Agenda

Bond Reimbursement and Grant Review Committee Meeting Agenda

December 12, 2017
1:30 pm to 4:30 pm

Teleconference – School Finance Conf. Room
801 W. 10th Street
Juneau, Alaska

Chair: Heidi Teshner, Chair

Wednesday, Dec. 12, 2017

Agenda Topics

1:30 – 1:35 PM	**Committee Preparation** • **Call-in, Roll Call, Introductions** • **Chair's Opening Remarks** • **Agenda Review/Approval** • **Past Meeting Minutes Review/Approval**
1:35 – 1:45 PM	**Public Comment**

1:45 – 2:15 PM	**Department Briefing**
	• **FY2019 CIP Report**
	  ○ **Summary Statistics**
	  ○ **Initial Priority Lists**
	  ○ **Scoring Issues**
	• **School Capital Project Funding Report**
	Action Item: BRGR Recommendation to SBOE on FY2019 CIP List

2:15-2:45 PM	**Subcommittee Reports: Construction Standards** • **Commissioning (Mark Langberg)** • **Design Ratios (Dale Smythe)** • **Model School (Doug Crevensten)**
2:45 – 3:00 PM	**Construction Standards for Cost-effective Construction – [(b)(3)] Strategy** • **Discussion**
3:00 – 3:15 PM	**BREAK**
3:15 – 3:55 PM	**Construction Standards for Cost-effective Construction – [(b)(3)] Strategy** • **Report to Legislature on Recommendations**
3:55 – 4:10 PM	**BR&GR 2018 Work Topics Review**
4:10 – 4:15 PM	**Set Date for Next Meeting**
4:15 – 4:20 PM	**DEED Wrap-up**
4:20 – 4:30 PM	**Committee Member Comments**
4:30 PM	**Adjourn**

Audio Teleconference: Call Toll-Free 1-855-244-8681 (US/Canada); Meeting Number 804 474 768

BOND REIMBURSEMENT & GRANT REVIEW COMMITTEE
September 6, 2017
Teleconference
FOR REVIEW & APPROVAL - MEETING MINUTES

Committee Members Present	Staff	Additional Participants
Heidi Teshner, Chair	Tim Mearig	Gary Eckenweiler, BSSD
Rep. Sam Kito III	Kimberly Crawford	Brittany Hartmann (Sen. MacKinnon)
Mark Langberg	Wayne Marquis	
Doug Crevensten	Lori Weed	Larry Morris
Don Hiley		

CALL TO ORDER and ROLL CALL at 1:34pm

Heidi Teshner, chair, called the meeting to order at 1:34 p.m. Roll call of members present; Sen. MacKinnon, Dale Smythe, Robert Tucker, William Murdock are excused. Quorum of 5 members.

REVIEW and APPROVAL of AGENDA

Agenda reviewed and approved by unanimous consent.

REVIEW and APPROVAL of MINUTES

Minutes reviewed and approved as submitted by unanimous consent.

PUBLIC COMMENT

No public comment. Heidi noted receipt of written comments.

SUBCOMMITEE REPORT - Commissioning Construction Standards

Mark summarized the subcommittee's efforts. In the first meeting it developed a mission statement to provide the direction of the committee. The committee identified five commissioning topics: mechanical, with fuel oil separately identified, electrical, controls, and building envelope. The committee finalized the submitted standards on all except the building envelope, which has a couple of items to clarify. Mark offered to take questions.

Tim noted that the general overview page begins to touch on administration and procedures, dealing with qualifications of commissioning agents. Tim inquired on subcommittee discussions relating to how to know a project achieved good commissioning. Mark responded that the committee had discussed who can do commissioning, from engineers with training to owners with knowledgeable maintenance staff to building contractors, and the pros and cons of each.

Tim followed up, asking about the bullet providing for a "certified" person. Mark stated that a certified person would be the most desirable. The subcommittee did not want to be too restrictive or onerous in setting out recommendations, so it provided broad overviews, anticipating that the standards would evolve. As the department and school districts have more schools commissioned, it may show that having a certified person is necessary, or it may show that it is not necessary. Replying to Tim's question, Mark stated that it would take some effort for a district employee to become certified; ASHRAE has rigorous requirements. Tim wondered if there could be a complexity factor in a project that could be identified. Mark concurred, depending on the complexity of the project it may not be necessary to have a certified agent.

Tim praised the committee for its development of the topic areas and presentation.

SUBCOMMITEE REPORT - Design Ratio Construction Standards
Noting the absence of the subcommittee chair and vice-chair, Tim provided a brief introduction of the subcommittee work to date. The questions the subcommittee addressed were whether there was a standard that could be developed that would address efficiencies in school construction and how could it be applied in an equitable way across projects and regions. The subcommittee wrestled with four whole building ratios that would affect first costs and operating costs.

Building openings to exterior walls, which is a comparison of more efficient wall assemblies to less efficient windows and transparent panels, is fairly common in the industry with both ASHRAE 90.1 and IECC having a similar component. Building footprint to total area measures the efficiency of the enclosure and whether a building can be stacked in two or more stories in order to minimize foundation and roofing. Building volume to floor area is an indicator of the space efficiency of a building, addressing double height and cathedral ceiling. A fourth that has not been fully developed is the building volume to exterior surface area, which is an envelope efficiency measurement identifying simpler building forms that have greater efficiency than those with many protuberances. The subcommittee recommendation is to continue pursuing development of these ratios.

SUBCOMMITEE REPORT - Model Alaskan School Construction Standards
Doug presented on the findings and recommendations of the subcommittee, whose purpose is to identify features and elements of a model school that would provide an adequate education for which state resources would be allowed. The existing cost model incorporated a model school that was flexible to different site requirements and locally desired educational programs. The cost model doesn't take the place of a school design study, and it can be improved in the areas related to renovation.

The top recommendation is to further develop the cost model instead of a cost per square foot method, as it is more useful on rehabilitation projects. The second is to develop a process of reviewing the cost model school escalation study, possibly by the BRGR committee. The third recommendation is to develop model school standards by building systems, to establish the quality and quantity of system components with a prioritized development of standards starting with systems with a high return on effort expended. Quality could involve a minimum and maximum standard, the maximum being the cap on state share, where districts provide funding for value above the maximum. The last top recommendation is identifying school elements that do not further core elements of the school, either being used seasonally, serving a smaller portion of the students, or benefiting the community after school hours; the state could choose not to fund these elements or fund at a reduced rate. This could assist in providing funding equity.

DISCUSSION: STANDARDS FOR COST-EFFECTIVE CONSTRUCTION
Mark inquired on the next steps. Tim referenced the committee work plan, which calls for the committee to have developed a construction standards document by December; does that remain a goal. Doug offered a reminder that Sen. MacKinnon had urged the committee to complete its work prior to the legislative session; he asked after an appropriate form for the report. Rep. Kito noted the subcommittees have provided good recommendations in a suitable format. Before finalizing, they should be reviewed by a larger audience, e.g. school districts and design

community, to solicit additional comments. Brittany affirmed Rep. Kito's suggestion to send out the recommendations to a larger audience. Sen. MacKinnon would be looking for guidance and recommendations that could be incorporated into SB 87, getting the recommendations out to a broader audience would be very beneficial to the legislation being considered.

Doug sought clarification on the preferred form of the recommendations. Brittany noted that it would be useful if it was a report that delineated comments from the various stakeholder groups, so all the feedback is together in one report; from that policy and language decisions can be made. Brittany offered to set up a teleconference for committee members to discuss a report to the legislature with Sen. MacKinnon within the next week. Tim recommended trying to ensure the three subcommittee chairs be available, as they would have the best understanding of the topics.

In anticipation of putting the recommendations out for public comment, Heidi asked whether there were any changes to the format or substance of the recommendations. General concurrence that the papers could be sent out as presented. Tim noted that the model school subcommittee recommendations have the most defined proposed actions for committee, department, or legislative involvement. The legislature would need to amend statute to put limitations on the kind of projects the state would participate in. Other subcommittee recommendations are process oriented. The recommendations from the design ratio subcommittee acknowledges that there is more work to do before putting out specific numbers. Doug suggested that, in the interest of getting public feedback, it may be helpful for the model school to limit their recommendations from eight to four, removing the process-oriented items.

Tim asked for an understanding of a timeline and products. The committee typically meets in December, it could review the public comment and a shell of a report. Heidi noted there should be at least a 20 to 30 day comment period. Rep. Kito suggested a mid-October to mid-November comment period to provide enough time to prepare before and after. Brittany requested any report be provided by the end of December, so suggestions could be incorporated into the bill. Mark and Doug confirmed that the schedule as discussed would work for their subcommittees.

Lori asked whether subcommittees had BRGR approval to make changes as needed to their recommendations prior to public comment in mid-October; general approval.

DEPARTMENT BRIEFING

Wayne presented the preventive maintenance update. One district did not maintain certification in the past site visit cycle; it will work with the department to become recertified. Six districts were placed on provisional certification; the common thread was a lack of energy management, the districts were not tracking energy consumption. Two districts also lacked sufficient effort and documentation on training of their maintenance staff. Provisional districts will work with the department over the next year to become fully certified.

Tim reviewed the school capital funding report, noting $40 million in funding to the REAA fund and a reappropriation of $3.5 million into the major maintenance grant fund. The legislature also appropriated the final $7 million to the Kivalina project. The department will be making allocations out of the two funds according to the procedures set out in regulation. Tim pointed out the REAA summary page funding and projects from FY13 to FY18. Gary Eckenweiler inquired on a timeline for disbursement of funds in FY18. Heidi responded that the department

was working on getting the funding transferred to the fund, so that it can be appropriated to the Shishmaref project; she anticipates being able to issue a project agreement within a few weeks.

Tim briefly went over the publication list and department staff updates.

PUBLICATION UPDATE: PROJECT DELIVERY METHOD HANDBOOK
Tim described the changes between the initial draft presented at the last meeting and the one before the committee, including more developed appendices. The appendices include a template for an alternative procurement request by a district and the current checklists used by the department when reviewing requests. These checklists are a somewhat living document that may change as needed by the department staff.

Tim stated that the public comments have been reviewed but the department has not yet determined its responses; however, he could respond to committee questions. Don noted his agreement with a comment in regards to making provision for other methods of advertisement besides in a newspaper. Tim concurred, it is on the department's list for a regulation revision. Tim commended the commenters, noting that all of the comments received were helpful.

Heidi suggested that a the department provide a summary of changes made to the final version based on incorporating the public comments. General concurrence.

FUTURE MEETING DATE
Next committee meeting tentatively set for Tuesday, December 12, 2017, by teleconference. To be confirmed with absent members via e-mail.

CLOSING COMMENTS
Tim added his thanks to Heidi's regarding the industry partners for their assistance during the subcommittee work. The department is looking forward to being fully staffed to better assist the districts and the committee.

Wayne expressed his thanks also for the efforts and shared experience and opinions that were given for the betterment of the process this summer.

Mark was grateful for the work done over the summer by the subcommittee members. He requested the department pass on the schedule for when subcommittee reports will be due, the information regarding public comment, and when final reports need to be completed.

Doug echoed Mark's request for a schedule and thanked his subcommittee members for their time and the department staff for organizing the meetings.

Don thanked the subcommittees and the department for their work as well. Noting interesting times with big changes in store.

Heidi requested the subcommittee chairs pass on the thanks to their subcommittee members. When the public comment request goes out, please share with an many people as you can so that there is a broad outreach. She thanked Brittany for listening in on behalf of Sen. MacKinnon.

MEETING ADJOURNED
The committee adjourned at 3:26 p.m.

THE STATE of ALASKA
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To: Bond Reimbursement & Grant Review Committee
From: School Facilities
Date: December 12, 2017

DEPARTMENT BRIEFING

Initial CIP Lists

The initial CIP lists are included in the packet. The department provided a memo to the school superintendents that announced the availability of the lists. The department also transmitted the lists to the governor's office for use in developing the FY2019 capital budget.

Following are some year-to-year statistics:

	FY2017	FY2018	FY2019
Districts Submitting Applications	36	37	31
Number of Applications Submitted	127	131	108
Number of Applications Scored	100	64	105
Number of Applications Reused	27	67	39
Number of Applications Ineligible	11	9	1
Number of Applications with a Change in List	3	3	3
Number of Applications with a Budget Adjustment	17	52	41
Number of Projects on the Major Maintenance List	98	106	93
Number of Projects on the School Construction List	19	17	11
State Share Request on Major Maintenance List	$181,570,096	$156,768,834	$145,235,869
State Share Request on School Construction List	$213,505,767	$137,559,973	$179,214,343

Issues that arose in this year's application cycle are addressed in a separate FY19 CIP Department Briefing and Rater's Briefing included in the packet. The revised statewide six-year plan is also included in the packet.

Per AS14.11.014(b)(2), the committee is to make recommendations to the State Board of Education & Early Development concerning school construction grants. Recommended Motion:

> I move that the Bond Reimbursement and Grant Review Committee recommend the State Board of Education & Early Development adopt the department's FY2019 list of projects eligible for funding under the School Construction Grant Fund and the Major Maintenance Grant Fund.

School Capital Project Funding Report

The FY2018 capital budget reappropriated an estimated $3,503,492 to projects eligible for the funding by the major maintenance grant fund. This amount increased the current balance in that fund to $7.8 million for allocation by the department in FY2018. The department has been following 4 AAC 31.023 when awarding from the major maintenance grant funding.

As of November 30, the first and second priority projects have been fully funded. The department determined there were insufficient funds available to pay for the third priority project; however, the department determined that the project could be phased and a grant for phase 1 of the project has been awarded.

See the REAA & Small Municipality Fund Report for information on school construction list funding.

As debt reimbursement projects reach completion, the recipients may decide to pay down the bond principal or redirect the remaining project balance to a voter and DEED-approved project, per 4 AAC 31.064. Two municipal districts have received DEED approval to redirect prior voter-approved funds to new projects in FY18.

A sheet on the CIP grant request and funding history FY09-FY19 is included for reference.

REAA & Small Municipality Fund Report

The Regional Education Attendance Area fund was established by chapter 93, SLA 2010 (SB 237). The amount of money available each fiscal year is tied to the annual debt service incurred under AS 14.11.100. In 2013, the fund was amended to include "small municipal school districts". Since the first appropriation in FY 2013, $222,161,906 has been deposited into the Regional Education Attendance Area and Small Municipal School District (REAA) fund. A total of ten projects have obligated $213,590,504.

In FY18, the department has been able to allocate funding to the first school construction priority and provide design funding to the second priority project. After review of funding scenarios, and with concurrence by the district with the priority three construction project, the department determined there was insufficient funding to accomplish the scope of the project and that providing design funding in FY18 would not benefit the project due to lack of projected funding availability in FY19. The department then allocated funds to the number four construction project.

The projected FY19 REAA fund appropriation is anticipated to provide the construction funding to the FY18 number two project, and provide design funding to the FY18 third priority project (FY19 first and second ranked projects). A summary sheet is included in the packet.

Publications Update

Following is a list of publications currently managed by the department along with an estimated revision priority, and the year of publication or latest draft. Those in bold are publications proposed for committee approval.

1. **School Design and Construction Standards Handbook** (new) *[Proposed 2018]*
2. **Alaska School Facilities Preventive Maintenance Handbook** (1999) *[Proposed update 2018]*
3. **Life Cycle Cost Analysis Handbook** (1999)
4. Cost Format – *EED Standard Construction Cost Estimate Format* (2008 2nd Ed.)
5. **Space Guidelines Handbook** (1996)
6. **Swimming Pool Guidelines** (1997)
7. **Guide for School Facility Condition Surveys** (1997)
8. Architectural and Engineering Services for School Facility Construction (new)
9. **A Handbook to Writing Educational Specifications** (2005); and Educational Specifications Supplement (2009)
10. Site Selection Criteria & Evaluation Handbook (2011 2nd Ed.)
11. Facility Appraisal Guide (1997)
12. Outdoor Facility Guidelines for Secondary Schools (new)
13. Renewal & Replacement Schedule (2001)
14. **Guidelines for School Equipment Purchases** (2016)
15. Capital Project Administration Handbook (2017)
16. Project Delivery Method Handbook (2017)

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To: Bond Reimbursement & Grant Review Committee
From: School Facilities
Date: December 4, 2017

CIP APPLICATION BRIEFING

Rating Issues

During the FY2019 rating process, a couple of areas were uncovered where clarifications would be beneficial.

Evaluative Scoring

Two scoring categories in the CIP application that consistently generate the most discussion when scoring are code deficiency/protection of structure/life safety (Q.4a) and emergency (Q.8a). Included in the packet is an additional briefing paper on these two categories.

Code Deficiency/Protection Of Structure/Life Safety

This scoring matrix for this scoring element needs further development to assist raters in consistently assigning points to determine a project's priority, which will increase transparency and reduce subjectivity, and in more fully utilizing the 0 to 50 point spread.

Emergency

The use of this category should be re-examined to define its intended purpose. Should it be used sparingly and provide a large increase in points for a project that requires immediate reaction in response to an unforeseen event? Or, should it continue to provide incremental adjustments in response to both unforeseen and anticipated events?

Formula-Driven Scoring

Revisions for the FY19 application have clarified what constitutes a condition/component survey. However, the determination of when a condition survey should be required for eligibility to receive planning and design points is still far from best practice. Also, the awarding of condition survey points for 'aged' surveys also required a judgement by department staff in assigning points. These two items are addressed below.

Planning & Design

- All Phases – A condition assessment of the facility systems and components being proposed for work is an essential building block for a CIP application. However, with the new application for the FY17 CIP cycle, condition surveys were only required for Planning and Design points—any phase—if the project was a rehabilitation. As a result, applicants that submit a project based on an estimated renewal cycle and without any assessment of their conditions, get the same consideration for planning and design points, as applicants that inspect the system

and take the time to document its condition. Following are four vignettes from this year's evaluation that demonstrate the need to make condition/component surveys required beyond rehabilitation projects:

- 19-023 Craig Districtwide Energy Upgrades – this project to replace 205 light fixtures, replace a DDC controller, and replace AHU motors with VFDs was completed in-house and without a formalized condition survey. Because it did not meet the definition of a rehabilitation, no condition survey was required and it received 25pts in Planning & Design. Component replacement, especially in the HVAC system, should have been based on the condition of the components. Best practice would have required a condition survey, which in this case, could have been provided by qualified district personnel.
- 19-064 Mat-Su Water System Replacement – this project to completely replace the water service system to the school was defined without a formalized condition survey. Because it was questionable to define the project as a rehabilitation (the current definition could, but does not explicitly support a by-system determination but, rather, a whole-building determination) this project received 25pts in Planning & Design. System replacement of a major utility service should have been based on the condition of the system and its components. Best practice would have required a condition survey, probably from a qualified professional, on which to base a project solution.
- 19-072 Nome Anvil Charter School Restroom Renovation – this project to convert current restroom and additional storage space into new restrooms was designed without a formalized condition survey. Because it was questionable to define the project as a rehabilitation (the current definition could, but does not explicitly support a by-space determination but, rather, a whole-building determination) this project received 25pts in Planning & Design. Rehabilitation involving substantial interior work on architectural, mechanical, and electrical systems of a portion of school space should have been based on the condition of those systems and space(s). Best practice would have required a condition survey, probably from a qualified professional, on which to base a project solution.
- 19-036 Iditarod Grayling School Roof Replacement – this project for the complete roof replacement (at $1M), in-house, without scoped and defined without a formalized condition survey. Because it was questionable to define the project as a rehabilitation (the current definition could, but does not explicitly support a by-system determination but, rather, a whole-building determination) this project received 25pts in Planning & Design. System replacement of a major building assembly should have been based on the condition of the system and its components. This scenario also applied to Anchorage's 4 Roof Replacement project where $20M roofs were programed for complete replacement based on a Facility Condition Index life-expectancy. Best practice would have required a condition survey, probably from a qualified professional, on which to base a project solution.

Condition/Component Survey

- The scoring matrix for condition survey points includes provisions for the age of the survey with increments at under 6yrs, under 10yrs, and over 10yrs. A situation arose this rating period where a two condition surveys, both dating to 2008, were awarded

differing points, one 10pts, and the other 8pts. Following is the rationale for that award for the two projects:

- 19-018 Chatham Klukwan K-12 Boiler Replacement – the condition survey for this project was dated 8/26/2008 and was deemed to be over 6yrs but less than 10yrs old. However, the project was completed by the district in August 2013 when the survey was only 5 years old. Requiring the district to update a condition survey on a completed project in order to gain the full 10 points didn't seem appropriate. 10 points were awarded to the project under Condition/component Survey.
- 19-078 Petersburg District Food Service Renovations – the condition survey for this project was dated 6/15/2008 and was deemed to be over 6yrs but less than 10yrs old. The project is still in the planning phase and has not been completed. 8 points were awarded to the project under Condition/component Survey. [Note: portions of the condition survey were updated in 2013 but the update did not address this project.]

Eligibility

Procurement

Projects submitted with ineligible procurement of design or construction were made ineligible for CIP funding.

Potential FY2020 Application Changes

The following changes have been identified as potential changes to the FY2019 CIP application and support materials. These will be developed and presented in the Spring 2018 committee meeting.

Application Instruction Changes

Adjustments will be made to the Application Instructions that correspond to any Application Changes. In addition --

Sec. 6. Planning & Design

- Supplement language that indicates a survey is required for rehabilitation projects with language that projects with scope warranting an in-depth examination will require a scope-specific condition survey to receive design development points.

Appendix B

- Adjust condition survey note to "Required if applicable to scope" for design development (additional instructions in Sec. 6).
- Add "Required" elements to Phase III Construction to guide scoring of completed projects.

Eligibility Form Changes

- No changes.

Rater's Guide Changes

- Revise Code Deficiency / Protection of Structure / Life Safety (Q.4a) matrix.
- Revise Emergency (Q.8a) standards and matrix.

Rating Form Changes

- No changes.

Forms

Six-Year Plan

Question 2a of the CIP application reads, "Has a six-year Capital Improvement Plan (CIP) been approved by the district school board?" Yes and No check boxes are provided for a response. Application instructions require attaching a current six-year plan and direct use of department form 05-11-068. That form only provides a signature spot for the Chief School Administrator. The department has accepted other forms that include the required elements.

Question: is board approval required and, if yes, what form should that approval take? Currently districts are not being held to the same standard.

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To: Bond Reimbursement & Grant Review Committee
From: Larry Morris, Architect Assistant
Date: December 1, 2017

RATER'S BRIEFING

Two scoring categories in the CIP application that have generated the most confusion and concern for districts are code deficiency/protection of structure/life safety (LS) and emergency. After my first time evaluating and scoring CIP applications and after 10 years of writing them, I can state that it is equally confusing and difficult for both the raters and the writers. Below is a discussion of the two scoring categories, the historical uses, the relation to other evaluative categories, and how they are part of the state's interest in funding projects.

Code Deficiency / Protection of Structure / Life Safety (LS)

The LS evaluative question has a maximum 50 points available. Historically, however, the awarded points have fallen far short of that amount. From the FY 2017 list through FY 2019 initial list the majority of points awarded were in the teens with a few in the 20s and four separate projects in the low 30s. In the years prior, the scores were significantly lower with most under 10 points. The *Guidelines for Raters of the CIP Application* (Rev.09/2014) has three suggested guidelines, one for each of the three categories, with scoring from zero to 35 points. A note reserves the 35-50 points for complete and imminent building failure due to code deficiency, protection of structure, or life safety conditions, resulting in un-housed students. A further note suggests that this condition will likely have emergency points also.

One of the difficult objectives of this category is maintaining parity of projects with similar scopes and also maintaining parity between projects with differing scopes and weighing each project's comparable severity. In other words, having to determine the severity of leaking roofs between two projects as well as comparing a project for a leaking roof to a project replacing a failing heating system. The existing guideline introduces a level of subjectivity and personal views, especially in comparing divergent scopes. One person's view of a leaky roof may be different from their view of a failing heating system. Broadening this to more varied scopes, structural/seismic, roofs, fire alarms, sprinklers, etc. shows how difficult this can become. In order to reduce the confusion and concern, for all, it may be beneficial to develop a matrix for scoring that assigns a small range of points for each condition within each scope addressing comparable severity.

DEED Facilities has worked towards a scoring matrix in the past. The matrix would have to set scoring for similar and non-similar projects, as well as be able to equitably assign points for projects with multiple elements in comparison to a single condition project. A project can be used to correct multiple LS issues economically compared to multiple single-element projects. However, addressing one or two LS issues as part of a larger project addressing many non-LS issues may not be in the state's best interest.

Emergency

The emergency category also has 50 Points available. Since the FY 2017 application year, the range of scores has been from the low teens to zero. Applicants are required to indicate if the project is an emergency in order for it to eligible for emergency points. Many do not ask for points and many who do are not awarded any. Only prior funding and alternative facilities, which is not used for major maintenance, have fewer projects receiving points.

The "*Guideline for Raters"* addresses the scoring of this category slightly better than the LS category. There are six defined scoring components with varying amount of available scores as follows:

- Building is destroyed or unsafe, requiring replacement and causing un-housed students – 50 points
- Building is unsafe, requiring temporary relocation of students and substantial repairs – 25 to 45 points
- Building is occupied but a local or state official requires repairs by a date certain or be abandoned – 5 to 25 points
- A portion of the building requires significant repair or replacement and cannot be used for educational purposes – 5 to 45 points
- A major component of the building has failed making the building unusable until repaired – 25 to 45 points
- A major building component has a high probability of complete failure and could restrict use of the building – 5 to 25 points

The emergency category is to assist in ranking a project with an un-foreseen issue that, if not corrected, would cause or has caused the facility to no longer be able to function, e.g. burned down. Also, the issue is of enough importance that it would be ranked at the top of the district's priority list unless number one was a greater emergency. What should be considered an emergency for the purpose of the application? Should the scoring continue to be linear with small amount of points for minor emergencies or be limited to a set of high-valued points for defined states of emergency?

Should the category only be for "emergency" conditions, meaning an unexpected and unforeseen event that restricted full use of the building and required immediate action to correct, or should the category also include "emergent" conditions, meaning the district has become aware of an issue that will restrict full use of the building. Currently, raters spend significant time evaluating whether a condition qualifies as "emergent" with a "high probability of complete failure". Providing

clarification and a clear definition of what constitutes an emergency in both the *Instructions* and *Guidelines for Raters* will reinforce the intended use of this scoring category.

Other Evaluative Categories

Other evaluative categories include; maintenance and custodial narratives, existing space, operating cost savings, options, alternatives and cost estimate. These all have a good scoring matrix and tend to not have much confusion in point scoring. The category of cost estimate is directly coupled to another category, planning and design. Planning and design awards 25 points for designs of 65% design development through construction. The cost estimate category has estimates developed from 65% drawings a score from 23 to 26 points and 95% through recovery of funds has a range of 27 to 30 points. Therefore a project submittal with 65% documents and estimate will likely score a minimum of 48 points and greater design effort can result in up to 55 points. Therefore, with LS and emergency points utilizing between 10 and 35 points combined, design and cost estimate can be more indicative of project placement and funding. This may not be in the state's best interest for funding the facility needs of education.

Moving Forward

Alaska Statute 14.11.013 (Department review of grant application) states:

> (a) With regard to projects for which grants are requested under AS 14.11.011, the department shall
>
> (1) annually review the six-year plans submitted by each district under AS 14.11.011(b) and recommend to the board a revised and updated six-year capital improvement project grant schedule that serves the best interests of the state and each district; in recommending projects for this schedule, the department shall verify that each proposed project meets the criteria established under AS 14.11.014(b) and qualifies as a project required to
>
> (A) avert imminent danger or correct life-threatening situations;
>
> (B) house students who would otherwise be unhoused; for purposes of this subparagraph, students are considered unhoused if the students attend school in temporary facilities;
>
> (C) protect the structure of existing school facilities;
>
> (D) correct building code deficiencies that require major repair or rehabilitation in order for the facility to continue to be used for the educational program;
>
> (E) achieve an operating cost savings;
>
> (F) modify or rehabilitate facilities for the purpose of improving the instructional program;
>
> (G) meet an educational need not specified in (A) - (F) of this paragraph, identified by the department;

This indicates that the primary concerns are code, life safety, and the protection of structures that the state and districts have invested resources into as well as providing for unhoused students and reducing operating costs to districts. Also included in statute is 14.11.011(4)(A) and (B) stating that, to qualify, districts must have a preventive maintenance plan and *must adequately adhere to it.* The purpose of this statute is to control costs to the state for renovations and replacement of facilities

prematurely. Unhoused students has a formula driven category with up to 80 points available in the application. Operational cost savings has an evaluative scored category with up to 30 points available. It also has a well-developed scoring matrix. This brings us to the LS and emergency categories and their place in application scoring and the state's best interest.

Based on statute, one can infer that addressing code deficiencies, protection of structure, and life safety are in the state's best interest and that the LS category should have a more significant role in determining placement on the priority lists than those items not addressing the state's interest. The best way to achieve this is to utilize a larger amount of the available points. 50 points can have a significant role in a project's placement and possibility of funding and having it in an evaluative (read subjective) category should also have a large amount of transparency in it. Having a matrix that includes a large array of possible issues and showing their points can increase both transparency, utilize all of the available points, and reduce subjectivity. The matrix can also be used for incentivizing facility maintenance and showing that they are, in fact, using their work order system as required by statute.

Finally, how should the emergency category fit into project evaluation? The emergency category and its 50 points are to prioritize those projects that are true emergencies to a district and its educational mission. But, in the scope of the CIP application and the priority lists, what is an emergency? Is it such that a large catastrophe is a large emergency and a small annoyance is a small emergency? Should the emergency points be reserved for truly large, unforeseen, occasions? Examples would be 50 points for a school that has been destroyed or rendered un-habitable and results in the attendance area having unhoused students; and 25 points for a facility or a component having a date certain when the facility being un-habitable. Any other situation would not be eligible for points. This would utilize the emergency points for what it is intended, to prioritize emergencies with a significant infusion of points and higher ranking on the statewide priority list. An emergency-qualified project should be the first project on a district's priority list unless the higher ranked project is an emergency equal to or greater the other.

Conclusion

Code deficiency/Protection of structure/Life safety is an area of evaluating and prioritizing school facility projects in the best interest to the state. There should be a matrix for scoring that utilizes all 50 points available to increase its actual weight in prioritizing projects; as compared to its historical use of more minimal scoring. A well-developed matrix would also increase transparency and reduce subjectivity. The department is in the process of developing a matrix for committee review.

In conjunction with a more developed LS matrix that more fully utilizes the 50 available points, the committee should re-evaluate whether the emergency category should be used to sparingly, with high point benchmarks, in order to prioritize true emergencies or continue with a more incremental point assignment.

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Initial Agency Decision

Nov. 5	School District	Project Name	Amount Requested	Eligible Amount	Prior Funding	EED Recommended Amount	Participating Share	State Share	Aggregate Amount
1	Lower Kuskokwim	J Alexie Memorial K-12 School Replacement, Atmautluak	$45,263,955	$43,691,585	$3,328,232	$40,363,353	$807,267	$39,556,086	$39,556,086
2	Lower Kuskokwim	Eek K-12 School Renovation/Addition	$35,534,103	$33,760,170	$0	$33,760,170	$675,203	$33,084,967	$72,641,053
3	Lower Kuskokwim	Anna Tobeluk Memorial K-12 School Renovation/Addition, Nunapitchuk	$63,237,913	$53,661,875	$0	$53,661,875	$1,073,237	$52,588,638	$125,229,691
4	Galena City	Galena Interior Learning Academy Classroom Building Upgrade	$8,039,669	$8,039,669	$0	$8,039,669	$401,983	$7,637,686	$132,867,377
5	Lower Kuskokwim	Mertarvik K-12 School Newtok Replacement	$49,272,786	$39,705,503	$0	$39,705,503	$794,110	$38,911,393	$171,778,770
6	Aleutians East	Sand Point K-12 School Paving	$450,463	$450,463	$0	$450,463	$157,662	$292,801	$172,071,571
7	Lower Kuskokwim	Water Storage and Treatment, Kongiganak	$5,930,074	$5,930,074	$0	$5,930,074	$118,601	$5,811,473	$177,883,044
8	Southeast Island	Kasaan K-12 School Covered Play Area Construction	$449,421	$449,421	$0	$449,421	$8,988	$440,433	$178,323,477
9	Aleutians East	King Cove K-12 School Paving	$112,250	$112,250	$0	$112,250	$39,287	$72,963	$178,396,440
10	Southeast Island	Thorne Bay K-12 School Playground Upgrades	$226,137	$226,137	$0	$226,137	$4,523	$221,614	$178,618,054
11	Yupiit	Playground Construction, 3 Schools	$608,458	$608,458	$0	$608,458	$12,169	$596,289	$179,214,343
		TOTALS:	**$209,125,228**	**$186,635,604**	**$3,328,232**	**$183,307,373**	**$4,093,030**	**$179,214,343**	

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Initial List

Nov 5	School District	Project Name	Amount Requested	Eligible Amount	Prior Funding	EED Recommended Amount	Participating Share	State Share	Aggregate Amount
1	Anchorage	Romig Middle School Gym Seismic Repairs	$607,997	$634,282	$0	$634,282	$221,999	$412,283	$412,283
2	Denali Borough	Anderson K-12 School Water Line Replacement	$225,418	$220,490	$0	$220,490	$44,098	$176,392	$588,675
3	Petersburg Borough	Petersburg Middle/High School Boiler 2 Replacement	$76,176	$76,176	$0	$76,176	$26,662	$49,514	$638,189
4	Denali Borough	Cantwell K-12 School Roof Replacement	$1,107,009	$807,654	$0	$807,654	$161,531	$646,123	$1,284,312
5	Petersburg Borough	Districtwide Food Service Renovations	$1,560,163	$1,560,163	$0	$1,560,163	$546,057	$1,014,106	$2,298,418
6	Saint Marys	St. Mary's Campus Upgrades	$4,899,885	$4,188,200	$0	$4,188,200	$418,820	$3,769,380	$6,067,798
7	Chatham	Klukwan K-12 School Boiler Replacement	$57,765	$57,765	$0	$57,765	$1,155	$56,610	$6,124,408
8	Bristol Bay Borough	Bristol Bay School Renovation Phase II	$14,736,892	$13,022,838	$0	$13,022,838	$4,557,993	$8,464,845	$14,589,253
9	Ketchikan	Houghtaling Elementary Roof Replacement	$3,361,695	$3,361,695	$0	$3,361,695	$1,008,508	$2,353,187	$16,942,440
10	Aleutians East	Sand Point K-12 School Heating System Renovation	$309,936	$301,406	$0	$301,406	$105,492	$195,914	$17,138,354
11	Yukon-Koyukuk	Allakaket K-12 School Renovation	$10,594,143	$9,381,581	$0	$9,381,581	$187,632	$9,193,949	$26,332,303
12	Northwest Arctic	Davis Ramoth K-12 School Window Replacement, Selawik	$241,245	$241,245	$0	$241,245	$48,249	$192,996	$26,525,299
13	Petersburg Borough	Petersburg High School Gym and Auxiliary Gym LED Lighting Upgrade	$27,857	$27,346	$0	$27,346	$9,571	$17,775	$26,543,074
14	Southeast Island	Thorne Bay Maintenance Building Roof Replacement	$231,462	$161,680	$0	$161,680	$3,234	$158,446	$26,701,520
15	Lower Kuskokwim	Bethel Campus Fire Pump House and Fire Protection Upgrades	$2,982,088	$2,982,088	$0	$2,982,088	$59,642	$2,922,446	$29,623,966
16	Northwest Arctic	Davis Ramoth K-12 School Sewer Line Repair, Selawik	$67,190	$67,190	$0	$67,190	$13,438	$53,752	$29,677,718
17	Nome City	Nome Beltz Jr/Sr High School Partial Roof Replacement	$2,223,488	$2,223,488	$0	$2,223,488	$667,046	$1,556,442	$31,234,160
18	Chugach	Chenega Bay K-12 School Rehabilitation	$5,542,562	$5,542,562	$0	$5,542,562	$110,851	$5,431,711	$36,665,871
19	Craig City	Craig Middle School Gym Floor Replacement	$522,692	$522,692	$0	$522,692	$104,538	$418,154	$37,084,025
20	Craig City	Districtwide Energy Upgrades	$183,977	$178,913	$0	$178,913	$35,783	$143,130	$37,227,155
21	Alaska Gateway	Tok K-12 School Sprinkler Renovation	$1,799,001	$1,799,001	$0	$1,799,001	$35,980	$1,763,021	$38,990,176
22	Petersburg Borough	Petersburg Middle/High School Entry Renovation	$48,303	$46,974	$0	$46,974	$16,441	$30,533	$39,020,709
23	Lower Kuskokwim	Nuniwaarmiut K-12 School Wastewater Upgrades, Mekoryuk	$1,123,319	$894,480	$0	$894,480	$17,890	$876,590	$39,897,299
24	Chugach	Tatitlek K-12 School Rehabilitation	$5,243,249	$5,243,249	$0	$5,243,249	$104,865	$5,138,384	$45,035,683
25	Denali Borough	Tri-Valley School Coal Heat Conversion	$89,923	$89,923	$0	$89,923	$17,985	$71,938	$45,107,621

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Nov 5	School District	Project Name	Amount Requested	Eligible Amount	Prior Funding	EED Recommended Amount	Participating Share	State Share	Aggregate Amount
26	Copper River	District Office Roof Renovation and Energy Upgrade	$1,022,041	$1,022,041	$0	$1,022,041	$20,441	$1,001,600	$46,109,221
27	Nenana City	Nenana K-12 School Flooring and Asbestos Abatement	$399,436	$385,191	$0	$385,191	$19,260	$365,931	$46,475,152
28	Hoonah City	Hoonah Central Boiler Replacement	$262,100	$262,100	$0	$262,100	$78,630	$183,470	$46,658,622
29	Craig City	Craig Elementary School Door And Flooring Replacement	$138,462	$138,462	$0	$138,462	$27,692	$110,770	$46,769,392
30	Craig City	Craig Middle School Siding and Windows	$149,167	$149,167	$0	$149,167	$29,833	$119,334	$46,888,726
31	Nenana City	Nenana K-12 School Boiler Replacement	$143,070	$143,070	$0	$143,070	$7,153	$135,917	$47,024,643
32	Petersburg Borough	Petersburg Middle/High School Underground Storage Tank Replacement	$177,695	$177,695	$0	$177,695	$62,193	$115,502	$47,140,145
33	Aleutians East	Sand Point K-12 School Pool Major Maintenance	$104,660	$104,660	$0	$104,660	$36,631	$68,029	$47,208,174
34	Yupiit	Tuluksak K-12 School Fuel Tank Replacement	$2,430,410	$2,430,410	$0	$2,430,410	$48,608	$2,381,802	$49,589,976
35	Lower Yukon	Hooper Bay K-12 School Exterior Repairs	$2,567,788	$2,567,788	$0	$2,567,788	$51,356	$2,516,432	$52,106,408
36	Haines Borough	Haines High School Locker Room Renovation	$779,739	$779,739	$0	$779,739	$272,909	$506,830	$52,613,238
37	Kuspuk	Jack Egnaty Sr. K-12 School Roof Replacement, Sleetmute	$1,660,924	$1,660,924	$0	$1,660,924	$33,218	$1,627,706	$54,240,944
38	Southeast Island	Thorne Bay K-12 Fire Suppression System	$480,867	$480,867	$0	$480,867	$9,617	$471,250	$54,712,194
39	Lower Yukon	Hooper Bay K-12 School Emergency Lighting and Retrofit	$232,730	$232,730	$0	$232,730	$4,655	$228,075	$54,940,269
40	Yukon Flats	Chalkyitsik K-12 School Water Tank Replacement	$1,272,216	$1,272,216	$0	$1,272,216	$25,444	$1,246,772	$56,187,041
41	Nome City	Nome Elementary School Gym Flooring Replacement	$107,692	$103,740	$0	$103,740	$31,122	$72,618	$56,259,659
42	Yukon Flats	Venetie K-12 School Generator Building Renovation	$2,754,866	$2,388,911	$0	$2,388,911	$47,778	$2,341,133	$58,600,792
43	Southwest Region	Manokotak K-12 School Sewer and Water Upgrade	$232,467	$232,467	$0	$232,467	$4,649	$227,818	$58,828,610
44	Chatham	Fire Alarm Upgrades - 3 Sites	$104,572	$104,572	$0	$104,572	$2,091	$102,481	$58,931,091
45	Lower Yukon	Scammon Bay K-12 School Emergency Lighting and Retrofit	$119,467	$117,829	$0	$117,829	$2,357	$115,472	$59,046,563
46	Anchorage	Roof Replacement and Upgrades, 4 Schools	$21,174,967	$12,434,633	$0	$12,434,633	$4,352,122	$8,082,511	$67,129,074
47	Yukon Flats	Beaver and Chalkyitsik K-12 School Boiler and Control Upgrades	$1,366,954	$1,323,900	$0	$1,323,900	$26,478	$1,297,422	$68,426,496
48	Southwest Region	Twin Hills K-8 School Renovations	$2,004,615	$2,004,615	$0	$2,004,615	$40,092	$1,964,523	$70,391,019
49	Haines Borough	Haines High School Roof Replacement	$2,399,203	$2,399,203	$0	$2,399,203	$839,721	$1,559,482	$71,950,501

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Nov 5	School District	Project Name	Amount Requested	Eligible Amount	Prior Funding	EED Recommended Amount	Participating Share	State Share	Aggregate Amount
50	Sitka City Borough	Keet Gooshi Heen Elementary Covered PE Structure Renovation	$475,238	$475,238	$0	$475,238	$166,333	$308,905	$72,259,406
51	Yukon-Koyukuk	Ella B. Vernetti K-8 School Entry Access Repairs, Koyukuk	$277,052	$277,052	$0	$277,052	$5,541	$271,511	$72,530,917
52	Annette Island	Metlakatla High School Gym Acoustical Upgrades	$142,669	$142,669	$0	$142,669	$2,853	$139,816	$72,670,733
53	Chatham	Klukwan K-12 School Roof Replacement	$1,832,400	$1,770,420	$0	$1,770,420	$35,408	$1,735,012	$74,405,745
54	Southeast Island	Thorne Bay K-12 School Carpet Replacement	$71,549	$69,579	$0	$69,579	$1,392	$68,187	$74,473,932
55	Mat-Su Borough	Districtwide Seismic Upgrades, Phase 1	$7,326,904	$6,994,745	$0	$6,994,745	$2,098,423	$4,896,322	$79,370,254
56	Lower Kuskokwim	Bethel Regional High School Boardwalk Replacement	$738,394	$738,394	$0	$738,394	$14,768	$723,626	$80,093,880
57	Mat-Su Borough	Water System Replacement, Big Lake, Butte, Snowshoe Elementary Schools	$6,321,087	$5,754,270	$0	$5,754,270	$1,726,281	$4,027,989	$84,121,869
58	Nome City	Anvil City Charter School Restroom Renovations	$431,240	$431,240	$0	$431,240	$129,372	$301,868	$84,423,737
59	Copper River	Glenallen Voc-Ed Facility Renovation	$702,997	$702,997	$0	$702,997	$14,060	$688,937	$85,112,674
60	Nenana City	Nenana K-12 School Fire Suppression System Replacement	$1,382,689	$1,382,689	$0	$1,382,689	$69,134	$1,313,555	$86,426,229
61	Kake City	Kake High School Plumbing Replacement	$639,172	$639,172	$0	$639,172	$127,834	$511,338	$86,937,567
62	Lower Yukon	Scammon Bay K-12 School Siding Replacement	$960,216	$960,216	$0	$960,216	$19,204	$941,012	$87,878,579
63	Southeast Island	Thorne Bay K-12 Mechanical Control Upgrades	$1,408,445	$1,408,445	$0	$1,408,445	$28,169	$1,380,276	$89,258,855
64	Anchorage	Mears Middle School Roof Replacement and Upgrades	$10,654,171	$9,530,938	$0	$9,530,938	$3,335,828	$6,195,110	$95,453,965
65	Southwest Region	William "Sonny" Nelson K-8 School Renovations, Ekwok	$3,206,193	$3,206,193	$0	$3,206,193	$64,124	$3,142,069	$98,596,034
66	Craig City	Craig High School Biomass Boiler	$544,148	$544,148	$0	$544,148	$108,830	$435,318	$99,031,352
67	Southwest Region	Aleknagik K-8 School Renovations	$3,136,609	$3,136,609	$0	$3,136,609	$62,732	$3,073,877	$102,105,229
68	Nome City	Nome Beltz Jr/Sr High School Generator and Electrical Service Replacement	$1,818,227	$1,818,227	$0	$1,818,227	$545,468	$1,272,759	$103,377,988
69	Yukon Flats	Fort Yukon K-12 School Soil Remediation and Fuel Tank Replacement	$10,818,586	$4,642,888	$0	$4,642,888	$92,858	$4,550,030	$107,928,018
70	Anchorage	Steller Secondary School Fire Alarm Replacement	$322,875	$322,875	$0	$322,875	$113,006	$209,869	$108,137,887
71	Kake City	Exterior Upgrades - Main School Facilities	$242,861	$242,861	$0	$242,861	$48,572	$194,289	$108,332,176
72	Lower Kuskokwim	Akula Elitnauvik K-12 School Renovation, Kasigluk-Akula	$4,498,235	$3,889,212	$0	$3,889,212	$77,784	$3,811,428	$112,143,604

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Nov 5	School District	Project Name	Amount Requested	Eligible Amount	Prior Funding	EED Recommended Amount	Participating Share	State Share	Aggregate Amount
73	Kake City	Kake High School Gym Floor and Bleacher Replacement	$548,148	$531,076	$0	$531,076	$106,215	$424,861	$112,568,465
74	Anchorage	East High School Safety and Building Upgrades	$11,743,819	$4,966,760	$0	$4,966,760	$1,738,366	$3,228,394	$115,796,859
75	Yukon Flats	Cruikshank K-12 School Soil Remediation and Fuel Tank Replacement, Beaver	$1,327,572	$1,102,255	$0	$1,102,255	$22,045	$1,080,210	$116,877,069
76	Lower Yukon	Ignatius Beans K-12 School Marine Header Pipeline	$1,542,993	$1,476,069	$0	$1,476,069	$29,521	$1,446,548	$118,323,617
77	Anchorage	Service High School Gym Sprinkler and Fire Alarm Upgrades	$6,439,147	$2,103,547	$0	$2,103,547	$736,241	$1,367,306	$119,690,923
78	Yukon-Koyukuk	Ella B. Vernetti K-8 School Boiler Replacement, Koyukuk	$438,678	$438,678	$0	$438,678	$8,774	$429,904	$120,120,827
79	Southeast Island	Thorne Bay K-12 School Underground Storage Tank Replacement	$335,085	$335,085	$0	$335,085	$6,702	$328,383	$120,449,210
80	Iditarod Area	Blackwell K-12 School HVAC Control Upgrades, Anvik	$121,892	$121,892	$0	$121,892	$2,438	$119,454	$120,568,664
81	Lower Kuskokwim	Akiuk Memorial K-12 School Renovation, Kasigluk-Akiuk	$4,103,065	$3,449,411	$0	$3,449,411	$68,988	$3,380,423	$123,949,087
82	Yukon Flats	Venetie K-12 School Soil Remediation and Fuel Tank Replacement	$2,069,628	$1,806,394	$0	$1,806,394	$36,128	$1,770,266	$125,719,353
83	Southeast Island	Port Alexander K-12 Domestic Water Pipe Replacement	$85,289	$107,717	$0	$107,717	$2,154	$105,563	$125,824,916
84	Iditarod Area	David-Louis Memorial K-12 School HVAC Control Upgrades, Grayling	$287,139	$343,542	$0	$343,542	$6,871	$336,671	$126,161,587
85	Anchorage	Bartlett High School Intercom Upgrades	$2,703,997	$1,284,739	$0	$1,284,739	$449,659	$835,080	$126,996,667
86	Lower Yukon	LYSD Central Office Renovation	$5,257,426	$5,006,308	$0	$5,006,308	$100,126	$4,906,182	$131,902,849
87	Mat-Su Borough	Windows and Lighting Upgrades, Butte Elementary, Palmer High School	$4,231,918	$4,231,918	$0	$4,231,918	$1,269,575	$2,962,343	$134,865,192
88	Iditarod Area	David-Louis Memorial K-12 School Roof Replacement, Grayling	$511,334	$1,530,387	$0	$1,530,387	$30,608	$1,499,779	$136,364,971
89	Southeast Island	Port Alexander and Thorne Bay K-12 Schools Roof Replacement	$4,906,853	$4,906,853	$0	$4,906,853	$98,137	$4,808,716	$141,173,687
90	Yupiit	Mechanical System Improvements, 3 Schools	$168,484	$168,484	$0	$168,484	$3,370	$165,114	$141,338,801
91	Lower Yukon	Sheldon Point K-12 School Siding Replacement, Nunam Iqua	$260,799	$260,799	$0	$260,799	$5,216	$255,583	$141,594,384
92	Lower Yukon	Security Access Project, 6 Sites	$1,532,578	$1,532,578	$0	$1,532,578	$30,652	$1,501,926	$143,096,310
93	Lower Yukon	Kotlik and Pilot Station K-12 Schools Renewal and Repair	$2,183,223	$2,183,223	$0	$2,183,223	$43,664	$2,139,559	$145,235,869
		TOTALS:	**$208,700,567**	**$173,518,803**	**$0**	**$173,518,803**	**$28,282,934**	**$145,235,869**	

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Total Points - Formula-Driven and Evaluative
Initial List

Pri. #	School District	Project Name	School Dist Rank	Weight Avg Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Main	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
1	Lower Kuskokwim	J Alexie Memorial K-12 School Replacement, Atmautluak	30.00	10.32	30.00	10.00	3.16	23.04	22.30	24.18	10.00	15.00	10.00	4.00	3.67	3.00	3.00	4.33	0.00	29.33	16.67	14.67	4.33	2.67	16.00	289.66
2	Lower Kuskokwim	Eek K-12 School Renovation/Addition	27.00	23.56	0.00	10.00	3.24	25.53	22.74	21.86	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	1.67	15.33	21.33	17.00	4.33	3.00	19.33	269.27
3	Lower Kuskokwim	Anna Tobeluk Memorial K-12 School Renovation/Addition, Nunapitchuk	24.00	18.45	0.00	10.00	3.24	33.47	30.00	22.45	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	0.00	13.33	22.67	15.33	5.67	3.00	13.67	268.62
4	Galena City	Galena Interior Learning Academy Classroom Building Upgrade	30.00	17.75	0.00	25.00	4.67	0.00	0.00	0.00	10.00	15.00	10.00	4.00	4.33	3.67	4.00	3.67	0.00	21.00	5.67	23.67	6.67	0.00	19.00	208.08
5	Lower Kuskokwim	Mertarvik K-12 School Newtok Replacement	15.00	8.73	0.00	0.00	3.24	9.78	6.42	22.32	0.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	16.67	11.67	12.67	13.33	3.67	4.00	11.67	182.50
6	Aleutians East	Sand Point K-12 School Paving	24.00	16.82	0.00	25.00	1.94	0.00	0.00	0.00	0.00	15.00	10.00	3.00	3.33	2.00	2.67	2.67	0.00	4.67	0.00	28.00	4.33	2.33	9.33	155.09
7	Lower Kuskokwim	Water Storage and Treatment, Kongiganak	18.00	0.00	0.00	20.00	3.16	0.00	0.00	0.00	10.00	15.00	10.00	4.00	3.67	3.00	3.00	4.33	0.00	19.33	0.00	18.00	3.00	2.33	11.33	148.16
8	Southeast Island	Kasaan K-12 School Covered Play Area Construction	12.00	21.25	0.00	0.00	3.04	0.00	5.48	15.00	0.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	0.00	0.00	17.00	13.00	0.00	3.33	9.00	139.11
9	Aleutians East	King Cove K-12 School Paving	21.00	0.00	0.00	25.00	1.94	0.00	0.00	0.00	0.00	15.00	10.00	3.00	3.33	2.00	2.67	2.67	0.00	5.33	0.00	28.00	4.33	2.33	9.33	135.94
10	Southeast Island	Thorne Bay K-12 School Playground Upgrades	15.00	9.17	0.00	10.00	2.93	0.00	0.00	0.00	0.00	15.00	10.00	3.00	3.33	2.67	2.33	2.67	0.00	12.67	0.00	13.33	1.33	3.00	9.33	115.77
11	Yupiit	Playground Construction, 3 Schools	24.00	0.69	0.00	10.00	1.97	0.00	0.00	0.00	0.00	10.00	10.00	3.00	2.33	2.00	3.33	2.67	0.00	6.67	2.67	10.00	0.00	1.00	8.00	98.33

Alaska Department of Education and Early Development
Capital Improvement Projects (FY2019)
Major Maintenance Grant Fund
Total Points - Formula-Driven and Evaluative
Inital List

Pri. #	School District	Project Name	School Dist Rank	Weight Avg. Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Maint	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
1	Anchorage	Romig Middle School Gym Seismic Repairs	30.00	30.00	0.00	25.00	5.00	0.00	0.00	0.00	8.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	12.33	14.00	7.33	27.00	0.00	0.00	10.67	214.67
2	Denali Borough	Anderson K-12 School Water Line Replacement	30.00	28.51	0.00	25.00	3.99	0.00	0.00	0.00	0.00	15.00	10.00	3.67	4.00	4.33	3.33	4.33	17.67	15.33	1.00	28.33	2.67	0.00	8.67	205.83
3	Petersburg Borough	Petersburg Middle/High School Boiler 2 Replacement	30.00	30.00	0.00	25.00	1.28	0.00	0.00	0.00	10.00	15.00	10.00	4.33	5.00	4.67	4.00	4.33	0.00	12.33	0.00	27.67	7.00	0.00	10.33	200.95
4	Denali Borough	Cantwell K-12 School Roof Replacement	24.00	24.53	0.00	25.00	3.99	0.00	0.00	0.00	10.00	15.00	10.00	3.67	4.00	4.33	3.33	4.33	0.00	20.33	1.67	24.00	6.33	0.00	9.00	193.51
5	Petersburg Borough	Districtwide Food Service Renovations	27.00	30.00	0.00	25.00	1.31	0.00	0.00	0.00	8.00	15.00	10.00	4.67	4.67	4.33	4.00	4.00	0.00	9.33	2.00	23.67	5.00	0.00	14.33	192.31
6	Saint Marys	St. Mary's Campus Upgrades	30.00	30.00	0.00	25.00	1.36	0.00	0.00	0.00	8.00	15.00	10.00	3.67	3.33	4.00	4.00	3.67	0.00	11.00	0.00	25.33	6.00	0.00	9.67	190.03
7	Chatham	Klukwan K-12 School Boiler Replacement	30.00	19.50	0.00	25.00	1.44	0.00	0.00	0.00	10.00	15.00	10.00	3.00	3.00	2.67	2.33	2.67	6.00	17.00	0.67	28.33	3.33	0.00	9.67	189.61
8	Bristol Bay Borough	Bristol Bay School Renovation Phase II	30.00	27.86	0.00	20.00	1.54	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.67	3.33	4.00	4.00	0.00	15.00	1.00	20.00	8.00	0.00	12.67	189.39
9	Ketchikan	Houghtaling Elementary Roof Replacement	30.00	30.00	0.00	20.00	4.61	0.00	0.00	0.00	8.00	15.00	10.00	3.67	3.33	3.00	2.00	3.33	0.00	22.67	0.00	20.00	3.67	0.00	9.67	188.94
10	Aleutians East	Sand Point K-12 School Heating System Renovation	30.00	18.57	0.00	25.00	1.79	0.00	0.00	0.00	5.00	15.00	10.00	2.67	3.00	2.00	2.00	2.33	0.00	14.00	0.00	27.00	20.33	0.00	9.33	188.02
11	Yukon-Koyukuk	Allakaket K-12 School Renovation	30.00	23.97	0.00	20.00	2.99	0.00	0.00	0.00	8.00	15.00	10.00	3.33	3.33	3.33	2.67	3.00	0.00	19.67	4.33	18.67	4.67	0.00	14.67	187.63
12	Northwest Arctic	Davis Ramoth K-12 School Window Replacement, Selawik	30.00	9.70	0.00	25.00	2.77	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.00	3.00	2.67	3.67	0.00	12.67	0.00	26.00	20.67	0.00	10.00	187.47
13	Petersburg Borough	Petersburg High School Gym and Auxiliary Gym LED Lighting Upgrade	18.00	19.14	0.00	25.00	1.31	0.00	0.00	0.00	8.00	15.00	10.00	4.67	5.00	4.33	4.00	4.00	0.00	3.00	0.00	28.67	26.67	0.00	9.67	186.45
14	Southeast Island	Thorne Bay Maintenance Building Roof Replacement	27.00	30.00	0.00	20.00	3.04	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	5.00	19.33	0.00	15.67	2.33	0.00	10.33	182.71
15	Lower Kuskokwim	Bethel Campus Fire Pump House and Fire Protection Upgrades	12.00	30.00	0.00	20.00	3.24	0.00	0.00	0.00	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	5.00	19.67	0.00	19.67	1.67	0.00	18.00	182.57
16	Northwest Arctic	Davis Ramoth K-12 School Sewer Line Repair, Selawik	27.00	9.70	0.00	25.00	2.77	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.00	3.00	2.67	3.67	5.00	20.00	0.00	28.33	3.67	0.00	9.67	181.80
17	Nome City	Nome Beltz Jr/Sr High School Partial Roof Replacement	30.00	30.00	0.00	10.00	2.19	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.67	2.67	3.33	4.00	0.00	20.00	0.00	20.00	7.67	0.00	8.33	180.19
18	Chugach	Chenega Bay K-12 School Rehabilitation	30.00	10.09	0.00	20.00	1.16	0.00	0.00	0.00	10.00	15.00	10.00	3.67	3.00	3.00	2.67	3.00	0.00	29.00	0.00	20.33	2.67	0.00	15.33	178.92
19	Craig City	Craig Middle School Gym Floor Replacement	21.00	24.75	0.00	25.00	2.74	0.00	0.00	0.00	8.00	15.00	10.00	3.33	3.67	3.00	3.00	3.00	6.67	8.00	2.00	27.33	2.33	0.00	10.00	178.82
20	Craig City	Districtwide Energy Upgrades	30.00	8.10	0.00	25.00	2.74	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.67	3.00	2.67	3.00	0.00	5.00	0.00	27.33	26.33	0.00	11.67	176.84
21	Alaska Gateway	Tok K-12 School Sprinkler Renovation	30.00	6.50	0.00	20.00	2.27	0.00	0.00	0.00	8.00	15.00	10.00	3.33	4.00	3.00	3.67	3.00	7.00	24.33	0.00	21.00	5.00	0.00	10.00	176.10

Alaska Department of Education and Early Development
Capital Improvement Projects (FY2019)
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Inital List

Pri. #	School District	Project Name	School Dist Rank	Weight Avg. Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Maint	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
22	Petersburg Borough	Petersburg Middle/High School Entry Renovation	21.00	30.00	0.00	25.00	1.31	0.00	0.00	0.00	8.00	15.00	10.00	4.67	5.00	4.33	4.00	4.00	0.00	5.00	0.00	28.33	1.67	0.00	8.33	175.65
23	Lower Kuskokwim	Nuniwaarmiut K-12 School Wastewater Upgrades, Mekoryuk	21.00	21.81	0.00	20.00	3.24	0.00	0.00	0.00	8.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	7.33	14.00	0.00	16.33	2.67	0.00	17.67	175.38
24	Chugach	Tatitlek K-12 School Rehabilitation	27.00	15.12	0.00	20.00	1.16	0.00	0.00	0.00	10.00	15.00	10.00	3.67	3.00	3.00	2.67	3.00	0.00	27.00	0.00	19.67	0.00	0.00	14.67	174.95
25	Denali Borough	Tri-Valley School Coal Heat Conversion	27.00	3.50	0.00	25.00	4.69	0.00	0.00	0.00	10.00	15.00	10.00	4.00	4.33	3.67	4.00	4.67	0.00	0.00	0.00	28.67	21.33	0.00	9.00	174.86
26	Copper River	District Office Roof Renovation and Energy Upgrade	30.00	30.00	0.00	10.00	1.59	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.33	3.00	3.00	3.67	0.00	21.00	0.00	15.00	4.00	0.00	9.33	172.26
27	Nenana City	Nenana K-12 School Flooring and Asbestos Abatement	30.00	30.00	0.00	25.00	3.16	0.00	0.00	0.00	0.00	15.00	10.00	3.67	3.33	3.67	3.00	4.00	0.00	5.67	0.00	23.67	3.00	0.00	9.00	172.16
28	Hoonah City	Hoonah Central Boiler Replacement	30.00	30.00	0.00	10.00	1.76	0.00	0.00	0.00	8.00	15.00	10.00	3.00	3.00	3.67	2.33	2.00	0.00	16.67	0.00	13.00	9.00	0.00	13.67	171.09
29	Craig City	Craig Elementary School Door And Flooring Replacement	27.00	23.00	0.00	25.00	2.74	0.00	0.00	0.00	5.00	15.00	10.00	3.33	3.67	3.00	3.00	3.00	0.00	5.67	2.00	28.00	2.33	0.00	9.33	171.07
30	Craig City	Craig Middle School Siding and Windows	24.00	21.56	0.00	10.00	2.99	0.00	0.00	0.00	10.00	15.00	10.00	3.67	3.67	3.67	3.33	3.33	0.00	17.67	0.00	28.00	3.67	0.00	9.67	170.22
31	Nenana City	Nenana K-12 School Boiler Replacement	27.00	30.00	0.00	20.00	3.16	0.00	0.00	0.00	0.00	15.00	10.00	3.67	3.33	3.67	3.00	4.00	0.00	14.67	0.00	19.67	3.67	0.00	9.33	170.16
32	Petersburg Borough	Petersburg Middle/High School Underground Storage Tank Replacement	24.00	16.00	0.00	25.00	1.31	0.00	0.00	0.00	10.00	15.00	10.00	4.67	5.00	4.33	4.00	4.00	0.00	11.00	0.00	24.67	1.33	0.00	9.67	169.98
33	Aleutians East	Sand Point K-12 School Pool Major Maintenance	27.00	16.82	0.00	25.00	1.94	0.00	0.00	0.00	0.00	15.00	10.00	3.00	3.33	2.00	2.67	2.67	0.00	9.67	0.00	29.00	8.33	0.00	9.67	166.09
34	Yupiit	Tuluksak K-12 School Fuel Tank Replacement	30.00	30.00	0.00	10.00	1.97	0.00	0.00	0.00	8.00	10.00	10.00	3.00	2.33	2.00	3.33	2.67	4.00	20.00	0.00	15.67	2.67	0.00	9.67	165.30
35	Lower Yukon	Hooper Bay K-12 School Exterior Repairs	27.00	0.00	0.00	25.00	2.24	0.00	0.00	0.00	8.00	15.00	10.00	2.67	3.00	3.00	3.33	4.33	0.00	17.67	0.00	27.33	4.33	0.00	12.33	165.24
36	Haines Borough	Haines High School Locker Room Renovation	30.00	30.00	0.00	10.00	1.82	0.00	0.00	0.00	5.00	15.00	10.00	3.33	3.00	2.67	2.67	3.33	0.00	18.33	0.00	14.00	4.33	0.00	10.00	163.49
37	Kuspuk	Jack Egnaty Sr. K-12 School Roof Replacement, Sleetmute	30.00	24.75	0.00	0.00	1.65	0.00	0.00	0.00	0.00	15.00	10.00	3.00	3.00	2.33	2.00	2.67	7.33	30.67	0.67	15.33	3.67	0.00	9.33	161.40
38	Southeast Island	Thorne Bay K-12 Fire Suppression System	30.00	9.92	0.00	10.00	3.04	0.00	0.00	0.00	10.00	15.00	10.00	3.67	3.33	2.33	3.00	3.00	9.00	17.33	0.00	15.67	6.00	0.00	9.00	160.30
39	Lower Yukon	Hooper Bay K-12 School Emergency Lighting and Retrofit	30.00	0.50	0.00	25.00	2.10	0.00	0.00	0.00	5.00	15.00	10.00	3.00	2.67	3.00	2.33	3.33	0.00	6.00	2.00	28.33	10.67	0.00	11.33	160.26
40	Yukon Flats	Chalkyitsik K-12 School Water Tank Replacement	30.00	23.73	0.00	10.00	2.67	0.00	0.00	0.00	8.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	7.67	11.33	0.00	13.67	2.33	0.00	9.67	158.39
41	Nome City	Nome Elementary School Gym Flooring Replacement	27.00	12.50	0.00	25.00	2.19	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.67	2.67	3.33	4.00	0.00	6.67	2.33	28.67	1.33	0.00	9.67	157.35

Alaska Department of Education and Early Development
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Pri. #	School District	Project Name	School Dist Rank	Weight Avg. Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Maint	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
42	Yukon Flats	Venetie K-12 School Generator Building Renovation	24.00	14.25	0.00	10.00	2.67	0.00	0.00	0.00	8.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	6.00	20.00	0.00	14.33	4.67	0.00	13.67	156.92
43	Southwest Region	Manokotak K-12 School Sewer and Water Upgrade	30.00	2.50	0.00	25.00	2.07	0.00	0.00	0.00	0.00	15.00	10.00	3.33	2.67	2.67	2.67	2.33	0.00	12.00	0.00	28.00	7.00	0.00	10.67	155.90
44	Chatham	Fire Alarm Upgrades - 3 Sites	24.00	30.00	0.00	10.00	1.47	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.33	3.00	3.33	3.00	0.00	17.33	0.00	18.67	1.67	0.00	9.00	153.14
45	Lower Yukon	Scammon Bay K-12 School Emergency Lighting and Retrofit	24.00	1.00	0.00	25.00	2.10	0.00	0.00	0.00	5.00	15.00	10.00	3.00	2.67	3.00	2.33	3.00	0.00	6.00	2.00	28.00	11.67	0.00	9.00	152.76
46	Anchorage	Roof Replacement and Upgrades, 4 Schools	27.00	30.00	0.00	0.00	5.00	0.00	0.00	0.00	5.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	13.67	0.00	18.00	1.67	0.00	6.33	152.00
47	Yukon Flats	Beaver and Chalkyitsik K-12 School Boiler and Control Upgrades	27.00	16.96	0.00	10.00	2.67	0.00	0.00	0.00	10.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	0.00	15.67	0.00	12.67	7.00	0.00	8.67	149.96
48	Southwest Region	Twin Hills K-8 School Renovations	27.00	26.50	0.00	0.00	2.07	0.00	0.00	0.00	8.00	15.00	10.00	3.33	2.67	2.67	2.67	2.33	0.00	17.33	0.00	12.00	6.67	0.00	10.00	148.24
49	Haines Borough	Haines High School Roof Replacement	27.00	30.00	0.00	0.00	1.82	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.00	2.67	2.67	3.33	0.00	24.33	0.00	13.67	2.33	0.00	9.00	148.15
50	Sitka City Borough	Keet Gooshi Heen Elementary Covered PE Structure Renovation	30.00	11.00	0.00	10.00	1.35	0.00	0.00	0.00	10.00	15.00	10.00	3.67	3.33	3.00	3.33	3.00	0.00	15.33	0.00	15.00	3.00	0.00	10.00	147.02
51	Yukon-Koyukuk	Ella B. Vernetti K-8 School Entry Access Repairs, Koyukuk	27.00	14.28	0.00	10.00	3.02	0.00	0.00	0.00	0.00	15.00	10.00	3.67	2.67	3.00	2.33	3.00	5.00	19.67	0.00	16.67	2.33	0.00	9.33	146.97
52	Annette Island	Metlakatla High School Gym Acoustical Upgrades	30.00	30.00	0.00	10.00	1.97	0.00	0.00	0.00	0.00	15.00	10.00	3.33	2.67	2.67	3.33	3.00	0.00	0.00	4.00	21.33	0.00	0.00	9.33	146.64
53	Chatham	Klukwan K-12 School Roof Replacement	27.00	19.50	0.00	0.00	1.44	0.00	0.00	0.00	8.00	15.00	10.00	3.00	3.00	2.67	2.33	2.67	1.67	21.67	0.00	14.00	4.33	0.00	7.67	143.94
54	Southeast Island	Thorne Bay K-12 School Carpet Replacement	18.00	9.92	0.00	25.00	3.04	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	0.00	8.00	0.00	28.00	1.67	0.00	9.67	143.30
55	Mat-Su Borough	Districtwide Seismic Upgrades, Phase 1	27.00	30.00	0.00	10.00	2.43	0.00	0.00	0.00	10.00	10.00	10.00	3.67	2.67	2.67	3.33	3.00	5.33	10.00	0.00	10.67	0.33	0.00	1.00	142.10
56	Lower Kuskokwim	Bethel Regional High School Boardwalk Replacement	9.00	30.00	0.00	10.00	3.16	0.00	0.00	0.00	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.00	0.00	11.67	0.00	14.00	2.33	0.00	8.67	141.83
57	Mat-Su Borough	Water System Replacement, Big Lake, Butte, Snowshoe Elementary Schools	30.00	25.80	0.00	10.00	2.43	0.00	0.00	0.00	0.00	10.00	10.00	3.67	2.67	2.67	3.33	3.00	6.33	12.67	1.67	11.33	0.67	0.00	4.67	140.89
58	Nome City	Anvil City Charter School Restroom Renovations	24.00	30.00	0.00	10.00	2.19	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.67	2.67	3.33	4.00	0.00	8.67	2.33	13.33	2.33	0.00	6.00	140.85
59	Copper River	Glenallen Voc-Ed Facility Renovation	27.00	5.44	0.00	10.00	1.59	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.33	3.00	3.00	3.67	0.00	15.67	0.00	15.33	3.33	0.00	8.67	138.36
60	Nenana City	Nenana K-12 School Fire Suppression System Replacement	24.00	22.77	0.00	0.00	3.16	0.00	0.00	0.00	0.00	15.00	10.00	3.67	3.33	3.67	3.00	4.00	6.00	12.67	0.33	17.67	2.33	0.00	6.33	137.93
61	Kake City	Kake High School Plumbing Replacement	30.00	30.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00	15.00	10.00	3.67	4.33	3.00	3.00	3.67	0.00	10.33	0.00	12.33	2.67	0.00	8.33	137.92

Alaska Department of Education and Early Development
Capital Improvement Projects (FY2019)
Major Maintenance Grant Fund
Total Points - Formula-Driven and Evaluative
Inital List

Pri. #	School District	Project Name	School Dist Rank	Weight Avg. Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Maint	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
62	Lower Yukon	Scammon Bay K-12 School Siding Replacement	18.00	0.50	0.00	20.00	2.24	0.00	0.00	0.00	8.00	15.00	10.00	2.67	3.00	3.00	3.33	4.33	0.00	14.67	0.00	16.67	4.00	0.00	11.00	136.41
63	Southeast Island	Thorne Bay K-12 Mechanical Control Upgrades	21.00	9.92	0.00	10.00	3.04	0.00	0.00	0.00	10.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	1.67	9.67	0.00	13.67	8.33	0.00	9.00	136.30
64	Anchorage	Mears Middle School Roof Replacement and Upgrades	24.00	16.00	0.00	0.00	5.00	0.00	0.00	0.00	5.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	14.67	0.00	18.00	1.67	0.00	6.33	136.00
65	Southwest Region	William "Sonny" Nelson K-8 School Renovations, Ekwok	21.00	24.75	0.00	0.00	2.07	0.00	0.00	0.00	8.00	15.00	10.00	3.33	2.67	2.67	2.67	2.33	0.00	17.00	0.00	11.67	3.33	0.00	9.33	135.82
66	Craig City	Craig High School Biomass Boiler	18.00	3.00	0.00	10.00	2.99	0.00	0.00	0.00	5.00	15.00	10.00	3.67	3.67	3.67	3.33	3.33	0.00	1.00	0.00	15.67	17.00	0.00	18.00	133.32
67	Southwest Region	Aleknagik K-8 School Renovations	24.00	19.50	0.00	0.00	2.07	0.00	0.00	0.00	8.00	15.00	10.00	3.33	2.67	2.67	2.67	2.33	0.00	16.00	0.00	12.33	3.00	0.00	9.33	132.90
68	Nome City	Nome Beltz Jr/Sr High School Generator and Electrical Service Replacement	21.00	30.00	0.00	10.00	2.19	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.67	2.67	3.33	4.00	0.00	7.33	0.00	13.33	0.67	0.00	6.33	132.85
69	Yukon Flats	Fort Yukon K-12 School Soil Remediation and Fuel Tank Replacement	21.00	30.00	0.00	0.00	2.67	0.00	0.00	0.00	0.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	5.00	12.67	0.00	11.00	0.00	0.00	9.00	130.67
70	Anchorage	Steller Secondary School Fire Alarm Replacement	15.00	30.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	14.67	0.00	14.00	2.33	0.00	4.00	130.33
71	Kake City	Exterior Upgrades - Main School Facilities	27.00	23.24	0.00	0.00	1.50	0.00	0.00	0.00	0.00	15.00	10.00	4.33	5.00	3.33	4.00	4.00	0.00	5.67	0.00	13.33	2.33	0.00	10.00	128.74
72	Lower Kuskokwim	Akula Elitnauvik K-12 School Renovation, Kasigluk-Akula	3.00	19.76	0.00	10.00	3.24	0.00	0.00	0.00	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	0.00	10.67	1.33	14.33	3.33	0.00	9.67	128.66
73	Kake City	Kake High School Gym Floor and Bleacher Replacement	24.00	30.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00	15.00	10.00	3.67	4.33	3.00	3.00	3.67	0.00	6.67	0.67	11.67	1.67	0.00	9.33	128.26
74	Anchorage	East High School Safety and Building Upgrades	21.00	30.00	0.00	0.00	5.00	0.00	0.00	0.00	5.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	7.33	0.00	10.00	1.00	0.00	3.33	128.00
75	Yukon Flats	Cruikshank K-12 School Soil Remediation and Fuel Tank Replacement, Beaver	18.00	30.00	0.00	0.00	2.67	0.00	0.00	0.00	3.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	0.00	12.00	0.00	11.67	0.00	0.00	8.67	125.33
76	Lower Yukon	Ignatius Beans K-12 School Marine Header Pipeline	21.00	5.86	0.00	20.00	2.10	0.00	0.00	0.00	8.00	15.00	10.00	3.00	2.67	3.00	2.33	3.00	0.00	8.67	0.00	12.67	0.00	0.00	7.67	124.95
77	Anchorage	Service High School Gym Sprinkler and Fire Alarm Upgrades	18.00	19.50	0.00	0.00	5.00	0.00	0.00	0.00	5.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	15.67	0.33	11.33	1.00	0.00	3.33	124.50
78	Yukon-Koyukuk	Ella B. Vernetti K-8 School Boiler Replacement, Koyukuk	24.00	14.28	0.00	0.00	3.02	0.00	0.00	0.00	0.00	15.00	10.00	3.67	2.67	3.00	2.33	3.00	0.00	10.67	0.00	12.33	6.00	0.00	11.67	121.63
79	Southeast Island	Thorne Bay K-12 School Underground Storage Tank Replacement	24.00	9.92	0.00	10.00	3.04	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	0.00	9.33	0.00	13.67	0.00	0.00	9.33	119.30
80	Iditarod Area	Blackwell K-12 School HVAC Control Upgrades, Anvik	24.00	26.50	0.00	10.00	2.33	0.00	0.00	0.00	8.00	0.00	0.00	3.00	2.33	2.67	2.67	3.00	0.00	8.33	2.33	12.00	3.33	0.00	8.33	118.83

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Pri. #	School District	Project Name	School Dist Rank	Weight Avg. Age	Prev. 14.11 Fund	Plan and Design	Avg Expend Maint	Un-Housed Today	Un-housed 7 Years	Type of Space	Cond Survey	Maint Labor	Maint Type	Maint Mgt	Energy Mgt	Cusd Pgm	Maint Train	Capital Plan	Emer-gency	Life/Safety and Code Conditions	Exist-ing Space	Cost Esti-mate	Proj vs Oper Cost	Alter-na-tives	Op-tions	Total Points
81	Lower Kuskokwim	Akiuk Memorial K-12 School Renovation, Kasigluk-Akiuk	6.00	8.50	0.00	10.00	3.24	0.00	0.00	0.00	10.00	15.00	10.00	4.33	3.67	3.00	3.00	4.33	0.00	11.33	2.00	14.33	3.33	0.00	6.33	118.40
82	Yukon Flats	Venetie K-12 School Soil Remediation and Fuel Tank Replacement	15.00	30.00	0.00	0.00	2.67	0.00	0.00	0.00	0.00	15.00	10.00	2.33	2.67	2.67	3.33	3.33	0.00	11.00	0.00	10.67	0.00	0.00	8.67	117.33
83	Southeast Island	Port Alexander K-12 Domestic Water Pipe Replacement	6.00	19.38	0.00	0.00	3.04	0.00	0.00	0.00	3.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	6.00	15.00	0.00	13.33	1.67	0.00	9.33	116.76
84	Iditarod Area	David-Louis Memorial K-12 School HVAC Control Upgrades, Grayling	30.00	12.50	0.00	10.00	2.33	0.00	0.00	0.00	8.00	0.00	0.00	3.00	2.33	2.67	2.67	3.00	0.00	12.33	2.67	13.00	4.00	0.00	8.00	116.49
85	Anchorage	Bartlett High School Intercom Upgrades	12.00	30.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	15.00	10.00	4.67	3.33	3.67	3.67	5.00	0.00	5.00	0.00	14.33	1.33	0.00	3.33	116.33
86	Lower Yukon	LYSD Central Office Renovation	15.00	22.69	0.00	0.00	2.10	0.00	0.00	0.00	0.00	15.00	10.00	3.00	2.67	3.00	2.33	3.00	0.00	10.33	0.00	13.00	5.33	0.00	7.33	114.79
87	Mat-Su Borough	Windows and Lighting Upgrades, Butte Elementary, Palmer High School	24.00	28.06	0.00	0.00	2.43	0.00	0.00	0.00	0.00	10.00	10.00	3.67	2.67	2.67	3.33	3.00	0.00	5.67	1.33	10.00	3.33	0.00	2.67	112.83
88	Iditarod Area	David-Louis Memorial K-12 School Roof Replacement, Grayling	27.00	12.50	0.00	10.00	2.33	0.00	0.00	0.00	0.00	0.00	0.00	3.00	2.33	2.67	2.67	3.00	0.00	19.67	0.67	14.00	2.67	0.00	7.67	110.16
89	Southeast Island	Port Alexander and Thorne Bay K-12 Schools Roof Replacement	9.00	10.16	0.00	0.00	3.04	0.00	0.00	0.00	0.00	15.00	10.00	3.33	3.33	2.33	3.00	3.00	0.00	20.67	2.00	13.00	2.00	0.00	9.00	108.87
90	Yupiit	Mechanical System Improvements, 3 Schools	27.00	0.69	0.00	0.00	1.97	0.00	0.00	0.00	0.00	10.00	10.00	3.00	2.33	2.00	3.33	2.67	0.00	8.00	0.00	15.33	5.33	0.00	9.67	101.33
91	Lower Yukon	Sheldon Point K-12 School Siding Replacement, Nunam Iqua	12.00	0.00	0.00	0.00	2.24	0.00	0.00	0.00	5.00	15.00	10.00	2.67	3.00	3.00	3.33	4.33	0.00	9.67	0.00	12.67	3.33	0.00	8.00	94.24
92	Lower Yukon	Security Access Project, 6 Sites	9.00	0.93	0.00	0.00	2.10	0.00	0.00	0.00	0.00	15.00	10.00	3.00	2.67	3.00	2.33	3.00	0.00	5.67	0.00	12.67	2.33	0.00	5.33	77.03
93	Lower Yukon	Kotlik and Pilot Station K-12 Schools Renewal and Repair	6.00	2.00	0.00	0.00	2.24	0.00	0.00	0.00	5.00	15.00	10.00	2.67	3.00	3.00	3.33	4.33	0.00	2.00	0.00	12.33	0.00	0.00	5.00	75.91

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
1	3	Alaska Gateway	Tok Sprinkler Renovation	C	$ 564,668						Y
2	3	Alaska Gateway	Tanacross K-8 School Renovation	C		$ 4,196,355					
3	3	Alaska Gateway	Northway School Renovation	C		$ 4,951,000					
4	3	Alaska Gateway	Eagle School Renovation	C			$ 3,208,000				
5	3	Alaska Gateway	Tetlin School Renovation	C				$ 1,671,000			
6	3	Alaska Gateway	Dot Lake School Renovation	C					$ 1,161,000		
7	3	Alaska Gateway	Mentasta School Renovation	C						$ 570,000	
1	56	Aleutians East Borough	Sand Point K-12 Heating System Renovation	C	$ 309,936						
2	56	Aleutians East Borough	Sand Point K-12 School Pool Major Maintenance	C	$ 102,608						Y
3	56	Aleutians East Borough	Sand Point K-12 School Paving	F	$ 441,630						Y
4	56	Aleutians East Borough	King Cove K-12 School Paving	F	$ 110,049						Y
1	5	Anchorage	Romig Middle School Gym Seismic Repairs	C	$ 607,997						
2	5	Anchorage	4 School Roof Projects (Birchwood ABC, Ptarmigan, Homestead, North Star)	C	$ 21,174,967						
3	5	Anchorage	Mears Middle School Roof Replacement & Upgrades	C	$ 9,530,938						
4	5	Anchorage	East High School Safety and Building Upgrades	D	$ 4,966,760						
5	5	Anchorage	Service High School Gym Sprinkler and Fire Alarm Upgrades	D	$ 2,103,547						
6	5	Anchorage	Steller Secondary School Fire Alarm Replacement	D	$ 322,875						
7	5	Anchorage	Bartlett High School Intercom Upgrades	D	$ 1,284,739						
8	5	Anchorage	West High School/Romig Middle School Library/Counseling Area Seismic Renovation	C	$ 6,750,000						
9	5	Anchorage	King Career Center Roof Replacement	C	$ 4,096,458						
10	5	Anchorage	Muldoon Elementary School Roof Replacement	C	$ 920,000						
11	5	Anchorage	Northwood Elementary School Roof Replacement	C	$ 2,646,287						
12	5	Anchorage	Nunaka Valley Elementary School Roof Replacement	C	$ 2,900,000						
13	5	Anchorage	Rogers Park Elementary School Roof Replacement and Ventilation System Upgrade	C	$ 10,855,000						
14	5	Anchorage	Student Nutrition Roof Replacement	C	$ 2,550,000						
15	5	Anchorage	West High School Roof Replacement and Gym/Auditorium Venitlation	C	$ 15,800,000						
16	5	Anchorage	Willow Crest Elementary Roof Replacement & Ventilation System Upgrade	C	$ 11,925,000						
17	5	Anchorage	Abbot Loop Elementary School Design and Renewal	D		$ 500,000	$ 20,973,000				
18	5	Anchorage	Inlet View Elementary School Emergent Component Replacement Construction	D		$ 6,692,000					
19	5	Anchorage	Wonder Park Elementary School Emergent Component Replacement Construction	A		$ 10,397,000					
20	5	Anchorage	Districtwide Emergent Projects 2	A		$ 37,556,000					
21	5	Anchorage	Romig Middle School Renewal	A			$ 25,565,000				
22	5	Anchorage	Districtwide Emergent Projects 3	A			$ 7,077,000				
23	5	Anchorage	Homestead Elementary School Renewal	C				$ 500,000		$ 21,040,000	
24	5	Anchorage	Gruening Middle School Emergent Component Replacement Construction	A				$ 10,954,000			
25	5	Anchorage	Mears Middle School Roof Design and Renovation	A				$ 500,000		$ 47,548,000	
26	5	Anchorage	Whaley School Design & Construction	A				$ 26,277,000			
27	5	Anchorage	Districtwide Emergent Projects 4	A				$ 18,029,000			
28	5	Anchorage	O'Malley Elementary School Emergent Component Replacement	A					$ 21,269,000		
29	5	Anchorage	Central Middle School Emergent Component Replacement Construction	A					$ 21,631,000		
30	5	Anchorage	West High School Renewal	A					$ 44,783,000		
31	5	Anchorage	Districtwide Emergent Projects 5	A					$ 32,317,000		
32	5	Anchorage	Districtwide Emergent Projects 6	A						$ 51,412,000	
1	6	Annette Island	Metlakatla High School Kitchen Renovation	D	$ 1,015,715						
2	6	Annette Island	Metlakatla High School Gym Acoustical Upgrades	C	$ 142,669						Y
3	6	Annette Island	Metlakatla Music Building Remodel	C		$ 300,000					
4	6	Annette Island	Metlakatla District Office Remodel	C			$ 250,000				
1	7	Bering Strait	Districtwide Digital Control Upgrade & Installation M/M	E		$ 800,000					

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
2	7	Bering Strait	Stebbins K-12 School Addition	B						$ 18,500,000	
3	7	Bering Strait	Brevig Mission K-12 Addition	B						$ 16,500,000	
1	8	Bristol Bay Borough	Bristol Bay School Renovation Phase II	C	$ 14,736,892						
2	8	Bristol Bay Borough	Bristol Bay School Renovation Phase I	E		$ 4,000,000					
1	9	Chatham	Klukwan School Boiler Replacement	C	$ 57,765						
2	9	Chatham	Klukwan School Roof Replacement	C	$ 1,832,400						
3	9	Chatham	Districtwide Fire Alarm Upgrades	D	$ 104,572						Y
1	10	Chugach	Chenega Bay School Upgrade	D	$ 6,227,249						Y
2	10	Chugach	Tatitlek School Upgrade	D	$ 6,242,472						Y
3	10	Chugach	Tatitlek School Playground Upgrade	F		$ 195,000					
4	10	Chugach	Whittier School Gym Floor & Indoor Play Area Upgrade	C			$ 280,000				
5	10	Chugach	Tatitlek School Gym & Kitchen Upgrade	C				$ 255,000			
6	10	Chugach	Districtwide Exterior Door Upgrades	E					$ 260,000		
7	10	Chugach	Districtwide Security Systems Upgradde	C						$ 200,000	
1	11	Copper River	District Office Roof Renovation & Energy Upgrade	C	$ 1,056,462						
2	11	Copper River	Glennallen Vocational Education Facility Upgrade	D	$ 744,966						
3	11	Copper River	Glennallen School & Kenny Lake School Energy Upgrade	E		$ 2,600,000					
4	11	Copper River	Slana School Upgrade	D			$ 1,500,000				
5	11	Copper River	Kenny Lake School Upgrade	D				$ 9,250,000			
6	11	Copper River	Glennallen School Upgrade	D					$ 14,500,000		
7	11	Copper River	District Office Upgrade	D						$ 2,100,000	
1	13	Craig	Districtwide Energy Upgrades	E	$ 183,977						
2	13	Craig	Craig Elementary School Door and Flooring Replacement	C	$ 138,462						
3	13	Craig	Craig Middle School Siding & Windows	C	$ 146,242						Y
4	13	Craig	Craig Middle School Gym Floor Replacement	C	$ 522,692						
5	13	Craig	Craig High School Biomass Boiler	E	$ 544,148						Y
3	14	Delta/Greely	Construction of New Seperated Septic System for the Voc/AG Building	D	$ 22,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior year.					
4	14	Delta/Greely	Delta High School Gymnasium Floor Replacement & Bleacher Upgrade	C		$ 220,000					
5	14	Delta/Greely	Delta Elementary & High School Complex Door & Restroom ADA Upgrades	B			$ 300,000				
6	14	Delta/Greely	Delta High School Complex Parking Areas Resurfacing	F			$ 150,000				
7	14	Delta/Greely	Delta Elementary Additional Classroom Expansion	F					$ 4,000,000		
8	14	Delta/Greely	Replacement of Delta Junction Senior High School Complex	D					$ 32,000,000		
9	14	Delta/Greely	Delta Elementary Well Reconstruction or Replacement	C					$ 80,642		
1	2	Denali Borough	Anderson School Water Line Replacement	D	$ 225,418						
2	2	Denali Borough	Tri-Valley School Coal Heat Conversion	E	$ 88,160						Y
3	2	Denali Borough	Cantwell School Roof Replacement	C	$ 1,107,009						
4	2	Denali Borough	Anderson School Roof and Siding Replacement	C		$ 2,000,000					
5	2	Denali Borough	Tri-Valley / Septic System Leach Field Re-Grade, Foam, and Heat Trace	C			$ 574,321				
6	2	Denali Borough	Districtwide Electrical Code Upgrades	C			$ 1,191,140				
7	2	Denali Borough	Tri-Valley / Replace Coal & Oil Fired Boilers	C				$ 500,000			
8	2	Denali Borough	Anderson / Replace Boilers & Relocate Boiler Room	C					$ 750,000		
9	2	Denali Borough	Cantwell Electrical System Upgrade, Generator Building Remodel to Accommodate Boiler System Replacement, Heating & Ventilation System Replacement, Bathroom Remodel for ADA Compliance	D						$ TBD	
10	2	Denali Borough	Cantwell / Replace Original Section of School	F						$ TBD	
11	2	Denali Borough	All Schools / Refurbish Commercial Kitchens	C						$ TBD	
12	2	Denali Borough	Anderson / Second Egress for Office and Music, Locker Rooms, Bathrooms not ADA, Gym Seating	D						$ TBD	
13	2	Denali Borough	Tri-Valley / Replace Difficult to Operate Main Switch Gear	D						$ TBD	
14	2	Denali Borough	Tri-Valley / Refurbish Library Bathrooms	D						$ TBD	
1	16	Fairbanks	Barnette Magnet School - Renovation Phase IV	D	$ 10,168,215						
2	16	Fairbanks	Administrative Center - Replace Air Conditioning & Ventilation	E	$ 1,750,000						

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
3	16	Fairbanks	Districtwide - Backflow Preventers	D	$ 750,000						
4	16	Fairbanks	Woodriver - Renovation Phase III	C	$ 9,952,321						
5	16	Fairbanks	Tanana - Renovation Phase I	C	$ 19,750,000						
6	16	Fairbanks	Arctic Light Elementary - Lighting & Energy Efficiency Upgrades	E	$ 1,809,987						
7	16	Fairbanks	Pearl Creek - Flooring & Classroom	C		$ 4,746,852					
8	16	Fairbanks	Weller - Flooring & Classroom Upgrades	C		$ 4,247,925					
9	16	Fairbanks	North Pole Middle - Interior and Exterior Renovation	C		$ 9,916,445					
10	16	Fairbanks	University Park - Traffic Safety Improvements	F		$ 750,000					
11	16	Fairbanks	Administrative Center - Site Upgrade	F		$ 1,500,000					
12	16	Fairbanks	Lathrop - Kitchen Upgrade	C		$ 2,585,194					
13	16	Fairbanks	Pearl Creek - Traffic Safety Upgrades	F		$ 1,700,000					
14	16	Fairbanks	Joy - Flooring, Lighting & Interior Upgrades	D			$ 4,500,000				
15	16	Fairbanks	West Valley - Auditorium Upgrade	F			$ 1,000,000				
16	16	Fairbanks	West Valley - Gym Wing Renovation	C			$ 4,500,000				
17	16	Fairbanks	Lathrop - Replace Roof Gym Area	C			$ 500,000				
18	16	Fairbanks	DistrictWide - Replace Hallway Lockers	D			$ 1,389,685				
19	16	Fairbanks	Ben Eielson Jr/Sr - Roof Replacement	C				$ 3,900,000			
20	16	Fairbanks	Salcha - Renovation	C				$ 2,500,000			
21	16	Fairbanks	North Pole High - Complete HVAC Controls	C				$ 650,000			
22	16	Fairbanks	Universty Park - Lighting & Energy Efficiency Upgrades	E				$ 1,250,000			
23	16	Fairbanks	Administrative Center - Flooring Replacement	C				$ 750,000			
24	16	Fairbanks	North Pole High - Site Upgrades	F				$ 2,500,000			
25	16	Fairbanks	Districtwide - Emergency Electrical System Upgrades	C				$ 2,600,000			
26	16	Fairbanks	Joy - Site Improvements	F					$ 1,250,000		
27	16	Fairbanks	Crawford - Flooring & Classroom Upgrades	C					$ 6,500,000		
28	16	Fairbanks	Randy Smith - Security & Control Systems	C					$ 500,000		
29	16	Fairbanks	Howard Lake - Traffic Safety Improvements	F					$ 1,950,000		
30	16	Fairbanks	Arctic Light - Site Improvements	F					$ 750,000		
31	16	Fairbanks	Admin Center - Roof Replacement	C					$ 600,000		
32	16	Fairbanks	Badger Road Elementary - Site Upgrades & Safety Improvements	C					$ 500,000		
33	16	Fairbanks	Ticasuk Brown - Flooring Replacement	C					$ 3,500,000		
34	16	Fairbanks	University Park - Renovation Phase I	C						$ 4,700,000	
35	16	Fairbanks	Badger Rd. - Renovation Phase II	C						$ 4,500,000	
36	16	Fairbanks	Anderson - Roofing Replacement	C						$ 950,000	
37	16	Fairbanks	Ladd - Site Improvements	F						$ 750,000	
38	16	Fairbanks	Ann Wien - Replace Flooring & Classroom Upgrades	C						$ 6,500,000	
1	17	Galena	GILA STEM Classrom Building Upgrade	F	$ 8,039,669						
2	17	Galena	Sidney Huntington Elementary School Fire Protection	D		$ 162,000					
3	17	Galena	GILA Composite Building Upgrade	D			$ 4,000,000				
4	17	Galena	Sidney Huntington School Floor Upgrades	C				$ 253,000			
5	17	Galena	Sidney Huntington School Energy Efficiency & Door Upgrades	E					$ 111,000		
6	17	Galena	GILA Automotive Lab Energy Upgrades	E						$ 51,000	
1	18	Haines	Haines High School Locker Room Renovation	D	$ 779,739						Y
2	18	Haines	Haines High School Roof Replacement	C	$ 2,399,203						Y
3	18	Haines	Haines High School Track and Soccer Field Renovations & Upgrades	F			$ 1,000,000				
1	19	Hoonah	Hoonah Central Boiler Replacement	C	$ 262,100						
4	20	Hydaburg	Hydaburg High School and Gym Roof Replacement	C		$ 950,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior				
1	21	Iditarod Area	David-Louis Memorial School HVAC Control Upgrades, Grayling	C	$ 278,165						
2	21	Iditarod Area	David-Louis Memorial School Roof Replacement, Grayling	C	$ 511,334						
3	21	Iditarod Area	Blackwell School HVAC Upgrades, Anvik	C	$ 118,083						
4	21	Iditarod Area	McGrath School Backup Generator	C		$ TBD					
1	23	Kake	Kake High School Plumbing Replacement	C	$ 639,172						

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
2	23	Kake	Exterior Upgrades - Main School Facilities	C	$ 242,861						Y
3	23	Kake	Kake High School Gym Floor & Bleacher Replacement	C	$ 548,148						
4	23	Kake	Kake Elementary School Mechanical Controls	C		$ 75,000					
5	23	Kake	Vocational Building Renovations	C		$ 400,000					
6	23	Kake	Elementary Roof & Siding Replacement	C		$ 1,500,000					
7	23	Kake	Parking Lot Resurface	F		$ 200,000					
8	23	Kake	Covered Play Area	F			$ 800,000				
9	23	Kake	Middle School and Library Renovation	C				$ TBD			
10	23	Kake	High School HVAC	D					$ TBD		
11	24	Kenai	Skyview Fire Alarm Upgrade	D	$ 250,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior year.					
12	24	Kenai	Seward High Office Relocation & Remodel	A	$ 500,000						
13	24	Kenai	Sterling Elementary Window Replacement	C	$ 500,000						
14	24	Kenai	Susan B. English Backup Generator	C	$ 40,000						
15	24	Kenai	Homer High Heating Controls Upgrade	C	$ 700,000						
16	24	Kenai	Redoubt Elementary Replace Gym Floor (Vinyl Asbestos Tile)	A		$ 150,000					
17	24	Kenai	Homer Middle School Field Rehabilitation	C		$ 300,000					
18	24	Kenai	Paul Banks Elementary Parking & Traffic Upgrade	F		$ 850,000					
19	24	Kenai	Homer Flex Parking Reconfiguration	F			$ 150,000				
20	24	Kenai	Ninilchik/Skyview/Seward Tracks	F			$ 4,000,000				
21	24	Kenai	Seward High Field Turf	F			$ 2,000,000				
22	24	Kenai	Districtwide Re-roof Phase III	C				$ 16,452,780			
23	24	Kenai	Kaleidoscope Replace Gym Floor (Vinyl Asbestos Tile)	A				$ 150,000			
24	24	Kenai	Homer High Parking Lot Renovation	F				$ 750,000			
25	24	Kenai	Homer Middle Office Reconfiguration	C				$ 500,000			
26	24	Kenai	Mt. View Elementary Parking & Traffic Upgrade	F				$ 1,000,000			
27	24	Kenai	School District Warehouse Structure & Backup Generator	C				$ 350,000			
1	25	Ketchikan	Houghtaling Elementary Roof Replacement	C	$ 3,361,695						Y
2	25	Ketchikan	Ketchikan High School Security Upgrades	C		$ 1,029,688					
3	25	Ketchikan	Pt. Higgins Elementary Mechanical Upgrades	E			$ 1,950,566				
4	25	Ketchikan	Pt. Higgins Elementary Pitched Roof Replacement	C			$ 4,086,729				
5	25	Ketchikan	Ketchikan High School Biomass Boiler	E				$ 2,083,615			
1	28	Kodiak	Main Elementary Elevated Walkway Repairs	D	$ 347,500						
2	28	Kodiak	Kodiak Middle School Boiler Replacement	C	$ 321,000	* Extended fiscal year data left as-is from prior year.					
3	28	Kodiak	Larsen Bay and Port Lions Schools HVAC Equipment & Controls Replacement	C			$ 2,448,201				
4	28	Kodiak	Districtwide Earthquake Mitigation Plan - Suspended Ceiling Upgrade	A		$ 526,372					
5	28	Kodiak	Peterson Elementary Generator Plug & Panel Installation	C			$ 90,450				
6	28	Kodiak	Districtwide - Install/Enhance Security Video Surveillance	A		$ 500,000					
1	29	Kuspuk	Jack Egnaty Sr. K-12 School Roof Replacement, Sleetmute	C	$ 1,660,924						Y
1	31	Lower Kuskokwim	J Alexie Memorial School Replacement, Atmautluak	B	$ 40,363,353						Y
2	31	Lower Kuskokwim	Eek School Renovation-Addition	B	$ 33,760,170						
3	31	Lower Kuskokwim	Anna Tobeluk Memorial School Renovation/Addition, Nunapitchuk	B	$ 53,661,875						
4	31	Lower Kuskokwim	Mekoryuk Wastewater Upgrades	D	$ 894,480						
5	31	Lower Kuskokwim	Water Storage & Treatment, Kongiganak	A	$ 5,930,074						Y
6	31	Lower Kuskokwim	Merkarvik K-12 School Newtok Replacement	B	$ 39,705,503						
7	31	Lower Kuskokwim	Bethel Campus Fire Pumphouse & Fire Protection Upgrades	C	$ 2,918,977						
8	31	Lower Kuskokwim	Bethel Regional High School Boardwalk Replacement	D	$ 738,394						Y
9	31	Lower Kuskokwim	Akiuk Memorial School Deferred Maintenance, Kasigluk-Akiuk	C	$ 3,449,411						
10	31	Lower Kuskokwim	Akula Elitnauvik School Renovation Addition, Kasigluk-Akula	B	$ 3,889,212						
11	31	Lower Kuskokwim	Fuel Tank Remediation, Bethel	D		$ 215,152					
12	31	Lower Kuskokwim	Fuel Tank Disposition, Districtwide	D		$ 2,031,078					
13	31	Lower Kuskokwim	Anviq School Improvement, Platinum	D		$ TBD					
14	31	Lower Kuskokwim	Qugcuun Memorial School Renovation Addition, Oscarville	B		$ 16,100,000					

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
15	31	Lower Kuskokwim	Bethel Campus Transportation & Drainage Upgrades	F			$ 1,106,054				
16	31	Lower Kuskokwim	Fuel Tank Upgrades, Districtwide	D			$ 7,250,000				
17	31	Lower Kuskokwim	Nelson Island School Deferred Maintenance, Toksook Bay	C				$ 40,300,000			
18	31	Lower Kuskokwim	Roof Repairs, Districtwide	C				$ 27,800,000			
19	31	Lower Kuskokwim	Wastewater Upgrades, Districtwide	D					$ 14,200,000		
20	31	Lower Kuskokwim	Water Treatment & Storage Upgrades, Districtwide	D					$ 8,400,000		
21	31	Lower Kuskokwim	Fire Alarm & Sprinklers, Districtwide	D						$ TBD	
22	31	Lower Kuskokwim	WM Miller Memorial School Replacement, Napakiak	B						$ 23,300,000	
1	32	Lower Yukon	Hooper Bay K-12 School Emergency Lighting & Retrofit	D	$ 232,730						
2	32	Lower Yukon	Hooper Bay K-12 Exterior Repairs	C	$ 2,517,439						Y
3	32	Lower Yukon	Scammon Bay K-12 School Emergency Lighting Retrofit	D	$ 119,467						
4	32	Lower Yukon	Ignatius Beans K-12 School Marine Header Pipeline	D	$ 1,542,993						
5	32	Lower Yukon	Scammon Bay K-12 School Siding Replacement	C	$ 960,216						Y
6	32	Lower Yukon	LYSD Central Office Renovation	C	$ 5,257,426						
7	32	Lower Yukon	Sheldon Point K-12 School Siding Replacement, Nunam Iqua	C	$ 260,799						Y
8	32	Lower Yukon	Security Access Project, 6 Sites	C	$ 1,532,578						
9	32	Lower Yukon	Kotlik and Pilot Station K-12 Schools Renewal and Repair	C	$ 2,183,223						y
1	33	Mat-Su	Water System Replacement, 3 Schools (Big Lake, Butte & Snowshoe Elementary Schools)	D	$ 6,321,086						
2	33	Mat-Su	District Wide Seismic Upgrades, Phase 1	C	$ 6,994,745						
3	33	Mat-Su	DW Energy Upgrades, Windows, Phase 2	C	$ 4,231,918						
4	33	Mat-Su	Palmer High School Mechanical Upgrade, Phase 3	C		$ 8,848,390					
5	33	Mat-Su	Mat-Su Central School New Facility	B		$ 18,580,035					
6	33	Mat-Su	Palmer Junior High School Renovation	C			$ 19,866,000				
7	33	Mat-Su	Bus Barn & Consolidated Fleet Maintenance Facility	F			$ 12,444,930				
8	33	Mat-Su	New Knik Area High School	B				$ 62,500,000			
9	33	Mat-Su	Districtwide Indoor/Outdoor Bleacher Replacement	D				$ 6,356,000			
10	33	Mat-Su	Palmer High School Remodel	C					$ 12,698,564		
11	33	Mat-Su	New Wasilla Area Elementary School	B					$ 28,862,000		
12	33	Mat-Su	Districtwide Boiler & Boiler Controls Upgrade (14 Schools)	C						$ 3,533,000	
1	34	Nenana	Nenana K-12 School Flooring & Asbestos Abatement	D	$ 1,022,041						
2	34	Nenana	Nenana K-12 School Boiler Replacement	E	$ 143,070						
3	34	Nenana	Nenana K-12 School Fire Suppression System Replacement	D	$ 1,382,689						
4	34	Nenana	Nenana K-12 School Major Maintenance: Electrical Upgrade, Fire Alarm Upgrade, Exterior Wall Insulation, Arctic Entryways, and Interior Building Systems	D		$ 1,600,000					
5	34	Nenana	Nenana K-12 School Roof Repair/Replacement	C			$ 1,365,000				
6	34	Nenana	Nenana K-12 School Major Maintenance: Alternative Energy Supplementary	E				$ 577,500			
7	34	Nenana	Nenana K-12 School Major Maintenance: Building and Grounds Safety and Security Systems; Keyless Entry, Fencing, Covered Playground Area, Playground Surfaces	A					$ 650,000		
8	34	Nenana	Nenana K-12 School Major Maintenance: Eastside ADA Access and Other Concrete Repair and Grading Work	D						$ 1,312,500	
9	34	Nenana	Nenana K-12 School Major Maintenance: Vocational Education Classroom Update & Remodel	D						$ 1,075,000	
1	35	Nome	Nome Beltz Jr/Sr High School Roof Replacement	C	$ 2,223,488						
2	35	Nome	Nome Elementary School Gym Flooring Replacement	C	$ 103,740						Y
3	35	Nome	Anvil City Charter School Restroom Renovations	D	$ 431,240						
4	35	Nome	Nome Beltz Jr/Sr High Generator & Electrical Service Replacement	C	$ 1,818,227						
5	35	Nome	Nome Elementary School Exterior Envelope Replacement	C		$ 6,000,000					
6	35	Nome	Building A Primary Electrical Service	D		$ 250,000					
7	35	Nome	Nome Beltz Jr/Sr High School Exterior/Interior Renovations			$ 500,000					

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
8	35	Nome	Nome Beltz Jr/Sr High Integration of DDC Systems	C			$ 200,000				
9	35	Nome	Districtwide Exterior Lighting Upgrades	C				$ 40,000			
10	35	Nome	Nome Beltz Jr/Sr High School Boiler Replacement and Mechanical Upgrades	C				$ TBD			
11	35	Nome	Maintenance Bldg Siding and Roof Replacement	C				$ 225,000			
12	35	Nome	Quonset Hut Siding Replacement	C					$ 120,000		
13	35	Nome	Building D Mechanical Update & Control Automation for Air Handlers	C					$ TBD		
14	35	Nome	Districtwide Carpet Replacement	C						$ 375,000	
4	36	North Slope Borough	Barrow High School Major Facility Renovations (Phased)	C	$ 28,000,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior year.					
5	36	North Slope Borough	KIITA Learning Center Phase I Site Selection, Phs 2 Design, Phs III Bid Build		$ 2,100,000	$ 26,000,000					
6	36	North Slope Borough	Alak School Major Facility Renovations	C	$ 1,800,000	$ 23,212,440					
7	36	North Slope Borough	Eben Hopson Middle School Major Facility Renovations	C		$ 880,000	$ 8,000,000				
8	36	North Slope Borough	Fred Ipalook Elementary School Major Facility Renovations	C		$ 18,000,000					
9	36	North Slope Borough	Alak School (PAR)	F							
10	36	North Slope Borough	Eben Hopson Middle School Major Facility Renovations (PAR)	F	$ 75,000						
1	37	Northwest Arctic	Davis Ramoth K-12 School Window Replacement, Selawik	C	$ 241,245						Y
2	37	Northwest Arctic	Davis Ramoth K-12 School Sewer Line Repair, Selawik	A	$ 65,873						Y
3	37	Northwest Arctic	Buckland K-12 Heating System Improvement	E		$ 1,300,000					
4	37	Northwest Arctic	Davis Ramoth K-12 School Heating System Upgrade, Selawik	E			$ 446,250				
2	38	Pelican	Pelican HS Window Replacement	C	$ 70,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior year.					
3	38	Pelican	Pelican HS Plumbing Upgrade	C		$ 150,000					
4	38	Pelican	Pelican HS Lighting and Electrical Upgrades	C			$ 350,000				
5	38	Pelican	Pelican HS Roof Replacement	C				$ 600,000			
1	39	Petersburg	Petersburg Middle/High School Boiler 2 Replacement	C	$ 74,682						Y
2	39	Petersburg	District Food Service Renovations	D	$ 1,550,638						
3	39	Petersburg	Petersburg Middle/High School UST Replacement	C	$ 177,695						
4	39	Petersburg	Petersburg Middle/High School Entry Renovation	C	$ 48,303						
5	39	Petersburg	Peterburg HS Gym & Auxiliary Gym LED Lighting Upgrade	E	$ 25,857						
6	39	Petersburg	Petersburg Middle/High School Digital HVAC System	E		$ 150,000					
7	39	Petersburg	Petersburg Middle/High School Electrical Upgrades	C			$ 1,000,000				
8	39	Petersburg	Petersburg Stedman Elementary Plumbing System Replacement	C				$ 750,000			
9	39	Petersburg	Repair Auditorium Failing Floor System	C					$ 150,000		
10	39	Petersburg	Districtwide ADA Renovations	D						$ 1,000,000	
1	42	Sitka	Keet Gooshi Heen Covered PE Structure Renovation	C	$ 462,920						Y
2	42	Sitka	Keet Gooshi Heen Electrical Boiler Installation	E		$ 350,000					
3	42	Sitka	Baranof School Electrical Boiler Installation	E		$ 350,000					
4	42	Sitka	Keet Gooshi Heen Playground Equipment Refurbishment	C			$ 180,000				
5	42	Sitka	Baranof School Playground Equipment Refurbishment	C			$ 180,000				
6	42	Sitka	Districtwide Interior/Exterior LED Lighting Upgrade	E			$ 400,000				
7	42	Sitka	Sitka High School Parking Area Paving	F				$ 275,000			
8	42	Sitka	Keet Gooshi Heen Parking/Play Area Paving	F				$ 300,000			
9	42	Sitka	Blatchley School Parking Area Paving	F					$ 200,000		
10	42	Sitka	Baranof School Parking/Play Area Paving	F						$ 275,000	
1	44	Southeast Island	Thorne Bay K-12 Fire Suppression System	C	$ 480,867						
2	44	Southeast Island	Thorne Bay Maintenance Bldg Roof Replacement	C	$ 231,462						
3	44	Southeast Island	Thorne Bay K-12 School UST Replacement	C	$ 335,085						
4	44	Southeast Island	Thorne Bay K-12 Mechanical Control Upgrades	C	$ 1,408,448						
5	44	Southeast Island	Thorne Bay K-12 School Flooring Replacement	C	$ 71,549						
6	44	Southeast Island	Thorne Bay K-12 School Playground Upgrades	F	$ 227,111						Y
7	44	Southeast Island	Kasaan K-12 Covered Play Area Construction	F	$ 449,421						
8	44	Southeast Island	Roof Replacement, 2 Schools (Thorne Bay, Port Alexander)	C	$ 4,906,853						
9	44	Southeast Island	Port Alexander K-12 Domestic Water Pipe Replacement	D	$ 85,289						
1	45	Southwest Region	Manokotak K-12 School Sewer & Water Upgrades	C	$ 232,467						Y

Priority	District #	District Name	Project Location and Description	Primary Purpose	FY19	FY20	FY21	FY22	FY23	FY24	Reused?
2	45	Southwest Region	Twin Hills K-8 School Renovations	C	$ 2,004,615						Y
3	45	Southwest Region	Aleknagik K-8 School Renovations	C	$ 3,136,609						Y
4	45	Southwest Region	Ekwok K-8 School Renovations	C				$ 5,413,888			
5	45	Southwest Region	Manokotak School Interior Floor Finishes & Ceiling Replacement	C					$ 881,884		
6	45	Southwest Region	Togiak School Interior Floor Finishes	C						$ 1,533,070	
1	46	St. Mary's	St. Mary's Campus Upgrades	C	$ 4,188,200						
2	48	Valdez	Valdez High School HVAC System Upgrades	C	$ 1,800,000	* District did not submit a 6-year plan or application. Extended fiscal year data left as-is from prior year.					
3	48	Valdez	Swimming Pool Upgrades (Boiler, Filter Tanks, Pool Cover)	C	$ 150,000						
4	48	Valdez	Valdez High School & Hermon Hutchens Elementary Security Camera	C	$ 400,000						
5	48	Valdez	Valdez High School Restroom ADA Upgrades	D	$ 200,000						
6	48	Valdez	Valdez High School Gym Acoustical Upgrades	C	$ 200,000						
7	48	Valdez	Districtwide Electrical Wiring and Technology Upgrades	D		$ 250,000					
8	48	Valdez	Hermon Hutchens Elementary Exterior Upgrades/ Building Envelope and Windows	C			$ 2,000,000				
9	48	Valdez	Hermon Hutchens Elementary UST Replacment	D			$ 2,000,000				
10	48	Valdez	Valdez High School Carpet Replacement	C			$ 58,984				
11	48	Valdez	Valdez High School Gym Floor Replacement	C				$ 750,000			
12	48	Valdez	Valdez High School Exterior Lighting Upgrades	C				$ 500,000			
13	48	Valdez	Districtwide Waterline Replacement	C				$ 1,900,000			
14	48	Valdez	Exterior Door and Card Reader Locks at Valdez High School and Hermon Hutchens Elementary School	C					$ 500,000		
15	48	Valdez	Districtwide Storm Drainage Upgrades	C					$ 300,000		
16	48	Valdez	Valdez High School Locker Room Upgrades	C					$ 500,000		
18	48	Valdez	Valdez High School Science Lab Renovation	C					$ 100,000		
19	48	Valdez	Valdez High School Culinary Arts Room Remodel	C					$ 350,000		
1	51	Yukon Flats	Beaver and Chalkyitsik K-12 School Boiler and Control Upgrades	C	$ 1,323,900						
2	51	Yukon Flats	Venetie Generator Building Renovation	D	$ 2,388,911						
3	51	Yukon Flats	Fort Yukon Soil Remediation & Fuel Tank Replacement	D	$ 4,642,888						
4	51	Yukon Flats	Chalkyitsik Water Tank Replacement	C	$ 1,272,216						
5	51	Yukon Flats	Cruikshank School Soil Remediation & Fuel Tank Replacement, Beaver	D	$ 1,102,255						
6	51	Yukon Flats	Venetie Soil Remediation & Fuel Tank Replacement	D	$ 1,806,394						
7	51	Yukon Flats	Beaver Major Maintenance to Include Zone Valve Replacement, Generator Overhaul, Replace Exterior Windows, HVAC Controls	C		$ TBD					
8	51	Yukon Flats	Venetie Major Maintenance - Utility Bldg Upgrade, Replace Plumbing Throughout, Replace Carpet and Paint	C		$ TBD					
9	51	Yukon Flats	Fort Yukon - Replace Boilers, Lock Upgrades and Window Replacement	C			$ TBD				
1	52	Yukon-Koyukuk	Allakaket K-12 School Renovation	C	$ 10,403,375						
2	52	Yukon-Koyukuk	Ella B. Vernetti K-8 School Entry Access Repairs, Koyukuk	A	$ 275,907						Y
3	52	Yukon-Koyukuk	Ella B. Vernetti K-8 School Boiler Replacement, Koyukuk	C	$ 440,315						Y
4	52	Yukon-Koyukuk	Kaltag Kitchen Upgrade	D		$ 120,000					
5	52	Yukon-Koyukuk	Minto K-12 School Renovation	C		$ 8,500,000					
6	52	Yukon-Koyukuk	District Office Exterior Upgrade	C		$ 600,000					
7	52	Yukon-Koyukuk	Minto K-12 School Soil Remediation	D		$ 250,000					
8	52	Yukon-Koyukuk	Gladys Dart Manley Renovation and Upgrade	C			$ 3,000,000				
9	52	Yukon-Koyukuk	Johnny Oldman K-12 School Renovation and Upgrade, Hughes	D				$ 3,500,000			
1	54	Yupiit	Districtwide Fuel Tank Farm Removal & Replacement	D	$ 4,784,564						Y
2	54	Yupiit	Districtwide HVAC & Plumbing	C	$ 192,718						Y
3	54	Yupiit	Districtwide Playground Construction	F	$ 1,465,747						Y
				Totals:	$ 510,672,788	$ 240,733,926	$ 153,331,310	$ 255,412,783	$ 256,325,090	$ 207,724,570	$ 89,820,900

Total Six-Year Plan Estimate: $ 1,624,200,467

CIP Grant Requests and Funding History FY09 to FY19

	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
CIP Grant Requests											
Total Applications	206	185	175	158	158	137	121	126	127	131	105
Percent of Districts Applying	67%	73%	73%	72%	64%	66%	64%	66%	68%	70%	58%
# Projects Reusing Scores	34	24	35	45	20	52	23	57	27	67	39
Major Maintenance	152	138	130	117	120	111	102	102	98	106	93
MM Total $ (*)	$344,567,597	$269,627,387	$272,421,065	$275,132,938	$267,017,375	$253,682,082	$183,505,181	$172,195,526	$181,570,096	$156,768,834	$145,235,869
School Construction	45	32	35	32	27	24	17	18	18	17	11
SC Total $ (*)	$645,529,083	$453,149,071	$411,643,149	$313,999,772	$276,691,304	$284,133,432	$274,150,436	$230,920,120	$206,267,345	$130,321,551	$179,214,343
School Construction and Major Maintenance Funding											
Grant Funding	$217,494,795	$42,443,481	$155,901,830	$87,765,592	$78,952,700	$94,171,539	$43,279,791	$56,728,592	$71,764,608 (1)	*$49,808,969* (1,4)	*$0*
Percent Grant $ Funded	22.0%	5.9%	22.8%	14.9%	14.5%	17.5%	9.5%	14.1%	8.6%	17.3%	
Debt Projects	$25,374,304 (2)	$29,805,834 (2)	$90,251,551 (3)	$409,400,183 (3)	$78,525,000 (3)	$138,622,000 (3)	$13,353,394 (3)	$0	$0	$0	$0

Notes:

(*) *Total $ is State Share*

(1) Includes AS 14.11.025 grants

(2) HB13,HB373 debt projects DEED & voter approved

(3) SB237 debt projects DEED & voter approved, effective 7/1/2010 - 12/31/2014

(4) Grant funding level pending execution of project agreements, as of October 30, 2017

Department of Education & Early Development
Division of Finance & Support Services, Facilities
November 14, 2017

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	Total
Deposits:							
REAA Fund Capitalization	35,512,300	35,200,000	39,921,078	38,789,000	31,230,000	40,640,000	221,292,378
Interest Earned (Actual as of 6/30/17)	118,206	368,142	383,180	-	-	-	869,528
Subtotal Deposits	35,630,506	35,568,142	40,304,258	38,789,000	31,230,000	40,640,000	222,161,906
REAA-funded Capital Project Funded Projects:							
Nightmute School Renovation/Addition	-	32,965,301	-	-	-		32,965,301
Kuinerramiut Elitnaurviate K-12 Renovation/Addition, Quinhagak	-	13,207,081	-	-	-		13,207,081
Kwethluk K-12 Replacement School Design, Planning, Foundation	-	25,008,100	31,516,900	-	-		56,525,000
St. Mary's Andreafski High School Gym Construction	-	-	8,958,100	-	-		8,958,100
Bethel Regional High School Central Kitchen & Multipurpose Addition	-	-	-	-	7,129,765		7,129,765
Lewis Angapak K-12 School Reno/Add, Tuntutuliak	-	-	-	-	40,343,416		40,343,416
Jimmy Huntington K-12 Reno/Add, Huslia	-	-	-	-	15,394,786	980,000	16,374,786
Shishmaref K-12 School Renovation/Addition	-	-	-	-	-	16,184,008	16,184,008
J Alexie Memorial K-12 School Replacement, Atmautluak	-	-	-	-	-	3,261,667	3,261,667
Auntie Mary Nicoli Elementary School Replacement, Aniak	-	-	-	-	-	18,641,380	18,641,380
Subtotal REAA-funded Projects	-	71,180,482	40,475,000	-	62,867,967	39,067,055	213,590,504
Reconciliation of Available Funds:	**35,630,506**	**18,166**	**(152,576)**	**38,636,424**	**6,998,457**	**8,571,402**	**8,571,402**

BR&GR Review List for Report on Cost-Effective School Construction Criteria

The purpose of the December 2017 BR&GR report to the legislature, through the department, is to document the committee's intended criteria—established under its authority, and responsibility, in AS 14.11.014(b)(3)—to achieve cost-effective school construction. In support of the proposed criteria, the report will provide background information (including the public comment process) and the implementation strategies for each of the criteria. It is the anticipation of the committee that the department and the legislature will use the report to take actions within their areas of responsibility in response to the report and the elements contained therein.

In order to adequately document the BR&GR Committee's determinations, the following is a list of items where specific committee action may be needed.

#	**Item**	**Notes/Resolution**
1.	To which entity should the report be addressed (DEED, SBOE, or Legislature)? Staff recommends that the report be addressed direct to the Legislature and be provided through the Commissioner of DEED.	
2.	Review/Revise/Approve the layout/structure of report. (ref. Table of Contents); rearrangement of component pieces	
3.	BRGR Executive Summary / Introduction	
4a.	BRGR Comment Responses Review Subcommittee Responses to determine if there are comments that should be addressed by the BRGR General Comment response. - General Comments	
4b.	- Commissioning Comments	
4c.	- Design Ratio Comments	
4d.	- Model School Comments	

#	Item	Notes/Resolution
5.	Commissioning Subcommittee Report Approve as presented or make specific changes? (See bulleted items following and give particular attention to recommendation implementation strategies.)	
5a.	• Recommendation #1 establishes a commissioning requirement only for significant projects.	
5b.	• Recommendation #1 implementation suggests a possible broadening to include exceptions and lesser projects.	
5c.	• Recommendation #1 criteria to be adopted as regulation.	
5d.	• Recommendation #2 set industry certification as a baseline. In response to public comment, the recommendation was broadened to include project-specific alternate qualifications.	
5e.	• Recommendation #3 requires adopts criteria for commissioning (i.e., what will be commissioned) in five areas.	
5f.	• Criteria has been developed; implementation suggests further development. Is this needed?	
5g.	• *Scmte open item*: Building Envelope Cx - mandatory for additions over	
5h.	• *Scmte open item*: Building Envelope Cx Spec - negatively pressurized with a pressure differential .	
6.	Design Ratio Subcommittee Report Approve as presented or make specific changes? (See bulleted items following and give particular attention to recommendation implementation strategies.)	

#	Item	Notes/Resolution
6a.	• Subcommittee recommendations eschew adoption of a comprehensive high-performance building industry standard in favor of four, simple, targeted prescriptive building ratios aimed at cost-effective first-cost and operating cost parameters.	
6b.	• Implementation strategies envision investment of resources to ensure criteria and any parameters are fully validated as driving cost-effective construction.	
6c.	• Implementation strategies envision close coordination with Model Alaskan School criteria with respect to defining acceptable, baseline building systems.	
7.	Model School Subcommittee Report Approve as presented or make specific changes? (See bulleted items following and give particular attention to recommendation implementation strategies.)	
7a.	• Recommendations propose three specific resource allocation strategies/tools to supplement the in-place space allocation standards. Those include: 1) an official project costing tool, 2) a building standard that defines model school elements, and 3) a list of capital project elements (or a category definition) excluded from eligibility for state aid under AS 14.11.	
7b.	• Recommendation #3 eschews adoption of a comprehensive high-performance building industry standard in favor of Alaska-specific standards.	
7c.	• Implementation strategies envision investment of resources to ensure criteria are fully validated as driving cost-effective school construction.	
7d.	• *Scmte open item*: BRGR review of "Non-core Education Restrictions"	

Bond Reimbursement & Grant Review Committee

Report to the Legislature

on

Criteria for Cost-Effective School Construction

December 2017

ALASKA DEPARTMENT OF EDUCATION & EARLY DEVELOPMENT

TABLE OF CONTENTS

[Blue text is internal notes/references]

Introduction

[Authority for committee report]

In 1993, the legislature established the Bond Reimbursement & Grant Review (BR&GR) Committee within the Department of Education & Early Development (DEED). AS 14.11.014(b) provides that the committee shall

> (3) develop criteria for construction of schools in the state; criteria developed under this paragraph must include requirements intended to achieve cost-effective school construction; ...
>
> (7) recommend to the board necessary changes to the approval process for school construction grants and for projects for which bond reimbursement is requested;
>
> (8) set standards for energy efficiency for school construction and major maintenance to provide energy efficiency benefits for all school locations in the state and that address energy efficiency in design and energy systems that minimize long-term energy and operating costs.

This enacting legislation provides broad authority for the BR&GR Committee, through DEED, to set criteria to achieve cost-effective school construction, and to set standards addressing energy efficient design and systems. In this report, the committee is proposing development of criteria and standards for cost-effective school construction including energy efficiency elements. Portions of these recommendations anticipate amendment of statute by the legislature. Others would require adoption of regulations by the State Board of Education and Early Development.

The BR&GR committee is aware of legislation being considered by the 30th Legislature regarding school construction energy efficiency standards, which would require the development of a series of standards and requirements to impact the allocation of fiscal resources to school capital projects funded through AS 14.11, both grant and debt reimbursement; establish a regionally based maximum cost per square foot amounts for school projects and provide for updates by contract with a qualified cost estimator. *[The total DEED fiscal note provided for a first year estimated cost of. $690,800 and second year estimated cost of $540,800 -- but also includes a two person maintenance team and a non-perm supporting the working group.]*

[Set of comprehensive recommendations]

The BR&GR committee believes that the recommended criteria included in this report establish appropriate, targeted elements that will ensure state aid for school construction supports adequate school facilities that can be constructed, operated, and maintained in a cost-effective manner. The standards and design criteria will help reduce school construction elements that lead to increased long-term operating costs.

Process

[Recap process: forming subcommittees, participant invites, public comment]

During scheduling of future work products at a BR&GR work session in the spring of 2017, a legislative member of the committee suggested that, due to topics under consideration by the

legislature, the committee move up proposed work on cost-effective school construction criteria in order to assist the legislature in its deliberations on that subject. As a base point, BR&GR reviewed prior earlier work by the committee, including adoption of the ASHRAE 90.1 energy standard. Identifying areas most likely to provide more immediate and long-term cost savings to the state and districts, the committee formed three subcommittees addressing a model Alaskan school, design ratios, and commissioning. The department solicited involvement by interested industry partners and school district personnel in the subcommittees. The subcommittees met throughout the summer and into autumn collecting data and developing criteria. The BR&GR committee put the draft subcommittee recommendations out for a month long public comment period and the department provided announcements to school districts and the design community to request feedback; a limited amount of comments were received but the perspectives represent diverse segments of the state (see Appendix B).

Implementation

It is envisioned that the recommended criteria be implemented through regulation versus guidance for optional use. Therefore, it is essential that the criteria be clear, accurate, and sustainable. To that end, the report identifies a variety of implementation strategies which can be summarized as follows:

[List Variety of Implementation]

[Additional Subcommittee Efforts]

[Additional Department Efforts]

[Industry Partners]

[Consultant Services]

[State Board & Public Comment]

[Summary of Implementation Strategies - what does DEED, Legislature need to do to assist!]

Legislative Action

In order to support the implementation of these recommendations, the BR&GR committee requests that the legislature amend AS 14.11.013(d) and AS 14.11.100(h) to expand the list of school facility features that are not eligible for state aid, or would be eligible at a reduced rate (See Model School Recommendation #4, Subcommittee Resource #9).

Department Action

The BR&GR committee requests that the DEED Facilities staff solicit, award, and manage the various service contracts recommended to validate and define specific variable as noted.

The committee requests additional work by DEED Facilities staff on legacy documents the section has been working on over the course of several years.

Estimated Costs

[Summarize Costs | Whys (necessary costs)]

To fully implement the criteria identified in this report, the committee anticipates a need for approximately $276,200 in one-time expenditures beyond the current costs of the department's staff and supporting costs for committee activity. The additional costs are primarily for professional service contracts for energy modeling, cost estimating feasibility study services to refine the proposed criteria identified in the report. These services will ensure that the specific requirements will provide a balance between energy efficient and cost effective design, durable construction, and district choice of educational program requirements. It is anticipated that there will be $24,000 in annual costs for service contracts to maintain the Cost Model tool and provides updates of geographic cost factors.

Conclusion

Subcommittee Members
BR&GR Committee: Mark Langberg (chair); Bill Murdock
Department Staff: Wayne Marquis
Industry Partners: JaDee Moncur, Support Services of Alaska; Craig Fredeen, Cold Climate Engineering; Brittany Hartmann, Legislative Staff

Purpose of Subcommittee
Under AS 14.11.014(b)(3), propose standards and criteria for commissioning of school projects with state-aid; identify costs for appropriate allocation of resources.

Subcommittee Activity
The subcommittee met throughout the summer to discuss Commissioning issues. In addition to acknowledging the preceding purpose-statement, the subcommittee reviewed and adopted the following mission statement (Subcommittee Resource #2):

> *To provide minimum criteria and expectations to test the performance of a school's mechanical, electrical, plumbing, fuel, controls and envelope systems; to promote energy efficiency of the school and save operational costs over the life of the building.*

Building commissioning (Cx) was recognized as adding value to a school district's overall mission of education by maximizing the operational efficiency of its school facilities. Since commissioning is building-specific, benefits are also gained at the individual school level. The subcommittee reviewed commissioning protocols and practices and determined that commissioning criteria should be developed in the following broad categories: mechanical, fuel oil, electrical, controls, and building envelope.

Other focus areas of subcommittee review included:

- Responsibilities that are common to commissioning agents – commissioning tasks can cross traditional disciplines (e.g., building controls (mechanical), building envelope (architectural), etc.). Qualifications and certifications are becoming important.
- Standards and certifications for commissioning agents or commissioning authorities – as commissioning transitions from a specialty to a dedicated profession, there are a growing number of professional and trade associations offering certifications in this area.
- The points in a facility's life-cycle where commissioning can be effective – commissioning has traditionally been tied to the closeout of capital projects; however, the emergence of retro-commissioning has brought attention to the value of ongoing commissioning throughout the building life-cycle.

Recommendations
The following subcommittee recommendations are proposed for consideration by the BR&GR committee for inclusion in a December report to the Alaska state legislature. In the October 13 version of these recommendations, the subcommittee included specific requests for comments on its recommendations and welcomed all comments on potential implementation of commissioning standards for school construction. The subcommittee reviewed comments received during the

public comment period. Comments were considered and as appropriate incorporated in the work of the committee. Responses to the comments are provided in a separate document. Topic-specific comments and subcommittee responses have been included as an attachment to the recommendations.

Recommendation #1
In support of cost-effective school construction, adopt standards for commissioning of building system in new schools, major additions, and major renovations constructed with state aid. Standards should assist the department in ensuring school projects meet required energy standards.

Basis: The value of commissioning increases with the complexity of the systems in a facility. Since the complexity of school capital projects with state aid ranges from simple to complex, commissioning should generally only be required on new schools, major additions, and major renovations. There may be smaller projects, focused on one or more of these broad categories of systems, which would be appropriate to be commissioned. Since commissioning is a growing field and is touching more and more building systems, required commissioning standards (in support of cost-effective school construction) should focus on commissioning elements related to meeting required energy standards.

Implementation Strategy:
Several strategies were considered, as listed below. Since the Cx subcommittee thinks the work is mostly complete, the suggested course of action is to have the subcommittee complete the editing of the documents that will become the commissioning guidelines.

Item 1 – Commissioning Subcommittee to develop (or identify currently available) definitions of which projects will require commissioning (i.e., new schools, major additions, and major renovations). The subcommittee will also consider exceptions or possible broadened categories if warranted based on research and stakeholder input.

Item 2 – Finalize standards via regulation, amendment to existing handbook(s), or new handbook, as needed, to establish when commissioning will be required on school capital projects with state aid. Commissioning Subcommittee to make recommendations to the BR&GR. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:
Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #2
Commissioning funded with state aid should be accomplished by a qualified commissioning agent/authority (CxA). The base requirement for a CxA should be an industry-recognized certification but options should be available for alternate

qualifications sufficient to help guide the district to the desired level of Cx appropriate for the given project.

Basis: Certifications can be helpful in establishing credentials and high standards should be the norm. However, certain conditions may require flexibility and an alternate path to establishing qualifications on a project-basis.

Implementation Strategy:

Item 1 – Develop language establishing required certifications and align with project categories developed under Recommendation #1. Commissioning Subcommittee to develop initial criteria with assistance that may be available from industry (see comments attached). BR&GR to review and revise.

Item 2 – Finalize standards via regulation, amendment to existing handbook(s), or new handbook, as needed, to establish when commissioning will be required on school capital projects with state aid. Commissioning Subcommittee to make recommendations to the BR&GR. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:

Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #3

In support of cost-effective school construction, develop and adopt criteria for commissioning in five areas: mechanical, fuel oil, electrical, controls, and building envelope. Criteria should be provided as tools for districts to use in contracting for Cx services or for performing Cx in-house when permitted.

Basis: Minimum standards for commissioning criteria, updated on a regular basis to conform to industry best practices and current building systems, will provide a basis for the state aid. Standards define expectations and result in greater clarity and equity across all projects.

Implementation Strategy:

Item 1 – Complete outline commissioning criteria for the five building system areas. Subcommittee to develop outline-level standards with assistance that may be available from industry (see comments attached). BR&GR to review and revise.

Item 2 – Conduct an independent feasibility analysis and cost-benefit analysis on the development of the outline standards into a comprehensive set of state-level Commissioning Criteria standards. Cost evaluation should include impacts on both operating costs and first costs of facilities. Commissioning Subcommittee to develop statement of services; DEED Facilities to solicit, award, and manage contract; BR&GR to review and make recommendations.

Item 3 – If supported, finalize standards into either an existing or new department handbook. Implement the use of the handbook through regulation.

Cost to Implement:

Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Item 2 – $15,000 (allows for approximately 60 hours of research and documentation plus expenses).

Item 3 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Subcommittee Resources

The resources below were researched or developed during the subcommittee process and informed the recommendations of the committee. The majority of these documents are available in prior BR&GR committee packets for review (https://education.alaska.gov/Facilities/BRGR/). Certain items are attached or provided in the Appendices, as noted, for simplicity in reviewing the recommendations.

1. Meeting Notes/Recordings
2. Committee Response to Public Comments (Attached)
3. Mission Statement
4. Commissioning General Overview – 8-21-17 Draft (Attached)
5. Mechanical Systems Commissioning – 8-18-17 Draft (Attached)
6. Fuel Oil Systems Commissioning – 8-18-17 Draft (Attached)
7. Electrical Systems Commissioning – 8-18-17 Draft (Attached)
8. Control Systems Commissioning – 8-18-17 Draft (Attached)
9. Building Envelope Commissioning – 8-18-17 Draft (Attached)
10. Building Envelope Commissioning CSI Spec – 8-22-17 Draft (Attached)
11. Public Comments (See Appendix B)

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
General Comments	
Commissioning definitely has merit, but why isn't it already included in the final inspection activities? Shouldn't the design team already verify that the building functions as intended before signing off? The reality is their fees are not high enough to cover that level of inspection. *(ref. KChristy, 11-15-17)*	Commissioning is not just a final inspection activity, but one that occurs throughout the project. Cx has become its own specialty in many ways. This is in response to the increasing complexity of inter-related building systems and the inclusion of an increasing array of building performance sensors and controls. Typical construction phase services have the design team members certify the contract required construction of a building but not its operation. Fees, as noted, are one issue but services (scope) and credentials are also important pieces. The typical design fees are not high enough to include Cx, unless it is specifically included in the negotiations.
Commissioning can provide overall environmental with long-term cost benefits and should be included as a design/construction standard service. *(ref. MCary, 11-15-17)*	Thank you for the support. Continued efforts will be made to assess the cost-benefits of Cx.
Commissioning of existing facilities with funding to correct deficiencies should be considered as the benefits to the ongoing maintenance and operational costs would be significant. *(ref. MCary, 11-15-17)*	Though included as a focus area in subcommittee review, we did not specifically address Cx efforts outside of a capital project. Retro-commissioning, as that is often called, could be implemented within district M&O budgets. The guidelines under our recommendations would be a useful resource for that effort.
The recommendation should use more refined definitions of terms and specific goals for those terms, such as in commissioning. *(ref. TFenoseff, 11-15-17)*	We concur; terms used within any standards will need to be very clear.
Recommendation #1 (Adopt Commissioning Standards)	
What are the specific goals for savings as a result of commissioning (i.e. initial cost of construction, target percentage of first cost, target percent of life cycle cost, etc.)? Once defined, this may inform when and if commissioning should be required. *(ref. KPhillips, 11-15-17)*	Cx can save on both initial cost and create long-term savings. It may not be realistic to try to target a percentage without further research to determine relevant benchmarks. Continued efforts will be made to assess the cost-benefits of Cx.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
Recommendation #2 (Qualified Commissioning Agent/Authority)	
Criteria should take into consideration the availability of human resources, and specifically, practical level of credentialing. *(ref. TFenoseff, 11-15-17 & KPhillips, 11-15-17)*	Person doing Cx should be accredited and have relevant experience, in order to better serve the needs of the Owner. The committee recognizes the current limited number of accredited Cx agents in the state. Accreditation is recommended but may not be necessary due to the size and complexity of the project. Implementation of these recommendations will further review the level of credentials and on what size of project those credentials will be required.
School districts outside of urban areas may struggle to retain credentialed Cx entities; increased in overall life cycle costs associated with non-local CxA who may perform commissioning in lieu of local entities should be considered. *(ref. KPhillips, 11-15-17)*	The committee recognizes the current limited number of accredited Cx agents in the state. Implementation of these recommendations will further review the level of credentials and on what size of project those credentials will be required.
General Overview: "...be the responsibility of a 'single person'..."? *(ref. KHeusser, 11-15-17)*	Though Cx might be accomplished by a team of people, a single person needs to be coordinating and leading the effort.
Recommendation #3 (Develop and Adopt Criteria for Commissioning)	
Building Envelope - Potential exists for an incomplete building envelope upgrade to occur (i.e. reroof with portion of exterior walls receiving upgrades, but not all; consider how to test and/or measure outcomes on partial building envelope upgrades. *(ref. KPhillips, 11-15-17)*	We concur that the level of Cx / testing should be commensurate with the type of the project. Implementation of these recommendations will further review how to target Cx requirements to the partial upgrade/building addition project type. Currently, per Recommendation #1, only new schools, major additions, and major renovations are slated for required commissioning.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
Draft Standards (Committee Resource Items 3 – 9)	
Cx General Overview document comments. *(ref. KHeusser, 11-15-17)* 1) Introduces financial stakeholder services 2) Very weak language (in ref. to "could be") 3) Need org chart (in ref. to commissioning team) 4) Flesh out documentation (in ref. to commissioning report)	Thank you for the input. "CxA" bullet items were revised based on comments 1 and 2. Comments 3 and 4 are project specific and do not need to be addressed in detail by this subcommittee.
Mechanical Systems Cx document comments. *(ref. KHeusser, 11-15-17)* 1) AHJ should not be abbreviated 2) Grammar correction at "Occupied modes . . ." 3) Notes on combustion air (in ref. to HVAC systems)	Thank you for the input. The three comments were incorporated into revisions to the document.
Fuel Oil Systems Cx document comments. *(ref. KHeusser, 11-15-17)* 1) Vents properly operating (in ref. to Fill up tanks) 2) Does this specify certain equipment or is the standard now on standalone equipment? (in ref. to Functional Performance Testing)	Thank you for the input. The first comment was incorporated into revisions to the document. Regarding performance testing of equipment, this is envisioned for both standalone and integrated controls.
Electrical Systems Cx document comments. *(ref. KHeusser, 11-15-17)* 1) Intercom (in ref. to Paging System) 2) Specialty Equipment; Shop (in ref. to a possible missing system)	Thank you for the input. The two comments were incorporated into revisions to the document.
Controls Systems Cx document comments. *(ref. KHeusser, 11-15-17)* 1) And written into as-builts (in ref. to a log of changes to sequence of operations) 2) Should be required if type of work in contract (in ref. to Test and Balance Verification)	Thank you for the input. The first comment was incorporated into revisions to the document. We concur, generally, but leave project specific contractual requirements of work to be established by the Owner.
Building Envelope specification document comments. *(ref. KHeusser, 11-15-17)* 1) Certified building commissioning professional? (in ref. to thermographer qualifications) 2) Radiant systems may take a while to reach stasis (in ref. to a 48hr acclimatization requirement) 3) Suggest make round 20 deg. F (in ref. to delta between ambient and building temps) 4) Flesh out documentation (in ref. to commissioning report)	Thanks you for the input. At 1.04 A.1.: The "Level II certification" will be clarified to incorporate the certifying organization. At 3.01 B.: A generic sentence was added to incorporate this comment. A temperature differential should be established on the basis of a workable minimum. Currently we understand that to be 18 degrees F. *Note:* this spec is still a work in progress, so additional updates will be forthcoming.

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

COMMISSIONING GENERAL OVERVIEW

Commissioning shall be the responsibility of a single person charged with organizing and leading the commissioning efforts for the project.

Commissioning Authority (CxA):

- Be certified in commissioning from ASHRAE, Building Commissioning Association (BCxA) or other recognized standards organization.
- Ideally, should be an independent third party, or
- Could be a member of the design team, or
- If appropriate, could be an employee of the school district (consistent with district's commissioning policy)

CxA Responsibilities may include the following (as determined by contract requirements):

- Coordinate commissioning of the mechanical, electrical, fuel oil, controls, and building envelope commissioning sections.
- Coordinate with Contractor's Commissioning Representative (CCR) and commissioning team.
- Create a Commissioning Plan
- Create commissioning checklists
- Create Functional Performance Tests
- Witness the Functional Performance Testing
- Work to resolve issues found during commissioning
- Create Commissioning Report
- Coordinate with owner maintenance personnel for training

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

MECHANICAL SYSTEMS COMMISSIONING

Mechanical Systems to be commissioned include:

- All life safety interlocks and safeties including but not limited to
  - Boiler safeties, emergency shut-down
  - Combustion air systems
  - Duct smoke detectors and associated code shut-downs
  - Smoke damper activation
  - Fire suppression systems including fire water storage and suppression activation. These may be delegated to Authority Having Jurisdiction review and approval.
- General
  - Occupied modes and unoccupied mode operation for all systems
  - Remote monitoring and alarm generation
- Plumbing System
  - DEC regulated system parameters are maintained
  - Facility domestic water supply (well pump, storage, etc) function
  - Domestic hot water generation, tempering valve operation, high temperature alarm
- Heating System
  - Hydronic system supply temperature control including heat plant operation
  - Distribution system control including circulation pump operation and failure sequences
  - Terminal heating unit operation including room temperature control
- Ventilation System
  - All damper positions to be visually verified during operation
  - Central ventilation unit controls
    - Fan operation
    - Outside air, return, and relief air damper operation
    - Air temperature control including coil operation
    - Demand ventilation control sequences
  - Terminal ventilation unit operation
  - Building pressurization controls
  - Exhaust air operation
  - Combustion air
- Specialty Equipment (specify)

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

FUEL OIL SYSTEMS COMMISSIONING

Fuel Oil Systems Commissioned Outline:

- Prior to Functional Performance Testing
  - Fill up tanks
  - Verify tank vents operating properly
  - Test Hi / Low level, leak detection and overflow alarms
  - Test circulation pumps operation (supply and return)

- General
  - All sequences will be tested as approved by the designer
  - Alarm generation and remote monitoring (when present) will be demonstrated

- Commissioning Authority (CxA)
  - Should be independent third party
  - Create all Functional Performance Tests
  - Be on site during Functional Performance Testing
  - Create Commissioning (Cx) Report

- Controls
  - Must provide support for Functional Performance Testing
  - Provide Functional Performance Testing results for review

- Fuel Oil Systems to be commissioned
  - All standalone controlled devices
  - All Direct Digital Control (DDC) controlled devices (when present)
  - Large and small day tank controls integration
  - All other systems as noted in the Mechanical, Electrical, Controls, and Building Envelope commissioning sections
  - Specialty Equipment (specify)

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

ELECTRICAL SYSTEMS COMMISSIONING

Coordinate commissioning of this section with other systems as noted in the mechanical, fuel oil and controls commissioning sections.

Basic Electrical Systems to be commissioned include:

- Uninterruptible Power Supply
- Standby/Emergency Generator System
- Auto Transfer Switch – Standby
- Auto Transfer Switch – Emergency
- Grounding Systems – Power / Telecom
- Motor Starters / Variable Speed Drives (VSD)
- Lighting Control Systems
- Lighting Fixtures
- Secondary Transformers
- Electrical Distribution Equipment

When included as part of the project, electrical Special Systems to be commissioned may include:

- Fire Alarm System
- Security Systems
- Closed Circuit Television
- Audio Video Systems
- Paging System
- Intercom System
- Entry Intercom System
- Telecom Distribution System
- Telecom Optical Fiber Distribution System
- Specialty Equipment (specify)

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

CONTROLS SYSTEMS COMMISSIONING

Controls Systems Commissioning Outline:

- Prior to Functional Performance Testing
  - Point to point testing complete
  - Calibration complete
  - Self-testing of control sequences
  - Graphics complete
  - Connection to remote viewing complete
  - Complete log of changes from original sequences of operations and include in the as-built documentation
  - Test and Balance for air and hydronic systems
  - Test and Balance Verification (if required by contract)

- General
  - All Sequences will be tested as approved by the designer
  - Remote monitoring and alarm generation will be demonstrated
- CxA
  - Should be independent 3rd party
  - Create all Functional Performance Tests
  - Be on site during Functional Performance Testing
  - Create commissioning Report
- Controls
  - Must provide support for Functional Performance Testing
  - Provide Trending after Functional Performance Testing for review
- Controls Systems to be commissioned
  - All DDC controlled systems
  - All standalone controlled devices
  - Boiler controls integration
  - A/C system controls integration
  - All other systems as noted in the mechanical commissioning, fuel oil and lighting commissioning sections.
- Specialty Equipment (specify)

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

BUILDING ENVELOPE COMMISSIONING

Mandatory building envelope testing shall apply to the following types of construction:

- New facilities
- Additions over 2,000 SF
    - Testing to be limited to the addition.
    - Testing may be waived by DEED if logistics of isolating the addition for testing are deemed impractical.
- Major renovations to building envelope as deemed by DEED.

Building envelope commissioning shall include:

- The air leakage rate of the building envelope shall not exceed 0.40 cfm/SF at a pressure differential of 0.3 inches water gauge (75 Pa) in accordance with ASTM E 779 or an equivalent method approved by DEED.

Recommended testing includes the following:

- A vapor barrier integrity visual inspection be completed prior to installation of interior finishes.
- Thermal imaging testing of the building envelope.

A guide CSI Specification is available from DEED to provide owners and designers recommendations for how to complete the air leakage and thermal imaging testing.

Design Ratios Subcommittee
Recommendations for Cost Effective School Construction Criteria
November 30, 2017

Subcommittee Members
BR&GR Committee: Dale Smythe (chair); Robert Tucker; Rep. Sam Kito III
Department Staff: Tim Mearig; Larry Morris; Lori Weed
Industry Partners: Ryan Butte, LKSD; Ezra Gutschow, Coffman Engineers; Brittany Hartman, Legislative Staff

Purpose of Subcommittee
Under AS 14.11.014(b)(3), evaluate and propose construction design ratio guidelines for use by the department, school districts, and the design community to design new and renovated school facilities to reduce first cost (construction) and long-term cost (operation).

Subcommittee Activity
The subcommittee met throughout the summer to discuss types of design ratios and the magnitude of potential savings in a variety of climatic areas. The subcommittee aimed for design ratio guidelines that would be straightforward for design professionals, district staff, and the department to be able to interpret and review; would achieve measurable savings for first costs and operational costs; would not repeat or contradict existing laws and regulations; and would not unduly limit educational delivery or program formats.

Major influencing factors on the first cost and operational cost of Alaskan schools is the amount, size, and arrangement of the building's roof, spaces, windows, and doors. While the largest influences on total cost are a schools location, the price of energy, and how the building is operated; control of these elements is outside of the consideration of this subcommittee. Any ratio guideline that reduces heating requirements will have a dramatically different cost impact to a facility located in an area with cold temperatures and high price for energy.

Current design technology makes gathering design element data significantly easier, the proposed design guidelines should be able to be implemented without undue burden on stakeholders.

Other focus areas of subcommittee review included:

- Leadership in Energy and Environmental Design (LEED), a widely used green building rating system. LEED provides for a wide variety of trade-offs, not all of which are applicable throughout the state and do not directly affect first costs or operational costs.
- Collaborative for High Performance Schools (CHPS), focuses on high performance features for benefits associated with improved health, productivity and student performance, decreased operating costs, and increased energy savings. CHPS, like LEED, is holistic in nature, requiring measurements across the full spectrum of sustainability practices, some of which may be less applicable to Alaska. It does not provide for targeted or incremental standards—it's an "all-in" approach. It also requires significant investment and involves third-party oversight.
- Existing climatic zone designations for Alaska. Reviews included climatic zone definitions by IECC/ASHRAE, Alaska BEES, and USGS.
- Aspect design ratio (building's length and width); found to be difficult to apply to all school sizes.

- Solar orientation ratio; found to be too controlling, limited savings potential, and difficult to implement.
- Ratios addressing mechanical systems were discussed as a possibility for future committees, but outside of the committee's current scope of review; potentially interconnecting with the commissioning subcommittee.

The subcommittee gathered information from relatively current constructed school designs to create a bracketed range of existing conditions for consideration relative to possible guideline ratios. This information will continue to be updated, refined and examined as an information source.

The subcommittee has also begun the effort of creating energy use models to illustrate differences between the proposed ratios. Currently under development are models for one- and two-story massing types in each of the four BEES climate zones. The goal of this effort is to gather rough order of magnitude operational cost differences. It will consider a 30-year time span based on local fuel prices and typical escalation. The intent is to inform the subcommittee of the potential value of a guideline implementation.

The intent of the recommended ratios is to encourage building compactness and to limit heat loss through the envelope and envelope openings. The subcommittee also believes that these ratios may result in savings in the area of initial capital costs.

Recommendations

The following subcommittee recommendations are proposed for consideration by the BR&GR committee for inclusion in a December report to the Alaska state legislature. In the October 13 version of these recommendations, the subcommittee included specific requests for comments on its recommendations and welcomed all comments on potential implementation of design ratios for school construction. The subcommittee reviewed comments received during the public comment period. Comments received provided the subcommittee with both a general reaction to the concept of developing standards for design ratios and feedback specific to the subcommittee's five recommendations. The comments demonstrated a need to ensure design ratio standards are based on solid research and computations. A positive response to several of the proposed ratios was received from one school district but concern was expressed about the ability to create these standards versus adoption published standards from other entities. Topic-specific comments and subcommittee responses have been included as an attachment to these recommendations.

Recommendation #1

Adopt the Alaska Climate Zones established by the Alaska Building Energy Efficiency Standard (BEES), and used by the Alaska Housing Finance Corporation, to differentiate allowable ratio ranges, and to support other cost-effective school construction standards as needed.

Basis: The subcommittee sought to identify pre-existing and accepted climate designations. Although the Department of Education & Early Development has adopted the ASHRAE 90.1 energy standard, the standard only identifies two climatic regions in Alaska. The four climate zones adopted by BEES offers more flexibility when establishing design ratio ranges and other cost-effective school construction standards.

Implementation Strategy:
Item 1 – Subcommittee to confirm the availability of the BEES standards for use in Design Ratio standards development (i.e., permission from standards author, frequency and process for updates, etc.)

Item 2 – Subcommittee and BR&GR to ensure there is a clear differentiation between when BEES would be used for a school project with state aid, and when ASHRAE 90.1 would be used.

Cost to Implement:
Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #2

Implement a school design ratio of Openings Area to Exterior Wall Area (O:EW). Opening Area defined as "the square footage of all windows, doors, and translucent panels measured to the outside of their frame elements". Exterior Wall Area defined as "the square footage of the exterior vertical enclosure, inclusive of all openings".

Basis: The O:EW ratio is an indicator of envelope efficiency. Operational costs of a school facility are highly influenced by heat loss through penetrations of the envelope. The comparison is not meant to diminish the proven benefits of natural light on student performance. Current ranges from the *Recent School Projects Design Ratios Data Set* are: Low – 3.99% to High – 49.37%.

Implementation Strategy:
Item 1 – Identify and solicit services; issue a contract for energy modeling services to determine appropriate ratio ranges. Design Ratio Subcommittee to develop statement of services with input as needed. DEED Facilities to solicit, award, and manage contract. Compare existing school ratios and annual energy use to define the most effective ratios. Consider developing area specific ratios based on BEES regions.

Item 2 – Develop regulations, as needed, to establish use of the design ratios to establish eligible cost limits for state aid of school capital projects. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:
Item 1 – $20,000 for energy modeling and data collection services (if combined with other recommendations costs; solicit one contract for all four ratio recommendations for cost savings).

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #3

Implement a school design ratio of Building Footprint Area to Gross Square Footage (FPA:GSF). Building Footprint is defined as "the conditioned square footage measured from the exterior wall face at the lowest floor of the building projected vertically down to a single plane; does not include crawl spaces or areas for building system distribution". Gross Square Footage is defined as "all normally occupied conditioned square footage as measured to the exterior wall face; does not include crawl spaces or areas for building system distribution". This ratio would be applied to facilities in excess of 30,000 GSF.

Basis: The FPA:GSF ratio is an indicator of enclosure efficiency. This ratio is intended to incur benefits relating to stacking (multi-story) efficiencies in school design. Minimum facility size is partly to reflect practicalities of stacking space as well as the difficulties that may be experienced by a smaller community in obtaining certified personnel to service an elevator, if required. Current ranges from the *Recent School Projects Design Ratios Data Set* are: Low – 61.94% to High – 99.34%.

Implementation Strategy:

Item 1 – Identify and solicit services; issue a contract for energy modeling services to determine appropriate ratio ranges. Design Ratio Subcommittee to develop statement of services with input as needed. DEED Facilities to solicit, award, and manage contract. Compare existing school ratios and annual energy use to define the most effective ratios. Consider developing area specific ratios based on BEES regions.

Item 2 – Develop regulations, as needed, to establish use of the design ratios to establish eligible cost limits for state aid of school capital projects. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:

Item 1 – $20,000 for energy modeling and data collection services (if combined with other recommendations costs; solicit one contract for all four ratio recommendations for cost savings).

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #4

Implement a school design ratio of Building Volume to Net Floor Area in (V:NSF). Building Volume is defined as "all conditioned cubic square footage within a buildings vapor retarder or elements acting as a vapor retarder at the exterior wall, roof or soffit". Net Floor Area or Net Square Footage is defined as "all normally occupied conditioned square footage as measured to the inside face of walls; does not include crawl spaces or areas for building system distribution".

Basis: The V:NSF ratio is an indicator of space efficiency. The volume of air being heated in a school is a large factor of a facility's operating costs. This ratio is intended to address the amount of double-height volume in a facility. Current ranges from the *Recent School Projects Design Ratios Data Set* are: Low – 1260.28% to High – 2158.93%.

Implementation Strategy:

Item 1 – Identify and solicit services; issue a contract for energy modeling services to determine appropriate ratio ranges. Design Ratio Subcommittee to develop statement of services with input as needed. DEED Facilities to solicit, award, and manage contract. Compare existing school ratios and annual energy use to define the most effective ratios. Consider developing area specific ratios based on BEES regions.

Item 2 – Develop regulations, as needed, to establish use of the design ratios to establish eligible cost limits for state aid of school capital projects. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:

Item 1 – $20,000 for energy modeling and data collection services (if combined with other recommendations costs; solicit one contract for all four ratio recommendations for cost savings).

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #5

Implement a school design ratio of Building Volume to Exterior Surface Area (V:ES). Building Volume is defined as "all conditioned cubic square footage within a building's vapor retarder or elements acting as a vapor retarder at the exterior wall, roof, or soffit". Exterior Surface Area is defined as "square footage of wall, roof, or underbuilding soffit system at the line of the exterior air barrier or outward most element acting as an air barrier surrounding conditioned space".

Basis: The V:ES ratio is an indicator of building compactness. The compactness of a building minimizes the heat loss through the envelope. [Note: Data for this ratio has not been developed in the current version of the *Recent School Projects Design Ratios Data Set*.]

Implementation Strategy:

Item 1 – Identify and solicit services; issue a contract for energy modeling services to determine appropriate ratio ranges. Design Ratio Subcommittee to develop statement of services with input as needed. DEED Facilities to solicit, award, and manage contract. Compare existing school ratios and annual energy use to define the most effective ratios. Consider developing area specific ratios based on BEES regions.

Item 2 – Develop regulations, as needed, to establish use of the design ratios to establish eligible cost limits for state aid of school capital projects. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:

Item 1 – $20,000 for energy modeling and data collection services (if combined with other recommendations costs; solicit one contract for all four ratio recommendations for cost savings).

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Subcommittee Resources

The resources below were researched or developed during the subcommittee process and informed the recommendations of the committee. The majority of these documents are available in prior BR&GR committee packets for review (https://education.alaska.gov/Facilities/BRGR/). Certain items are attached or provided in the Appendices, as noted, for simplicity in reviewing the recommendations.

1. Meeting Notes/Recordings
2. Committee Response to Public Comments (Attached)
3. Alaska BEES Climate Zone Map (Appendix A)
4. The Effect of Building Aspect Ratio on Energy Efficiency: A Case Study for Multi-Unit Residential Buildings in Canada, Philip McKeen and Alan S. Fung.
5. Building Aspect Ratio, Kimberly Hickson, AIA, BNIM Architects.
6. The Function of Form: Building Shape and Energy, John Straube, Ph.D., P.Eng.
7. Energy Efficiency of Public Buildings in Alaska: Schools, Cold Climate Housing Research Center, AHFC.
8. Recent School Projects Design Ratios Data Set, DEED. (Appendix A)
9. Design Guidance for Minneapolis Schools in Minneapolis, Minnesota
10. Subcommittee September 6, 2017 Report to BR&GR
11. Public Comments (Appendix B)

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
General Comments	
What other northern design regions "best practices" (Canada, Scandinavia) were researched related to Design Ratios? The research and decision-making data should reach beyond Alaska, as there are many northern design regions around the world employing high-performance northern school design. *(ref. KPhillips, 11-15-17)*	Research included studies—national and international—related to building form and energy use, where possible focus was given to northern climates and schools however some reviewed studies included other latitudes and building types. There was a surprisingly limited amount of northern latitude school studies available. Studies reviewed and referenced in meetings are available on DEED's BR&GR web page.
An examination of 'Design Ratios' is very much an examination of 'best practices' in basic design methods applied to our variety of northern design regions. To gain licensure in the state of Alaska, architects must pass a licensing board-approved supplemental course focusing on norther region design. Consider how this course and potential DEED requirements for Design Ratios overlap and are synergistic, and/or conflict in any manner. *(ref. KPhillips, 11-15-17)*	Thank you. We will take care to consider this possible overlap to the extent northern design coursework is available for review. While the concepts covered may align, it is unlikely that the registration coursework identifies or implements design ratio targets or standards. Design Ratios are being considered because currently there are no guidelines, regulation or code requirements that influence building compactness in Alaska. Window to wall ratios are considered in certain municipalities and as a part of certain certification but not required on state funded schools.
Criteria for cost-effective school construction should take into consideration availability of human resources: qualified educational, maintenance, and operations staff/recruiting. *(ref. KPhillips, 11-15-17)*	Agreed, most of these variables will be addressed in the companion Model Alaskan School initiative.
One of the most effective and simple to implement means of encouraging more cost effective building envelopes *is* to change the square footage matrix and *to* go back to calculating school size using interior rather than exterior dimension. *(ref. KChristy, 11-15-17)*	We concur that better performing building envelopes are typically thicker, which puts pressure on the state's school space allocation. That issue is still to be considered and will be outside of this effort.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
Washington State might provide a good role model in looking at the process they used to develop the Washington Sustainable Schools Protocol Criteria for High-Performance Schools. It would not be appropriate to adopt the document itself but the result is viewed as a positive tool for that state. *(ref. KChristy, 11-15-17)*	The subcommittee will review the Washington State School Criteria for relatable concepts.
Much of what is discussed is simply daunting to think about implementing and complying. *(ref. KChristy, 11-15-17)*	No more so than building owners and designers complying with other high-performance building criteria such as mentioned in the previous comment. Fortunately, there are tools available to assist in these analyses that easily produce the information requested for straightforward review.
I believe it would have been beneficial for each of the committees to have had representation from both rural and urban educators. It is all too easy to lose perspective that the main purpose of these facilities is to support effective student learning, and we need to look at sustainable future trends and not necessarily continue to support and maintain the current resource-consuming facilities. This involves a big picture statewide conversation as to future educational delivery options based on Alaska's fiscal reality. *(ref. MCary, 11-15-17)*	Subcommittee makeup was open to interested parties outside the BR&GR committee and the department. Research of existing facilities included urban and rural facilities.
I'd encourage a more performance-based approach to design in lieu of an overly prescriptive approach (design ratios) to meet energy goals. *(ref. MCary, 11-15-17)*	Agreed; there is a place for performance-based design. Performance-based standards were reviewed such as those from USGBC, LEED, and CHPS. To date, the subcommittee believes a limited set of Alaska-specific criteria developed on a prescriptive basis would work best.
The recommendation should use more refined definitions of terms and specific goals for those terms, such as in commissioning. *(ref. TFenoseff, 11-15-17)*	We concur; terms used within any standards will need to be very clear.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
Recommendation #1 (Adopt Alaska Building Energy Efficiency Standard Climate Zones)	
Clarify if adoption of four BEES climate zones would be substituted for the two climatic regions noted in ASHRAE 90.1 or would ASHRAE 90.1 be replaced as the standard with BEES exclusively. *(ref. KPhillips, 11-15-17)*	The intent of adopting the BEES climate zones is to more specifically represent the different climate zones as they influence facility design priorities when comparing ratios only. The current requirement to meet ASHRAE 90.1 would not change.
Recommendation #2 (Implement Design Ratio Openings Area to Exterior Wall Area)	
I would be in favor of a **lower O:EW ratio** for the following:	
a. Natural light is extremely important but it doesn't take an entire exterior wall of windows to give adequate light. I feel less but strategically placed windows would offer a quality interior natural light effect.	Thank you for the support. Natural light and views to the exterior will remain important factors for owners and designers to consider within the energy-driven limitations of the O:EW ratio.
b. In windy climates like BSSD windows are one of our larger maintenance expenses. We are continually fixing mechanisms and experience full failures as early as 15 years. The glass vendors love us! Our most troubled areas are classrooms with the entire exterior wall length being window. The lack of framing structure between each window creates a weak point, that moves in the wind, which loosens casings and loosens window edges allowing argon to escape. We see this in quite a few of our schools. With a lower O:EW ratio designers may look at getting away from continuous long banks of windows.	Thank you for the input. However, limiting glazing with the O:EW design ratio would not necessarily make up for missing framing. Best practice related to that issue should be incorporated in the proposed Model Alaskan School criteria or in the district's design standards.
c. With LED lighting being used the cost of offsetting natural lighting with electric lighting isn't as big of a deal. Also LED replicates the spectrums of natural lighting much better.	Thank you for the input.
d. And of course the difference between r-5 and r-30 but as time factors in windows are not their original r-value and leak.	Thank you for the input.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
e. Less windows, less problems. *(GEckenweiler 11/9/2017)*	Thank you for the input.
What 'best practices' in educational design were researched during the development of the recommendation? In order to define "good" versus "bad" of an effective range of O:EW ratio, let's be certain we understand as many intimacies/impacts associated with example projects as noted in "Recent School Project Design Ratios Data Set". *(ref. KPhillips, 11-15-17)*	We concur that in establishing allowable ranges within each of these energy-centric design ratios, impacts and trade-offs in other areas will need to be considered. Using recent school project data as a benchmark should go a long way toward balancing best practices in education design. All of the sample schools were unfettered by energy-design ratios as they met education design best practice yet some clearly perform better from an energy standpoint than others.
The concept of implementing a range of school design ratio or O:EW needs to be weighed against impact to student learning. Much health research tells us that humans must have the opportunity to connect visually and physically with the outside. Even though there are many months of darkness in Alaska, students and staff should be afforded the opportunity to visually connect with the natural environment, regardless it its daylight or dark, i.e. windows. The human connection between the built environment and the natural environment is necessary for learning and wellbeing. *(ref. KPhillips, 11-15-17)*	Agreed; natural light and views to the exterior will remain important factors for owners and designers to consider within the energy-driven limitations of the O:EW ratio.
Does this apply to new construction only, or additions as well? *(ref. KPhillips, 11-15-17)*	The implementation of design ratios in additions or renovations has not been discussed in detail but the subcommittee has recognized the potential difficulty.

Recommendation #3 (Implement Design Ratio Footprint Area to Gross Square Footage)

Criteria for cost-effective school construction should take into account the differences between rural and urban cost of construction. *(ref. TFenoseff and KPhillips, 11-15-17)*	Agreed; window and building compactness can affect construction cost however the intent of this effort was to consider both construction and operation.
Consider differing levels of criteria for urban versus rural conditions. *(ref. KPhillips, 11-15-17)*	While energy saving is greater considering the price of energy, the goal of this is reduce energy use in any location.
The practice of design of an efficient building footprint is a basic component of 'good northern design'. *(ref. KPhillips, 11-15-17)*	Agreed; the intent of design ratio standards is to ensure 'good northern design' for all schools with state aid.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
Was 30,000 GSF as the trigger for FPA:GSF ratio based on historical or contemporary typical school footprints? Based on trigger of energy loss to a footprint larger than this and therefore an operational cost trigger? In Anchorage School District, our current Ed Specs call for nearly 70,000 GSF of space for an elementary school, which represents our smallest school facility in size; therefore, this FPA:GSF ratio requirement would apply to all new schools within ASD and (assuming) any additions to schools if designed over 30,000GSF. *(ref. KPhillips, 11-15-17)*	The 30,000 GSF trigger was based on the school size above which there would typically be 12 classrooms or more. This was the point at which a stacked classroom wing might be feasible.

Recommendation #4 (Implement Design Ratio Building Volume to Net Floor Area)

The practice of design of efficient spatial building volume is a basic component of 'good northern design'. *(ref. KPhillips, 11-15-17)*	Agreed; the intent of design ratio standards is to ensure 'good northern design' for all schools with state aid.
Assuming building volume of concern is all normally occupied conditioned space, not unconditioned space - clarify. *(ref. KPhillips, 11-15-17)*	Yes, the recommendation defines the volume boundary as "all conditioned cubic square footage . . .".

Recommendation #5 (Implement Design Ratio Building Volume to Exterior Surface Area)

Maybe (V:ES) best defines the goals of these three recommendations [(FPA:GSF), (V:NSF), (V:ES)]. *(GEckenweiler 11/9/2017)*	Thank you for the input.
I would be in favor of a tighter ratio, which would push simplistic building shapes in our climate region.	Thank you for the input
a. When you live in windy NW AK practicalities take over, especially in construction, to a point where unpractical stands out like a sore thumb.	Thank you for the input.
b. Rectangular, fewer wings, lower roof pitch and fewer rooflines are all things folks deem as practical. The local critics will quickly criticize unpractical buildings and praise simplicity.	Thank you for the input.
c. Keeping construction funds in the interiors of the facility has a much greater positive impact on educational environments.	Interesting perspective; thank you for the input.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
d. We have all seen some incredibly beautiful designs utilizing simple shapes. *(GEckenweiler 11/9/2017)*	Thank you for the input.
This criteria seems very similar to Recommendation #4. Data not provided; needs more clarity. *(ref. KPhillips, 11-15-17)*	The difference is between floor area and building surface area as it relates to volume.
Assuming building volume of concern is all normally occupied conditioned space, not unconditioned space - clarify. *(ref. KPhillips, 11-15-17)*	Yes, the recommendation defines the volume boundary as "all conditioned cubic square footage . . .". The recommendation also responds to buildings up on piles and the influence of additional surface area.

Model School Subcommittee
Recommendations for Cost Effective School Construction Criteria
November 30, 2017

Subcommittee Members
BR&GR Committee: Doug Crevensten (chair); Don Hiley; Representative Sam Kito
Department Staff: Tim Mearig
Industry Partner(s): Dana Menendez, ASD; Brittany Hartmann, Legislative Staff

Purpose of subcommittee
Under AS 14.11.014(b)(3), propose elements and features of a Model Alaskan School that will support an adequate education and for which state resources would be allocated.

Subcommittee Activity
The subcommittee met throughout the summer to discuss Model Alaskan School issues. Our subcommittee could not define one particular Model Alaskan School due to the variances in school construction demanded by Alaska's vast geography and climate. However, it may well be possible to define Model School *standards* that do define adequate Alaskan schools depending on a particular region or set of circumstances, provide for more accurate project cost estimates, and reduce project and operational costs.

Three questions seemed to reoccur in each meeting's discussion:

- Can/should resource allocation using a Model School standard be accomplished by establishing a cost-based framework?
- Can/should resource allocation using a Model School standard be accomplished by establishing the quality and quantity of systems and components?
- Can/should resource allocation using a Model School standard be accomplished by establishing program space allowances and/or space standards, and identifying school elements not eligible for State funding?

This idea of developing a cost-based framework remained an active discussion throughout. The state's Program Demand Cost Model for Alaskan Schools (Cost Model) was identified early on as a promising tool on which to base model school standards and resource allocation because it identifies many elements in a school, and provides methods for establishing fairly accurate estimates for new construction and renovation projects. (However, actual costs for schools can only be determined through the design and construction process.)

Other focus areas of subcommittee review included:

- Shortcomings of the Cost Model and where it might be improved to better reflect Model School standards and more accurately forecast costs.
- Defining the type, quality, and performance factors of Model Alaskan School systems—these standards are currently not defined. This results in an ad hoc, wide variety of systems and components of varying quality and cost.
- Usefulness of establishing Model School standards that define both the minimum acceptable State-funded solution and the maximum acceptable State-funded solution.

- Elements of a school that are currently funded by the State that may be beyond the definition of an "adequate education".
- Alternatives to the Cost Model, such as the cost per square foot approach, and prototypical schools.

Recommendations

The following subcommittee recommendations are proposed for consideration by the BR&GR committee for inclusion in a December report to the Alaska state legislature. In the October 13 version of these recommendations, the subcommittee included specific requests for comments on its recommendations and welcomed all comments on potential implementation of model Alaskan school standards. The subcommittee reviewed comments received during the public comment period. Comments received provided the subcommittee with both a general reaction to the concept of developing standards for a model school and feedback specific to the subcommittee's four recommendations. The comments demonstrated a need to further differentiate between the proposed model school standards and a prescribed prototype school, and to further develop committee and stakeholder understanding about how model school standards might impact choices in education delivery models. Topic-specific comments and subcommittee responses have been included as an attachment to these recommendations.

Recommendation #1

Further develop the Program Demand Cost Model instead of pursuing a state-mandated cost-per-square-foot standard. Actions would include: a) defining/updating geographic cost factors, b) adding detail to the 4.XX Site Work elements, and c) adding detail to the 11.XX Renovation elements.

Basis: *Cost per square foot (CPSF)* limits are difficult to apply to rehabilitation and major maintenance projects. Of the 122 projects on the DEED FY18 priority lists, only 2 are new construction, making a CPSF approach of limited practical use. Also, many districts do not have the funds to accomplish design and construction documents in support of their projects. A more detailed Cost Model, especially from the foundation down, can serve as a useful (although imperfect) substitute.

The existing *Cost Model* has flexibility to accommodate a wide variety of project types and educational programs. It identifies most necessary elements in any school and provides methods for establishing fairly accurate estimates for new construction and renovation projects, including those elements tied to geography and climate.

Implementation Strategy:

Item 1 – Identify and solicit services; issue a contract for the updates identified in a) through c) of the recommendation. Model School Subcommittee to develop statement of services with input as needed. DEED Facilities to solicit, award, and manage contract.

Item 2 – Develop regulations, as needed, to establish use of the enhanced Cost Model to establish eligible cost limits for state aid of school capital projects. Model School Subcommittee to review pros and cons and make recommendations to the BR&GR. BR&GR to make recommendations to the State Board. DEED Facilities to manage the administrative process of regulation development.

Cost to Implement:
Item 1 – Defining/updating geographic costs - ~$45,000 ($1000/factor at 45 locations). Adding detail to Site and Renovation sections - ~$60,000 ($30,000/section where $15,000 has been the approximate cost of annual updates of the complete tool).

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee and board activity.

Recommendation #2

Establish a process of reviewing and regularly updating school costs within the Cost Model so that those updates become researched, vetted, and intentional. Vetting could occur as a function of the BR&GR committee or a broader working group, if deemed necessary.

Basis: Construction materials and methods advance over time, as do processes and tools for educational delivery. A systematic, on-going review of construction costs, new technologies, and emerging education methods results in a more accurate and useful *Cost Model*.

For example, new technology needs to be reviewed before inclusion in the cost model. Are high performance air barriers and roofing underlayments proven best-practices for building longevity? Are Smart Boards still needed in every classroom? How does adoption of ASHRAE 90.1 as an energy standard impact school building systems? Are educational programming shifts, such as maker-spaces in schools that emphasize project-based learning, accommodated in the Cost Model's space-costs element?

Implementation Strategy:
Item 1 – In conjunction with the department's vendor, HMS Inc., develop a best-practice strategy and timeline for annual updates to the Model Alaskan School that would account for changes in materials and labor, codes/standards, and educational delivery.

Item 2 – Implement the strategy with DEED and BR&GR resources for the initial year. Review and analyze effectiveness of these parties in accomplishing this task.

Item 3 – Seek outside assistance if warranted.

Cost to Implement:
Items 1-2 – ~$1200 for consultant involvement.

Item 2 – $15,000 annually (currently budgeted) for consultant contract. No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Item 3 – $15,000 annually (in addition to Item 2) for industry specialists ($3000/specialist at 5 disciplines).

Recommendation #3

Develop Model Alaskan School standards by building system (ref. DEED *Cost Format*) to establish the quality and/or quantity of system components needed to ensure cost

effective school construction across the state. Subcommittee resource items 3 and 4 are working drafts.

Basis: Building system and component types, quantities, and quality vary widely across school projects with state aid. Powers granted to the department provide broad authority for the state to revise a project's scope and budget if the costs are excessive and to reject projects not in the state's best interests. The basis for making these determinations could be more transparent if there were written standards.

Many States have documents that lay out standards for the various elements of schools. Others have adopted national standards that reflect 21st Century school design. These documents have the purpose of setting adequate quality standards (minimum acceptable for State funding) and placing limits on costs (maximum acceptable for State funding). Parts of the other states' standards documents can be considered, however, it seems unlikely that incorporation of another state's standards would result in an Alaska-specific document that responds effectively to Alaska's diverse needs.

Model Alaskan School standards would first address systems with a high return on effort expended, such as Mechanical and Interiors, and avoid the impulse to 'regulate everything'. A Model Alaskan School standard should fill a niche between adopted building codes and any detailed school design criteria adopted by districts. This standards document should be meshed with the Cost Model.

Implementation Strategy:

Item 1 – Complete outline Model School Standards for the remaining DEED CostFormat sections. DEED Facilities to develop outline-level standards with assistance that may be available from industry (see comments attached). BR&GR to review/revise.

Item 2 – Conduct an independent feasibility analysis and cost-benefit analysis on the development of the outline standards into a comprehensive set of state-level Model School standards. Cost evaluation should include impacts on both operating costs and first costs of facilities. Additionally, the study should evaluate development of the standards in-house and by contract, and include an evaluation of processes and cost by other states in implementing a customized industry standard (i.e., LEED, CHPS). Model School Subcommittee to develop statement of services; DEED Facilities to solicit, award, and manage contract; BR&GR to review and make recommendations.

Item 3 – If supported, finalize standards into a department handbook. Implement the use of the handbook through regulation.

Cost to Implement:

Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Item 2 – $25,000 (allows for approximately 100 hours of research and documentation plus expenses).

Item 3 – $0 - $50,000 (depending on in-house or contract).

Recommendation #4

As part of describing a Model School that supports an **adequate education**, as contrasted to a **maximum education**, identify school elements that do not further the core educational mission of the school. These would be elements that are used seasonally or intermittently, benefit a smaller portion of the students, or benefit the community after school hours. The state may choose not to fund these elements, or to fund them at a reduced rate, with the community contributing to the costs.

Basis: The extent of non core-education school facility features varies widely across the State. Identifying elements of schools that are not primarily core educational in use, and defining when they would or would not be eligible for state funding, could result in better funding equity and more cost-effective schools. Most examples of these are in site development around the school buildings such as landscaping, running tracks, stadium seating, hockey rinks, turf sports fields, and cross-country trails. Examples of non-core amenities within schools might include bathrooms beyond primary grades, sinks in every classroom, and weight rooms. While a case for the educational benefits of such elements can be made, the question remains, "At what point are we funding on the fringes of educational benefit?"

Implementation Strategy:

Item 1 – Review and finalize current topic paper Non-core Educational Restrictions as a BR&GR recommendation. Include with report to legislature for consideration in development of statutory language under AS 14.11.013(d) and AS 14.11.100(h).

Item 2 – DEED develops regulations to define non-core amenities and criteria for allowable state aid.

Cost to Implement:

Item 1 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Item 2 – No additional costs anticipated outside the current costs of the department's staff and supporting costs for committee.

Subcommittee Comment

Space Allocations

Periodically, the subcommittee's work moved us into discussions about school space. We acknowledged the state's current use of space eligibility as a resource allocation tool, noting its resilience over time. Though the subcommittee did not develop any Model Alaskan School recommendations in the area of space allocations, this isn't meant to indicate that the space component of our current resource allocation model is perfect. The subcommittee accepts that valid concerns may arise in addressing space adequacy and space calculations.

Based on public comment received *(ref. MCary 11-15-17)*, additional work on the allocation of space should take into account the future of education delivery options. Since these comments question the need for continued support and maintenance of the current resource-consuming facilities, presumably this is the opportunity for distance delivery which may impact the overall

amount of spaced needed statewide. The subcommittee has not developed a position on non-facility education alternatives.

Prototype Schools

Prototypical schools seem attractive as a Model School option because they appear to address the three resource allocation variables of cost, quality, and space in one solution. However, varied construction requirements due to the climatic differences of our vast State makes establishing prototypical schools problematic. And, prototypical schools appear to have difficulty incorporating local educational program desires into their designs. (As support for this last statement, Massachusetts identified 16 prototypical school models (flat ground, hillsides, limited space, modular, etc.) and gave districts extra funds if they used those designs. The program was discontinued three years after implementation because local districts wanted the freedom to design schools around their own vision of education, and because cost savings were not significant. https://www.bostonglobe.com/metro/regionals/south/2014/09/13/state-rethinking-model-school-designs-after-touting-them-cost-saving-approach/8OYcz758CWd8dFKxFensuJ/story.html)

Public comment received *(ref. KPhillips 11-15-17)* suggested, if understood correctly, that a fourth area of standards, Planning & Programming, be considered that would establish criteria regarding the functional and programmatic design of schools including a definition of allowed spaces. The subcommittee remains unconvinced that this level of criteria (akin to prescriptive requirements of prototype schools, see above) is in the state's best interest. Additional public comment *(ref. KChristy 11-15-17, and MCary 11-15-17)* supports that criteria regarding educational programs and spaces remain at the district level with the state establishing continued aggregate allocations for proposed student populations.

Subcommittee Resources

The resources below were researched or developed during the subcommittee process and informed the recommendations of the committee. The majority of these documents are available in prior BR&GR committee packets for review (https://education.alaska.gov/Facilities/BRGR/). Certain items are provided in Appendices, as noted, for simplicity in reviewing the recommendations in this document.

1. Meeting Notes/Recordings
2. Committee Response to Public Comments (Attachment)
3. DEED Cost Model 15th Ed. – Model School Elements (Appendix A)
4. 02 Substructure Construction Standard – Draft (Appendix A)
5. 08 Mechanical Construction Standard – Draft (Appendix A)
6. Prototypical School Articles – Massachusetts & New Jersey
7. District Facility Design Criteria Manuals – LKSD & MSBSD
8. Subcommittee Topic Paper – Mechanical Project Costing Challenges (Appendix A)
9. Subcommittee Topic Paper – Non-core Education Restrictions (Attachment)
10. Subcommittee September 6, 2017 Report to BR&GR
11. The *Cost Model* is available at https://education.alaska.gov/Facilities/FacilitiesCIP.html#CostModel.
12. Public Comments (See Appendix B)

Public Comment Received	BR&GR Response
General Comments	
Frankly, I just don't see more regulations and criteria improving the process and the end result. *These* may well result in increased costs to Districts for additional services and *will* certainly make the grant process more difficult for the District that need the most assistance. *(ref. KChristy 11-15-17)*	If done well, we expect that these criteria will increase consistency in both cost-effectiveness, and facility parity among school capital projects with state aid. These standards are intended to assist the state in making resource allocations.
As diverse as Alaskan communities are in size, local conditions, and climate how can there be a "Model" school? The differences within a given District are significant. For example, K-12 schools work well in smaller communities but function as schools of choice in larger communities. *(ref. KChristy 11-15-17)*	We recognize that differences in climate and geography are so wide in this state that one physical model for a school building will never work, and none is proposed. The current recommendations are focused on model building systems and features and would continue to allow for development of a wide variety of education delivery models.
State statutes require educational specifications that identify how students are going to be taught and how the building should support that program. This discussion seems to lose sight of the instructional element and the changing role of the teacher and the increased use of Distance Delivery. *(ref. KChristy 11-15-17)*	We recognize that alternative methods of delivering educational programs are on the rise, some of which may not require equally resource-intensive school facilities. This is a huge discussion beyond the scope of this BR&GR subcommittee. That said, the school building-based model of education is practiced most widely in this state and is likely to be around for some time. It is appropriate to examine ways to construct these facilities in more cost effective ways. (Also see previous response.)
The current square footage formula allows the District to decide what spaces can be shared, where toilet facilities are placed, and what size and type of instructional spaces are needed. *(ref. KChristy 11-15-17)*	The space allocation formula is the state's primary—and to some degree, only—codified resource allocation tool for school facilities. The subcommittee report supports this tool. (Also see previous responses.)

Public Comment Received	BR&GR Response
I believe it would have been beneficial for each of the committees to have had representation from both rural and urban educators. It is all too easy to lose perspective that the main purpose of these facilities is to support effective student learning, and we need to look at sustainable future trends and not necessarily continue to support and maintain the current resource-consuming facilities. This involves a big picture statewide conversation as to future educational delivery options based on Alaska's fiscal reality. *(ref. MCary, 11-15-17)*	Subcommittee makeup was open to interested parties outside the BR&GR committee and the department. (See previous responses addressing changing education delivery scenarios.)
The recommendation should use more refined definitions of terms and specific goals for those terms, such as in commissioning. *(ref. TFenoseff, 11-15-17)*	We concur; terms used within any standards will need to be very clear.

Recommendation #1 (Further Develop Program Demand Cost Model)

Agree with further development of the Program Demand Cost Model in lieu of another method of cost estimating. Considerations include how to gain most relevant information (from whom in industry and how to seek/receive input). *(ref. KPhillips 11-15-17)*	Thank you for the support. Implementation strategies are being considered by the BR&GR and will address comments related to 'who' and 'how'.

Recommendation #2 (Establish Process To Update Program Demand Cost Model)

Agree with establishment of an ongoing process of reviewing and establishing components and systems and current costs of a model school. Considerations include how to gain most relevant information (from whom in industry and how to seek/receive input). *(ref. KPhillips 11-15-17)*	Thank you for the support. Implementation strategies are being considered by the BR&GR and will address comments related to 'who' and 'how'.

Public Comment Received	BR&GR Response
Recommendation #3 (Develop Model School Standards By Building System)	
What is the expected life cycle for a school/school addition to be designed and constructed under these proposed criteria? *(ref KPhillips 11-15-17)*	We believe that life cycle expectations are important and that they vary for the different building systems. We will work to define and establish building system life expectancies within the criteria.
Consider differing levels of cost-effectiveness criteria for urban versus rural conditions since, between these: a) The cost of construction varies, and b) The availability of qualified facilities personnel varies. *(ref. KPhillips 11-15-17)*	If done well, the criteria established will allow for the most cost effective construction considering all the variables of any specific project. We agree that construction cost and ease of O&M are among the important variables.
Reference made in commentary to national standards and/or other states' design standards. What standards were reviewed outside of Alaska? Quality and longevity should be the driving force of a statewide standard for building systems. Example "sub-structure" standard states buildings over 40,000 GSF should be considered as two story solutions, not one story. How does this relate to "Design Ratio Criteria" as noted in their Recommendation #3 - 30,000 GSF as size threshold? *(ref. KPhillips 11-15-17)*	Sample documents from states with construction standards were reviewed as were national standards from USGBC, LEED, and CHPS. To date, the subcommittee believes a limited set of Alaska-specific criteria would work best. Documents reviewed by the subcommittee are available on the DEED website for the BR&GR. We will work to ensure consistency in any criteria that is developed.
There are some items missing from the Model School Elements for mechanical systems. Also, the Mechanical Construction Standard is a bit out of date. That's the way we designed rural schools 15 years ago. Definitely different preferred strategies for facilities where natural gas is available. Is this document up for review and if so, can I get a Word version of the document? Same with the Model School Elements section. I can make recommendations using Track Changes and send it back to you for consideration. *(ref. CFredeen 10-7-17)*	Thank you for the input. Our implementation recommendations call for vetting building system standards with input from the AEC industry. We welcome your involvement.

Public Comment Received	BR&GR Response
Recommendation #4 (Identify Non Core-Education School Elements For Reduced Funding)	
The definition of "core" education may differ significantly between urban and rural settings. *(ref. TFenoseff 11-15-17)*	Subcommittee work to date suggests that the "core educational mission" does not vary as much as one may think across the state—though the facility needs to support those core elements can vary widely. The subcommittee brought forward this recommendation because our charge was to examine ways to achieve more cost-effective school construction.
This recommendation is challenging by nature of applying one definition to "core education". Every geographic location in Alaska that delivers education has specific needs regarding elements of a school and its site. Elements in one community that may be defined as "core" may not be denned as "core" in another. How to balance the need for cost-effective funding strategies and the need for education to provide core purposes based on community culture? *(ref. KPhillips 11-15-17)*	As defined, non-core includes 'elements that are used seasonally or intermittently, benefit a smaller portion of the students, or benefit the community after school hours.' Criteria developed under this recommendation are unlikely to impact education delivery models or school space.
Consider how this recommendation can be marketed as a partnership opportunity. It's currently written with an undertone that does not recognize the benefit school property provides to communities which ultimately result in betterment of quality of life and economy for all Alaskans. *(ref. KPhillips 11-15-17)*	It is not the intent of the subcommittee to indicate that non-core elements have no value. Often, within the features we have currently identified, there is great value to community life and in formation of character via extra-curricular activities, etc.
This may be a recommendation that needs to be analyzed based on urban and/or non-urban settings, as there are significant differences between core education in an urban setting versus a non-urban setting. *(ref. KPhillips 11-15-17)*	(See previous comments.)
What is the definition of 'adequate education', 'maximum education', and 'non-core amenities'? *(ref. KPhillips 11-15-17)*	The current recommendation, along with its basis, provides the early indicators of these categories. Further development of any criteria will offer specific, clear definitions.

BR&GR MODEL ALASKA SCHOOL SUBCOMMITTEE

By: Tim Mearig
Facilities Manager
Phone: 465-6906

Date: Aug 17, 2017

File: g:\br&gr\subcommittees

For: BR&GR Model School Subcommittee

Subject: Model School Restrictions – Low-hanging Fruit

Committee Topic Paper

Issue

What are some of the most easily identifiable areas where a Model Alaskan School initiative might result in conserving available resources?

Discussion

The lists below are intended to spark an initial discussion in response to the above question.

Exterior and Site Elements

- Parking lots – establish a basis of need that works for various communities and vehicle types.
- Playground/play decks – typically used by the community, establish local responsibility vs. state.
- Fuel storage – establish both quantity and type standards. What establishes adequate? Where does local choice begin? Also, there are a variety of solutions being implemented with widely varying costs.
- Boardwalk/sidewalk – establish a basis of need that works for various communities and accessibility.
- Landscaping – establish a maximum level for state participation.
- Site lighting – coordinate standards with parking and pedestrian needs.
- Headbolt heaters – establish climate standards and quantities for which schools receive them.
- Hockey rinks – similar to playgrounds/playdecks.
- Sports fields – same issues as playgrounds/playdecks; turf fields for every school?
- Ski trails – same issues as playgrounds/playdecks; ski trails for every school?
- Running trails – same issues as above; running trails for every school?
- Event seating/bleachers/storage facilities/scoreboards – same issues as above

Building Systems & Components

- DDC points – establish a maximum number of points/sensors per SF?
- R-value of roofs/walls – does R-80/R-60 have a meaningful payback? The folks at National Renewable Energy Lab. that wrote BEOpt suggested the following general answer to this question. We all know that increasing insulation, say in the attic, costs the same for each inch, but it saves less and less energy for each added inch. At some point, your long-term cost will be greater than the amount of money saved in utility bills.
- U-value of windows/doors – same issues as above.

School Programs & Space

- Weight rooms – is this curricular or extra-curricular?
- Running tracks – same issues as above
- Dedicated toilet rooms in classrooms – should there be an age/grade-based standard?

Conclusions

Where significant resource allocations in support of the above categories differ between projects, it would be reasonable to develop a standard.

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
General Comments	
What analysis has been done to consider the three proposed sets of criteria together? *(ref. KPhillips, 11-15-17)*	In May 2017, the Committee considered options for criteria in a half-dozen categories and selected the three currently identified as the most appropriate. Together, they are the Committee's recommended criteria for cost-effective school construction when considering both first costs and operating costs. Care will be taken to integrate those criteria that are closely aligned—most of those alignments have been expressly acknowledged in the documents prepared to date.
As it relates to these three sets of criteria: What is the definition of 'cost-effective'? What is the definition of 'adequate education'? *(ref. KPhillips, 11-15-17)*	Currently, the Committee does not intend to provide any unique or specific definition of these two terms. The first, though evaluated in many ways, is defined sufficiently for our purposes in its general sense. The second should remain open for continued discussion and development.
Should there be a fourth criteria to measure/assess functional and programmatic designs of schools? Efficiency and savings comes first through flexible, appropriately planning: the building program (list of spaces, adjacencies, and sizes) must define all spaces required, prior to these proposed three criteria being utilized. It makes sense to ensure this component meets the goals of efficiency prior to review of the proposed three criteria. *(ref. KPhillips, 11-15-17)*	The Model Alaskan School subcommittee addresses this in their report under Subcommittee Comments. This Committee likewise remains unconvinced that this level of criteria is in the state's best interest and that criteria regarding educational programs and spaces remain at the district level with the state establishing continued aggregate allocations for proposed student populations.
Assumed order of these criteria in terms of sequence of use in review for efficiency and educational adequacy: Planning/Programming - unidentified as part of this review and comment Design Ratio Model School Commissioning *(ref. KPhillips, 11-15-17)*	Please see the previous comment with respect to Planning/Programming. Otherwise, there is no intent for a precedent of application for the proposed criteria. Some Design Ratio criteria aggregates to the whole-building level but will be based on defined Model Alaskan School elements. Commissioning has the sense of occurring later chronologically but would be integrated with the other criteria during planning and design phases.
Frankly, I just don't see more regulations and criteria improving the process and the end result, and may well result in increased costs to Districts	[From Model School: If done well, we expect that these criteria will increase consistency in both cost-effectiveness, and facility parity among

PUBLIC COMMENT RECEIVED	BR&GR RESPONSE
for additional services and certainly make the grant process more difficult for the Districts that need the most assistance. *(ref. KChristy, 11-15-17)*	school capital projects with state aid. These standards are intended to assist the state in making resource allocations.]
Is the state willing to accept [commissioning] as an additional project cost? It may well pay for itself but it will still be an increased cost that someone must cover. *(ref. KChristy, 11-15-17)*	The Committee anticipates that the cost of complying with commissioning criteria will be an allowed cost under projects with state-aid.
What about incentivizing cost savings? One effective means of encouraging savings is to allow District to reallocate all or a percentage of what is saved to another priority project. If the District has a true six-year CIP the school that is next on the list can be an effective voice against "scope creep." In my experience Districts tend to manage bond funded projects, where savings can be reallocated, differently than grant projects where unspent funds return to the general fund. *(ref. KChristy, 11-15-17)*	We understand the Committee's statutory charge to develop criteria for the construction of schools as establishing clear guidance for project definition, project prioritization, and establishing the eligible and necessary costs of school capital projects. This current initiative of cost-effective school construction criteria is a subset of the last element. The concept of incentivizing cost savings is not being considered by the Committee under its charge as it runs counter to allocating resources on a statewide priority basis.
Just brainstorming - what about rewarding Districts that reduce energy costs with increased allocation in funding formula (to be applied to maintenance budget)? *(ref. KChristy, 11-15-17)*	Thank you for this input. The Committee does not have purview over adjustments to the foundation funding provisions in statute.
Commissioning can provide overall environmental with long-term cost benefits and should be included as a design/construction standard service. *(ref. MCary, 11-15-17)*	BR&GR will consider including commissioning in the definitions of "construction" and "design services" for the purposes of making it a specific allowable budget cost.

Appendix A

Subcommittee Resources

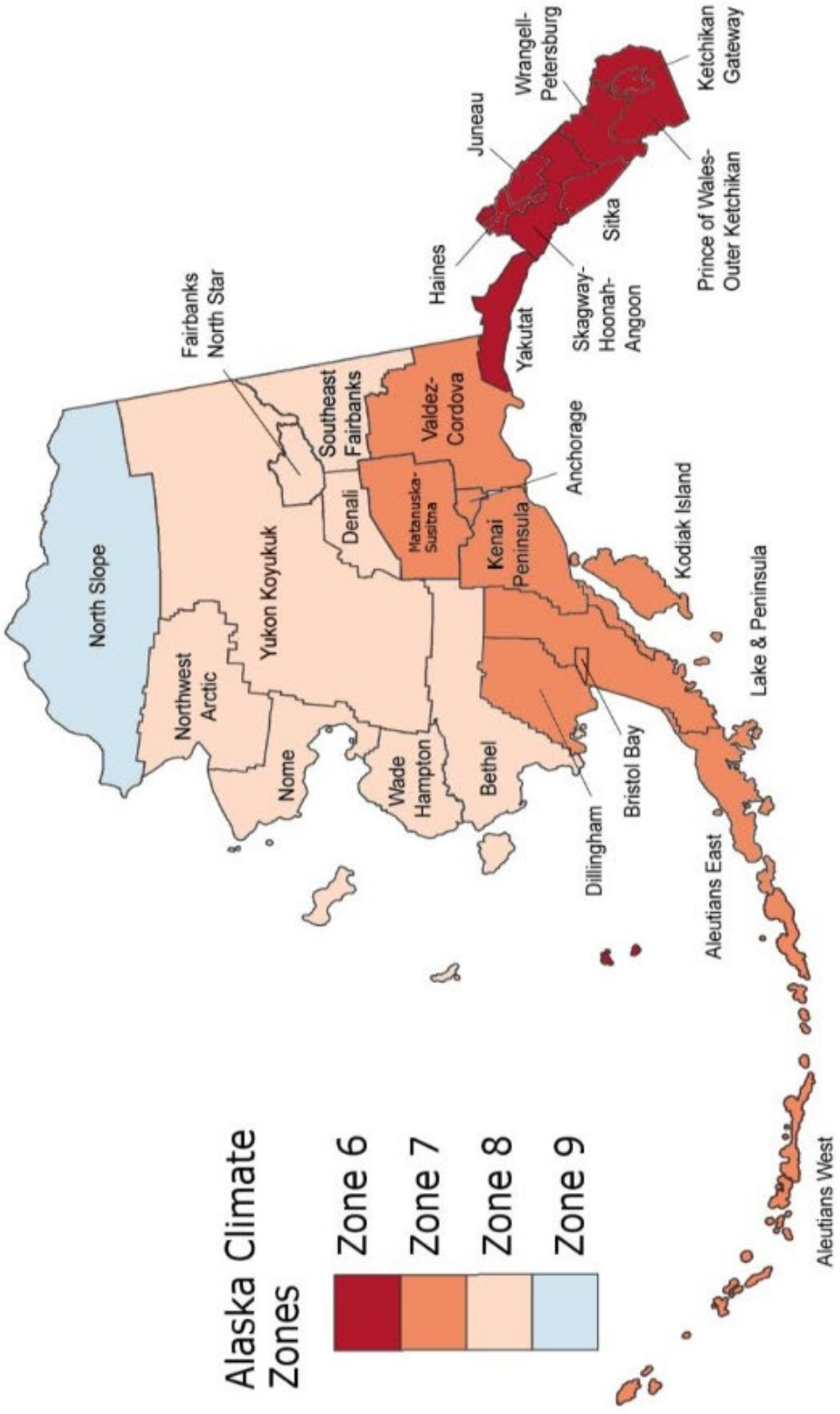

Figure 1: Alaska Climate Zone Map

Recent School Project Design Ratios Data Set

Compiled for BR&GR Design Ratio Subcommittee
October 10, 2017

BEES Zone	District	DEED Project Description	Grades Served	Gross Square Footage	Net Square Footage	Building Footprint Area	Exterior Wall Area	Exterior Glazing	Exterior Door	Exterior Transp. Panel	Heated Vol. (ft^3)	FPA:GSF	O:EW	V:NSF	Source
7	Mat-Su Borough	New Mat-Su Day School	K-12	21,982	21,105	21,838	26,786	2,857	273	522	390,893	99.34%	13.63%	1852.13%	architect
7	Southwest Region	New Stuyahok K-12 School Replacement	K-12	47,147	45,022	34,098	23,017	2,138	651	326		72.32%	13.53%	0.00%	architect
7	Southwest Region	Koliganek K-12 School Replacement	K-12	18,818	15,988	17,273	14,339	394	405	568		91.79%	9.53%	0.00%	cost est
8	Lower Kuskokwim	Kipnuk K-12 School Renovation/Addition	K-12	51,352	49,684	50,202	19,037	2,866	410			97.76%	17.21%	0.00%	cost est
8	Lower Kuskokwim	Napaskiak K-12 School Replacement	K-12	42,476	41,476	41,469	28,679	2,056	448	640	840,898	97.63%	10.96%	2027.43%	architect
8	Lower Kuskokwim	Kwethluk K-12 Replacement School - Kasayulie #2 - 2015	K-12	46,959	45,434	32,930	32,610	1,269	616	717		70.13%	7.98%	0.00%	cost est
8	Lower Kuskokwim	Nightmute School Renovation/Addition - Kasayulie #1 - 2014	K-12	28,026	26,956	27,200	22,644	807	287	380	555,600	97.05%	6.51%	2061.14%	drawings
8	Lower Yukon	Marshall K-12 School Replacement	K-12	41,510		30,885	22,422	1,629	269			74.40%	8.47%	0.00%	cost est
8	Lower Yukon	Alakanuk K-12 School Replacement	K-12	55,438	53,241	39,763	27,349	2,084	206	376		71.73%	9.75%	0.00%	cost est
8	Lower Yukon	Emmonak K-12 School Addition/Renovation (Data: Addition Only)	K-12	25,627	25,126	24,754	12,072	728	336	707	542,453	96.59%	14.67%	2158.93%	drawings
8	Northwest Arctic	Kobuk K-12 Renovation/Addition	K-12	16,325	15,522	14,948	14,869	637	143	637	259,356	91.57%	9.53%	1670.89%	architect
8	Yukon-Koyukuk	Andrew K Demoski K-12 School Reno, Nulato	K-12	24,780	21,685	21,810	20,468	485	332			88.01%	3.99%	0.00%	cost est
8	Yukon-Koyukuk	Jimmy Huntington K-12 Renovation/Addition, Huslia	K-12	25,269	24,052	24,312	13,776	601	231	150	303,123	96.21%	7.13%	1260.28%	architect
7	Mat-Su Borough	New Knik Area Elementary School	K-5	44,739	42,444	27,713	24,668	5,630	424			61.94%	24.54%	0.00%	cost est
7	Mat-Su Borough	Iditarod Elementary School Replacement	K-5	51,652	50,387	32,391	25,050	11,887	481		972,890	62.71%	49.37%	1930.84%	drawings
7	Mat-Su Borough	Susitna Valley HS Replacement	6-12	51,286	50,578	47,522	24,680	2,282	525	-	797,119	92.66%	11.37%	1576.02%	drawings
7	Mat-Su Borough	New Knik Area Middle/High School (Joe Redington Jr/Sr High School)	6-12	96,094	92,800	70,550	55,217	5,706	993	-	1,973,025	73.42%	12.13%	2126.10%	architect
8	Kuspuk	Kalskag High School Replacement	7-12	17,929	16,801	17,077	17,939	665	196	282	315,890	95.25%	6.37%	1880.19%	architect
7	Kodiak Island	Kodiak High School Renovation/Addition	9-12	179,104	164,951		42,039	14,921			2,416,420	0.00%	35.49%	1464.93%	architect

FPA:GSF - "Footprint Area to Gross Square Footage"
O:EW - "Openings to Exterior Wall Area"
V:NSF - "Volume to Net Square Footage"

Minimum	61.94%	3.99%	1260.28%
Maximum	99.34%	49.37%	2158.93%
Average	85.03%	14.33%	1818.99%
Median	91.68%	10.96%	1880.19%

Model School Elements – DEED Cost Model 15th Ed.

02 - SUBSTRUCTURE

Excavate for footings and backfilling

4,000 psi concrete footings & walls (incl. forms and rebar)

2" insulation to wall

Dampproof

6" fill, Type II, 2" minus

4,000 psi concrete slab

10 mil vapor retarder

6"x6" - W1.4xW1.4 welded wire mesh

Slab cure, finish, and joints

03 - SUPERSTRUCTURE

(MEZZANINE FLOOR FAN ROOM)

W-beams

T.S. columns

Plates, anchors and grout

Bar Joists

Angles

1 1/2" metal deck, 20 gauge

Concrete topping

6"x6" - W1.4xW1.4 mesh

Slab cure, finish, and joints

Pump concrete

Steel access ladder (8'0")

(ROOF STRUCTURE)

Plates, anchors and grout

Tube steel columns

Steel joists

W-beams

T.S. bracing

Angles, connectors, etc.

3" metal deck, 20 gauge

(MISCELLANEOUS)

Testing/inspection

Crane rental

04 - EXTERIOR CLOSURE

EXTERIOR WALL

2"x10" studs, 16" o/c

2"x6" studs, 16" o/c

1/2" plywood CDX AWW sheathing

3/4" beveled cedar 10" siding, tite knot

1"x4" cedar trim

Sealant

Air barrier

R-30 batt insulation

R-19 batt insulation

10 mil vapor retarder

Model School Elements – DEED Cost Model 15th Ed.

5/8" Type X gypboard

Tape and finish

3/4" CDX AWW plywood soffit

2"x6" framing and nailers to soffit

Rigid eave vent screen

Fascia 1/2" CDX plywood (both sides)

3/4" beveled cedar 10" siding to fascia, tite knot

2"x4" framing for fascia

Flashing

1"x6" interior trim

DOORS

Hollow metal insulated frames for 3'0"x7'0" doors

Hollow metal insulated frames for 6'0"x7'0" double doors

3'0"x7'0" hollow metal insulated single doors

3'0"x7'0" hollow metal insulated doors with vision panel (for double doors, each leaf counted separately)

Hardware for single exterior doors

Hardware for double exterior doors

Hardware for double exterior doors with panic hardware

Motorized operable accessible door

WINDOWS

Metal clad insulated windows with screens

Sills

CAULKING

Sealant and backer rod

PAINTING

Stain siding and fascia

Stain trim

Stain soffit

05 - ROOF SYSTEMS- General Contractor

GENERAL CONTRACTOR

PITCHED ROOF

5/8" fire treated CDX plywood

R-50 rigid insulation (8" plus)

5/8" gypboard sheathing

Vapor barrier

SUBCONTRACTOR

Klip Rib metal roofing including fasteners, etc.

Ice and water shield at eaves

Ridge flashing

Flashings

Fascia board and flashing

06 - INTERIORS

GENERAL CONTRACTOR

PARTITIONS

3 5/8" metal, 20 gauge studs at 16" o/c and track

Model School Elements – DEED Cost Model 15th Ed.

6" metal, 20 gauge studs at 16" o/c and track

5/8" Type X gypboard

Tape and finish

1/2" cement board

1/2" plywood backing

2"x6" blockings

2 3/4" sound insulation

DOORS

3'0"x7'0" hollow metal frames

6'0"x7'0" hollow metal frame double door frames

3'0"x7'0" solid core doors

3'0"x7'0" solid core doors with glazed opening

Hardware for single doors

Hardware for double doors

Rolling grille at kitchen serving line

GLAZING

Relights in hollow metal frame

SPECIALTIES

Toilet partitions, HDPE

Toilet partitions, handicapped

Toilet accessories

Lockers

Chalkboards/white board

Tack boards

Fire extinguishers and cabinets

Signage

06 - INTERIORS

SUBCONTRACTOR

FLOOR

Carpet

Carpet inlays

Gym flooring, wood and channels

Mosaic ceramic tile

Vinyl tile

Sheet vinyl

Linoleum

Concrete sealer and hardener

BASE

4" rubber

6" coved

Ceramic tile base

Wood base

WALLS

Paint (3 coats)

Ceramic tile

Vinyl wall covering (14 ounce)

Model School Elements – DEED Cost Model 15th Ed.

FRP board

Carpet

CEILINGS

Acoustical ceiling tile glued to gypboard

Suspended acoustic ceiling

Suspended gypboard taped and sanded

Paint gypboard ceiling

PAINTING

Interior trim and sills

Single door frames

Double door frames

Doors

Paint miscellaneous metals

08 - MECHANICAL

PLUMBING

Cast Iron Waste, Vent Pipes and Fittings

4" diameter pipe

3" diameter pipe

2" diameter pipe

1 1/2" diameter pipe

4" floor cleanout

3" VTR

4" VTR

Hot and Cold Water Copper Pipes and Fittings

2" diameter copper pipe

1 1/2" diameter copper pipe

1 1/4" diameter copper pipe

1" diameter copper pipe

3/4" diameter copper pipe

1/2" diameter copper pipe

2" diameter coupling

1 1/2" diameter coupling

1 1/4" diameter coupling

1" diameter coupling

3/4" diameter coupling

1/2" diameter coupling

2" diameter fittings (tee/elbow)

1 1/2" diameter fittings (tee/elbow)

1 1/4" diameter fittings (tee/elbow)

1" diameter fittings (tee/elbow)

3/4" diameter fittings (tee/elbow)

1/2" diameter fittings (tee/elbow)

Clips and hangers to support pipes

Valves and gauges

1" insulation

PLUMBING FIXTURES

Model School Elements – DEED Cost Model 15th Ed.

Standard closet wall, flush valve and carrier

Standard closet, handicapped

Urinal, flush valve and carrier

Counter mounted lavatory basin

Mop sink

Stainless steel drinking fountain cooler with bottle refilling station

Stainless steel classroom sink

Work room sink

Nurse's sink

Three compartment sink

Hand sink

Shower stall and controls

Connection to kitchen equipment

2" to 3" diameter floor drain

Hose bib, non-freeze

119 gallon hot water generator

Circulation pump

20 GPM grease interceptor

HEATING

1,600 MBH cast iron oil/gas fired boiler, hot water/glycol complete with controls

10" diameter stainless steel flue and breaching, double wall

Flue cap

55 gallon expansion tank

Air separator, 3" strainer

Glycol make-up tank with feed pump

Glycol fluid

3" diameter circulation pump

3" diameter copper pipe

2 1/2" diameter copper pipe

2" diameter copper pipe

1 1/2" diameter copper pipe

1 1/4" diameter copper pipe

1" diameter copper pipe

3/4" diameter copper pipe

3" diameter coupling

2 1/2" diameter coupling

2" diameter coupling

1 1/2" diameter coupling

1 1/4" diameter coupling

1" diameter coupling

3/4" diameter coupling

3" diameter fittings (tee/elbow)

2 1/2" diameter fittings (tee/elbow)

2" diameter fittings (tee/elbow)

1 1/2" diameter fittings (tee/elbow)

Model School Elements – DEED Cost Model 15th Ed.

1 1/4" diameter fittings (tee/elbow)

1" diameter fittings (tee/elbow)

3/4" diameter fittings (tee/elbow)

Clips and hangers to support pipes

Valves and gauges

1 1/2" insulation

Cabinet unit heaters

Unit heaters

(2) rows fin tube and enclosure

COOLING (SUBCONTRACTOR)

10 ton, DX type electric air conditioner unit

Make-up system equipment

Refrigerant, 30 lbs. cylinder

2" diameter coolant supply and return pipes with fittings

1" diameter coolant supply and return pipes with fittings

2" diameter circulation pump

Valves and gauges

(2) rows coil (10 SF)

1 1/2" insulation

AIR SYSTEMS

32,000 CFM air handling unit

2,000 CFM to 3,000 CFM exhaust fan

750 to 1,500 CFM exhaust fan

200 CFM to 750 CFM exhaust fan

500 CFM VAV boxes

2 SF heating coils

Galvanized ductwork with hangers and connections

10" flexible duct

Outside air/exhaust louvers with bird screens

Dampers under 1 SF

1 SF to 2 SF dampers

2 SF to 5 SF dampers

1 SF to 2 SF motorized dampers

Small grille, register or diffuser

Medium grille, register or diffuser

Large grille, register or diffuser

2" insulation

2" lining

CONTROLS, TESTING AND BALANCE

Microprocessor, digital equipment, software and programming

DDC points

Thermostats

Thermostats with guards

Testing and balancing

Model School Elements – DEED Cost Model 15th Ed.

Commissioning

FIRE PROTECTION

Sprinkler riser and valves

Fire department connection

Wet sprinkler system throughout facility

Design fee and commissioning

GAS/FUEL OIL

1" diameter black steel pipe supply line including fittings

Connection to equipment

50 gallon day tank with duplex pumps

3/4" diameter black steel pipe including fittings

Valves

Connection to equipment

Testing

09 - ELECTRICAL

SERVICE AND DISTRIBUTION

1,600 amp main enclosed disconnect

MDP main distribution panel with 1,600 amp bus and fused switches

3 1/2" diameter rigid steel conduit and fittings

3 1/2" diameter x 90° elbow

2" diameter IMC conduit

1 1/2" diameter IMC conduit

1 1/4" diameter IMC conduit

1" diameter IMC conduit

500 KCMIL copper wire

#1/0 THHN copper wire

#2 THHN copper wire

#4 THHN copper wire

#4 ground wire (10'0") and connect to building

225 amp, 120/208V, 4 wire, 3 phase, 42 circuits, MLO subpanel

100 amp, 120/280V, 4 wire, 3 phase, 30 circuits subpanel

FIXTURES

2'0"x4'0" LED troffer

1'0"x4'0" LED troffer

4'0" surface LED wraparound

6" diameter surface wet location LED downlight fixture

LED high bay gym fixture

LED exit signs with battery

Self contained dual head emergency light

LED wall pack with cut off optics, building mounted exterior light fixtures

Recessed soffit LED fixture with tempered lens, tamperproof

DEVICES

Model School Elements – DEED Cost Model 15th Ed.

Single switch

Three way switch

Keyed switch

Dual technology occupancy sensor

Occupancy sensor/switch

Wall switch with built-in motion sensor and control switch

20 amp duplex outlet

GFI duplex outlet

Quadraplex floor outlet

GFI 15 amp duplex outlet, weatherproof

50 amp special outlet

30 amp special outlet

Junction box with cover

Emergency light connections

Night light connections

100 amp, 4 pole electrical HID contactor

K-1900 photocell/time switch

30 HP, 3 phase, 208 volt motor connection

10 HP to 7 1/2 HP, 3 phase, 208 volt motor connection

5 HP to 1 HP, 3 phase, 208 volt motor connection

Fractional motor connection

Thermal switches

60 amp, 3 pole fused disconnect switches

Fused disconnect switches, weatherproof

10 HP combination motor starter/disconnect switch

Conduit and Wiring

1" diameter EMT conduit

3/4" diameter EMT conduit

1/2" diameter EMT conduit

#6 THHN

#8 THHN

#10 THHN

#12 THHN

FIRE ALARM SYSTEM (ADDRESSABLE)

16 zone fire alarm control panel, including standby batteries and charger

Fire alarm graphic annunciator

Manual pull station (break glass type)

Combination horn/strobe

Combination horn/strobe, weatherproof

Strobe only

Magnetic door hold release

Smoke detectors ionization

Heat detector

Duct detector

Model School Elements – DEED Cost Model 15th Ed.

Connect to trip circuit

Connect to TTB

Connect to intercom system

Tamper switch connection

Flow switch connection

Junction box

1" diameter EMT conduit

6 strand fire alarm wiring

DATA/TELECOMMUNICATION SYSTEM

4'0"x8'0"x3/4" AC grade plywood backboard

50-pair telecom termination blocks

19"x84" free-standing data equipment racks

Plug strips

48-port patch panels

Cable management panels

Fiber optic cable patch panels

Connection to fire alarm system

Single jack telephone outlets

Single jack data/telephone outlets

Two-jack data/telephone outlets

Three-jack data/telephone outlet

Four-jack data/telephone outlet

Two-jack data/telephone outlets, floor mounted

Four-jack data/telephone outlets, floor mounted

Three-jack data/telephone outlet, ceiling mounted

Wireless access points

Smartboard interface

Junction boxes

12" cable tray

4" diameter EMT conduit

3" diameter EMT conduit

1" diameter EMT conduit

3/4" diameter EMT conduit

Category 6 data cable

100 pair Cat 3 copper voice backbone

50 pair Cat 3 copper voice backbone

12-strand fiber

Single mode fiber

Ground bar

#2/0 bare copper ground

PUBLIC ADDRESS SYSTEM

Link module

Power amplifier

Equipment rack

Power amplifier

Model School Elements – DEED Cost Model 15th Ed.

AM/FM tuner

Cassette deck/CD player

Clock/speaker

Digital clock

Speakers

Speakers, weatherproof

3/4" diameter EMT conduit

4-pair Cat 3 wire

25-pair Cat 3 wire

SECURITY SYSTEM

12-zone security control panel with keypad, including stand-by batteries and charger

Headend equipment

Classroom door lockdown hardware/interface

Card readers

Door security contact

Glass break detector

Infrared motion detector, long coverage

Connection to fire alarm system

3/4" diameter EMT conduit

6-plenum security wire

Camera cable

SET, RESET AND LOCKDOWN FEATURES

Set, reset and lockdown system interface with door access system (allowance)

VIDEO SURVEILLANCE SYSTEM

Data network switch, VOIP network switches, VOIP server

CCTV server

Video recording and monitoring equipment

Interior ceiling mounted cameras

Exterior cameras, weatherproof heated enclosure

3/4" diameter EMT conduit

Category 6 cable

6 strand fiber optic cable

PUBLIC ADDRESS SYSTEMS (GYM AND STAGE)

Mixer/pre-amplifier

Eight channel auto/gate

Equalizer

Power amp

Power amp, dual channel

CD multi-player

AM/FM tuner

Speakers

Wireless receiver

Stand type microphones

Desk top microphones

Model School Elements – DEED Cost Model 15th Ed.

Wireless microphones

Microphone floor outlets

Microphone stands

Equipment racks

Over-voltage protection

Microphone cable

Cat 6 speaker cable

HEARING IMPAIRED AUDIO SYSTEM

Master transmitter

Slave transmitter

Infrared radiator with wire guard

Stethoscope style receiver

Lanyard style receiver

3/4" diameter EMT conduit

Cat 6 wiring

EMERGENCY POWER

150 KW oil-fired emergency diesel generator including accessories and fuel tank

Connection to leak detection system

Connection to level indicator

600 amp automatic transfer switch

600 amp emergency distribution panel

100 amp, 120/208 volt, 30 circuits MLO emergency panel

225 amp, 120/208 volt, 42 circuits, 4 wire, 3 phase MLO standby panel

1 1/4" diameter EMT conduit

2" diameter EMT conduit

2 1/2" diameter rigid steel conduit with fittings

#2 THHN copper

#1/0 THHN copper

#3/0 THHN copper

#4/0 THHN copper

MISCELLANEOUS

Testing and certification

10 - EQUIPMENT AND FURNISHINGS

SPORTS EQUIPMENT

Practice basketball goal, wall mounted (height adjustable)

Fixed basketball goal, structure mounted

Floor markings (subcontractor)

Floor inserts

Chinning bar

Climbing pegboard

FOOD PREPARATION AND LAUNDRY EQUIPMENT

Refrigerator

Freezer

Convection oven

Model School Elements – DEED Cost Model 15th Ed.

Stacked washer and dryer

Range with hood

Under counter refrigerator

PROJECTION SCREENS

70"x70" manual projection screen with glass beaded viewing surface at classrooms

FURNISHINGS

Horizontal window blinds

Rubber entry mat

Plastic Laminated Casework

9" deep x 12 3/4" high plastic laminated boot cubbies with (2) open face compartments with top shelf

Overall 20'0" long x 2'6" deep x 3'0" high (2) tier receptionist desk with doors, knee space, drawers one side and plastic laminated top

3'0" high base cabinet including top

36" wide x 2'6" high x 14'0" tub storage cabinets

4'0" wide x 7'0" high storage cabinets with adjustable shelves

3'0" wide x 7'0" high lockable cabinets with rod and shelf

2'6" high wall units

1'6" high open shelf units

Kitchenette base unit

Wall mounted cabinet

3'0"x3'0" music room and waiting closets

12" high x 17'6" wide cubbies in kindergarten

IMC stacks

13 - SITE AND INFRASTRUCTURE
General Contractor

SITE PREPARATION

Clear site, grub up roots and remove from site (excludes trees)

Staking and survey

SWPPP including inspection and maintenance

Dewatering pump

Excavate and remove material from site

Geotextile fabric

Type 2 filling and compaction, 4" minus

Dust control

Compaction tests

SITE IMPROVEMENTS

Type 2 filling and compaction, 4" minus

4" D1 base course

2" asphalt paving

Joint to existing

Marking

24" diameter, 14 gauge CMP culvert

Traffic sign, post and footing

Model School Elements – DEED Cost Model 15th Ed.

Concrete curbs

4" concrete walks

Landscaping

Topsoil

Seeding

6'0" to 8'0" birch

8'0" to 10'0" mountain ash

6'0" to 8'0" crab apple

15" to 18" cotoneaster

3'0" to 4'0" spirea

1"x4" pine edging

Mulch wood chips

Site Furnishings

Building sign

Bike rack, 14 bikes

8'0" aluminum bench with back

24" square x 30" high trash receptacle

30'0" aluminum flagpole and concrete base

Playground

50'0"x60'0" game time composite play structure

Swing sets, 2 seat structure

4'0" crawl tube

Soccer goals (2 each)

2 1/2" thick interlocking rubber tiles, 24"x24" safety surface (6'0" rated fall)

Fence

6'0" high chain link fence

6'0"x10'0" gate

UTILITIES

Trench for gas pipe with bedding and tape

4" diameter sewer line

Manhole

Connect to existing

4" diameter DI water main and fittings

4" hydrant

4" valve, valve box and marker, 10'0" deep

Connect to existing

Excavate trench and backfill and tape

Testing and cleaning

5,000 gallon fire guard double wall above grade fuel oil tank

Leak detection system

Testing oil

1" diameter black steel pipe and fittings

Trench, backfilling and tape

4'0"x8'0" concrete pad

6'0" chainlink fence (small quantity)

Model School Elements – DEED Cost Model 15th Ed.

6'0"x10'0" gate

Testing

13 - SITE AND INFRASTRUCTURE
Subcontractor (Site Electrical)

POWER

4'0"x5'0" concrete transformer pad

6'0" chainlink fence (small quantity)

6'0"x3'0" gate

Utility transformer

Primary service

Trench, tape and backfilling

3/4"x10'0" ground rods, clamps and 10'0" #4 bare copper

#3/0 copper ground wire

4" diameter RGS conduit, concealed

Elbow

350 KCMIL secondary conductors, XHHW

Transformer connection and bushing

AREA LIGHTING

8" diameter x 15'0" extra strong driven steel pipe pile foundation with welded top

24" diameter x 36" concrete collars at base

6" square x 25'0" steel pole mounted to pile cap

250 watt LED fixtures with mounting arms

Trench, tape and backfilling

1" diameter PVC conduit

#10 wiring XHHW

DATA/COM

Trench, tape and backfilling

2" diameter PVC empty conduit

Pull wire for cable service

MISCELLANEOUS

Testing and certification

12 - GENERAL REQUIREMENTS AND PROFIT

Mobilization (temporary facilities)

Construction fence

Incidental freight

Final clean-up and demobilize

PROJECT OVERHEAD

Site office and temporary facilities

Equipment including part time mechanic

Tools, consumables, scaffold

Utilities, lighting, power and communications

Cleaning site/snow removal

Winter protection

Protection building/barriers

Testing, submittals, as-builts

Labor contract filing fee

Model School Elements – DEED Cost Model 15th Ed.

Remove construction debris

Fuel for equipment

Printing, photographs, videos

Permits (by owner)

Plan check and inspection fees

Project manager

Superintendent

Engineer

Scheduler and estimator

Shop and as-built drawings

Expediting

Quality control

Site staff/clerk

Home Office

Contractor's Mark-Up

Bonds and Insurances

14 - CONTINGENCIES

ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date

Substructure

Building System Summary: The substructure of a building consists of both foundations and below-grade construction enclosing useable areas such as basements. The department recognizes four sub-categories in this building system: Standard Foundations, Slab on Grade, Basements, and Special Foundations. These sub-systems are not mutually exclusive; components from within each may be necessary for a complete substructure.

Design Philosophy: Alaskan schools must be provided with an adequate foundation which responds efficiently, and effectively to building loads as prescribed in adopted building codes and to the conditions of the soils encountered at the school site. Substructure efficiency measures include minimizing the deadload of the building, limiting force resistance to the depth of the foundation, high soil bearing pressures, high friction load coefficients.

Model Alaskan School: The Model Alaskan School uses a steel reinforced concrete substructure consisting of perimeter stemwalls and footings, interior spread footings, and standard slab on grade; all of 4000psi concrete. Acceptable alternatives are detailed in the Level 4 listing that follows. See Appendix A, current edition, for detailed Model Alaskan School elements.

Standard Foundations

0211 Continuous & Column Footings
- Alt. 021110 - All weather wood (AWW) footings consisting of timbers and strongbacks are acceptable where soils are appropriate (i.e., low moisture, non-permafrost). AWW foundations must be supported by appropriate cost analysis.

0212 Foundation Walls – Model school includes foundation walls to frost depth per local conditions/codes.
- Alt. 021210 - Frost protected shallow foundations (FPSF) including perimeter insulation are acceptable when supported by appropriate cost analysis.
- Alt. 021220 – Concrete masonry units (CMU) foundation walls, with reinforcing, are acceptable.
- Alt. 021230 – AWW foundation walls consisting of framing and sheathing are acceptable where soils are appropriate, and must be supported by appropriate cost analysis.

0213 Foundation Wall Treatment – Model school elements include basic thermal and dampproofing treatments (see Appendix A) as anticipated to be required by local conditions/codes.

0214 Foundation Drainage – None at model school.
- Alt. 021410 – Perforated pipe footing drains are acceptable when required by local conditions/code.
- Alt. 021420 – Drainage mats and other water/moisture control measures are acceptable when required by site conditions and supported by appropriate cost analysis. Sites requiring underslab drainage should be avoided.

Substructure

Slab on Grade

0221 Standard Slab on Grade – Model school includes basic sub-base, reinforcement, moisture control, and trowel finish (see Appendix A) as anticipated to be required by best practice.

Alt. 022110 – Ground floor wood superstructure consisting posts, beams/frame walls, joists, and wood structural panels is acceptable when supported by appropriate cost analysis (e.g., in geographic regions where the cost of concrete is high). Insulation at floor assembly perimeters is included.

Alt 022120 – Ground floor steel superstructure consisting of beams/frame walls, joists, metal deck, and concrete is acceptable when supported by an appropriate cost analysis.

0222 Structural Slab on Grade – None at model school. Requirements for a structural slab to support extraordinary loads (vehicles, cranes, etc.) will be considered unique to a local educational program and will be funded locally.

0223 Trench, Pit, or Pad – None at model school.

Alt. 022310 – Nominal trench drains in support of Career Technology Education (CTE) are acceptable.

0224 Underslab Insulation – None at model school.

Alt. 022410 – Underslab rigid insulation is acceptable in support of FPSFs and where otherwise supported by an energy life-cycle cost analysis of the proposed heating system.

Basements – None at model school. Requirements for basement construction will be considered unique to local educational programs and will be funded locally.

0231 Basement Excavation/Backfill – N/A

0232 Basement Walls and Piers – N/A

0233 Basement Wall Treatment – N/A

Special Foundations

0241 Piling & Pile Cap – None at model school.

Alt. 024110 – A treated wood piling foundation including timber or engineered lumber pile caps, and required lateral bracing is acceptable where soil bearing pressures cannot support a standard foundation or where it is not cost effective to remove poor soils and replace with suitable fill.

Alt. 024120 – A steel pile foundation including steel or lumber pile caps and required lateral bracing is acceptable in conditions as stated for 024110.

0242 Caissons – None at model school. It is not anticipated that a caisson foundation would be required for an Alaskan school. If this foundation is proposed, it must be supported with an appropriate cost analysis.

0243 Grade Beams – None at model school. It is not anticipated that a grade beam foundation would be required for an Alaskan school. If this foundation is proposed, it must be supported with an appropriate cost analysis.

0244 Raft Foundation – None at model school. It is not anticipated that a raft foundation would be required for an Alaskan school. If this foundation is proposed, it must be supported with an appropriate cost analysis.

0245 Arctic Foundation System – None at model school.

Substructure

Alt. 024510 – An arctic foundation system consisting of thermopile (with or without helical ribs, pile extensions, steel or lumber pile caps and required lateral bracing is acceptable where soils consist of continuous or discontinuous permafrost.

0246 Other Special Foundations – None in model school. If a special foundation not defined in this guideline (e.g., sheet pile, etc.) is proposed, it must be supported with an appropriate cost analysis.

Foundation systems are typically far more expensive in Alaska than in other parts of the country. Usually foundation system options are limited by the soil conditions of a particular site. As it affects the cost of site development, the soil conditions of the selected site also play a large part in the cost of the foundation system and determining the number of foundation system options that are acceptable on a given site. Thus, the quality of soils should be given significant weighting when evaluating site options.

Due to the relative high cost of foundation systems, consideration should be given to the construction of two-story structures for school facilities exceeding 40,000 GSF. The cost savings of a two story structure is not only limited to the foundation system. When evaluating the potential cost savings of a two-story design versus a single story, other building systems, such as roofing, vertical circulation, and exterior wall, should be considered. The shipping weight of the potential foundation system as well as the installation cost should be taken into consideration when evaluating foundation system options. Building sites whose soil conditions allow the use of standard concrete foundations are preferable to sites that require piling foundations.

Design Criteria

- Multi-story construction shall be considered and presented as a schematic design option for all school structures over 40,000 GSF
- Where appropriate for soil conditions, standard concrete foundations are almost always the preferred foundation system
- Where soils are of low moisture content, all weather wood foundations should be considered for facilities smaller than 20,000 GSF
- Where appropriate for soil conditions, foundation systems utilizing a heated crawlspace with perimeter closure are preferable to foundation systems that utilize an elevated building with an air space between the underside of the building and grade

Substructure

Design Ratios:

1. Total building deadload/GSF.
2. Ton rebar/CF concrete.
3. CF concrete/GSF

Mechanical - 08

Building System Summary: The mechanical systems of a building provide a wide variety of functions related to sanitation, occupant comfort, manufacturing processes, and protection of structure. They can range from simple to complex. In addition to major source and distribution systems, a building's mechanical systems also include automation and controls systems; these areas are often the point of integration with the building's electrical systems. The department recognizes five sub-categories in this building system: Plumbing, HVAC, Integrated Automation, Fire Suppression, and Special Mechanical Systems. These sub-systems are not mutually exclusive; components from within each may be necessary for a complete mechanical system.

Design Philosophy: Mechanical systems join Interiors as one of the higher cost building systems and similarly account for ~10-12% of a project's total construction cost. Mechanical systems include plumbing, HVAC, sprinklers, and other piped or ducted distribution and exhaust systems. Also, like Interiors, Mechanical Systems are subject to initial cost savings by specification of materials or equipment, but oftentimes the reduction in initial cost is offset by increased maintenance and operation costs over the life of the system. It is important that the cost effectiveness of all material and equipment specifications is evaluated on a life cycle basis.

Model Alaskan School: The Model Alaskan School uses commercial grade mechanical systems developed primarily in response to building codes and standards adopted in 4 AAC 31.014. Model school Level 3 systems are as described in each following section. Acceptable alternatives are detailed in the Level 4 listing that follows. See Appendix A, current edition, for detailed Model Alaskan School elements.

081 – Plumbing: The model school uses piped potable water and wastewater plumbing distribution systems with supply from third-party utilities and connections to commercial quality fixtures.
0811 Plumbing Fixtures – The model school includes the following schedule of plumbing fixtures:

Fixture Type	Location	Quantity
Wall-mounted 15" toilet w/manual flush valve	K-2 toilet rooms	Note 1
Wall-mounted 17" toilet w/manual flush valve	3-12 toilet rooms	Per code
Wall-mounted urinal w/manual flush valve	3-12 toilet rooms	Per code
Counter-mounted lavatories w/manual faucet	Toilet rooms	Note 1; per code
Wall-mounted mop sink	Custodial closets	2

Mechanical - 08

w/manual faucet		
SS single bowl sink w/manual faucet	Classrooms	16
SS double bowl sink w/manual faucet	Workroom	1
SS wall-mounted handwash sink w/touchless faucet	Nurse & Kitchen	2
SS 3-compartment sink w/faucet	Kitchen	1
SS drinking fountain cooler w/bottle fill	Corridors/Gym/Commons	3
Stall shower w/control valve and head	Locker rooms	6

Note 1 – Primary grade classrooms serving Pre-K – 2nd grade are provided with dedicated toilet rooms adjacent to the classroom. Fixtures include a toilet and a sink/lavatory.

081110 Alt – Secondary school should consider adding the following based on program needs:

Fixture Type	Location	Quantity
Chemical resistant sink	Science classroom	Note 1
Eye wash station	Science classroom	Per code

Districts are encourage to develop their own standards for plumbing fixture specifications based on operations and maintenance factors using life-cycle cost analysis principles.

0812 Plumbing Equipment – The model school includes the following plumbing equipment:

Equipment Item	Location	Quantity
Kitchen Equipment	Kitchen	Note 1
Laundry Equipment	Varies	Note 1
Hose bibs	Mech. Room & Exterior	3
120g hot water generator	Mechanical Room	1
Circulation pump(s)	Mechanical Room(s)	10
20GPM grease interceptor	Kitchen	1

Note 1 – See Equipment & Furnishing – 10 for equipment requiring plumbing connections.

Mechanical - 08

08082 – HVAC: Heating includes cast iron gas/oil boilers providing glycol/hot water to terminal devices via copper distribution piping and circulating pumps. Ventilation is provided through ducted supply and return systems driven by air-handling units. Exhaust consists of room and exterior mounted fans with rigid ducting. Cooling consists of a central direct expansion unit with insulated pipe distribution to terminal devices.

08083 – Integrated Automation: Integrated system automation is a microprocessor based head-end unit tied to digital devices.

08084 – Fire Suppression: Fire protection is a distributed wet pipe system with necessary riser/valves/heads.

08085 – Special Mechanical: Fuel storage and supply is a dual-fuel natural gas/heating oil system including a double-wall AST, day tank and steel distribution piping.

Plumbing systems have the most potential for cost savings because they are not required throughout the facility by code, whereas HVAC and sprinkler systems are. Consolidation of plumbing systems to core areas to limit piping runs and reduction of the overall plumbing fixture count are design decisions that limit a project's plumbing cost. Fine-tuning the design of the HVAC systems can also generate cost savings. Oddly, even in Alaska, cooling requirements typically govern duct sizing. By designing the cooling system to an actual rather than fire code room occupancy, establishing a higher acceptable maximum temperature, and incorporating operable windows into the design calculations, duct sizes can be reduced, thus reducing air handler capacity and potentially mechanical space required. Wet sprinkler systems are less expensive than dry systems, so reducing or eliminating the need for dry sprinkler systems will reduce the cost of the facility.

Design Criteria

- Boilers should be designed to burn #2 diesel fuel or natural gas where available
- Hot water should be generated from the heating system boilers, rather than by a separate heat generating burner
- Sinks or other plumbing shall not be provided in standard classrooms that serve grades 4 and greater
- Ventilation systems shall be sized per the estimated room occupancy rather than the fire egress code occupancy

Mechanical - 08

- Maximum interior design temperature for ventilation system design shall be 75 degrees Fahrenheit or greater
- Where operable windows are furnished, design of the ventilation system shall incorporate the cooling and ventilation capacity of the windows

Design Ratios:

1. Plumbing fixtures/GSF.
2. Heating Capacity Btu/GSF.
3. AHU CFM Capacity/GSF; /BVol

BR&GR MODEL ALASKA SCHOOL SUBCOMMITTEE

By: Don Hiley
SERRC
Phone: 465-6906

Date: July 27, 2017

File: g:\br&gr\subcommittees

For: BR&GR Model School Subcommittee **Subject:** Mechanical Project Challenges w/Cost Model

Committee Topic Paper

Issue

What are some of the areas where the current DEED Cost Model falls short of providing data for estimating mechanical projects?

Discussion

The list below is the result of looking at 19 projects for which SERRC is preparing FY19 funding applications for submission to DEED in September 2017. The 19 projects are a subset out of ~80 projects total.

The mechanical project types that don't fit well in the Cost Model include:

- Boiler replacement
  - biggest number over the years
- Hot water generator replacement
- Partial plumbing replacement
  - Both heating and domestic water, waste lines would apply as well.
- Water and sewage treatment
- Fire suppression
  - Both for mist, and for partial conventional system work
- Mechanical controls
  - Less sophisticated than DDC

Conclusions

In order to adequately estimate these projects, the Cost Model would have to be revised to include additional mechanical line items.

Appendix B

Public Comments

From: Craig Fredeen <cfredeen@coldeng.com>
Sent: Tuesday, October 17, 2017 11:59 PM
To: Mearig, Timothy C (EED)
Subject: BR&GR Model School input

Tim,

Very nice report on the Model School committee. Not an easy task. I did have a couple comments on that report:

1. Under Space Allocations, A4LE has been wanting to have a discussion with EED regarding the revision of the square footage calculations to accommodate envelope widths and mechanical space exemptions. With the increase in energy efficiency, this will increase the wall thickness and count against total square footage for the facility. I believe the request was to change the total square footage verbiage to be interior of the building envelope. Also, there is a direct correlation between maintenance costs and the size of mechanical rooms. Because mechanical and electrical spaces count 1 for 1 against classroom space, these rooms are considerably squeezed. We'd like to recommend that mezzanines and penthouses be exempted from the square footage caps. These are typically inexpensive ways to house mechanical equipment. I know the above are big changes to add without input from the committee, but maybe just add a blurb in there recognizing requests for modifications to square footage calculations in regard to building envelope and MEP spaces.
2. There are some items missing from the Model School Elements for mechanical systems. Also, the Mechanical Construction Standard is a bit out of date. That's the way we designed rural schools 15 years ago. Definitely different preferred strategies for facilities where natural gas is available. Is this document up for review and if so, can I get a Word version of the document? Same with the Model School Elements section. I can make recommendations using Track Changes and send it back to you for consideration.

I saw in the PM State of the State that there are several standards up for renewal/update. I'm particularly interested in the following:

- School Design and Construction Standards Handbook
- Alaska School Facilities Preventative Maintenance Handbook
- Architectural and Engineering Services for School Facility Construction

Where can I find a copy of these?

Thanks!

Craig Fredeen, PE
President | Principal Mechanical Engineer
COLD CLIMATE
ENGINEERING, LLC
PO Box 240866, Anchorage, Alaska 99524
(907) 441-1567 | cfredeen@coldeng.com

BR & GR
DESIGN RATIOS SUBCOMMITTEE
Comments For Consideration

Gary Eckenweiler
BSSD, Facilities Director

11/9/17

Subcommittee Members,

Listed are comments for consideration

Recommendation #2 (O:EW)

I would be in favor of a **lower O:EW ratio** for the following:

a. Natural light is extremely important but it doesn't take an entire exterior wall of windows to give adequate light. I feel less but strategically place window would offer a quality interior natural light effect.
b. In windy climates like BSSD windows are one of our larger maintenance expenses. We are continually fixing mechanisms and experience full failures as early as 15 years. The glass vendors love us! Our most troubled areas are classrooms with the entire exterior wall length being window. The lack of framing structure between each window creates a week point, that moves in the wind, which loosens casing and loosens window edges allowing argon to escape. We see this in quite a few of our schools. With a lower O:EW ratio designers may look at getting away from continuous long banks of windows.
c. With LED lighting being used the cost of offsetting natural lighting with electric lighting isn't as big of a deal. Also LED replicates the spectrums of natural lighting much better.
d. And of course the difference between r-5 and r-30 but as time factors in windows are not their original r-value and leak.
e. Less windows less problems.

Recommendation # 3,4&5 (FPA:GSF), (V:NSF), (V:ES)

Maybe (V:ES) best defines the goals of these three recommendations.

I would be in favor of a tighter ratio, which would push simplistic building shapes in our climate region.

a. When you live in windy N.W. AK practicalities take over, especially in construction, to a point where unpractical stands out like a sore thumb.
b. Rectangular, fewer wings, lower roof pitch and fewer rooflines are all things folks deem as practical. The local critics will quickly criticize unpractical buildings and praise simplicity.
c. Keeping construction funds in the interiors of the facility has a much greater positive impact on educational environments.
d. We have all seen some incredibly beautiful designs utilizing simple shapes.

From: fenoseff_thomas
Sent: Wednesday, November 15, 2017 1:13 PM
To: Mearig, Timothy C (EED) <tim.mearig@alaska.gov>
Cc:

Subject: ASD comments and executive summary to the DEED BR&GR committee

Mr. Mearig,

Thank you for the opportunity to provide comments and be part of the process in developing criteria for cost-effective school construction in Alaska. Attached you will find comments from Krista Phillips, our Planning and Design Supervisor, and Kristin Heusser, our Plans Reviewer/Cost Estimator. Each brings a wealth of experience and knowledge about designing and building schools in Alaska. In reviewing each of their comments, I think they raise some salient points that should be addressed by the committee. Here are the highlights:

1) Criteria for cost-effective school construction should take into account the differences between rural and urban cost of construction. The definition of "core" education may differ significantly given these two settings.
2) Criteria should take into consideration the availability of human resources, and specifically, practical level of credentialing.
3) The recommendation should use more refined definitions of terms and specific goals for those terms, such as in commissioning.

If you have any questions regarding these comments, please feel free to contact me.

Respectfully,

Tom Fenoseff
Anchorage School District
Senior Director, Capital Planning & Construction
Office: (907) 348-5223
Fax: (907) 348-5227

1

Anchorage School District

Capital Planning & Construction
1301 Labar Street • Anchorage, AK 99515 • 907-348-5156 • www.asdk12.org/capitalplanning

November 12, 2017

Tim Mearig, Facilities Manager
State of Alaska
Department of Education & Early Development
School Finance & Facilities
PO Box 110500
Juneau, Alaska 99811-0500

Re: Comments on Criteria for Cost-Effective School Construction

The Anchorage School District is pleased to submit the following comments on the changes proposed by the BRGR and DEED.

GENERAL COMMENTS:

- What is the expected life cycle for a school/school addition to be designed and constructed under these proposed criteria?
- Criteria for cost-effective school construction should take into consideration the differences between urban versus rural cost of construction
  - Consider differing levels of criteria for urban versus rural conditions
  - What other northern design regions 'best practices' (Canada, Scandinavia) were researched related to Design Ratios?
- An examination of 'Design Ratios' is very much an examination of 'best practices' in basic design methods applied to our variety of northern design regions. To gain licensure in the state of Alaska, architects must pass a licensing board-approved supplemental course focusing on northern region design. Consider how this course and potential DEED requirements for Design Ratios overlap and are synergistic, and/or conflict in any manner.
- Criteria for cost-effective school construction should take into consideration availability of human resources: qualified educational, maintenance, and operations staff/recruiting
  - Consider differing levels of credentialing criteria for urban versus rural conditions
- What analysis has been done to consider the three proposed sets of criteria together?
  - What is the definition of 'cost-effective' as it relates to these three sets of criteria?
  - What is the definition of 'adequate education' as it relates to these three sets of criteria?
  - Should there be a fourth criteria to measure/assess functional and programmatic design of schools? Efficiency and savings comes first through flexible, appropriately planning: the building program (list of spaces, adjacencies,

and sizes) must define all spaces required, prior to these proposed three criteria being utilized. It makes sense to ensure this component meets the goals of efficiency prior to review of the proposed three criteria.

- Assumed order of these criteria in terms of sequence of use in review for efficiency and educational adequacy:
  - *Planning/Programming – unidentified as part of this review and comment*
  - Design Ratio
  - Model School
  - Commissioning

COMMISSIONING:
Recommendation #1
Comment: What are the specific goals for savings as a result of commissioning (i.e., initial cost of construction, target percentage of first cost, target percentage of life cycle cost, etc.)? Once defined, this may inform when and if commissioning should be required.

Recommendation #2:
Comment: 1. - School districts outside urban areas may struggle to retain credentialed CxA entities; increased in overall life cycle costs associated with non-local CxA entities who may perform commissioning in lieu of local entities should be considered
Comment: 2. – defer to KH comments

Recommendation #3:
Comment: 1. – defer to KH comments
Comment: 2. – Building Envelope - Potential exists for an incomplete building envelope upgrade to occur [i.e., reroof with portion of exterior walls receiving upgrades, but not all; consider how to test and/or measure outcomes on partial building envelope upgrades

DESIGN RATIOS:
Recommendation #1:
Comment: 1. – Clarify if adoption of four BEES climate zones would be substituted for the two climatic regions noted in ASHRAE 90.1 or would ASHRAE 90.1 be replaced as the standard with BEES exclusively.

Recommendation #2:
Comment: 1. – What 'best practices' in educational design were researched during the development of this Recommendation #2? In order to define "good" versus "bad" of an effective range of O:EW ratio, let's be certain we understand as many intimacies/impacts associated with example projects as noted in "Recent School Project Design Ratios Data Set". Again, what northern design regions beyond Alaska were explored? The research and decision-making data should reach beyond Alaska, as there are many northern design regions around the world employing high-performance northern school design. Also, the concept of implementing a range of school design ratio of O:EW needs to be weighed against impact to student learning. Much health research tells us that humans must have the opportunity to connect visually and physically with the outside. Even though there are many months of darkness in Alaska, students and staff should be afforded the opportunity to visually connect with the natural environment, regardless if its daylight or dark, i.e., windows. The human connection between the built environment and the natural environment is necessary for learning and wellbeing. Also, does this apply to new construction only or additions, as well?

Recommendation #3:
Comment: 1. – See above "General Comments", bullet point 2 above. Same comment applies here. The practice of design of an efficient building footprint is a basic component of 'good northern design'.
Comment: 2. – no comment.
Comment: 3. – Was 30,000 GSF as the trigger for FPA:GSF ratio based on historical or contemporary typical school footprints? Based on trigger of energy loss to a footprint larger than this and therefore an operational cost trigger? In Anchorage School District, our current ed specs call for nearly 70,000 GSF of space for an elementary school, which represents our smallest school facility in size; therefore, this FPA:GSF ratio requirement would apply to all new schools within ASD and (assuming) any additions to any schools if designed over 30,000 GSF.

Recommendation #4:
Comment: 1. – See above "General Comments", bullet point 2 above. Same comment applies here. The practice of design of efficient spatial building volume is a basic component of 'good northern design'.
Comment: 2. – Assuming building volume of concern is all normally occupied conditioned space, not unconditioned space—clarify.

Recommendation #5:
Comment: 1. – This criteria seems very similar to Recommendation #4. Data not provided; needs more clarity.
Comment: 2. – Assuming building volume of concern is all normally occupied conditioned space, not unconditioned space—clarify.

MODEL SCHOOL:
Recommendation #1:
Comment: 1. – Agree with further development of the Program Demand Cost Model in lieu of another method of cost estimating. Considerations include how to gain most relevant information (from whom in industry and how to seek/receive input).

Recommendation #2:
Comment: 1. – Agree with establishment of an ongoing process of reviewing and establishing components and systems and current costs of a model school. Considerations include how to gain most relevant information (from whom in industry and how to seek/receive input)

Recommendation #3:
Comment: 1. – Reference made in commentary to national standards and/or other states' design standards. What standards were reviewed outside of Alaska? Quality and longevity should be the driving force of a statewide standard for building systems. Example "sub-structure" standard states buildings over 40,000 GSF should be considered as two story solutions, not one story. How does this relate to "Design Ratio Criteria" as noted in their Recommendation #3 – 30,000 GSF as size threshold?

Recommendation #4
Comment: 1. – This recommendation is challenging by nature of applying one definition to "core education". Every geographic location in Alaska that delivers education has specific needs regarding elements of a school and its site. Elements in one community that may be defined as "core" may not be defined as "core" in another. How to balance the need for cost-effective funding strategies and the need for education to provide core purposes based on community culture? Consider how this recommendation can be marketed as a partnership opportunity. It's currently written with an undertone that does not recognize the benefit school property

provides to communities which ultimately result in betterment of quality of life and economy for all Alaskans. Again, this may be a recommendation that needs to be analyzed based on urban and/or non-urban settings, as there are significant differences between core education in an urban setting versus a non-urban setting. What is the definition of 'adequate education', 'maximum education', and 'non-core amenities'?

Please do not hesitate to contact me at 907-348-5200 if you have any comments or questions with this communication.

Sincerely,

Krista Phillips, Planning & Design Supervisor
ASD Capital Planning & Construction

Enclosures

BR&GR Commissioning Subcommittee

Cost Effective School Construction Criteria
Draft Recommendations
October 13, 2017

Subcommittee Members
BR&GR Committee: Mark Langberg (chair); Bill Murdock
Department Staff: Wayne Marquis
Industry Partners: JaDee Moncur, Support Services of Alaska; Craig Fredeen, Cold Climate Engineering; Brittany Hartmann, Legislative Staff

FINANCIAL STAKEHOLDER

Purpose of Subcommittee
Under AS 14.11.014(b)(3), propose standards and criteria for commissioning of school projects with state-aid; identify costs for appropriate allocation of resources.

Subcommittee Activity
The subcommittee met throughout the summer to discuss Commissioning issues. In addition to acknowledging the preceding purpose-statement, the subcommittee reviewed and adopted the following mission statement (Subcommittee Resource #2):

> *To provide minimum criteria and expectations to test the performance of a school's mechanical, electrical, plumbing, fuel, controls and envelope systems; to promote energy efficiency of the school and save operational costs over the life of the building.*

Building commissioning (Cx) was recognized as adding value to a school district's overall mission of education by maximizing the operational efficiency of its school facilities. Since commissioning is building-specific, benefits are also gained at the individual school level. The subcommittee reviewed commissioning protocols and practices and determined that commissioning criteria should be developed in the following broad categories: mechanical, fuel oil, electrical, controls, and building envelope.

Other focus areas of subcommittee review included:

- Responsibilities that are common to commissioning agents – commissioning tasks can cross traditional disciplines (e.g., building controls (mechanical), building envelope (architectural), etc.). Qualifications and certifications are becoming important.
- Standards and certifications for commissioning agents or commissioning authorities – as commissioning transitions from a specialty to a dedicated profession, there are a growing number of professional and trade associations offering certifications in this area.
- The points in a facility's life-cycle where commissioning can be effective – commissioning has traditionally been tied to the closeout of capital projects; however, the emergence of retro-commissioning has brought attention to the value of ongoing commissioning throughout the building life-cycle.

MAINTENANCE NEEDS TO REVIEW THIS ALSO AS IT MENTIONS ON-GOING COMMISSIONING.

TRAIN ON-SITE PERSONNEL.

Recommendations & Requests for Comments
The following subcommittee recommendations are proposed for consideration by the BR&GR committee for inclusion in a December report to the Alaska state legislature. The subcommittee

has specific requests for comments on its recommendations below, but welcomes all comments on potential implementation of commissioning standards for school construction.

General Comment Requests:

1. *Any known conflicts of the proposed recommendations with state laws or municipal codes.*
2. *Potential or known duplication of proposed standards with items in established building codes, adopted standards, or district facility standards.*

Recommendation #1
In support of cost-effective school construction, adopt standards for commissioning of building system in new schools, major additions, and major renovations constructed with state aid. Standards should assist the department in ensuring school projects meet required energy standards.

Basis: The value of commissioning increases with the complexity of the systems in a facility. Since the complexity of school capital projects with state aid ranges from simple to complex, commissioning should generally only be required on new schools, major additions, and major renovations. There may be smaller projects, focused on one or more of these broad categories of systems, which would be appropriate to be commissioned. Since commissioning is a growing field and is touching more and more building systems, required commissioning standards (in support of cost-effective school construction) should focus on commissioning elements related to meeting required energy standards.

Comment Request: Comments related to when commissioning should be required for projects funded with state aid.

Recommendation #2
Commissioning funded with state aid should be accomplished by a qualified commissioning agent/authority (CxA). The base requirement for a CxA should be an industry-recognized certification but options should be available for alternate qualifications sufficient to help guide the district to the desired level of Cx appropriate for the given project.

Basis: Certifications can be helpful in establishing credentials and high standards should be the norm. However, certain conditions may require flexibility and an alternate path to establishing qualifications on a project-basis. MUST BE BETTER DEFINED OR THE ONLY FORMAL DEFINITION WITH BE STAKEHOLDER TYPE CERTIFICATIONS. NEED TRAINING, CERTIFICATION, EDUCATION FOR MAINTENANCE.

Comment Request:

1. *Comments regarding establishing proper credentials for CxA entities sufficient to ensure return for investment.*
2. *CxA qualifications and responsibilities proposed in Commissioning General Overview (Subcommittee Resource #3).*

Recommendation #3
In support of cost-effective school construction, develop and adopt criteria for commissioning in five areas: mechanical, fuel oil, electrical, controls, and building envelope. Criteria should be provided as tools for districts to use in contracting for Cx services or for performing Cx in-house when permitted.

MAINTENANCE SHOULD COMMENT; ESPECIALLY IF 'ONGOING' OR RETROCOMMISSIONING.

Basis: Minimum standards for commissioning criteria, updated on a regular basis to conform to industry best practices and current building systems, will provide a basis for the state aid. Standards define expectations and result in greater clarity and equity across all projects.

Comment Request:

1. *Comments regarding the development and maintenance of commissioning criteria at the state level.*
2. *Commissioning standards in the five recommended areas, proposed in Subcommittee Resources #4 through #9.*

Subcommittee Resources

The resources below were researched or developed during the subcommittee process and informed the recommendations of the committee. The majority of these documents are available in prior BR&GR committee packets for review (https://education.alaska.gov/Facilities/BRGR/). Certain items are attached, as noted, for simplicity in reviewing the draft recommendations in this document.

1. Meeting Notes/Recordings
2. Mission Statement
3. Commissioning General Overview – 8-21-17 Draft (Attached)
4. Mechanical Systems Commissioning – 8-18-17 Draft (Attached)
5. Fuel Oil Systems Commissioning – 8-18-17 Draft (Attached)
6. Electrical Systems Commissioning – 8-18-17 Draft (Attached)
7. Control Systems Commissioning – 8-18-17 Draft (Attached)
8. Building Envelope Commissioning – 8-18-17 Draft (Attached)
9. Building Envelope Commissioning CSI Spec – 8-22-17 Draft (Attached)

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

COMMISSIONING GENERAL OVERVIEW

Commissioning shall be the responsibility of a single person charged with organizing and leading the commissioning efforts for the project.

Commissioning Authority (CxA):

INTRODUCES FINANCIAL STAKEHOLDER SERVICES.

- Be certified in commissioning from ASHRAE, Building Commissioning Association (BCxA) or another recognized standards organization.
- Could be an independent third party, or
- Could be a member of the design team, or
- Could be an employee of the school district, or
- Could be an employee of the contractor

VERY WEAK LANGUAGE.

CxA Responsibilities may include the following (as determined by contract requirements):

- Coordinate commissioning of the mechanical, electrical, fuel oil, controls, and building envelope commissioning sections.
- Coordinate with Contractor's Commissioning Representative (CCR) and commissioning team.
- Create a Commissioning Plan
- Create commissioning checklists
- Create Functional Performance Tests
- Witness the Functional Performance Testing
- Work to resolve issues found during commissioning
- Create Commissioning Report
- Coordinate with owner maintenance personnel for training

NEED ORG CHART.

FLESH OUT DOCUMENTATION.

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

MECHANICAL SYSTEMS COMMISSIONING

Coordinate commissioning of this section with other systems as noted in the electrical, fuel oil and controls commissioning sections.

Mechanical Systems to be commissioned include:

- All life safety interlocks and safeties including but not limited to:
  - Boiler safeties, emergency shut-down
  - Combustion air systems
  - Duct smoke detectors and associated code shut-downs
  - Smoke damper activation
  - Fire suppression systems including fire water storage and suppression activation. These may be delegated to AHJ review and approval.
- General:
  - Occupied mode and unoccupied mode operation for all systems
  - Remote monitoring and alarm generation
- Plumbing System:
  - DEC regulated system parameters are maintained
  - Facility domestic water supply (well pump, storage, etc.) function
  - Domestic hot water generation, tempering valve operation, high temperature alarm
- Heating System:
  - Hydronic system supply temperature control including heat plant operation
  - Distribution system control including circulation pump operation and failure sequences
  - Terminal heating unit operation including room temperature control
- Ventilation System:
  - All damper positions to be visually verified during operation
  - Central ventilation unit controls:
    - Fan operation
    - Outside air, return, and relief air damper operation
    - Air temperature control including coil operation
    - Demand ventilation control sequences
  - Terminal ventilation unit operation
  - Building pressurization controls
  - Exhaust air operation

S → AUTHORITY HAVING JURISDICTION. NO ABBREVIATIONS.

NOTES ON COMBUSTION AIR...?

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

FUEL OIL SYSTEMS COMMISSIONING

Coordinate commissioning of this section with other systems as noted in the mechanical, electrical and controls commissioning sections.

Fuel Oil Systems Commissioned Outline:

- Prior to Functional Performance Testing:
  - Fill up tanks
  - Test Hi / Low level, leak detection and overflow alarms
  - Test circulation pumps operation (supply and return)
- General:
  - All sequences will be tested as approved by the designer
  - Alarm generation and remote monitoring (when present) will be demonstrated
- Controls:
  - Must provide support for Functional Performance Testing
  - Provide Functional Performance Testing results for review
- Fuel Oil Systems to be commissioned:
  - All standalone controlled devices
  - All Direct Digital Control (DDC) controlled devices (when present)
  - Large and small day tank controls integration

VENTS OPERATING PROPERLY

DOES THIS SPECIFY CERTAIN EQUIPMENT? OR IS STANDARD NOW ON STANDALONE EQUIPMENT?

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

ELECTRICAL SYSTEMS COMMISSIONING

Coordinate commissioning of this section with other systems as noted in the mechanical, fuel oil and controls commissioning sections.

Basic Electrical Systems to be commissioned include:

- Uninterruptible Power Supply
- Standby/Emergency Generator System
- Auto Transfer Switch – Standby
- Auto Transfer Switch – Emergency
- Grounding Systems – Power / Telecom
- Motor Starters / Variable Speed Drives (VSD)
- Lighting Control Systems
- Lighting Fixtures
- Secondary Transformers
- Electrical Distribution Equipment

When included as part of the project, electrical Special Systems to be commissioned may include:

- Fire Alarm System
- Security Systems
- Closed Circuit Television
- Audio Video Systems
- Paging System INTERCOM
- Entry Intercom System
- Telecom Distribution System
- Telecom Optical Fiber Distribution System

SPECIALTY EQUIPMENT; SHOP

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

CONTROLS SYSTEMS COMMISSIONING

Coordinate commissioning of this section with other systems as noted in the mechanical, fuel oil and electrical commissioning sections.

Controls Systems Commissioning Outline:

- Prior to Functional Performance Testing:
  - Point to point testing complete
  - Calibration complete
  - Self-testing of control sequences
  - Graphics complete
  - Connection to remote viewing complete
  - Complete log of changes from original sequences of operations ← AND WRITTEN INTO AS-BUILTS.
  - Test and Balance for air and hydronic systems

Test and Balance Verification (if required by contract): ← SHOULD BE REQUIRED IF TYPE OF WORK IN CONTRACT.

- General:
  - All Sequences will be tested as approved by the designer
  - Remote monitoring and alarm generation will be demonstrated
- Controls:
  - Must provide support for Functional Performance Testing
  - Provide Trending after Functional Performance Testing for review
- Controls Systems to be commissioned:
  - All DDC controlled systems
  - All standalone controlled devices
  - Boiler controls integration
  - A/C system controls integration

Bond Reimbursement and Grant Review Committee

Commissioning Standards Subcommittee

BUILDING ENVELOPE COMMISSIONING

Mandatory building envelope testing shall apply to the following types of construction:

- New facilities
- Additions over 2,000 SF
    - Testing to be limited to the addition.
    - Testing may be waived by DEED if logistics of isolating the addition for testing are deemed impractical.
- Major renovations to building envelope as deemed by DEED.

Building envelope commissioning shall include:

- The air leakage rate of the building envelope shall not exceed 0.40 cfm/SF at a pressure differential of 0.3 inches water gauge (75 Pa) in accordance with ASTM E 779 or an equivalent method approved by DEED.

Recommended testing includes the following:

- A vapor barrier integrity visual inspection be completed prior to installation of interior finishes.
- Thermal imaging testing of the building envelope.

A guide CSI Specification is available from DEED to provide owners and designers recommendations for how to complete the air leakage and thermal imaging testing.

BRGR ENERGY EFFICIENCY BUILDING ENVELOPE SPECIFICATION

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes:
   1. Infrared Inspection of Building Envelope
   2. Pressure testing for air leaks

B. Related Sections:
   1. Exterior doors and jambs
   2. Exterior windows and glazing
   3. Vapor retarder
   4. Air Barriers
   5. Sill Sealer
   6. Sealants
   7. Insulated-core Metal Wall Panels
   8. Metal roof panels
   9. Structural insulated panels
   10. Fiberglas insulation

1.03 SUBMITTALS

A. Thermal Imaging Camera make, model and information defining the unit's thermal sensitivity

1.04 QUALIFICATIONS

A. Thermographer Qualifications
   1. Lead thermographer shall have at minimum an active Level II Certification

CERTIFIED BUILDING COMMISSIONING PROFESSIONAL?

PART 2-PRODUCTS

2.01 INFRARED CAMERA/THERMAL IMAGING CAMERA

A. Thermal imaging camera shall have a thermal sensitivity of 0.18 degrees Fahrenheit at 86 degrees Fahrenheit. Camera shall have ability of download still frame images into an electronic Thermographic Report

2.02 BLOWER DOOR/PRESSURE TESTING

PART 3-EXECUTION

3.01 PREPARATION

A. Ensure building envelope is completed including all related items from 1.02, B.

B. Prior to inspection building shall be brought to temperature/acclimated for a minimum of 48 hours. RADIANT SYSTEMS MAY TAKE AWHILE TO REACH STASIS.

C. Test requires a minimum difference in temperature between ambient air and building interior of 18 degrees Fahrenheit. SUGGEST MAKE ROUND 20 DEG. F

D. Building shall be negatively pressurized with a pressure differential of ? pascals for the Blower Door test

From: Mary Cary
Sent: Wednesday, November 15, 2017 11:10 PM
To: Mearig, Timothy C (EED)
Subject: Public Comment: Criteria for Cost-Effective School Construction - Draft Recommendations 10/13/17

Tim,

My commendation goes to the considerable time and effort spent by the members of these three BRGR Subcommittees to develop Draft Recommendations for Cost Effective School Construction Criteria. I believe it would would have been benefical for each of the committees to have had representation from both rural and urban educators. It is all too easy to loose perspective that the main purpose of these facilities is to support effective student learning, and we need to look at sustainable future trends and not necessarily continue to support and maintain the current resource-consuming facilities. This involves a big picture statewide conversation as to future educational delivery options based on Alaska fiscal reality.

Commissioning can provide overall environmental with long term cost benefits and should be included as a design/construction standard service. Commissioning of existing facilities with funding to correct deficiencies should be considered as the benefits to the ongoing maintenance and operational costs would be significant.

I'd encourage a more performance-based approach to design in lieu of an overly prescriptive approach (design ratios) to meet energy goals.

Thank you for the opportunity to comment.

Sincerely,

Mary Cary, AIA

From: Mary Cary
Sent: Wednesday, November 15, 2017 11:10 PM
To: Mearig, Timothy C (EED)
Subject: Public Comment: Criteria for Cost-Effective School Construction - Draft Recommendations 10/13/17

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Thank you for the opportunity to comment.

Sincerely,

Mary Cary, AIA

Appendix C

BR&GR Membership

Bond Reimbursement and Grant Review Committee

As of: March 1, 2017

Member	Appointed	Re-appointed	Term Expires
Heidi Teshner, Chair Commissioner or Commissioner's Designee	Commissioner's Designee		
Representative Sam Kito III House of Representatives Member	Appointed by Speaker		
Senator Anna MacKinnon Senate Member	Appointed by President		
Mark Langberg Professional Degrees & Experience in School Construction	03/01/2016		02/28/2019
Dale Smythe Professional Degrees & Experience in School Construction	03/01/2017		02/28/2021
Robert Tucker Experience in Urban or Rural School Facilities Management	03/01/2016		02/28/2019
William Murdock Experience in Urban or Rural School Facilities Management	03/01/2017		02/28/2021
Doug Crevensten Public Representative	03/01/2016		02/28/2019
Don Hiley Public Representative	03/01/2017		02/28/2021

Members appointed by commissioner unless noted. See AS 14.11.014 and 4 AAC 31.087.

Department of Education & Early Development
Division of School Finance/Facilities

Work Topics for the BR & GR Committee

As Of: 3/30/17

BR&GR 2017 Work Items	Responsibility	Due Date
1. CIP Grant Priority Review – [(b)(1)]		
1.1. FY18 MM & SC Grant Fund Final Lists (4 AAC 31.022(a)(2)(B))	Committee	Feb 2017
1.2. FY19 MM & SC Grant Fund Initial List	Committee	Dec 2017
2. Grant & Debt Reimbursement Project Recommendations – [(b)(2)]		
2.1. Six-year Capital Plan (14.11.013(a)(1); 4 AAC 31.022(2))	Dept	Annually, Nov
3. Construction Standards for Cost-effective Construction – [(b)(3)]		
3.1. (None)		
4. Prototypical Design Analysis – [(b)(4)]		
4.1. *SB87 – Amendments to 14.11.014(b)(4)*	*Dept (w Cmte)*	*Sep 2017*
5. CIP Grant Application & Ranking – [(b)(5) & (6)]		
5.1. FY19 CIP Draft Application & Instructions	Dept	2-15-17
5.2. FY19 CIP Final Application & Instructions	Committee	2-28-17
5.3. FY19 CIP Briefing – Issues and Clarifications	Dept	Nov 2017
5.4. Facility Condition Survey Minimum Standard	Dept (w Cmte)	Dec 2017
6. CIP Approval Process Recommendations – [(b)(7)]		
6.1. Publication Updates		
6.1.1. Program Demand Cost Model for Alaskan Schools	Dept	Annually, Apr
6.1.2. Capital Project Administration Handbook – Final	Dept	Mar 2017
6.1.3. Alaska School Facilities Preventive Maintenance Handbook Initial	Dept	May 2017
Alaska School Facilities Preventive Maintenance Handbook Final	Committee	Dec 2017
6.1.4. Project Delivery Method Handbook Final	Dept	Sep 2017
6.2. New Publications		
6.2.1. *School Design & Construction Standards – Scoping Session*	*Dept*	*Apr 2017*
School Design & Construction Standards – Initial Draft	*Dept (w/Cmte)*	*Sept 2017*
School Design & Construction Standards – 2nd Draft	*Dept (w/Cmte)*	*Dec 2017*
School Design & Construction Standards – Final	*Committee*	*Jan 2018*
7. Energy Efficiency Standards – [(b)(8)]		
7.1. (None)		

Projected Meeting Dates

February 28, 2017 (Juneau), Full day
March 30, 2017 (Teleconference), Work Session
April (TBD) (Teleconference), Work Session, Standards
May (TBD) (Teleconference), Work Session, PM Handbook
September 6, 2017 (Teleconference), Half day
December 6, 2017 (Teleconference), Half day

Department of Education & Early Development
Division of Finance & Support Services/Facilities

Work Topics for the BR & GR Committee
AS 14.11.014
Updated: 3/30/17

BR&GR Work Items – Master List	Responsibility	Due Date
1. CIP Grant Priority Review – [(b)(1)]		
1.1. FYXX MM & SC Grant Fund Initial Lists (4 AAC 31.022(a)(2)(B))	Committee	Annually
1.2. FYXX MM & SC Grant Fund Reconsideration Lists	Committee	TBD
1.3. FYXX MM & SC Grant Fund Final Lists	Committee	TBD
2. Grant & Debt Reimbursement Project Recommendations – [(b)(2)]		
2.1. Six-year Capital Plan (14.11.013(a)(3); 4 AAC 31.022(2))	Dept	Annually
2.1.1. Statewide Inventory	Dept	TBD
2.1.2. Statewide Facility Appraisal	Dept	TBD
2.1.3. Statewide Condition Survey	Dept	TBD
2.1.4. Renewal & Replacement Database	Dept	TBD
2.1.5. Presentation by ASD on Facility Condition Indexing	Committee	TBD
2.2. School Capital Funding	Dept (w Cmte)	TBD
2.2.1. Review Process & Funding Streams for Rural & Urban Projects	Dept	TBD
2.3. State's Role in Design & Construction		
2.3.1. In Organized City/Boroughs	Dept	TBD
2.3.2. In REAAs	Dept	TBD
3. Construction Standards for Cost-effective Construction – [(b)(3)]		
3.1. Cost Model's Model School Analysis	Dept	2018
3.2. Cost Standards	Dept	TBD
3.2.1. Allowable Costs		
3.2.2. Cost/Benefit, Cost Effectiveness Guidelines		
3.2.3. Life Cycle Cost Guidelines		
3.3. Commissioning	Committee	TBD
3.4. Materials/Systems Analysis	Committee	TBD
3.5. Design Issues	Committee	TBD
3.5.1. Design Ratios		
3.5.2. Value Analysis		
3.6. Construction	Committee	TBD
3.6.1. Construction Duration		
3.6.2. Quality		
3.6.3. Component Use and Specifications		
4. Prototypical Design Analysis – [(b)(4)]		
4.1. SB87 – Amendments to 14.11.014(b)(4)	Committee	2017
5. CIP Grant Application & Ranking – [(b)(5) & (6)]		
5.1. FYXX CIP Draft Application & Instructions (14.11.013)	Dept	Annually
5.2. FYXX CIP Final Application & Instructions	Committee	Annually
5.3. Separate School Construction and Major Maintenance Applications	Committee	
5.4. Separate Grant and Debt Applications	Committee	2019
5.5. Appendix D Update – Type of Space Added or Improved	Committee	2018
5.5.1. New Classifications & Terminology		
5.6. Duration of a Qualifying Condition Survey	Committee	(completed)
5.7. Facility Condition Survey Minimum Standard	Dept (w Cmte)	2017
5.8. Review Issues with "Primary Purpose" Designations		

5.8.1. Playgrounds, Parking Lots, etc.		
5.9. Rural Definition For Art (see Instructions, Appx C)	Committee	TBD
5.10. Space Allocation Issues (4 AAC 31.020(c))	Committee	TBD
5.10.1. Career Tech		
5.10.2. Resource Rooms and Special Ed		
5.10.3. Space Related to Security		
5.10.4. Net vs. Gross		
5.10.5. Electrical/Mechanical Space		
5.10.6. Storage in Remote Areas		
5.10.7. "Found Space" (cost-effectiveness test)		
5.10.8. Replacement Schools Clarifications		
5.10.9. Non-school Facilities		
5.10.10. Educational Adequacy/Space Increase		
5.10.11. Community Use Space		
5.10.12. Pre-school		
5.10.13. Out-of-District Enrollment (vocational/charters, etc.)		
5.10.14. Second Attendance Area Schools		
5.10.15. Enrollment Projection Models		
5.10.16. Standard Gym Size		

6. CIP Approval Process Recommendations – [(b)(7)]

6.1. Publication Updates (4 AAC 31.020(a))		
6.1.1. Program Demand Cost Model for Alaskan Schools	Dept	Annually
6.1.2. Capital Project Administration Handbook	Dept	2017
6.1.3. Alaska School Facilities Preventive Maintenance. Handbook	Dept (w Cmte)	2017
6.1.4. Project Delivery Method Handbook	Dept	2017
6.1.5. Cost Format – *EED Standard Construction Cost Estimate*	Dept	2018
6.1.6. Space Guidelines Handbook	Dept (w Cmte)	2018
6.1.7. Life Cycle Cost Analysis Handbook	Dept (w Cmte)	2019
6.1.8. Swimming Pool Guidelines	Dept (w Cmte)	2019
6.1.9. Guide for School Facility Condition Surveys	Dept (w Cmte)	2019
6.1.10. A Handbook to Writing Educational Specifications	Dept (w Cmte)	2020
6.1.11. Site Selection Criteria and Evaluation Handbook	Dept	2020
6.1.12. Facility Appraisal Guide	Dept	TBD
6.1.13. Guidelines for School Equipment Purchases	Dept (w Cmte)	TBD
6.2. New Publications		
6.2.1. School Design & Construction Standards	*Dept (w Cmte)*	*2018*
6.2.2. Architectural and Engineering Services for School Facilities	Dept	2019
6.2.3. Outdoor Facility Guidelines for Secondary Schools	Dept	TBD
6.2.4. Renewal & Replacement Guideline	Dept	TBD
6.3. Regulations		
6.3.1. Commissioning Requirements	Dept (w Cmte)	TBD
6.3.2. CIP "Primary Purpose"	Dept (w Cmte)	TBD
6.4. Online Application	Dept	TBD
6.5. Database Review		
6.5.1. Consolidate Into Single Database	Dept	TBD
6.5.2. Coordination With Unity Project	Dept	TBD
6.5.3. ADM By Grade Level	Dept (SERRC)	TBD

7. Energy Efficiency Standards – [(b)(8)]

7.1. Reporting Requirements	Dept (w Cmte)	TBD
7.2. Energy Modeling	Dept (w Cmte)	TBD