, the last factor noted is excluded from the regulatory requirements. This omission is not due to lack of importance for this factor is imperative in getting all the involved parties on the same page as to their role in the project. Early definition in the planning process of all participants and their responsibilities not only facilitates the smooth execution of the project, but can oftentimes save money and enhance the project by capitalizing on partnering opportunities within the community. It is for these reasons that the department believes this is an essential step in the process.

The Process (cont.)



Project Rationale

The project rationale is a statement explaining why a project is being undertaken. Projects considered essential to conduct the educational program need a summary statement of justification. In other words, the project rationale defines the problem and answers the questions of "Why are we doing this project?" and "What is the project's intended use?"

An educational master plan that includes changes in the educational program, instructional plans, and future facility construction is important for all planning, whether for funding, scheduling, or facility design. The project rationale should be based upon documentation in the district's educational master plan and the current six-year CIP plan. The planning team should thoroughly review the data in these documents, revise it if necessary, and use it to reinforce the need for the proposed project.

The school district may or may not have a current master plan that addresses facility growth or change. If available, the master plan should be referenced in the educational specification, as should the six-year CIP plan. These documents should show the relative importance of the specific facility to the district as a whole and should also include the district facility policy. If an educational master plan is not available, the planning team should take additional steps necessary to ensure that the proposed project is coordinated with the district's long-range goals, rather than just the goals of a single facility. The project rationale may be expanded to explain the role the specific facility is intended to play in the achievement of current district goals or the future of the school district.

For additional assistance in developing facility master plans or examining issues related to long-range planning, reference should be made to the *CEFPI Guide for Planning Educational Facilities*, Unit C.

Examples of Project Rationales:

- Problem Definition: John Doe High School was constructed in 1910 and no longer functions adequately to deliver contemporary educational program offerings. Studies have shown that, for the intended use, the cost of adequate renovation would be greater than new construction and the existing building can be adapted for other use. Therefore, a new facility is deemed necessary.

  Intended Use: The envisioned facility will house the delivery of a technical and vocational educational program for 1,000 students in Grades 10-12.

- Problem Definition: The State Fire Marshal has condemned the Bureau of Indian Affairs Day School that was constructed in 1931 for elementary school children. The cost of renovation is estimated to be nearly the cost of new construction on a life cycle cost analysis basis. Therefore, construction of a new facility is proposed.

  Intended Use: This facility is intended to provide a comprehensive elementary and secondary educational program for 140 students in Grades K-12. It will also serve as a community educational, recreational, and civic center.

Project Rationale (cont.)

The above examples constitute brief and direct summaries of a project. They offer factual information (e.g., “this high school was constructed in 1910,” and “studies have shown . . .” etc.). The information supports the conclusions drawn and the proposed solution that will be detailed by the remainder of the educational specifications.

The Community

A design team from outside the community or region may be retained to design the school project. For purposes of this section, a "community" is defined as the students, their parents, and the citizens of the proposed geographical area that the facility is intended to serve. To provide for that possibility, background information on the community should be provided. The educational specifications should describe the physical characteristics of the community, its cultural history, and its support infrastructure.

The socioeconomic characteristics of its citizens, employment opportunities, and anticipated growth in the community may also assist the designers in better understanding and meeting local needs. It is critical that the designers are aware of the current support infrastructure available in the community. Are sewage, potable water, and fire water utilities available or will they need to be developed on site? It is especially important to note the electrical generation capacity of the local power provider so that the designers may determine whether it will be able to provide sufficient power to the new facility.

Information on the surrounding terrain and the climatic conditions is necessary to design a facility that is responsive to the local environment. What are the extreme winter and summer temperatures? Is the community located in a flood plain? What is the direction of prevailing winds? Any social or environmental information that could help the design team establish parameters to guide their design should be provided, especially if it is information that the community feels strongly about.

Example:

> John Greenwood, founder of Greenwood Industries, established Greenwood, located in the Northwest Riverville Borough, in 1939. Most of the inhabitants of the community are of Southern European descent, mostly Italian, and are employed in skilled crafts at Greenwood Industries, a diversified manufacturer and the community's main employer. An abundance of available natural resources and increased trade beyond regional boundaries indicate strong economic growth. In addition, the service sector of the community has experienced a steady increase in employment. The community's population of 30,000 is concentrated in an area of approximately six square miles. However, commercial, industrial and residential areas are clearly demarcated because of strict planning and zoning requirements. Figures from the last U.S. census indicate an annual growth rate of 2%. The city's planning office is currently projecting a five-year growth rate of 2.2% annually.
>
> The average low winter temperature is 10 degrees, while the average high summer temperature is 81 degrees. The wind blows from the north/northeast approximately 92 percent of the time with an average speed of 12 miles per hour. Greenwood is located on relatively flat ground and 85 percent of the city limits are in the flood plain of the Green River.

The Community (cont.)

Important considerations beyond geographic and topographical data of the community include a description of the school district and the role that it, and its facilities, plays in the community. Are there other private schools, charter schools, or technical schools serving the community? Are there special schools for special learners? Consider the role the school facility will play and what local residents will expect of it. Will it double as a community center? Community activities expected to be accommodated in the facility should be listed as specifically as possible. Community involvement in programming for design is often incorporated in the educational specification process. This can be done informally with community meetings or more formally with survey instruments and community research. To the extent practicable, a compilation of this data along with some analysis should be incorporated into the educational specification in either the Community section or in an appendix.

Much of the information suggested in this section can be obtained from previous planning documents and from the planning offices of the local government. There is also information available on the Department of Commerce, Community and Economic Development's web page at: www.dced.state.ak.us/dca/commdb/CF_CIS.htm. It is important that the community members, school district, and local government agree on this data.

Student Population Projections

The State of Alaska has established guidelines for the maximum eligible space a project may include for a given student population. These guidelines are applicable to projects receiving state funding that propose to add or replace space and are outlined in regulation 4 AAC 31.020. The regulations utilize four different calculations to address four different population groups: Elementary, Secondary, Mixed Grade, and Combined (K-12) school populations. While the eligible space calculations are somewhat complex in regulation, the department has published a spreadsheet to facilitate their use. The spreadsheet is available on the department's web site at:

www.eed.state.ak.us/facilities/FacilitiesCIP.html

For projects that propose to add or replace school space, the five-year post occupancy projected student populations provide the basis, in conjunction with the aforementioned regulations, for determining the maximum eligible school space that the State will provide funding for in a given attendance area. Thus, the student population projections are the cornerstone of project planning as they directly establish the design capacity and maximum eligible square footage of the proposed facility. The importance of accurate student population projections cannot be overstated.

Prior to addressing how student populations can be developed, it is important to define several terms that influence how a project's eligible square footage is determined in the State of Alaska.

- Elementary refers to student groups in grades kindergarten through six.
- Secondary refers to student groups in grades seven through twelve.
- Mixed Grade refers to a combination of elementary and secondary students that doesn't include all grades of either.
- Combined refers to student groups in grades kindergarten through twelve.
- Attendance Area refers to the education service area in which the student population is located based on the location of high schools and feeder schools (ref. 4 AAC31.016).
- Five-year post occupancy refers to the date five years after the proposed project is occupied. For the purposes of calculating eligible space, student populations are projected to this point.

For more information on determining a project's eligible square footage, please refer to regulation 4 AAC 31.020, contact department's Facilities Section, or visit the department's Facilities web site at:

http://www.eed.state.ak.us/facilities/home.html#Pub

The most common process used to project student populations is the survival ratio projection method. This method can be used effectively for both urban and rural schools; however, it is not

as accurate for very small schools due to the large impact a single student can have on overall growth percentages. The basic premise of this projection technique is that future student populations can be derived from applying the ratio of students that historically advance from one grade to the next to the current student population. The ratio of student advancement from grade to grade is called the survival ratio and a different survival ratio is established for each grade transition. A ratio can also be established between live births in the attendance area and the student enrollment in kindergarten five years later. This ratio can be applied to recent live birth data in the attendance area to predict future kindergarten enrollments. Rather than go into the specifics on how to create a tool to apply this population projection method, the department has published a spreadsheet on its web site that calculates survival ratio projections based on user furnished student population data.

Although less rigorous as a statistical model, the department has seen reasonable population projection results from the annual percentage of change in student populations averaged over a period of 5 years or more. As a comparison to straight line growth projections and survival ratio methods, this model can provide another tool with which to analyze historic trends. As with the survival ratio method discussed above, the department has published a spreadsheet on its web site that uses the average annual change method to provide a projection based on user supplied historic population data. The spreadsheet also includes a section that, when provided with student population projections, will calculate a resulting average annual change percentage for use in comparison with historic data.

Inherent in the survival ratio projection method, and other statistical projection techniques (i.e. straight line growth, regression analysis), is the assumption that past growth trends will be repeated in the future. This assumption may be fine when applied to a controlled environment, but when statistical projection methods are strictly applied to actual school projects without consideration of other factors, the results can be deceiving. Therefore, it is important that the results of a statistical population projection be cross-examined and analyzed with all pertinent data to determine that it represents a realistic student population projection.

There are many factors that could influence future student populations; however, it is important to note that only if these factors are anticipated to *change in the future*, is it necessary to adjust a survival ratio calculation. For example, a district may see an increase in 7th grade student populations as students leave the private elementary schools. There is no need to adjust the survival ratio projection because of this factor. However, if the private school were to begin offering 7th grade, this could reduce the historic increase typically experienced by the school district's 7th grade. Thus, the historic survival ratio between 6th and 7th grade should be reduced to reflect the changes in the private school program.

The difficulty in incorporating these factors into a student population projection is, first, determining the likelihood that a *change* in a factor will actually be realized and, second, assessing what sort of impact the *change* in the factor might have on the student population. If no change is anticipated for a particular, then the survival ratio population projection need not be adjusted. Below is a list of some factors that could affect school populations:

Student Population Projections (cont.)

- Housing Availability – apartments, housing developments, dormitories, any where that students might live;
- Land Availability – is land available for future development of housing and business;
- Alternative Educational Programs – home schooling, cyber schools, charter schools, private schools, etc.;
- Success of Educational Program – pupil retention, school transfers, test scores;
- Employment & Economic Opportunities – development of business and industry can affect migration and family growth;
- Government Policy – from funding decisions to military development, decisions made by distant governments can greatly impact communities, and;
- Migration – often accompanies to one or more of the factors listed above.

It is important to reiterate that if no changes in the community are anticipated during student projection period, then an unaltered survival ratio student projection should adequately reflect future populations. If, and only if, there is some reason to suspect that future trends will change significantly from historic trends, then one may want to consider further evaluation of the factors that may change and how their change may impact future student populations.

Educational Philosophy & Instructional Plans

Educational specifications should be driven by the educational program offered and those educational activities planned to be offered in the future. The document should include the school board's philosophy, along with the educational goals and objectives of the program that the facility is expected to house.

A well developed curriculum, instructional and supervision plan, and ongoing system of curricular and instructional evaluation should be referenced for inclusion as appendices. If they do not exist, it may be necessary to validate how well the district's goals are being achieved. Validation may consist of public opinion regarding the educational program offered and soliciting suggestions for changes or improvements. Surveys should be carefully constructed to elicit accurate and useful information. Remember, it is the educational program that drives the educational specifications.

Predicting future program offerings and curricular needs that the facility will house is a bit more difficult because it is necessary to separate educational faddism from sound educational practice. However, it can be done by careful assessment of general educational trends validated by the community members, the school board, current and former students, and the professional teaching staff. Including a statement of present and expected use of technology is also an essential requirement in describing a school's programmatic and curricular needs.

This section of the document should also describe the instructional support and general administrative support staff plans. Include an organizational chart to assist in this description. This alerts the design professional to the number of personnel that the school is expected to house, and in general terms, indicates the types of spaces they are likely to occupy. Also, include a statement of the teaching philosophy and methods advocated.

The School Site

Site selection is a separate, independent process that may precede or follow preparation of educational specifications. However, the educational specifications need to describe outdoor activities and their site requirements regardless of whether a school site has been selected or not. If a school site has already been selected, the planning team should visit it to evaluate its compatibility with the proposed outdoor activities and to determine if the site offers any special educational opportunities that the educational program may want to incorporate. If the site has not yet been selected, the planning team should identify the specific requirements that the envisioned site should have to promote the outdoor educational activities as outlined in the educational program.

Whether or not a site has been identified, the educational specifications should attempt to address the following site characteristics and development concerns:

- Desirable features that enhance the school's educational program;
- Natural features that should be preserved to enhance the aesthetic qualities of the learning environment;
- Treatment of pedestrian and vehicular traffic flows around and on the site;
- Community uses of the site or nearby open space sites that could be used to enhance both the community's and the school's needs;
- Location of site, centrally located in community versus outlying so that student transportation is required;
- The ratio of the attendance area which will be served by the school;
- The site's access to water, sewer, electrical power, arterial roads, and police and fire protection;
- The required onsite utilities. Will design and construction resources need to address onsite water acquisition and treatment, sewer treatment and disposal, bulk fuel storage, and power generation?
- The desired site development. What recreation areas and equipment are desired? What is required in the way of parking, student drop-off, and bus loading areas? To what extent is landscaping and planting desired?
- Potential demolition or relocation requirements of existing site structures and utilities.

The chosen site or sites should be reviewed with local community planning departments for area growth patterns, future expansion, and other land use factors. Also, the Department of Education & Early Development cites two publications in its planning guidelines that deal specifically with

site selection: The CEFPI *Guide to Planning Educational Facilities,* Unit F, and a department publication, *Site Selection and Evaluation Criteria.* The planning team and site selection team may find these publications helpful in the evaluation of potential school sites and complying with the department's site review and approval procedures.

The Environment for Learning

Harold Hawkins, of Texas A & M University, identifies three types of environment that affect a facility's occupants in Unit I, *Environment for Learning,* of the CEFPI Planning Guide. These environments are the:

- Physical, both the natural and built environment;
- Social, the relationship between and among students, staff, teachers and parents, and;
- Institutional, the organization of the school, its rules and regulations.

The educational specifications primarily define the physical environment. However, it is important to be cognizant of the relationships between all environments when developing the educational specifications. How the physical environment is defined can greatly impact the other environments. Hawkins identifies a number of features to consider when defining the physical environment and discusses how these features can impact the other environments.

The physical environment for learning as well as the social environment of a school building should be conducive to the teaching and learning process. The Department of Education & Early Development, in writing a program of studies with and for the Alaska regions, has stressed the necessity of preserving cultural pluralism in the schools and maintaining a meaningful cultural identity among rural Alaskan inhabitants. Though they are speaking to the necessity of designing curriculum for such purposes, there is also a crucial need to design school buildings and learning environments that reflect and support such program goals.

Curriculum improvement goals view the students as "goal seeking"; problem-solving bodies with the power to get meaning out of direct experience. This means that the learning environment must be an active support system to the teacher and learner. It must be designed and equipped to nurture knowledge acquisition. Architectural space can actively support or be passive to learning. Alaskan schools and the educational specifications that guide their design should necessitate a process to:

- Access the developmental needs of students, kindergarten through twelfth grade;
- Include important cultural determinants;
- Include community needs and wishes for a multi-purpose structure;
- Design buildings which reflect an architectural response suitable for the local Alaskan conditions, and;
- Provide space on an activity level encouraging teaching and learning.

The idea of providing dynamic spaces that actively support learning and can be integrated into or enhance the curriculum is not a new one, however, educational planners and school designers

could do a better job providing environments that actively support learning, rather than just house students. As a philosophy for design, one may want to consider taking the idea of the school environment actively supporting learning a step further by utilizing the built facility as an additional learning tool. Examples might be the overall ambiance of a space as conducive to the planned activities, graphics as direct teaching, exposed plumbing and heating as physics.

The general ambiance of a school has a strong effect on the learning and teaching environment. The educational specifications should carefully review and explain this ambiance or distinctive atmosphere that is desired for the school. This is one of the most important guidelines for the designer, but it is also one of the most difficult for the educational specifications to communicate. The educational specifications should address attention to detail, variety of experiences, the building as a teacher, fitting into the environment, thoughtfulness in design, adequate space and flexibility, and sense of community as a means of describing the ambiance desired in the facility. A good deal of thought and research may be required to develop educational specifications that fully consider the impacts of the learning environment and effectively communicates the district's vision to the design professionals.

General Design Considerations

The general design considerations should be a set of instructions that the planning team requests the design professional to consider in the overall design of the facility. These considerations are meant to serve as a basic framework for the design and should not be too specific. The detailed requirements of the individual school spaces are to be addressed in the Activity Setting Descriptions section of the educational specifications, which will build upon the general considerations with design criteria applicable to the specific activity setting. The planning team should identify and briefly describe, at a minimum, the following general design considerations:

- Building design capacity and maximum eligible square footage;

- Desired focal point or features of the school, including primary and secondary focal points, i.e., commons, media center, auditorium, lobby, etc. Discuss the expression of these features as they relate to the exterior and interior of the building;

- Aesthetic qualities – Alert the design professional to desired/undesired textures, colors, shapes, ambiance, graphics, etc. Give clues as to the image the planning team wants the building to project, such as traditional, contemporary, rustic, etc.;

- Building construction standards – If the school district has established construction standards for their facilities, they should be referenced here. If not, then the desired physical characteristics of the building's construction should be developed in this section. These should be developed on a building system basis. The following is a brief overview of the building systems: Site, Foundation, Superstructure, Exteriors, Roof, Interiors, Conveyances, Mechanical, Electrical, Equipment, and Special Construction. Please refer to the department's *EED Cost Format* publication for a more detailed account of these building systems;

- Building performance requirements – This may be part of a school district's construction standards document and incorporated in the educational specifications by reference, or they may need to be developed in this section. Building performance requirements can range from the level of control over the HVAC system given to the buildings occupants to the life expectancy of the roofing system. This should also be structure on a building system basis;

- Lighting requirements – Identify minimum lighting levels in the facility, preferred lighting configuration and controls, and the use of natural light in the facility;

- Communication requirements – Identify communication, public address, and technology services that must be provided throughout the facility;

- Security and visual access requirements – Outline security and supervision requirements for the facility. If the school district has a security plan, it should be referenced here. Coordinate these descriptions with those furnished in the Equipment and Technology section of the educational specifications;

General Design Considerations (cont.)

- Site development requirements – Describe parking, circulation, service, outdoor activity, signage, and lighting requirements. Coordinate these descriptions with those furnished in the School Site section of the educational specifications;

- Describe other facilities or accessory structures that need to be considered in the placement of the school on the site, i.e. teacher houses, utility and storage buildings, and existing facilities to remain, and;

- Describe any building value considerations, such as consolidation of like spaces, cost effective design on a life cycle basis, low maintenance and operation cost considerations, etc.

Obviously, not all of the different school spaces will directly adhere to the general design considerations. For example, the level of finishes in vocational shop space will differ from the general level of finishes throughout the remainder of the facility. One must attempt to identify the desired general characteristics that the design is to adhere to for the majority of the time. This eliminates the need to restate these general considerations in each activity setting description.

It may be helpful to both the planning team and designers, to divide this section into two parts. A broad base set of general considerations that addresses the overall building design and another, more detailed set of general considerations that addresses a group of similar spaces, such as classrooms or administrative offices. This sort of two-tiered approach allows for more specific detail that is pertinent to a group of like spaces to build on the general information that is provided for the building as a whole, thus reducing the redundancy of effort in the Activity Setting Descriptions section.

Activity Setting Descriptions

Educational specifications are premised on the belief that schools should be responsive to the curriculum to be taught in the new facility, as well as the needs of the students and staff that will occupy the building. Educational specifications should also provide for the desired community use of the facility without negatively impacting the primary educational use of the facility. To accomplish this end, it is necessary for the educational specifications to provide detailed descriptions of the uses and requirements of each space or "activity setting". The descriptions of the activity settings are the heart of the educational specifications and they are the basis of building design.

The school will be a collection of different activities or actions that are designed to meet various objectives that were identified during the planning process. These objectives may be in response to curriculum; to federal, state or local educational priorities; to staff analysis of the learner needs; to school administrators; or to the sentiment expressed by members of the community. Often, questionnaires are distributed among community members, school staff, and students in an effort to gather local input. It is important that these survey instruments are structured so that useful information can be distilled from the responses. It is also important that sufficient time is allowed so that a comprehensive list of objectives can be established that accurately defines the overall purpose of the school.

After the process of defining the school's objectives is complete, the planning team should identify the activities or actions that are required to satisfy the objectives. Each activity will suggest a set of "needs" that must be met in order for the activity to be successful. From these activities the physical requirements of the facility can be derived. In order to promote understanding and organization of these requirements, the planning team may want to consider and group the needs into the following three categories:

- Health and Safety Needs – the response to code requirements, hygiene considerations, and the protection from hazards;

- Functional Needs – the response to physical necessities or determinants and to the specific uses of each setting, and;

- Psychological and Aesthetic Needs – the response to the needs for physical comfort, sensory satisfaction, psychological support, and cultural adaptation.

The health, safety, psychological, and aesthetic needs of users are combined with the educational goals, the corresponding curricular methodology, and the related needs of the community. All of these elements together form the pre-programming database that defines the functional needs of each activity setting. While many of the required school spaces are known prior to the educational specification exercise, the process of identifying each activity area's needs validates the need for each space. The planning team may even discover that an unforeseen activity area is required to fulfill the facility's identified activities and objectives.

Activity areas include the various spaces, such as classrooms, libraries, etc., that comprise the school facility. Activity areas are not limited to interior spaces so it is important that the

educational specifications identify and define the requirements of outdoor activity areas as well. Activity areas should be described with a high degree of specificity and exactness. The descriptors that are essential to provide sufficient detail to the architect of the activity areas planned are as follows:

- Describe the activities that are anticipated to be conducted in the instructional plan. If the instructional plan is referenced, include specific page numbers that can be reviewed by the design professional. Describe small, individual and large group activities that will be conducted within a space;

- State the number of users, teachers, aides, and target student populations;

- Suggest the approximate size of the activity space in terms of square footage;

- Based on a desired group size, state the number of like spaces required by the student population;

- Describe requirements for large and small groups, as well as individual student and staff spaces;

- Describe the internal spatial relationships and the area's relationship to the school as a whole, and;

- Describe the general ambiance desired in each, and potential modifications or alternates that might be desired for different teaching methods.

Space does not necessarily mean a "room." It can also mean an area within a room where a specific activity will be conducted, such as a messy activity, i.e., finger painting, which may require sink and different floor surfaces for ease in cleaning. It may be necessary to illustrate the internal spatial relationships of different spaces within an activity area using a bubble diagram or matrix .

It is important to consider the functionality of each space and activity setting. Each area must be closely examined to insure that it is programmatically functional. Identify the minimum area required to serve a given student population, and the maximum area. How many teaching stations are needed, given a specific staffing pattern (i.e. pupil-teacher ratio)? Various mathematical methods may be used to make this determination. For example, what number of students will be participating within a program area during the class day/week, how often will the class meet and for what length of time during the class day/week, and the desired pupil-teacher ratio. How many periods of the day can the space be utilized? One hundred percent efficiency is impossible for an entire facility. However, many areas, such as general classrooms, can be programmed for every hour during the school day.

Activity Setting Descriptions (cont.)

In writing the descriptions, the specific language is of particular importance in providing the designer direction. An example is the difference between the verbs “provide” and “provide for” as they relate to equipment, furnishings and casework.

“Provide” means the designer will provide the space and the specifications calling for the equipment, furnishings and casework in the contract documents and drawings.

“Provide for” means the designer will accommodate in the design of the space requirements for the equipment, furnishings and casework that will be acquired by the owner. Avoid general descriptions such as “adequate,” “some,” “somewhere,” “enough,” “near,” and “many.”

Below are some other factors that should be considered when defining each activity setting. This is by no means a comprehensive list but rather a minimum list of considerations:

- Describe specific utility requirements. Include the number of electrical outlets needed and their desired locations. Identify specific water, gas, compressed air, and dry and wet waste disposal requirements as applicable to the specific space;

- Identify special acoustic and lighting requirements;

- Identify specific surface material requirements, floors, walls and ceilings;

- Identify bulletin board, writing board and tack board requirements. Mounting height should be specific for size of students. For bulletin boards and tack boards, it may be desirable to specify that all wall space not used for something else be covered with tack surfaces;

- Identify requirements for wall maps, projection screens, chart rails and other fixed teaching aids. Describe relationships of teacher activity to student activity areas and note teacher demonstration areas if required;

- Note specific environmental requirements such as special ventilation, natural lighting, special heating and heat control;

- Note specific safety and health features required such as emergency eyewash stations in shops and chemistry laboratories. Note requirements where the instructor controls gas, compressed air and water. Note where automatic shutoff to specialized equipment is required, i.e., saws, lathes, planers, grinders;

- Explain audio-visual, television access and public address requirements as well as computer equipment and stations;

- Specify equipment, furnishings and casework to be located within the activity area. Often, instructors envision more equipment and furnishings than will fit within the instructional area. The burden of prioritizing should be upon the educator and spelled out in the educational specifications;

Activity Setting Descriptions (cont.)

- Identify and describe internal areas and support spaces needed. Once again, the specific language used is important. There is a vast difference between the terms “adjacent to” and “in the proximity of”;

- Identify special colors, textures and shapes required within an area. This is of particular importance for kindergarten, special education, pre-school, and primary classrooms;

- Identify area needed for display of student projects and project storage, large and small. Also, identify general storage requirements of each space, and;

- Identify and describe any other requirement that may be unique to the activity setting.

The planning team may want to organize the activity setting descriptions in a standard format to facilitate their use and clarity. Appendix B offers a possible format for organization of the activity setting’s activities and needs. This chart or matrix should build upon the general design information and may address many of the same topics, but in greater detail. If a particular activity setting’s general characteristics vary from those defined in the General Design Considerations, the variations should be identified. This chart may also be used as a checklist during the planning team’s review of the project drawings and specifications to insure that the design professional has included those things that the educational specifications required.

Spatial Relationships

The educational specifications should include a summary of spatial relationships. This should be illustrated through either a bubble diagram or a matrix showing the desired spatial relationships of the entire facility. This is not intended to be a scaled school design plan; it is merely intended to demonstrate the desired adjacencies among the activity settings. Conceptual or schematic drawings should be left to the design professionals who will translate the educational specifications into a tangible building plan.

One may find it helpful to dissect the comprehensive relationship diagram for the school into a number of smaller, more detailed diagrams. An example of this would be defining the administrative area as a single entity in the comprehensive diagram of the school and then providing a second diagram that identifies the individual activity settings within the administrative area and their desired relationship to one another. It is important that the more detailed diagrams not lose sight of the broader spatial relationships that are defined in the comprehensive diagram.

It is important that the following factors are considered when establishing the spatial relationships for the facility:

- Public vs. private spaces – typically some parts of the school are desired to be more accessible by the public than others. Grouping public spaces together and providing direct relationships between them makes it easier to keep the private spaces private.

- Noisy vs. quiet spaces – again the grouping of like spaces will enhance the overall effectiveness of a buildings ability to provide spaces that facilitate learning. Obviously, it doesn't make a lot of sense to have a gym and library directly adjacent to one another, even if they are both public spaces.

- Consolidation of like spaces – it is more efficient to construct a design that consolidates mechanical intensive areas such as restrooms, kitchens, etc. than one that spreads them out. This consideration may not be readily apparent in the spatial relationship diagrams, but it is something that should be kept in mind when evaluating a design professional's proposed building design.

- Joint-use spaces – oftentimes a space can fulfill two or more purposes in a school design. Some examples of this are a small group room located adjacent to two or more classrooms or a community room that also houses music and home economics activities. Grouping spaces and providing direct relationships between activities that may be able to take advantage of a joint-use space enhances a building design's efficiency.

It is also necessary to illustrate complex, individual activity and/or academic discipline spatial relationships. For example: science suites composed of classrooms, laboratories, chemical storage, specimen storage, animal rooms and a plant room; or metal shops composed of multiple task areas such as welding, forging, storage, finishing, grinding, instruction, clean-up, student project, tools, etc. These detailed spatial diagrams that depict the intra-relationships within a complex activity setting should be provided in the Activity Setting Descriptions section for the

specific activity setting. However, the relationship of the complex activity setting to other activity settings in the school should be included in the Spatial Relationship section.

As the planning team develops the spatial relationships between activity settings, they may note a basic division of the building into four types of spaces: Instructional or Resource, Support Teaching, General Support, and Supplementary. Appendix C provides a breakdown of different school spaces and their categorization within the space structure. The Instructional or Resource areas are learning environments that are designed to house students and teachers involved in learning activities. The Support Teaching and General Support areas provide an infrastructure that supports the Instructional or Resource areas' achievement of educational goals. They do not necessarily house students. Some of the Support Teaching and General Support areas are more directly related to the learning and teaching functions than others; for example the Auditorium serves more as a teaching area than the Kitchen. The Supplementary spaces are areas that support the overall function of the building; these are necessary building spaces that are required for the operation of the building not just as an educational facility, but also as a suitable, habitable structure.

It may be desirable to group some of these spaces in a particular category together in a zone of the facility; for example Supply Storage & Receiving and Mechanical/Electrical areas may have many of the same building requirements that would make it desirable to locate them close to one another even though there is not a direct relationship between the two space types. Often, overlap between categories occurs based on the functional needs of a building, such as the direct relationship between corridors and classrooms. Other times, overlap occurs in response to the aforementioned factors that influence the spatial relationship of a building; for example a facility's Gym, Auditorium, and Entry may be related because of their common inclusion in a community-use zone. The use of building zones may help in depicting the desired relationships between the school spaces.

Space Requirements Summary

The Space Requirement Summary is a statistical square foot summary of all program spaces identified in the detailed activity area requirements. This summary provides a quick reference to the design professional to the space requirements of each activity setting. It also assists the planning team in determining whether functionality and balance have been maintained throughout the facility by enabling the comparison of space requirements between activity settings. Coordination between this section and the Activity Setting Description section is imperative.

The space guideline regulations define eligible space in terms of gross square footage that includes partition footprint area. Typically, educational planning documents state spatial requirements in terms of net square footage that excludes partition footprint area. The planning team needs to be aware of this distinction when preparing the space summary and clearly state how space is defined in the summary. If the planning team chooses to utilize a net square footage tabulation, then a percentage of the eligible project square footage must be set aside for the partition footprint area. Eventually, the conversion between net and gross square footage must be made. It is the department's belief that identifying spaces in terms of gross square footage in the educational specification facilitates the transition from educational specifications to an actual building design, the generation of a project construction budget, especially if the department's Cost Model estimating tool is utilized, and the subsequent evaluation project design solutions.

The Space Requirements section should also define how "assignable" and "non-assignable" square footage is to be calculated. Non-assignable or supplementary space is primarily composed of circulation, restroom, mechanical, and partition footprint areas. Appendix D contains a breakdown of space categorizations. Categories A through C are assignable spaces, whereas Category D contains non-assignable spaces. The desired ratio or percentage of instructional assignable space to total square footage, generally a 70% to 80%, should be defined. While the department does regulate assignable and non-assignable space, it provides a good indication of the efficiency of a particular design solution, and as such, merits consideration by the planning team in the creation of the educational specifications and subsequent design evaluation.

Adjustments to the activity settings may be necessary to ensure conformity to state space requirements and budget allowances. This is the most critical activity in the entire programming effort for the schools. Priorities may have to be established that balance the educational program and community use needs. The planning team may be forced to make some unpopular decisions keeping in mind that they are planning an educational facility that is able to accommodate some community uses, rather than a community center that can accommodate the educational program.

Furnishing & Equipment Summary

Regulation 4 AAC 31.020 (a) (4), by means of reference to the department's publication entitled *Guidelines for School Equipment Purchases*, provides for and identifies equipment and furnishings that can be included in a school capital project budget. Generally, equipment and furnishings required for the facility to provide the intended educational program are eligible. However, the purchase of extra consumable supplies, such as toner cartridges, copier paper, light bulbs, etc., are not eligible capital project costs. Please keep this in mind when defining the Furnishing and Equipment requirements of a facility in the educational specifications.

The general scope of necessary equipment purchases should be a part of the educational specifications developed for the project. The document should provide the recommended equipment requirements for each space identified. Good educational specifications include a tabular summary of the project's equipment and furnishing requirements~~ and their estimated cost~~. This summary should be coordinated with the equipment and furnishings requirements noted in the Activity Setting Description section. The project manager/construction manager will use this equipment summary to make initial budget projections for the project and to begin the process of equipment procurement based on the design team's design development (DD) documents. Final purchasing lists will also~~The best educational specifications~~ ~~identifies~~ identify any existing equipment serving the educational program that can be used in the new, remodeled or expanded facility.

If the district has equipment and furnishing standards, it is important that they are either referenced or included in the educational specifications. This is especially important if the project architect's professional services include responsibilities for preparing furnishing, fixtures and equipment documents, often referred to as FF&E documents. The identification of desired brand names and model numbers is an invaluable tool in communicating district needs and ensuring their inclusion in the project. While a complete list of furnishings and equipment may not be feasible until final design is complete, a thoughtful and thorough analysis of the project's FF&E requirements is essential in effective educational specifications.

Project Budget & Financing

The Department of Education & Early Development has prepared a tool entitled the *Program Demand Cost Model for Alaskan Schools* that is useful for conceptual construction cost estimates. Construction costs are established based on the project's type and size of the school spaces, the proposed foundation system, the site development requirements, the geographic project location, and the date of construction. A reasonable estimate of the building's base construction cost can be calculated by consolidation of the project's Space Requirements Summary into the Cost Model's space type categories. Additional assumptions regarding foundation systems, site development costs, and date of construction are required to complete the cost estimate.

Based on the estimated construction cost, an overall project budget can be established. The project budget should address the following budget categories:

- Construction Management (CM) – Construction management is divided into two categories: CM accomplished by a private contractor and CM accomplished by district/borough staff. Costs may be incurred for one or the other and in some cases both. Estimates for "in-house" construction management should include actual staff time allocated to the project, staff travel and per diem and direct costs of telephone, etc. It should include construction management costs done by staff and all on site representation. For private contractors it should include costs as anticipated to include oversight of any phase of the project. Construction management includes management of the project's scope, schedule, quality, and budget during any phase of the planning, design and construction of the facility. The maximum for construction management by consultant + 'in-house' = 5%. The cost of construction management furnished by a private contractor is limited from 2% to 4% the cost of construction based on AS 14.11.020 (c). The recommended budget for In-house construction management is 2% to 5% of the construction cost.

- Land – Site acquisition costs are a project cost variable that is unrelated to construction cost. Budgets for site acquisition should include the actual purchase price plus title insurance, fees and closing costs. Land value is established as the appraised value of the land not to exceed the amount for land in the project agreement. The eligibility of site acquisition costs is governed by 4 AAC 31.023 (c)(2)(B) and 4 AAC 31.025. Land costs are excluded from project percent calculations.

- Site Investigation – Site investigation costs are also a project cost variable unrelated to construction cost. Budgets for site investigation should include land survey, preliminary soil testing, environmental and cultural survey costs, but not site preparation. Site investigation costs are excluded from project percent calculations.

- Design Services – The design services budget should include full standard architectural and engineering services as described in AIA Document B141-1997. Architectural and engineering fees can be budgeted based upon a percentage of construction costs. Because construction costs vary by region and size, so may the percentage fee to accomplish the same effort. Additional design services such as educational specifications, condition surveys, and post occupancy evaluations may increase fees beyond the recommended percentages. The

recommended range for the standard design services is between 7% and 9% of the construction cost. Renovation design budgets might run 2% higher.

- Construction – The construction budget should include all contract and force account work for facility construction, site preparation and utilities. This is the base cost upon which other category's percentage costs are estimated.

- Equipment/Technology – The equipment and technology budget includes all moveable furnishings, instructional devices or aids, electronic and mechanical equipment with associated software and peripherals. Consultant services necessary to make equipment operational may also be included. It does not include installed equipment or consumable supplies, with the exception of the initial purchase of library books. Items purchased should meet the district definition of a fixed asset and be accounted for in an inventory control system. Equipment/Technology budgets have two benchmarks for standard funding: percentage of construction costs and per-student costs as discussed in EED's *Guideline for School Equipment Purchases*. If special technology plans call for higher levels of funding, itemized costs should be presented in the project budget separate from standard equipment. The recommended budget for equipment and technology is the lesser of either 0-7% of the construction cost **or** between $1700 - $3050 per student depending on school size and type.

- Indirect/Administration – The indirect/administration budget includes an allocable share of district overhead costs, such as payroll, accounts payable, procurement services, and preparation of the six-year capital improvement plan and specific project applications. It also includes the Department of Education & Early Development overhead charges for projects funded by state grants. The recommended budget range for indirect/administration expenses is between 2% and 4% of the construction cost.

- Percent for Art – This budget category addresses the statutory allowance for art in public places. Eligible project expenses in this category may fund selection, design and fabrication, and installation of artwork. The required art budget is 1% of the construction cost, except for REAA projects that require only 0.5% of the construction cost.

- Project Contingency – The project contingency is a safety factor to allow for unforeseen changes in the cost of the project. Standard cost estimating by A/E or professional estimators includes a construction contingency in the estimated base bid. Because that figure is included in the construction budget, the project contingency is intended to address project changes and unanticipated costs in other budget areas. The project contingency is fixed at 5% of the construction cost.

As a general rule, the overall project budget should not exceed 130% of the construction cost. However, the project budget defined in the educational specifications is a preliminary planning budget so many assumptions regarding the estimated scope of work and cost of the budget categories is required. It is important that these assumptions are documented in the educational specifications so that the design professionals are better able understand the scope of the project and assess the reasonableness of the budget. To formulate an accurate project budget the

planning team may need to draw from a number of resources such as past project experience, professional publications, and the EED Cost Model, etc. All relevant back up for the project budget should be included in the educational specifications.

While there is little federal funding available for school construction or major school renovation projects, the State of Alaska has two funding mechanisms that provide financial aid for these types of capital improvement projects. Below is a brief overview of the eligibility requirements, application process, and fund allocation process of the two mechanisms:

- Grants – Capital improvement project grants are available to all school districts and municipalities. School construction and renovation projects are typically funded through direct legislative funding allocations to the Department of Education & Early Development. The Bond Reimbursement and Grant Review Committee establishes the department's CIP grant review process that determines eligibility, defines budget, and prioritizes the projects submitted annually by the school districts. The product of the department's review is furnished to the Governor and Legislature, as is a recommendation of funding levels. Ultimately, the Legislature determines project funding levels. Refer to 4 AAC 31.021 and 4 AAC 31.022 for the regulations that govern the grant application process. Upon receipt of legislative grant appropriation, the department establishes a project agreement with the recipient entity that defines the scope and budget of the project. Grant funds are distributed from the department to the recipient entity based on the achievement of predefined payment milestones identified in the project agreement. Participating share or local contributions for the grant projects varies by school district ranging from 2% to 35% of the total project cost.

- Debt Retirement – The debt retirement mechanism is available to all school districts and municipalities that have the ability to sell bonds. Thus, the Regional Education Attendance Area school districts are not eligible to receive state aid through this funding mechanism. After debt authorization is issued by the legislature with an amendment to AS 14.11.100, the department accepts capital improvement project applications from the school districts. If the legislative debt authorization is broad enough to allow competition between school districts for debt funds, then the department evaluates and prioritizes projects following the same process identified for the grant mechanism. Otherwise, the department determines a project's eligibility based on statutes and regulations. A project agreement between the department and the school district or municipality is developed that defines the scope and budget for the project. After local approval of bond issuance to fund the approved projects, the project is undertaken. The department reimburses a percentage (typically 70%) of the bond principal, interest, and transaction costs incurred by the school district or municipality based on their annual debt reimbursement request to the department. Refer to 4 AAC 31.060, 4 AAC 31.061, and 4 AAC 31.063 for regulations that govern bond projects.

It is important that the planning team identify the funding mechanism that the project intends to utilize to secure funding for the project. This will facilitate compliance by the design professionals with the pertinent regulations that may limit the eligibility of project costs. It is also important for the planning team to identify the required local contribution to the project and identify some methods that may be utilized to satisfy their contribution. It should be noted that

nothing precludes school districts or municipalities from funding 100% of a project; however, with state assistance available, most entities choose to pursue the aforementioned funding mechanisms.

Scheduling & Assignment of Responsibility

The educational specification should include a schedule or timeline for the proposed project. While the project schedule is most likely not set in stone at the educational specification stage of the planning and design process, it should provide a goal that the planning team deems reasonable and achievable in a best case scenario. The schedule will enable design professionals to determine the most reasonable and effective solution to meet the project's requirements. For example, if the project schedule establishes the substantial completion date of a new facility to be in fifteen months time and architectural selection has yet to occur, respondents to a design RFP may offer creative design solutions, such as use of a prototype design or a design build contracting methodology, that they may not have provided had the information regarding the desired project schedule not been provided. It is also important to define the project schedule to determine the date of five-year post occupancy that is used in calculating the project student design population, and ultimately, the overall size of the facility.

The project schedule should identify at a minimum the following project milestones:

- Application for funding assistance;
- Design selection Request for Proposals (RFP);
- Award of design contract;
- Schematic design submittal, review, and approval;
- Design development submittal, review, and approval;
- Construction and bid document submittal, review, and approval;
- Advertisement for construction bids;
- Opening of construction bids;
- Award of construction contract;
- Notice to proceed with construction;
- 50% construction completion;
- Substantial construction completion;
- Building occupancy;
- Final construction completion; and
- Final project closeout and termination of project agreement.

Scheduling & Assignment of Responsibility (cont.)

If diligent thought and effort is put into drafting a project schedule, there will probably be a good deal more milestones established than those listed above. As these milestones are established, the planning team may want to identify whose responsibility it is to reach each milestone. The more effort and study dedicated to this effort, the more individuals and entities that will be drawn into the project's web of responsibilities. One can then begin to appreciate the magnitude and complexity of their undertaking. The educational specifications stage is not too early to alert persons involved to their anticipated schedule and duties.

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Appendix A – Population Projection Tools

Survival Ratio Average Daily Membership Projection

School District: Pacific Rim
Attendance Area: North Star
School Name: Lone Wolf K-12
Birth Growth Rate: 2.00%

BIRTH YEAR	LIVE BIRTHS	SCHOOL YEAR	ACTUAL AVERAGE DAILY MEMBERSHIP															
			K	1	2	3	4	5	6	7	8	9	10	11	12	K-6	7-12	TOTAL
FY 1991	8	FY 1996	13	6	6	9	9	9	6	6	4	5	1	9	0	58	15	83
FY 1992	8	FY 1997	11	5	4	7	7	8	7	6	4	5	1	3	5	49	14	73
FY 1993	8	FY 1998	7	4	5	6	6	8	6	7	1	6	7	1	2	42	16	66
FY 1994	8	FY 1999	6	7	5	5	6	6	8	8	6	4	11	2	1	43	18	75
FY 1995	8	FY 2000	3	3	7	5	5	5	6	7	6	6	7	5	1	34	19	66
FY 1996	6	FY 2001	11	1	3	6	6	7	6	7	7	6	5	3	6	40	20	74
FY 1997	8	FY 2002	14	3	1	3	6	5	8	10	8	9	3	4	1	40	35	75

SURVIVAL RATIO												
B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
122.62%	47.57%	98.61%	108.73%	97.25%	101.64%	97.84%	117.36%	76.39%	167.26%	108.61%	99.48%	70.93%

BIRTH YEAR	LIVE BIRTHS	SCHOOL YEAR	PROJECTED AVERAGE DAILY MEMBERSHIP															
			K	1	2	3	4	5	6	7	8	9	10	11	12	K-6	7-12	TOTAL
FY 1998	8	FY 2003	10	7	3	1	3	6	5	9	8	13	10	3	3	34	46	80
FY 1999	7	FY 2004	9	5	7	3	1	3	6	6	7	13	15	10	2	33	52	85
FY 2000	8	FY 2005	10	4	5	7	3	1	3	7	4	12	14	14	7	33	59	91
FY 2001	8	FY 2006	10	5	4	5	7	3	1	3	5	7	13	14	10	35	53	88
FY 2002	8	FY 2007	10	5	5	4	5	7	3	1	3	9	8	13	10	39	44	82
FY 2003	8	FY 2008	10	5	5	5	4	5	7	4	1	4	10	8	9	41	36	76
FY 2004	8	FY 2009	10	5	5	5	5	4	5	8	3	2	5	10	6	39	32	71
FY 2005	9	FY 2010	11	5	5	5	5	5	4	6	6	5	2	5	7	40	30	69
FY 2006	9	FY 2011	11	5	5	5	5	5	5	5	4	10	5	2	3	41	30	70

ADM Projection Comparison

School District: enter district name
School Name: enter school name
Project Number: enter project number
School Type: Elementary, Secondary, Mixed or K-12
Attendance Area: community

Historical Attendance Area ADM by Fiscal Year

	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	Average Annual ADM Change	Overall ADM Growth
Attendance Area											

Future School ADM Projections by School Year

		2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	Average Annual ADM Change	Overall ADM Growth
District's K-6 Projection	--										
District's 7-12 Projection	--										
EED's K-6 Projection	--										
EED's 7-12 Projection	--										

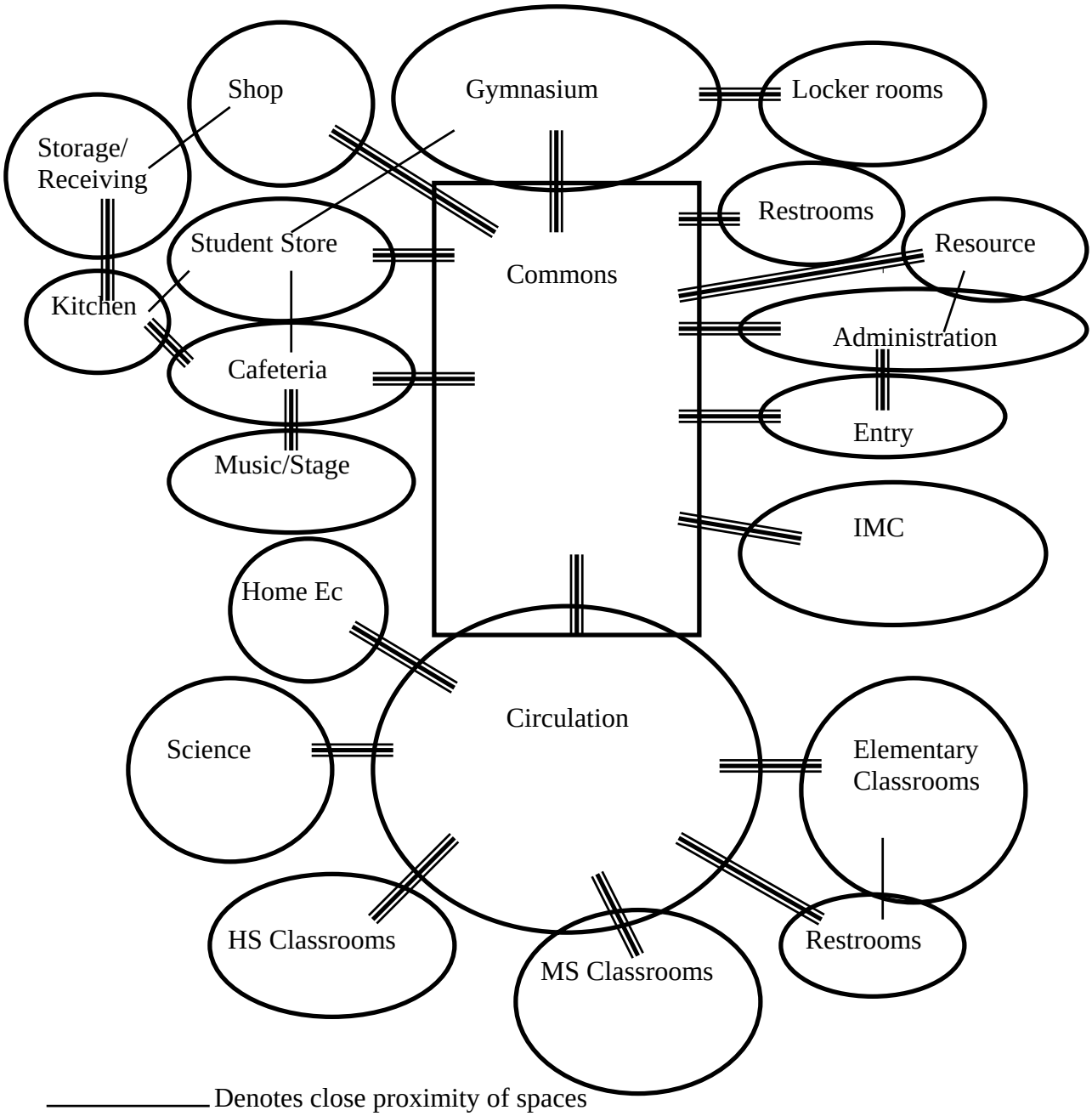
Future school projections based on school ADM population for the 2003-2004 school year of:
K-6 students
7-12 students

MS Excel files for these student population projection tools are available at the department's website: http://www.eed.state.ak.us/

Appendix B – Activity Settings

Activity Setting: Kindergarten Classroom
Occupancy: 24 students, 1 teacher, 2 teacher's aides or parents
Area (SF): 1200SF including toilet room
Height: 9' minimum
Natural Light: Minimum 5% of floor area with at least 10LF window seat for exterior viewing.
Floors: Entry, sink, and water closet areas to be a resilient sheet vinyl and the remainder of the floor to be carpeted. See district's construction standards for material specifications.
Walls: 1 storage wall, 1 teaching wall, 1 exterior wall, and 1 display wall. Teaching wall to have 12LF white board with tack rail above. Display wall to have tackable surface.
Ceiling: Acoustical treatment of ceiling desired.
Acoustics: Room to meet RC-25N as defined by ASHRAE. Acoustic treatment at ceiling.
Storage: Storage wall along corridor wall. Coat hooks, book cubbies, and boot shelf provided for 24 students. Lockable teacher's wardrobe and full height storage cabinet. Child height counter and sink with upper cabinets at adult height. Base cabinets along window wall with standard counter height and open shelves below.
Fixed Furnishings: 6' x 6' projection screen, paper towel and soap dispenser @ sink, ~96SF of white board, ~64SF of tackboard.
Signage: ADA compliant
Plumbing: Sink with bubbler and anti-scald valve.
Heating: In-floor radiant heat desired.
Ventilation: System should be designed to meet reasonable requirements not maximum. Maintain 68F to 75F temperature range
Lighting: Natural light desired. Fixtures should have 3 switch settings for varied light levels. Maximum of 70 foot-candles at work surfaces.
Communications: Phone/intercom located near teaching station and TV monitor.
Security: Visual supervision of all areas from teaching station desired.
Audio/Visual: Cable outlet, TV bracket, and 27" TV/VCR combination unit.
Technology: Wireless hub to connect 27 users to school network.
Equipment &Furnishings: (2) 72"l x 48"w x 24"d storage cases on rollers with pull-out bins, (6) 42" x 60" child height tables, (24) child chairs, (1) 36" x 60" teacher desk and chair, (1) 36" x 72" adult height table with (2) adult chairs, black.
Special Construction: 10LF window seat.
Flexibility: Geometry of the space should allow for flexible use of the space.
Durability: Painted wall surfaces to be washable & mildew resistant. Floors to mar, stain, and slip resistant
Functionality: Geometry of the space should enhance uses of the space.
Ambiance: Playful not sterile, kid friendly not institutional.
Colors: Primary colors, avoid white and low chroma colors.
Adjacencies: Near: exterior access, other young student classrooms, private area. Not near: secondary students, primary circulation or gathering points.
Activities: Art, music, lettering, story time, show and tell, naptime, class instruction, small group, computer learning games, science projects, see kindergarten curriculum for additional information.

Appendix C – Spatial Diagram



Denotes close proximity of spaces

Denotes direct connection of spaces

Appendix D – Space Types

Category A - Instructional or Resource

Kindergarten
Elementary
General Use Classrooms
Secondary
Library/Media Center
Special Education
Bi-Cultural/Bilingual
Art
Science
Music/Drama
Journalism
Computer Lab/Technology Resource
Business Education
Home Economics
Gifted/Talented
Wood Shop
General Shop
Small Machine Repair Shop
Darkroom
Gym

Category B - Support Teaching

Counseling/Testing
Teacher Workroom
Teacher Offices
Educational Resource Storage
Time-out Room
Parent Resource Room

Category C - General Support

Student Commons/Lunch Room
Auditorium
Pool
Weight Room
Multipurpose Room
Boys Locker Room
Girls Locker Room
Administration
Nurse
Conference Rooms
Community Schools/PTA Administration
Kitchen/Food Service
Student Store

Category D - Supplementary

Corridors/Vestibules/Entryways
Stairs/Elevators
Mechanical/Electrical
Passageways/Chaseways
Supply Storage & Receiving Areas
Restrooms/Toilets
Custodial
Other Special Remote Location Factors
Other Building Support