

Bond Reimbursement and Grant Review Committee Meeting Agenda

February 28, 2022
1:00 pm – 4:30 pm

Audio Teleconference available through free online Zoom application.
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Chair: Heidi Teshner

Monday, February 28, 2022

Agenda Topics

1:00 – 1:05 PM	Committee Preparation <ul style="list-style-type: none"> • Call-in, Roll Call, Introductions; Chair’s Opening Remarks • Agenda Review/Approval • Past Meeting Minutes Review/Approval
1:05 – 1:15 PM	Public Comment (additional comments related to agenda topics may be solicited throughout the meeting)
1:15 – 2:55 PM	FY2024 CIP Application Review <ul style="list-style-type: none"> • Sec. 4 Code/Life Safety/Protection of Structure Condition Matrix • Sec. 9 PM Matrices
2:55 – 3:05 PM	BREAK
3:05 – 3:20 PM	Design Ratio Review <ul style="list-style-type: none"> • Approve for Public Comment
3:20 – 4:20 PM	Publications <ul style="list-style-type: none"> • <i>Capital Project Administration Handbook</i> • <i>Alaska School Design & Construction Standards</i> Action Item: <ul style="list-style-type: none"> • Approve for Public Comment: <ul style="list-style-type: none"> ○ <i>Capital Project Administration Handbook</i> ○ <i>Alaska School Design & Construction Standards</i>
4:20 – 4:30 PM	Committee Member Comments
4:30 PM	Adjourn

BOND REIMBURSEMENT & GRANT REVIEW COMMITTEE

Thursday, December 9, 2021

DRAFT MEETING MINUTES FOR APPROVAL

Committee Members Present

Elwin Blackwell, Chair
Rep. Dan Ortiz
Randy Williams
Dale Smythe
Jim Estes
Kevin Lyon
David Kingsland
Branzon Anania

Staff

Tim Mearig
Lori Weed
Sharol Roys
Wayne Marquis
Wayne Norlund

Additional Participants

Caroline Hamp, Staff to Rep. Ortiz
Damian Hill, Lake & Peninsula SD
Jonathan Shambare, Fairbanks Boro.
Ryan Jeffries, Lower Kuskokwim SD
Ryan Butte, Lower Kuskokwim SD
Scott Worthington, BDS Architects
Dena Strait
Janet Smith, Fairbanks Boro.

December 9, 2021

CALL TO ORDER and ROLL CALL

Chair Elwin Blackwell called the meeting to order at 1:00 p.m. Roll call was taken, and a quorum was established to conduct business. Sen. Roger Holland was excused.

CHAIR'S OPENING REMARKS

Chair Blackwell explained that Heidi Teshner had asked him to chair the meeting today as she was unable to attend. He welcomed the committee members and thanked members of the public for attending.

AGENDA REVIEW/APPROVAL

Lori Weed requested that the following action item be deleted as the draft is not yet completed:

- *Alaska School Facilities Preventive Maintenance Handbook (final draft)*

Action Item:

- Approve for Public Comment
 - *Alaska School Facilities Preventive Maintenance Handbook*

Kevin Lyon **MOVED** to approve the agenda as amended, **SECONDED** by Branzon Anania. Hearing no opposition, the motion **PASSED**.

PAST MEETING MINUTES REVIEW/APPROVAL – September 2021

Lori Weed requested that the absence of James Estes be amended to reflect the absence as excused. Randy Williams **MOVED** to approve the minutes from the September meeting as amended, **SECONDED** by David Kingsland. Hearing no opposition, the motion **PASSED**.

PUBLIC COMMENT

A public comment period was offered, and no public testimony was provided. Staff introduced themselves, and guests were also introduced.

DEPARTMENT BRIEFING

FY2023 CIP Report

Tim Mearig explained that there were 11 fewer CIP applications for FY2023, but the cost was up by \$10 million on the major maintenance list. There is a similar trend in the school construction list, which totals 13 projects.

Five requests for reconsideration were received, three from Lower Kuskokwim School District, one from Bristol Bay Borough School District, and one from Northwest Arctic Borough School District. These requests will be evaluated, a determination made, and the commissioner's office will handle the responses to the requesting entities.

Statewide Six-Year Plan

Tim was appreciative of the districts that submitted the six-year plans to the department, especially the ones that did not have an application to submit.

School Capital Project Funding Report

Tim briefly described the CIP grant requests funding history for 2013 through 2023, the REAA fund recap, and fund balance reports for school construction and major maintenance grant fund.

Preventive Maintenance Update (PM State of the State)

Tim explained that CIP eligibility is based on a district's abilities to have its maintenance program certified or provisionally certified. The department tries to visit each district on a five-year cycle, but for the last year all visits were virtual. Wayne Marquis has completed in-person visits to four Southeast school districts already this year, and eight more are scheduled.

This year, regulations required districts to evaluate whether their facilities needed to be retro commissioned. Initially there were no districts eligible for state aid for 2023 capital projects, but all except one were able to get their retro-commissioning requirement accomplished. Wayne Marquis was pleased and appreciative of the hard work of the districts to meet the new requirement.

Tim Mearig mentioned that there are only three provisionally certified districts this year, down from eight last year.

Dale Smythe asked Wayne Marquis if he had a sense for what was behind the improvements that he had seen. Wayne replied that in one small district, a professional plumber moved into the community and accomplished a lot of improvement work for the school. Wayne thought that the human aspect was the key, whether it's a maintenance director that is business savvy or a professional who has a new approach to looking at the problems.

Dale Smythe also asked if there were items that were challenging or difficult to provide, what is the process for communicating that back to Tim and the team. Wayne responded that the team is aware of the challenges because they read his reports. Tim Mearig added that the metrics are straightforward and objective and fairly easy to determine pass/fail, and there is usually no pushback. Sometimes there are questions about why a standard is there or perhaps something is not fair, and those are dealt with through a network of feedback paths.

Tim Mearig commented that he would be bringing a couple of publications to the committee at a later date, including the Cost Model annual update. He is also going to try to develop a statewide database of financial supporting information plus some forecasting information both on populations and need with respect to capital renewal.

Randy Williams asked if there were any new pieces of information or problems that were uncovered for retro-commissioning. Tim Mearig responded that the next step is to identify what use could be made of the analysis and what success stories or pressure points were found. Randy asked if they were seeing more energy consumption data being provided as a result of this effort, and Tim replied that he thought so because the requirement drove people to understand that the energy consumption information was necessary.

David Kingsland **MOVED** that the Bond Reimbursement and Grant Review Committee recommend the State Board of Education and Early Development adopt the department's FY2023 list of projects eligible for funding under the School Construction Grant Review and Major Maintenance Grant Fund, **SECONDED** by Dale Smythe. Hearing no objection, the motion **PASSED**.

BRIEFING PAPERS

FY2023 CIP Issues and Clarifications

Tim Mearig referred the committee to the CIP Application briefing paper. He explained that in 2017 there was an effort by the department to repackage the points assigned to code and protection of structure life-safety in order to raise its significance in the overall score. A number of scores went up, showing that deficiencies in this area should form a greater portion of the overall scoring.

The department has been evaluating a weighting factor to try to moderate the scores of districts with high point issues but a low cost against those with a high cost needed to solve a deficiency. The department is proposing to provide additional analysis of the weighting factor and to recommend corrections at a future meeting of the committee.

Tim pointed out that the districts are getting better at documenting deficiencies to support their needs.

Tim stated that there are minor issues in the emergency scoring criteria, and he anticipates those will be analyzed and recommendations brought to the committee at the April meeting.

A matrix was used this year to score preventive maintenance and facility management points to bring more clarity to the scoring. A drop in scores for 14 districts was noted, and the department will recommend any needed corrections to the committee at a future meeting.

The formula-driven scoring did not raise any significant issues in the 2023 CIP cycle. However, the weighted average age category might need to be revisited because the age of the building does not necessarily reflect the age of the system that needs replacement.

Insufficient/Additional Project Funding

The briefing paper set out two scenarios of how a project becomes overbudget:

- Projects with budgets that are unable to support completion of the eligible scope that was approved when the contract was awarded.
- Projects where the budgets were not able to achieve the stated project objectives in approvable 95 percent construction documents.

There are three actions that have historically been implemented to try to alleviate the overbudget problems:

- Manage available appropriated funds by moving the funds within different budget categories.
- Allocate from fund balances such as the REAA fund.
- District application for additional or supplementary funding for the incomplete scope.
 - Can be difficult to administer if the department feels that the project was not executed properly and money was wasted.
 - Can be prioritized above other newer projects if the committee introduced a new scoring element that would validate a prior year project.

Dale Smythe wondered that because legislative funding is specific and a project budget cannot be exceeded, would any overage be considered a new application or would it be the district's responsibility. He thought there were two conflicts: (1) either the department has a lot of control over the money to finish the project for the scope of work, or (2) the district gets the money but they have to figure out how to spend it. He asked if the department had a preference between those two options.

Tim Mearig replied that prior to REAA funds becoming available, the department did not make those decisions because all appropriations came from the legislature, and if a district needed more funding for a particular project, it had to go back to the legislature. The department has a process to evaluate extra funding, but it lacks clarity, and he sees this as an opportunity for the committee to weigh in on that.

Randy Williams was concerned that districts might become lax about projects if they thought there was a slush fund available. Both Tim Mearig and Kevin Lyon thought that was a legitimate point.

During a discussion of the matter, the following points were raised:

- How do the projects that need additional funds compete with new projects?
- Projects should be managed to be under budget so funds are available for the unforeseen.
- Active mismanagement of a project is rare.
- During the closeout of a project, the department looks at project decisions in detail.
- Perhaps there is still consideration given for prior funding that came through AS 14.11 grant funds.
- A regulation change from the State Board would be required to change the definition of phased projects to include special cases also.
- Budgets are usually set by the cost estimate, which is just an estimate and a function of the current market and might not be accurate at the time of project funding.

- Maybe less emphasis should be placed on the cost estimate.
- If the project is under budget, the remaining funds are returned to the state but not necessarily to fund the next project on the list.
- Managing the REAA funds has been a success because it has a better cash flow picture, the timing of the funds is known, and the amounts are larger.

Chair Blackwell and Tim Mearig agreed that this subject should be revisited in a future meeting for more discussion before pursuing a specific recommendation.

SUBCOMMITTEE REPORTS

Design Ratios

Dale Smythe noted a contract for evaluating design ratio impacts. Tim Mearig confirmed that DEED was under contract for a validating process of some ratio ranges and additional analysis.

Model Schools

Kevin Lyon reported that they had many comments to review and would start on that soon.

School Space

Dale Smythe reported that he would be able to continue this committee but not until after February when he has more time. Chair Blackwell said he thought it was on the work plan.

PUBLICATIONS

Guidelines for School Equipment Purchases (final)

Tim Mearig stated that this publication is in front of the committee for final approval. It generally updates the unit prices for equipment, makes a few adjustments to conform to the application process, and updates some examples.

Randy Williams **MOVED** to recommend the 2021 edition of the *Guidelines for School Equipment Purchases* to the State Board of Education and Early Development for adoption into regulation, **SECONDED** by Kevin Lyon. A roll call vote was taken, and the motion **PASSED** (7/0).

Alaska School Design & Construction Standards

Tim Mearig reported that this publication was approved by the committee at its September meeting, and a 30-day public comment period was opened on October 19th. Many comments were received and are briefly summarized in the packet. Some of the technical edits have been incorporated into the publication that is in the packet, but most need to be reviewed and responses drafted to each commenter.

Tim Mearig referred to the suggested motion in the packet and asked for direction from the committee on review and comment and whether the publication should come back to the committee for final review. He stated that the department has not responded to any individual comments yet. Lori Weed said there are a few out of 1100 that could be a simple thank you, and the rest need review and specific comments. Tim said this number of comments is unusual.

David Kingsland thought that the review should not be assigned to a subcommittee, but Tim responded that the Model School Subcommittee has been deep into the development of this.

Kevin Lyon stated that the January timeline would be impossible to meet, and the February date was possible but would take a lot of work by the subcommittee, and he felt that after revisions were made, the document should come back to the committee for review.

Dale Smythe said that the number of comments indicated that this document is important to the design community and those related to school construction in Alaska. He wondered what the concern was of having this document completed quickly. Tim Mearig said they were not in conformance with statute until this document is complete because in 2019 the legislature directed that there be a standard for school design.

In the discussion about the timeline, Kevin Lyon said that the February 15th target date was possible, especially since he had scheduled a subcommittee meeting on December 14th. Tim said that an additional comment period would be necessary after the revisions that would result from the current comments, and he allowed one week for those revisions to be incorporated into the document after the report from the subcommittee.

Tim Mearig said it would be ideal if this document could be ready for the start of the next CIP cycle for FY24. He announced that November 18th would be his last day with the department, and he would like to have this finished before that.

Dale Smythe **MOVED** that the Bond Reimbursement and Grant Review Committee assign the review of public comment to the Model School Subcommittee for the development of recommended responses and changes to the initial draft of the *Alaska School Design & Construction Standards* to be completed for BRGR review not later than February 15th for a February 28 meeting, second comment period through March 31, committee packet on April 5 and April 12 at the approval meeting, **SECONDED** by Kevin Lyon. Hearing no opposition, the motion **PASSED**.

BRGR WORKPLAN REVIEW & UPDATE

Tim Mearig asked for feedback regarding the topics and number of meetings. Randy Williams asked what was envisioned for design ratios review for public comments scheduled for February 28th. Lori Weed said that is probably the results of the procurement for the follow up on the design ratios. She added that the final report should be finished the first part of January, giving a subcommittee sufficient time to review it and then bring that to the BRGR committee at the February meeting.

Tim Mearig mentioned that space guideline accuracy items need to be reviewed and revised, and that is scheduled for a June meeting. Constituent entities around the state have been raising this issue, and points that need to be addressed include the following:

- Do the calculation items work the right way?
- Are the words clear and meaningful?
- Does the language for calculation of an exclusion or variance need to be adjusted?

Space guideline adequacy is scheduled for discussion at the December 2022 meeting. The edits to both the space guideline categories will end up in regulation, and that process takes about a year.

Dale Smythe commented that he would commit time from February to June for the subcommittee to work on the space guideline issues. Tim thought that both the Design Ratios Subcommittee and the Model School Subcommittee might sunset, allowing more time to concentrate on space guidelines.

SET NEXT MEETING DATE

Chair Blackwell stated that Heidi Teshner should be able to attend a February 28th BRGR meeting. There is a State Board meeting on March 1st and 2nd. There was no opposition, and the next meeting is scheduled for February 28, 2022.

Tim Mearig said that the motion passed earlier suggested that the committee would have a meeting on April 12th. Lori Weed said it would probably be a day-and-a-half meeting, so it would be the 11th and 12th. There is a work session with the State Board on the 13th, and there was concern that Chair Teshner would be attending that. Looking at the next week, April 18th and 19th was suggested, but Easter is on the 17th. Chair Blackwell suggested Tuesday and Wednesday, April 19th and 20th, for the in-person meeting in Juneau. There was no opposition to that date.

COMMITTEE MEMBER COMMENTS

- Branzon Anania acknowledged Don Hiley's contribution to this committee and the hard work and dedication he provided for years.
- Chair Blackwell said that he had worked with Don Hiley for many years through the CIP process and was shocked to hear the news of his recent passing. Don was a spokesman for the smaller districts and brought many issues to the committee that needed to be addressed. He will be sorely missed.

MEETING ADJOURNED

Branzon Anania **MOVED** to adjourn. Hearing no opposition, Chair Blackwell adjourned the meeting at 4:10 p.m.

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THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

To: Bond Reimbursement & Grant Review Committee
From: School Facilities
Date: February 28, 2022

LIFE SAFETY MATRIX DISCUSSION PAPER

The department is bringing forward discussions related to the CIP application's Section 4 Code deficiency / Protection of structure / Life safety scoring category. First, committee members had requested an opportunity to review the overall balance of scoring the various conditions in comparison to each other. Second, the department continues to search for and develop a method of weighting the scores to balance the severity of conditions as well as allowing a "single-scope" project to be more competitive with a comprehensive renovation project.

Background – Overall Point Review/Balancing

In the development of a scoring matrix for LS/Code, the purpose of which was to add clarity to an evaluative scoring element, points were assigned a wide variety of life-safety, code, and protection of structure deficiencies. Although point values were reviewed and approved as part of the initial implementation of the matrix, periodic review of these values is a healthy practice. Department staff examined the current assigned values using two perspectives, the first was point-centric and the second was system-centric. A third analysis was also performed related to the consistency of a particular scoring strategy related to the involvement of licensed design professionals in the identification of deficiencies.

Discussion – Overall Point Review/Balancing

Strategy #1 – Point-centric Analysis

This analysis used a low-to-high list of point values for the spectrum of noted conditions. We reviewed each condition that is assigned an identical score and asked, "is this supported, does it make sense for each of these conditions to be getting the same score?" We then expanded the analysis to similar or 'adjacent scoring' that was up or down one point (or the next point increment) from the current value. Here, we again asked, "Does this seem right; can I support it staying where it is, or should the points be adjusted?"

After reviewing the point assignments within and adjacent to any scoring integer, the following issues seemed worthy of discussion:

- 1) **Siding Failure, age <25 yr** – this perhaps deserves more points than Siding Finish. Currently each is two points. The caveat here would be that siding shouldn't fail below 25yrs so the question arises, "how much 'reward' should there be for this deficiency?" Consider increasing Siding Failure to at least three, and possibly four points.
- 2) **Elevator Code Deficiency** – at four points, this seems a little low for an important system. However, elevators are like a mini-buildings so can have deficiencies that are both cosmetic and functional. This may necessitate a split score which may be too complex for a system that is not

very common within schools. Also, this category has not been available in the past for an increase through support by a design professional (see Strategy #3). Consider increasing this score to five or six points or implementing a three/six split score based on the seriousness of the deficiency. If this category is made eligible for the Codes + Arch 3, then this item may remain as is.

- 3) **Sewage Lagoon Failure/Exposure** – this is currently assigned 5 points. This seems to be a more urgent condition than other deficiencies that receive the same score. Could consider increasing this element to 6 or 7 points.
- 4) **Building Egress** - currently this is assigned 10 points and can also have the Codes + Arch 3 points assigned as well. Could consider reducing the base points to 8 or 9 with the understanding it could be raised another 3 points with the support of an architect review.
- 5) **Intercom issues, WO >3/yr** - currently this receives 8 points while Intercom Failure receives 10 points. Consider reducing Intercom issues, WO >3/yr to seven points.
- 6) **HazMat (all) Mod Exposures** - currently this receives 10 points. This is only 7 points above HazMat (all) Low Exposures (3 points), but 12 points below HazMat (all) High Exposures (22 points). Could consider increasing HazMat (all) Mod Exposures to 12 points.
- 7) **Siding Material, age >25yr** - currently this receives 12 points while Siding Failure, age >30yr receives 15 points. Could consider reducing Siding Material, age >25yr to 10 points.
- 8) **Fire Alarm Non-op, >3 floors** – currently this receives 25 points. Are there schools in Alaska that have more than 3 floors? Could consider changing Fire Alarm Non-op, >3 floors to > 2 floors. Otherwise, there is no category for 3 floors (see 17 points for Fire Alarm, Non-op, <3 floors). No change in points would be needed.
- 9) **Roof Leaks, avg WO >3/yr** - currently this receives 15 points. Could consider increasing this to 16 or 17 points.

Strategy #2 – System-centric Analysis

This analysis used a grid-based review (see attachment) with deficiencies organized by system or ‘discipline’. The idea here was to examine the balance or ratio of points available under each system and compare them to the total available points. The operative question here is, “Of the total available points, does the portion assigned to a system (e.g., mechanical) seem appropriated with the importance of needs in that system when compared with the other systems?”

As another analysis, we looked at the respective percentage of a total possible score that could be assigned to each system category. Here are those results:

Arch/Interior/ADA: 48 maximum possible points

1. DEC Sanitation (2 points)
2. ADA – 4 issues (4 points)
3. Ceiling Finishes age >25yr (3 points)
4. Wall Finishes age >25yr (3 points)
5. Floor Finishes (4 points)
6. Elevator Code Deficiency (4 points)
7. Building Egress w/+3 Arch (13 points)
8. Rated Assemblies w/+3 Arch (15 points)

Electrical: 74 maximum possible points

1. Back-up Generator In-op (5 points)
2. Egress/EM lights, WO >3/yr (8 points)
3. Intercom Failure (10 points)
4. Codes: Power + PE (13 points)
5. Light Levels, <50% of Code (16 points)
6. Power Failure (25 points)

Fire Alarm/Sprinkler: 55 maximum possible points

1. Fire Alarm Non-op, >3 floors (25 points)
2. Sprinkler Non-op (30 points)

Mechanical: 79 maximum possible points

1. Pneumatic Controls (8 points)
2. Codes: Ventilation + PE (15 points)
3. Codes: Plumbing + PE (15 points)
4. Codes: Heating +PE (16 points)
5. Heating Failure (25 points)

Roof/Envelope: 85 maximum possible points

1. ASHRAE 90.1 Windows (8 points)
2. ASHRAE 90.1 Insulation (10 points)
3. Windows, age >30yrs (12 points)
4. Doors w/Egress Issues (15 points)
5. Siding Failure, age >30yr (15 points)
6. Roof Leaks affect space+WO (25 points)

Site: 89 maximum possible points

1. Vehicle Surfaces (3 points)
2. Walkways & Surfaces (4 points)
3. Drainage Issues (6 points)
4. Playground Code (12 points)
5. Power Issues (15 points)
6. Wastewater Failure (24 points)
7. Water Failure (25 points)

Structural: 79 maximum possible points

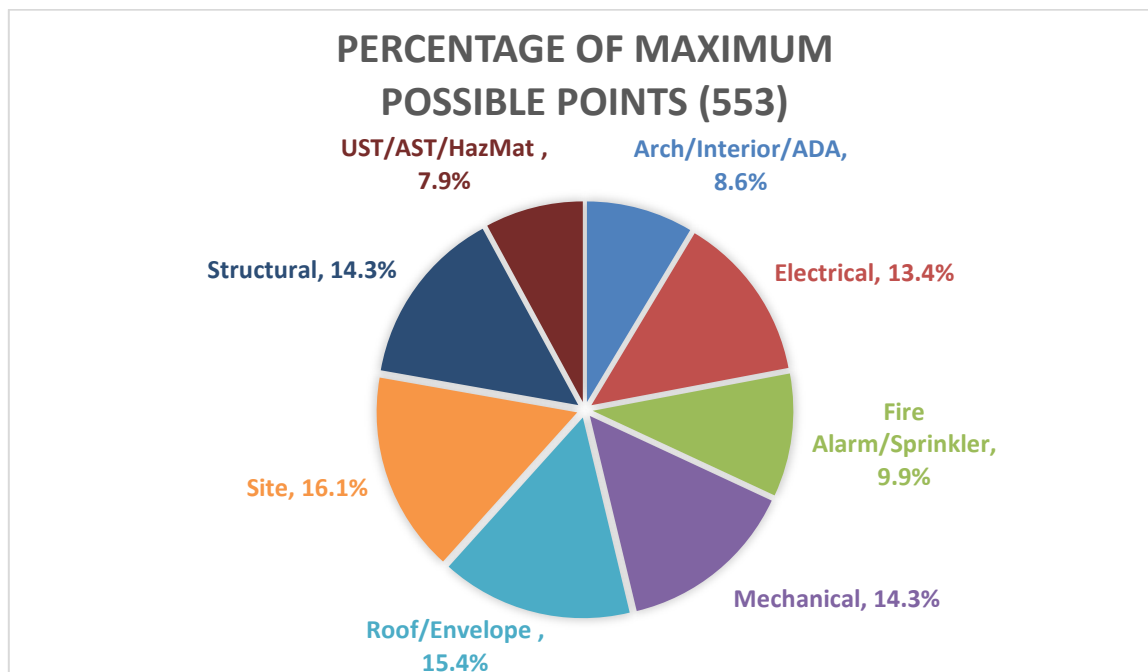
1. Foundation/Floor – PE (15 points)
2. Upper floor Structure – PE (20 points)
3. Vertical Structure – PE (20 points)
4. Roof Structure – PE (24 points)

UST/AST/HazMat: 44 maximum possible points

1. Sewage Lagoon Failure/Exposure (5 points)
2. UST/AST Leak (7 points)
3. USCG/40 CFR Cite (10 points)
4. HazMat (all) High Exposures (22 points)

All categories combined: 553 maximum points

1. Arch/Interior/ADA = 8.6%
2. Electrical = 13.4%
3. Fire Alarm/Sprinkler = 9.9%
4. Mechanical = 14.3%
5. Roof/Envelope = 15.4%
6. Site = 16.1%
7. Structural = 14.3%
8. UST/AST/HazMat = 7.9%



After reviewing this distribution, the following issues appear worthy of discussion:

- 1) Arch/Interior/ADA may be slightly underrepresented.
- 2) Site conditions seem slightly overrepresented.
- 3) Should Site be grouped with UST/AST/HazMat?

Strategy #3 – Licensed Professional Bonus Analysis

This analysis reviewed the assignment of bonus points for licensed professionals for A, M, E, and S. Instructions to raters or applicants were reviewed to determine the clarity on applying this bonus. After review, it appeared that there is a lack of clarity on assigning the 3-point increase for the involvement of a licensed design professional. We have the following issues for discussion:

- 1) Do ADA deficiencies receive a +3 points bonus if identified by an architect?
- 2) Does Elevator Code Deficiency (4 pts) imply that it is identified by an architect, or can the +3 points bonus be awarded if it is called out by an architect?
- 3) Unclear which discipline determines “Playground Code”? Is it a civil engineer or an architect?
- 4) Light Levels, <50% of code (16 points) seems to imply support from an engineer? Can the Codes + PE +3 points be added here? If it is implied then it should be spelled out as Light Levels, <50% of code – PE.
- 5) Should there be an option for Codes + PE in the Fire Alarm/Sprinkler category?
- 6) Codes + PE +3 points might be added for the Site, Roof/Envelope, Fire Alarm/Sprinkler, and UST/AST/HazMat categories. This would emphasize professional assessment of conditions.
- 7) The professions of Civil and Landscape Architect are not represented. Should these disciplines be added?

Strategy #4 – Single Condition Projects Analysis

A final analysis looks at the impact of projects with a single condition focus. After review, the following issues appear worthy of discussion:

- 1) Single L/S Code conditions for proposed projects noted in recent CIP cycles include: roof repair/replacement; generator replacement; pneumatic controls repair/upgrade; boiler replacement; playground upgrade; fire alarm system upgrade; heating system upgrade; plumbing system replacement/upgrade; flooring replacement; main water supply treatment; siding replacement; parking lot repaving; site drainage; foundation repair; lighting repair/upgrade; elevator code compliance upgrade; ADA upgrade; fire suppression system replacement; and underground fuel storage tank replacement.
- 2) Many projects address single L/S Code condition such as roof renovations. This example would carry a maximum of 25 total points (Roof Leaks affect space+WO). A multiple condition project including only Playground Code (12 points) and FA/Sprinkler, WO>5/yr (15 points) would exceed the roof project. The roof condition may be far more critical to the continued viability of the building yet would receive fewer L/S/ Code points. Clearly adding just one minor condition would impact the ranking of the single condition project. This may support an additional weighting factor.
- 3) Projects that address numerous conditions in various areas, such as comprehensive renovations, will often have an aggregate high score for minor deficiencies even with point weighting factored in.

Background – Weighted Scoring

The first two years that the matrix was introduced, a straightforward weighting method of “a ratio of construction cost for correcting scored conditions to the total requested construction cost of the project” was used for mixed-scope projects. Combined with the then-new matrix, this method did not adequately adjust scoring for certain projects and project conditions. Over the past couple of years, the department has put forward new weighting methods in an effort to seek a method that more accurately addresses scoring these outlier projects.

The FY23 weighting method is described in the Guidelines for Raters:

Combined points are weighted using a ratio of construction cost for correcting scored conditions to the total requested construction cost of the project except for any code condition where the percentage of its cost to the total project cost is less than half of the percentage of its points to the total condition points. In that case, the weighting is shifted to the percentage of condition points to total condition points; in no case will less than 1 point be assigned to a condition.

Discussion – Weighted Scoring

The FY23 weighting adjustment was to continue addressing instances on some projects with high point-value LS conditions having a low cost-to-correct with low-point value items with a high cost-to-correct. In those cases, the high-point value items can be ‘floated’ by a low-point/high dollar item in the overall weighting percentage. The number of high scores did not diminish in the FY23 cycle as anticipated.

In review of the data, it appears that the alternate method of weighting the high-point/low-cost conditions was not correcting in all instances, particularly for projects where there were fewer total conditions. In those cases, because the condition score was tied to a percentage of the total points and not to any costing, the condition score would remain unduly high for the relative cost. For example, if a project had three conditions scoring 25, 3, and 4, for a total of 32, and the 25-point condition was weighted against the alternative points weighting, the condition score would be 19.5. Also adding to the general increase in scores for renovation-type projects was the minimum 1-point score.

The department is continuing to review the data and potential weighting options for presentation to BRGR at the April meeting with the application adoption. Goals for improvement are to appropriately net the high-point/low-cost conditions, develop a fair weighting strategy for the high-point/low-point conditions, and any desired method of either increasing single-scope projects or restraining complex/renovation projects. Moving forward, the department is asking the committee to weigh in:

1. Should there be consideration to increasing the weighting of ‘single scope’ projects relative to more complex/renovation projects?
 - a. If so, should it be handled through balancing condition points– increasing point values most often assigned to single-scope projects (strategy 4 above).
 - b. Or, should it be included in the weighting formula? (Options under review include providing a general overall modifier or increasing the highest cost condition score)
2. Should there be an effort to restrain overall weighting of complex/renovation project scoring to make it more difficult to achieve a 50-point score?
3. Should there be a minimum point threshold?

Recommendations

The department is not proposing any specific recommendations and is soliciting BRGR member discussion, feedback, and direction.

CIP Application
Sec. 4 Life Safety / Code Compliance / Protection of Structure
Condition Issues

Pts	Condition Issue	Category
1	ADA - 1 issue	Arch/Interior/ADA
2	ADA - 2 issues	Arch/Interior/ADA
2	DEC Sanitation	Arch/Interior/ADA
2	Narrative, Lighting age >25yr	Electrical
2	Narrative, Fire Alarm age >15yr	Fire Alarm/Sprinkler
2	Narrative, Sprinkler >30yr	Fire Alarm/Sprinkler
2	Siding Failure, age <25yr	Roof/Envelope
2	Siding Finish	Roof/Envelope
2	Narrative, UST age >30yr	UST/AST/HazMat
3	ADA - 3 issues	Arch/Interior/ADA
3	Ceiling Finishes age >25yr	Arch/Interior/ADA
3	Codes + Arch (each system)	Arch/Interior/ADA
3	Wall Finishes age >25yr	Arch/Interior/ADA
3	Codes + PE (each system)	Electrical
3	Codes + PE (each system)	Mechanical
3	DDC Deficiency	Mechanical
3	Doors, age >20yr	Roof/Envelope
3	Roof, age >Warranty +5yr 3	Roof/Envelope
3	Vehicle Surfaces	Site
3	Seismic - no restrictions	Structural
3	HazMat (all) Low Exposures	UST/AST/HazMat
4	ADA - 4 issues	Arch/Interior/ADA
4	Elevator Code Deficiency	Arch/Interior/ADA
4	Floor Finishes >15yr	Arch/Interior/ADA
4	Lighting, WO <3/yr2	Electrical
4	Narrative, Electrical age >30yr	Electrical
4	Power, WO <3/yr2	Electrical
4	Narrative, System age >30yr	Mechanical
4	Walkways and Surfaces	Site
4	Foundation/Floor - no PE	Structural
5	Back-up Generator In-operable	Electrical
5	Egress/EM lights, WO <3/yr2	Electrical
5	Heads Failing, age >30yr	Fire Alarm/Sprinkler
5	Sprinkler Coverage Gaps	Fire Alarm/Sprinkler
5	Ventilation, WO <3/yr2	Mechanical
5	Narrative, AST age >40yr	UST/AST/HazMat
5	Sewage Lagoon Failure/ Exposure	UST/AST/HazMat
6	Non-addressable FA	Fire Alarm/Sprinkler
6	Plumbing, WO <3/yr2	Mechanical
6	Roof, age Warranty +10yr 3	Roof/Envelope
6	Drainage Issues	Site
6	Seismic - minimal restrictions	Structural
7	Lighting, WO >3/yr2	Electrical
7	Power, WO >3/yr2	Electrical
7	Heating, WO <3/yr2	Mechanical
7	UST/AST Leak	UST/AST/HazMat
8	Egress/EM lights, WO >3/yr2	Electrical
8	Intercom Issues, WO >3/yr2	Electrical
8	FA/Sprinkler, WO >1/yr2	Fire Alarm/Sprinkler
8	Pneumatic Controls	Mechanical
8	ASHRAE 90.1 Windows 4	Roof/Envelope
8	Roof Leaks - avg WO<3/yr 2	Roof/Envelope
9	Ventilation, WO >3/yr2	Mechanical
9	Upper Floor Structure - no PE	Structural
9	Vertical Structure - no PE	Structural
10	Building Egress	Arch/Interior/ADA

Pts	Condition Issue	Category
10	Codes, Lighting (no PE)	Electrical
10	Codes, Power (no PE)	Electrical
10	Intercom Failure	Electrical
10	Heads Failing, age >40yr	Fire Alarm/Sprinkler
10	Plumbing, WO >3/yr2	Mechanical
10	ASHRAE 90.1 Insulation	Roof/Envelope
10	Roof Structure - no PE	Structural
10	HazMat (all) Mod Exposures	UST/AST/HazMat
10	USCG/40 CFR Cite	UST/AST/HazMat
11	Heating, WO >3/yr	Mechanical
12	Rated Assemblies	Arch/Interior/ADA
12	Codes: Plumbing (no PE)	Mechanical
12	Codes: Ventilation (no PE)	Mechanical
12	Siding Material, age >25yr	Roof/Envelope
12	Windows, age >30yrs	Roof/Envelope
12	Playground Code	Site
13	Codes, Lighting (PE)	Electrical
13	Codes, Power (PE)	Electrical
13	Boilers, 1 of 2 Non-op	Mechanical
13	Codes: Heating (no PE)	Mechanical
15	Electrical, age >40yr	Electrical
15	FA/Sprinkler, WO >3/yr	Fire Alarm/Sprinkler
15	Codes: Plumbing (PE)	Mechanical
15	Codes: Ventilation (PE)	Mechanical
15	HVAC age >40yr	Mechanical
15	Doors w/ Egress issues	Roof/Envelope
15	Roof Leaks, avg WO >3/yr	Roof/Envelope
15	Siding Failure, age <30yr	Roof/Envelope
15	Power Issues	Site
15	Wastewater Issues	Site
15	Foundation/Floor - PE	Structural
15	Seismic - moderate restriction	Structural
15	Seismic/Gravity Full Closure (not qualified for space)	Structural
15	Seismic/Gravity Partial Closure (not qualified for space)	Structural
16	Light Levels, <50% of code	Electrical
16	Codes: Heating (PE)	Mechanical
16	Water Issues	Site
17	Fire Alarm Non-op, <3 floors	Fire Alarm/Sprinkler
18	Boilers, 2 of 3 Non-op	Mechanical
20	FA/Sprinkler, WO >5/yr	Fire Alarm/Sprinkler
20	Upper Floor Structure - PE	Structural
20	Vertical Structure - PE	Structural
21	Electrical Systems, WO >5/yr	Electrical
21	Mechanical Systems, WO >5/yr	Mechanical
22	HazMat (all) High Exposures	UST/AST/HazMat
24	Wastewater Failure	Site
24	Roof Structure - PE	Structural
25	Power Failure	Electrical
25	Fire Alarm Non-op, >3 floors	Fire Alarm/Sprinkler
25	Heating Failure	Mechanical
25	Roof Leaks affect space, w/ WO documentation	Roof/Envelope
25	Water Failure	Site
28	Seismic/Gravity Partial Closure (qualifies for space)	Structural
30	Sprinkler Non-op	Fire Alarm/Sprinkler
50	Seismic/Gravity Full Closure (qualifies for space)	Structural

CIP Application
Sec. 4 Life Safety / Code Compliance / Protection of Structure
Condition Issues

Pts	Arch/Interior/ADA	Electrical	Fire Alarm/Sprinkler	Mechanical	Roof/Envelope	Site	Structural	UST/AST/HazMat
1	ADA - 1 issue							
2	ADA - 2 issues	Narrative, Lighting age >25yr	Narrative, Fire Alarm age >15yr		Siding Failure, age <25yr			Narrative, UST age >30yr
2	DEC Sanitation		Narrative, Sprinkler >30yr		Siding Finish			
3	ADA - 3 issues	Codes + PE (each system)		Codes + PE (each system)	Doors, age >20yr	Vehicle Surfaces	Seismic - no restrictions	HazMat (all) Low Exposures
3	Ceiling Finishes age >25yr			DDC Deficiency	Roof, age >Warranty +5yr 3			
3	Codes + Arch (each system)							
3	Wall Finishes age >25yr							
4	ADA - 4 issues	Lighting, WO <3/yr2		Narrative, System age >30yr		Walkways and Surfaces	Foundation/Floor - no PE	
4	Elevator Code Deficiency	Narrative, Electrical age >30yr						
4	Floor Finishes >15yr	Power, WO <3/yr2						
5		Back-up Generator In-operable	Heads Failing, age >30yr	Ventilation, WO <3/yr2				Narrative, AST age >40yr
5		Egress/EM lights, WO <3/yr2	Sprinkler Coverage Gaps					Sewage Lagoon Failure/ Exposure
6			Non-addressable FA	Plumbing, WO <3/yr2	Roof, age Warranty +10yr 3	Drainage Issues	Seismic - minimal restrictions	
7		Lighting, WO >3/yr2		Heating, WO <3/yr2				UST/AST Leak
7		Power, WO >3/yr2						
8		Egress/EM lights, WO >3/yr2	FA/Sprinkler, WO >1/yr2	Pneumatic Controls	ASHRAE 90.1 Windows			
8		Intercom Issues, WO >3/yr2			Roof Leaks - avg WO<3/yr			
9				Ventilation, WO >3/yr2			Upper Floor Structure - no PE	
9							Vertical Structure - no PE	
10	Building Egress	Codes, Lighting (no PE)	Heads Failing, age >40yr	Plumbing, WO >3/yr2	ASHRAE 90.1 Insulation 4		Roof Structure - no PE	HazMat (all) Mod Exposures
10		Codes, Power (no PE)						USCG/40 CFR Cite
10		Intercom Failure						
11				Heating, WO >3/yr2				
12	Rated Assemblies			Codes: Plumbing (no PE)	Siding Material, age >25yr	Playground Code		
12				Codes: Ventilation (no PE)	Windows, age >30yrs			
13		Codes, Lighting (PE)		Boilers, 1 of 2 Non-op				
13		Codes, Power (PE)		Codes: Heating (no PE)				
15		Electrical, age >40yr	FA/Sprinkler, WO >3/yr2	HVAC age >40yr	Doors w/ Egress issues	Power Issues	Foundation/Floor - PE	
15				Codes: Plumbing (PE)	Siding Failure, age <30yr	Wastewater Issues	Seismic - moderate restriction	
15				Codes: Ventilation (PE)			Seismic/Gravity Partial Closure (not qualified for space)	
15					Roof Leaks, avg WO >3/yr		Seismic/Gravity Full Closure (not qualified for space)	
16		Light Levels, <50% of code		Codes: Heating (PE)		Water Issues		
17			Fire Alarm Non-op, <3 floors					
18				Boilers, 2 of 3 Non-op				
20			FA/Sprinkler, WO >5/yr2				Upper Floor Structure - PE	
20							Vertical Structure - PE	
21		Electrical Systems, WO >5/yr2		Mechanical Systems, WO >5/yr2				
22								HazMat (all) High Exposures
24						Wastewater Failure	Roof Structure - PE	
25		Power Failure	Fire Alarm Non-op, >3 floors	Heating Failure	Roof Leaks affect space, w/ WO documentation	Water Failure		
28							Seismic/Gravity Partial Closure (qualifies for space)	
30			Sprinkler Non-op					
50							Seismic/Gravity Full Closure (qualifies for space)	

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THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

To: Bond Reimbursement & Grant Review Committee
From: School Facilities
Date: February 28, 2022

Maintenance Narratives DISCUSSION PAPER

Background

In March, 2020, the department proposed development and implementation of a matrix for scoring Section 9's 'maintenance narratives' submitted with district CIP applications. Of the eight evaluative scoring criteria, Effective Preventive Maintenance Program is the only criteria which had no rubric in the *Guidelines for Raters*.

The Committee did not support a change for the FY22 cycle but instead requested assistance from the department in gathering additional comment from stakeholders and in providing further analysis. In February 2021, the Committee received the results of a public engagement effort along with a more developed proposal on the scoring matrix for each of the five narratives. In April 2021, after additional review and refinement, the Committee adopted a detailed scoring rubric for Effective Preventive Maintenance Program for use in the FY23 CIP application.

Discussion

At the time of implementation, the scoring rubric for the five-point scale in each area was envisioned as a points-neutral change to the scoring. The primary purpose of the rubric was to increase clarity in how the department measures the effectiveness of a district's PM&FM program for CIP. For the FY23 CIP cycle, preventive maintenance program reports and narratives were evaluated for 19 districts. To test this neutrality, the department compiled the last 5 years of PM scores for the 16 districts that were scored in FY23 and had at least 3 years of non-reuse PM narrative scores (see Attachment A). As briefed to the Committee in December 2021, 14 districts received at least 2.33 less points in their total PM narrative scores (total category has 25 points maximum). The department's assessment was that this significant and widespread drop was not acceptable.

In evaluating the probable causes for the measurable decrease, the department tried to focus its review using some statistical analysis. In addition to the initial December analysis, the focus of which was district-by-district, we looked for some trending against means and averages in the aggregated scores for each of the five areas. The idea was to determine which scoring categories needed attention and which did not. Those results (Attachment B) did not indicate any isolated high-disparity categories (only Energy Management had a slight trending of larger disparity) but instead showed that all five categories contributed to the point reductions. The remainder of this paper will discuss each category and highlight the scoring pressure points in each from a mostly anecdotal perspective.

Maintenance Management

Regulation Baseline:

- (1) *a formal maintenance management program that records maintenance activities on a work order basis, and tracks the timing and cost, including labor and materials, of maintenance activities in sufficient detail to produce reports of planned and completed work;*

Comment: Of the five categories, this sets out one of the more robust minimum criteria for compliance, particularly the phrases “including labor and materials”, and “produce reports of planned (work)”.

Current Matrix:

Maintenance Management Scoring Criteria	Point Range
<p>Narrative fully describes the maintenance management (MM) program and all of the following: maintenance structure and staffing, the work order program and process including work order classification, scheduling, tracking, and completion or deferral; how work orders are initiated and by whom; how component work order history and trends are used, how work orders are scheduled, or deferred.</p> <p>Provides sample work order types showing PM, routine maintenance, and corrective work; includes cost of labor and materials.</p> <p>Provides sample component-based work orders (with component ID) that include component-specific checklist of preventive and routine maintenance.</p> <p>Provides sample routine or corrective work orders showing progression of scheduling from initial response to completion to deferral.</p> <p>Provides sample PM work orders showing progression from PM to routine or corrective work.</p> <p>Provides a component report for a minimum of 10% of main school facilities showing the date of installation and date of scheduled renewal or replacement; includes components from each building system listed in DEED’s R&R schedule.</p>	5 points
<p>Narrative describes the MM program and all of the following: maintenance structure and staffing, the work order program and process including work order classification, scheduling, tracking, and completion or deferral; how work orders are initiated and by whom; how work orders are scheduled or deferred. Sample work order types showing PM, routine maintenance, and corrective work; includes cost of labor and materials. Sample component-based work orders (with component ID) that include component-specific checklist of preventive and routine maintenance.</p>	4 points
<p>Narrative describes the MM program and all of the following: the work order program and process including work order classification, tracking and completion; how work orders are initiated and by whom. Sample work order types showing PM, routine maintenance, and corrective work; includes cost of labor and materials.</p>	3 points
<p>Minimal narrative that partially describes the MM program but not all of the following: the work order program and process including work order classification; how work orders are initiated and by whom. Sample work order types showing some of PM, routine maintenance and corrective work; includes cost of labor and materials on corrective work samples.</p>	2 points
<p>Minimal narrative that partially describes the MM program but not all of the following: the work order program and process including work order classification; how work orders are initiated and by whom. No sample work orders.</p>	1 point
<p>No narrative or an abbreviated narrative that provides no information of how the maintenance management program works. No sample work orders.</p>	0 points

Pressure Points (identified in bold in the matrix):

1. Narrative will not score above a '1' if samples of corrective work order do not show costs of both labor and materials. This was a challenge in narrative support materials.
2. Narrative will not score above a '1' if samples of three types of work orders are not provided—PM, routine, and corrective. This was a lesser challenge but applied both to applicant submittals and rater scoring—these categories might not be sufficiently universal and defined.
3. Narrative will not score above a '2' unless three elements of the maintenance management program are discussed: a) work order classification, b) tracking and completion, c) how work orders are initiated and by whom. No one of these was more prevalent in being missed though sometimes a bare, partial-sentence had to be invoked for items b) and c).
4. Narrative will not score above a '3' unless districts can produce sample work orders with component IDs and component-specific checklist of work items. Some clear differentiation started to take place with this requirement.
5. Narrative will not score above a '3' unless there is as description of work order scheduling and tracking through completion or deferral. This concept was often missing; maybe through lack of clarity (or importance).
6. Narrative will not score above a '4' without three additional samples: a) a component report for 10% of main schools, b) samples of work orders progressing from PM to routine or corrective, and c) samples of work orders progressing of tracking from initiation to completion. Few, if any attempted these. The 'progression' requirements may be improbable for a tracking system to auto-produce.

Energy Management

Regulation Baseline:

- 2) *an energy management plan that includes:*
 - a) *the recording of energy consumption for all utilities on a monthly basis for each building; for facilities constructed before December 15, 2004, a district may record energy consumption for utilities on a monthly basis when multiple buildings are served by one utility plant; and*
 - b) *regular evaluation of the effectiveness of and need for commissioning existing buildings;*

Comment: This category has been our focus in the field (during site visits) and has been the greatest stumbling block to certification. Like Capital Planning, the department has provided a robust tool for district use in compliance, but it still takes that regular, monthly effort to measure.

Current Matrix:

Energy Management Scoring Criteria	Point Range
<p>Narrative fully describes the Energy Management program including all of the following: energy policy, program structure including roles, and responsibilities, occupant comfort and safety standards, energy consumption monitoring, benchmarking, energy audits and assessments, and implementation/execution of energy efficiency measures (EEMs).</p> <p>Provides data showing that the program tracks energy usage by facility and calculates an energy use intensity (EUI) for each main school facility over the prior five years—by energy type. Further shows how this is used to prioritize energy efficiency projects.</p> <p>Provides an energy management guideline or manual issued/updated within the past five years covering the items above which is made available to district staff in electronic or print medium.</p> <p>Provides a report showing a five-year history of implemented EEMs. The report shows how much energy was saved or usage was avoided and provides records demonstrating the savings.</p> <p>Provides a complete set of energy consumption records (Application Q.9f).</p>	5 points
<p>Narrative describes the Energy Management program including all of the following: energy policy, program structure including roles, and responsibilities, occupant comfort and safety standards, energy consumption monitoring, energy audits and assessments, and implementation/execution of energy efficiency measures (EEMs).</p> <p>Provides data showing that the program tracks energy usage by facility and calculates an energy use intensity (EUI) for each main school facility requiring an RCx analysis over the prior five years—by energy type.</p> <p>Provides an energy management guideline or manual, issued/updated within the past five years, covering the items above which is made available to district staff in electronic or print medium.</p> <p>Provides a report showing a sample of implemented EEMs. Application includes the complete set of energy records was provided for Q.9f.</p>	4 points
<p>Narrative describes the Energy Management program including all of the following: energy policy, program structure including roles, and responsibilities, occupant comfort and safety standards, energy consumption monitoring. Shows that the program tracks energy usage by facility and calculates an energy use intensity (EUI) for each main school facility requiring an RCx analysis over the prior five years—by energy type. Provides an energy management guideline or manual, issued/updated within the past five years, covering the items above.</p> <p>Provides a complete set of energy consumption records (Application Q.9f).</p>	3 points
<p>Narrative has useful description of the Energy Management program including some of the following: energy policy, program structure including roles, and responsibilities, occupant comfort and safety standards, energy consumption monitoring. Shows that the program tracks energy usage by facility and calculates an energy use intensity (EUI) for each facility requiring an RCx analysis over the prior five years—by energy type.</p> <p>A complete set of energy records is not provided (Application Q.9f).</p>	2 points
<p>Narrative has some useful description of the Energy Management program but is not complete; a complete set of energy records is not provided (Q.9f).</p> <p>OR</p> <p>No narrative, but complete set of energy records was provided (Q9.f).</p>	1 point

Energy Management Scoring Criteria	Point Range
No narrative or an abbreviated narrative with no useful description of the Energy Management program. No energy records are provided (Q.9f).	0 points

Pressure Points:

1. Narrative will not score above a ‘1’ unless four elements of the energy management program are discussed: a) energy policy, b) program structure w/roles & responsibilities, c) occupant comfort & safety standards, and d) energy consumption monitoring. The first two of these were often conspicuously absent, the third hit-and-miss. (Note: EUI would be a hurdle but with the DEED tool, it’s relatively automatic upon compliance.)
2. Narrative will not score above a ‘2’ unless an energy management handbook is submitted which shows an update within 5 years. Most districts have a handbook but many were either undated or ‘outdated’. Interestingly, the regulations make no hint of this level of documentation.
3. Narrative will not score above a ‘3’ unless energy audits/assessments and EEMs are described as part of provided this information.
4. Narrative will not score above a ‘4’ unless benchmarking is described as part of the program. Scatter reference might have been present on this topic.
5. Narrative will not score above a ‘4’ unless empirical data on EEM savings/avoidance and demonstration of using EUIs in prioritizing projects is provided. This is a very challenging demand.

Custodial

Regulation Baseline:

(3) a custodial program that includes a schedule of custodial activities for each building based on type of work and scope of effort;

Comment: Several key words sprinkled in this regulation definition end up describing a moderately high-functioning baseline: schedule, each, type, and scope.

Current Matrix:

Custodial Scoring Criteria	Point Range
<p>Narrative fully describes the Custodial program including all of the following: custodial policy and purpose, program structure including staffing, roles, and responsibilities, integration with district maintenance processes, worker and occupant safety, adopted custodial standards, performance verification/quality control, and implementation/execution of program enhancement and efficiency measures.</p> <p>Provides custodial program guideline or manual issued/updated within the past five years covering the items above, which is made available to responsible district staff in electronic or print medium.</p> <p>Includes information or supplements that are specific to each main school facility and list types and quantities of surfaces and fixtures to be cleaned, and frequency of care for each based on industry practice. Lists staffing requirements for the facility based on these metrics and industry standards for productivity.</p> <p>Provides a report which tabulates the preceding information (types and quantities of information, etc.) for all main schools in the district, including staffing requirements.</p> <p>OR</p> <p>Provides no less than two facility examples each year of submission with no repeats within a five-year period. If the district operates fewer than 10 schools, provided one-third of all facilities each year.</p> <p>Provide at least 10 work orders generated by the custodial program in the previous 12 months.</p> <p>Provides complete sets of quality control and inspection checklists and reports, with photographs, for no less than two facilities for the previous fiscal year period.</p> <p>Provides a report showing a sample of implemented program enhancements and efficiency measures in the previous five years.</p>	5 points
<p>Narrative describes the Custodial program including all of the following: custodial policy and purpose, program structure including staffing, roles, and responsibilities, integration with district maintenance processes, worker and occupant safety, adopted custodial standards, performance verification/quality control.</p> <p>Provides custodial program guideline or manual issued/updated within the past five years covering the items above.</p> <p>Includes information or supplements that are specific to each main school facility and list types and quantities of surfaces and fixtures to be cleaned, and frequency of care for each based on industry practice.</p> <p>Provides no less than two facility examples of the facility-specific information.</p> <p>Provide at least 5 work orders generated by the custodial program in the previous 12 months.</p> <p>Provides samples of quality control and inspection checklists.</p>	4 points
<p>Narrative describes the Custodial program including all of the following: custodial policy and purpose, program structure including staffing, roles, and responsibilities, worker and occupant safety, adopted custodial standards, and performance verification/quality control.</p> <p>Provides custodial program guideline or manual which includes information or supplements on how the guide is adapted to specific schools.</p>	3 points

Custodial Scoring Criteria	Point Range
Narrative has some useful description of the Custodial program but is not complete. Provides a written custodial program guideline or manual that is general in nature and not site specific.	2 points
Narrative has some useful description of the Custodial program but is not complete. OR Provided a written custodial program guideline or manual that is general in nature and not site specific.	1 point
No narrative or an abbreviated narrative with no useful description of the Custodial program. No written custodial program guideline or manual.	0 points

Pressure Points:

1. Narrative will not score above a ‘1’ unless both a narrative and a custodial manual are submitted. The regulation requirements do infer the need for documentation, however, a comprehensive document is not required.
2. Narrative will not score above a ‘2’ unless the submitted guide is school-specific. This can be a challenge to both preparers and scorers—‘what does that mean?’
3. Narrative will not score above a ‘2’ unless five elements of the custodial program are discussed: a) custodial policy & purpose, b) program structure w/staffing, roles & responsibilities, c) worker and occupant safety, d) custodial standards, and e) performance verification/QC. Three of these (a, c, and e) were mostly absent from narratives, the fourth hit-and-miss.
4. Narrative will not score above a ‘3’ unless: a) samples of QC checklists, b) five sample work orders generated by the custodial program, c) two main school samples of quantity & frequency based data, and d) a manual updated within 5-yrs are provided. These are significant demands for a ‘3’.
5. Narrative will also not score above a ‘3’ unless integration with the district’s maintenance program is described.
6. Districts will not score above a ‘4’ unless: a) a report showing 5-yr improvements and enhancements, b) QC checklists—with photos—for two facilities, c) ten sample work orders generated by the custodial program, and d) a tabular report of surface quantities for all schools **or** for 1/3 of schools—with discussions on staffing are provided. It’s exhausting just to write this.

Maintenance Training

Regulation Baseline:

- (4) *a maintenance training program that specifies training for custodial and maintenance staff and records training received by each person;*

Comment: Again, key words are important in this minimum criteria: “*specifies*” implies planning, “*each person*” implies individualized training. Interestingly, this category had the fewest incidents of substantive point reduction—most drops were one point or less and five of 16 district scores increased.

Current Matrix:

Maintenance Training Scoring Criteria	Point Range
<p>Narrative fully describes the Training program including all of the following: training policy, program structure including roles and responsibilities, identification of training needs for custodians and maintenance personnel, training methods and types, training scheduling and tracking, and measurement of program effectiveness.</p> <p>Identifies training needs based on staff positions, job functions, and building systems supported, identifies training methods and types, and assigns training on an individual basis.</p> <p>Provides two sample position descriptions each from custodial and maintenance fields that identify knowledge, skills and abilities.</p> <p>Provides a list of job functions (e.g., driving, work order management, etc.) and required building system knowledge (e.g., boiler tuning, lock-out/tag-out, etc.) for each job classification.</p> <p>Provides a training plan, by individual, for training scheduled in the current school year, by training title and method or type.</p> <p>Provides a log of completed training (up to 5yrs), by individual.</p> <p>Provides an assessment of the effectiveness of the training program which, at a minimum includes data on scheduled versus completed training.</p>	5 points
<p>Narrative fully describes the Training program including all of the following: training policy, program structure including roles and responsibilities, identification of training needs for custodians and maintenance personnel, training methods and types, training scheduling and tracking, and measurement of program effectiveness.</p> <p>Identifies training needs based on staff positions, job functions, and building systems supported, identifies training methods and types, and assigns training on an individual basis.</p> <p>Provides a training plan, by individual, for training scheduled in the current school year, by training title and method or type.</p> <p>Provides a log of completed training (up to 5yrs), by individual.</p>	4 points
<p>Narrative describes the Training program including all of the following: training policy, identification of training needs for custodians and maintenance personnel, training methods and types, and training scheduling and tracking.</p> <p>Provides a training plan, by individual, for training scheduled in the current school year, by training title and method or type.</p> <p>Provides a log of completed training but not by individual.</p>	3 points
<p>Narrative has some useful description of the Training program but is not complete.</p> <p>Provides training logs that show minimal maintenance or custodial training, primarily HR/OSHA training.</p>	2 points
<p>Narrative has some useful description of the Training program but is not complete.</p> <p>OR</p> <p>Training logs with no actual maintenance or custodial training. Only HR/OSHA training.</p> <p>*Training Logs with only HR/OSHA training can never exceed 1 point.</p>	1 point
<p>No narrative or an abbreviated narrative with no useful description of the Training program. No training logs</p>	0 points

Pressure Points:

1. Narrative will not score above a '1' if training logs are not provided or if those provided show minimal maintenance and custodial training—non-qualifying training being labeled as HR/OSHA. Some programs only provided limited type.
2. Narrative will not score above a '2' unless individual training plans are provided that show the title and type planned training.
3. Narrative will not score above a '2' unless four elements of the custodial program are discussed: a) training policy, b) training needs for maint/cust personnel, c) training methods and types, and d) training scheduling and tracking. Two of these (a and b) were mostly absent from narratives, the other two were hit-and-miss.
4. Narrative will not score above a '3' unless training schedules and training logs—by individual—are provided with needs based on positions, job functions, and building systems. Generally, no district did this.
5. Narrative will also not score above a '3' unless they describe the measurement of program effectiveness.
6. Narrative will not score above a '4' unless: a) a report on effectiveness showing scheduled and completed training, b) job classifications for each position showing job skills and building systems, c) two sample position descriptions each from custodial and maintenance positions. No district produced these.

Capital PlanningRegulation Baseline:

- (5) a renewal and replacement schedule that, for each school facility of permanent construction over 1,000 gross square feet, identifies the construction cost of major building systems including electrical, mechanical, structural, and other components; evaluates and establishes the life-expectancy of those systems; compares the life-expectancy to the age and condition of the systems; and uses the data to forecast a renewal and replacement year and cost for each system.*

Comment: The minimum criteria is very specific here, and though written to a general process, is very much oriented toward a specific department tool. The matrix broadens significantly from the minimum.

Current Matrix:

Capital Planning Scoring Criteria	Point Range
<p>Narrative fully describes the Capital Planning program including all of the following: capital planning policy and procedure including structure, responsibilities and staffing, capital needs forecasting based on system renewal and program/population changes, forecast verification based on condition assessments, user input and maintenance work order history/trends, development of CIP projects and 6-yr plans, identification of capital project resources and funding, and measurement of program effectiveness.</p> <p>Provides capital planning report issued/updated within the past 12 months and 6-yr CIP plan with at least one project in every year of the plan and includes capital projects programmed from all fund sources, local, state, and federal.</p> <p>Provides a Facility Condition Index (FCI) for every main school based on a facility condition assessment not older than five years where FCI has the following formula.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> $\text{FCI} = \frac{\text{Cost of Current and Deferred Renewal}}{\text{Current Replacement Value}}$ </div> <p>Provides a student population projection for a minimum of five years beyond the current fiscal year for every attendance area in the district.</p> <p>Provides a condition assessment for every project requesting state-aid in the first year of the 6-yr CIP plan.</p> <p>Provides an assessment of the effectiveness of the capital planning program which, at a minimum includes a districtwide trend for combined FCI for a minimum of five prior years and tracks districtwide capital expenditures for main schools for a minimum of five prior years.</p>	<p>5 points</p>
<p>Narrative describes the Capital Planning program including all of the following: capital planning policy and procedure including structure, responsibilities and staffing, capital needs forecasting based on system renewal and program/population changes, forecast verification based on condition assessments, development of CIP projects and 6-yr plans, identification of capital project resources and funding.</p> <p>Provides capital planning report issued/updated within the past 12 months and 6-yr CIP plan with at least one project in every year of the plan and includes capital projects programmed from all fund sources, local, state, and federal.</p> <p>Provides a Facility Condition Index (FCI) for every main school based on a current DEED Renewal & Replacement Schedule, where FCI has the following formula.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> $\text{FCI} = \frac{\text{Cost of Current and Deferred Renewal}}{\text{Current Replacement Value}}$ </div> <p>Provides a student population projection for a minimum of five years beyond the current fiscal year for every attendance area in the district.</p> <p>Provides a condition assessment for every project requesting state-aid in the first year of the 6-yr CIP plan.</p>	<p>4 points</p>
<p>Narrative describes the Capital Planning program including all of the following: capital planning policy and procedure including structure, responsibilities and staffing, capital needs forecasting based on system renewal, forecast verification based on condition assessments, development of CIP projects and 6-yr plans, identification of capital project resources and funding.</p> <p>Provides capital planning report issued/updated within the past 12 months and 6-yr CIP plan with at least one project in every year of the plan.</p>	<p>3 points</p>

Capital Planning Scoring Criteria	Point Range
Narrative has some useful description of the Capital Planning program but is not complete. Provides R&R documents for all facilities in which state-aid for CIP is listed in the 6-yr plan.	2 points
Narrative has some useful description of the Capital Planning program but is not complete; R&R documents not provided for all required facilities. OR No narrative, but provides R&R documents for all required facilities.	1 point
No narrative or abbreviated narrative with no useful description of the Capital Planning program. Lacks R&R documents for all required facilities.	0 points

Pressure Points:

[There are none below a score of ‘2’.]

1. Narrative will not score above a ‘2’ unless a separate capital planning report is provided that is an annual document. There was little clarity just what a ‘capital planning report’ consist of.
2. Narrative will not score above a ‘2’ unless there is a CIP project identified in every year of the 6-yr CIP plan. This limited several districts.
3. Narrative will not score above a ‘2’ unless six elements of the capital planning program are discussed: a) planning policy & procedure, b) structure, responsibilities & staffing, c) renewal-based capital forecasting, d) forecast verification based on condition assessments, e) development of CIP projects and 6-yr plans, and f) identification of capital project resources and funding. Three of these (a, d, and f) were mostly absent from narratives, the other three were normally handled.
4. Narrative will not score above a ‘3’ unless it describes population projection processes. This is often not a Facilities role in small districts.
5. Narrative will not score above a ‘3’ unless: a) a condition assessment is every project in the first year of the CIP plan, b) a 5yr population project for every attendance area, c) an FCI is provided for every main school, and d) the 6-yr CIP includes projects from every type of fund source. With the exception of ‘c’, these all presented challenges for most districts.
6. Narrative will not score above a ‘4’ unless an analysis of program effectiveness is provided with FCI trends and five-year capital expenditure reports by facility.

Summary

This listing of pressure points and anecdotal evaluations of district response is intended to help in characterizing both the broad feel of the scoring matrix and the detailed specifics that limit scoring. No specific adjustments were proposed in this analysis. To begin an effort in that direction, thoughts on possible changes from a rater involved in the FY23 evaluative scoring follow:

1. Few sample WOs submitted for Maintenance Management support included both material and labor costs. This limited many otherwise robust packages to a rating of 1. Perhaps this standard should be raised to the level of 2 or 3.
2. Almost none of the Energy Management support included an explanation of how energy tracking data is used to prioritize energy efficiency projects. Perhaps this should be lowered to 4 instead of 5. Implemented EEMs report should remain as the standard for a rating of 5.
3. The Custodial Narrative will only infrequently get a rating of 2 as it is shown. I recommend lowering the “custodial policy and purpose” element to 2 along with “program structure including staffing, roles, and responsibilities”. These seem more elemental to the topic.
4. Custodial support document requirements also seem to make it difficult to rate a 2 or 3 based on the criteria as shown. I recommend lowering the second item above “OR” to 3 and making the “five work orders from custodial” requirement in item 2 below “OR” level 3 as well.

5. The Training Narrative has no concrete distinction between 1 and 2, and none between 4 and 5. Perhaps this was intentional. Even the support documents were difficult for me to distinguish between 1 and 2. I apologize, but I do not have any suggestions for how to revamp this.

Options

Option 1

Recognize and accept that the new matrix will influence scoring (e.g., could lower scores) but work to make adjustments to ensure that there are fair targets established that are attainable—something like ‘every district should be able to score a three with reasonable effort’.

Option 2

Focus more on narratives and keep that at a high level of functionality. Remove or greatly reduce the requirement for supporting documents.

Option 3

Keep the matrix as-is for the next rating period and see if the same trend occurs or whether districts will ‘rise to the occasion’.

Recommendation

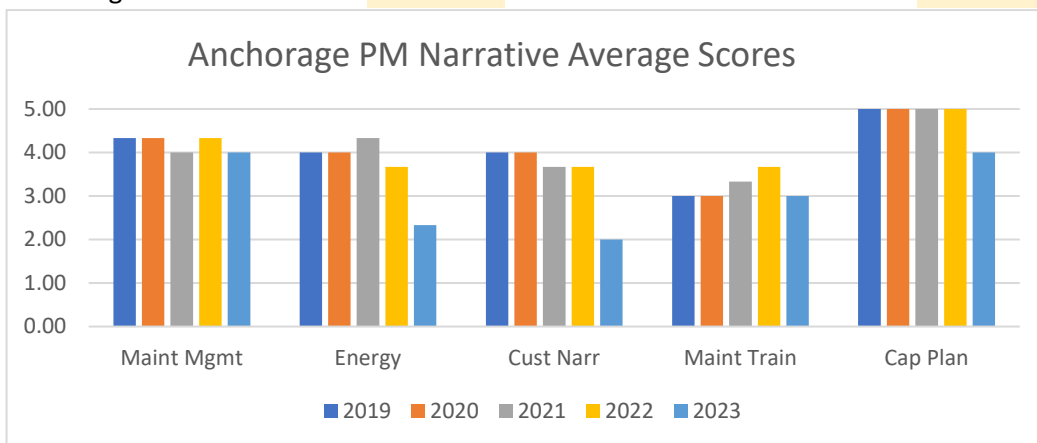
(none from department staff)

Motion: “I move that the department revise the PM Narratives scoring matrix by [enter proposed actions/strategies] in order to [enter target or goal].”

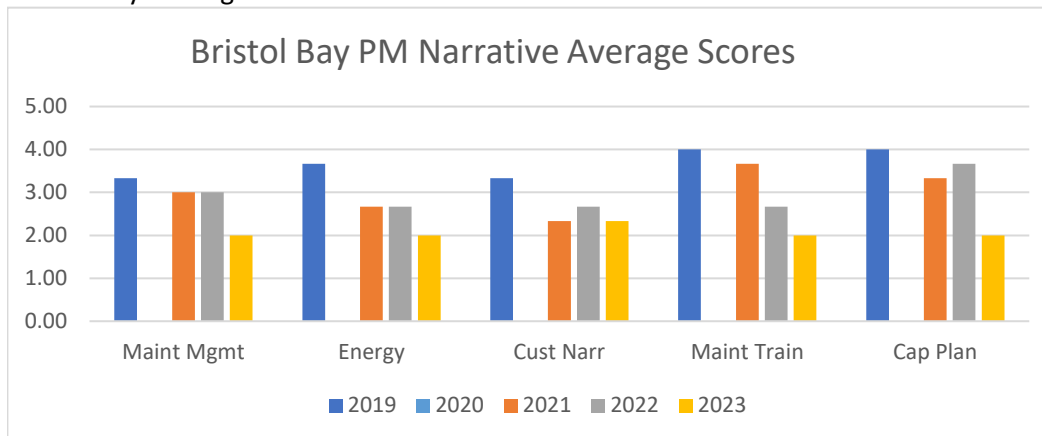
Preventive Maintenance Narrative Historical Average Scores for Selected Districts

Average scores of at least 4.33 had at least one 5 pt score. Average scores of at least 3.33 had at least one 4 pt score.

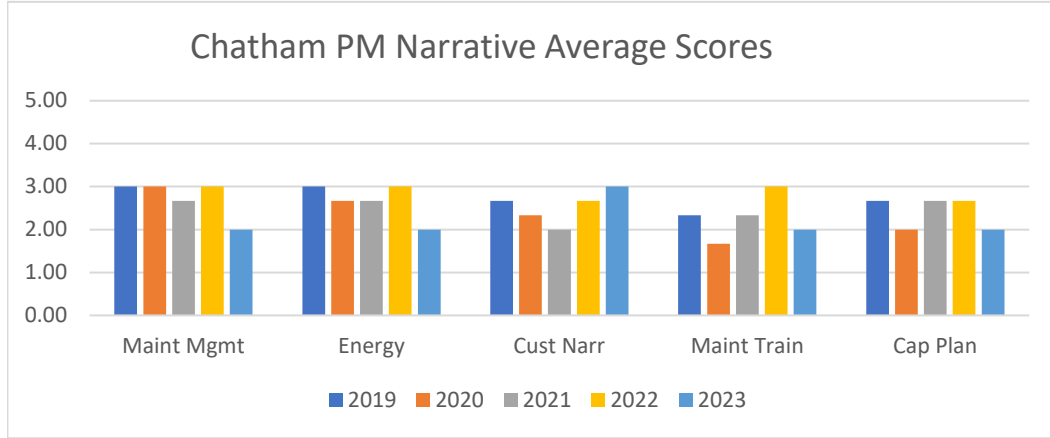
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Anchorage	2019	4.33	4.00	4.00	3.00	5.00	20.33
Anchorage	2020	4.33	4.00	4.00	3.00	5.00	20.33
Anchorage	2021	4.00	4.33	3.67	3.33	5.00	20.33
Anchorage	2022	4.33	3.67	3.67	3.67	5.00	20.33
Anchorage	2023	4.00	2.33	2.00	3.00	4.00	15.33



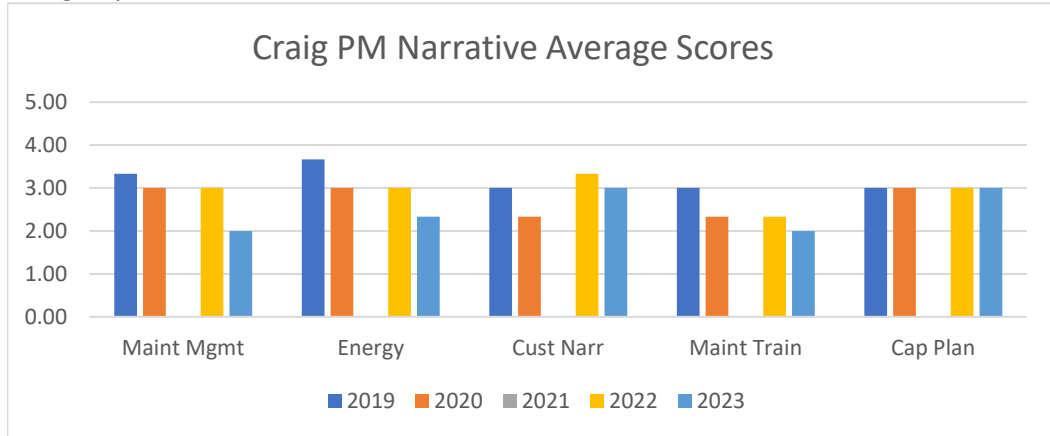
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Bristol Bay Borough	2019	3.33	3.67	3.33	4.00	4.00	18.33
Bristol Bay Borough	2020						0.00
Bristol Bay Borough	2021	3.00	2.67	2.33	3.67	3.33	15.00
Bristol Bay Borough	2022	3.00	2.67	2.67	2.67	3.67	14.67
Bristol Bay Borough	2023	2.00	2.00	2.33	2.00	2.00	10.33



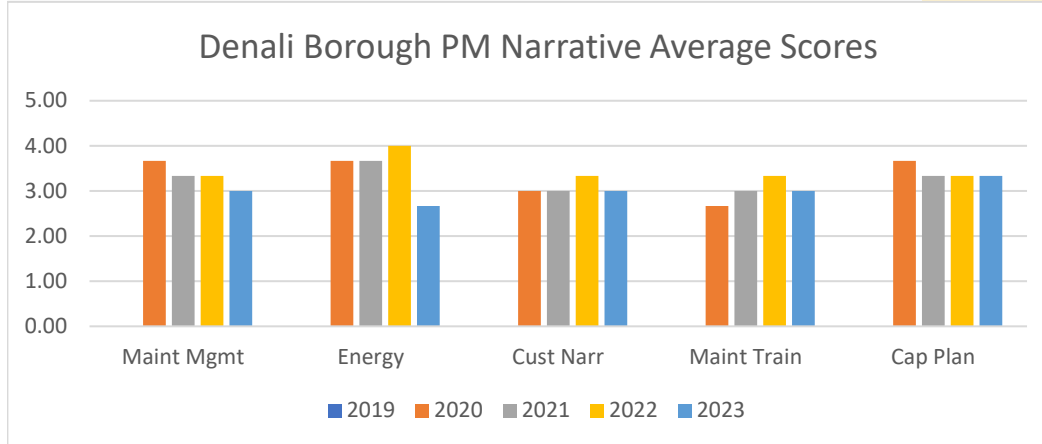
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Chatham	2019	3.00	3.00	2.67	2.33	2.67	13.67
Chatham	2020	3.00	2.67	2.33	1.67	2.00	11.67
Chatham	2021	2.67	2.67	2.00	2.33	2.67	12.33
Chatham	2022	3.00	3.00	2.67	3.00	2.67	14.33
Chatham	2023	2.00	2.00	3.00	2.00	2.00	11.00



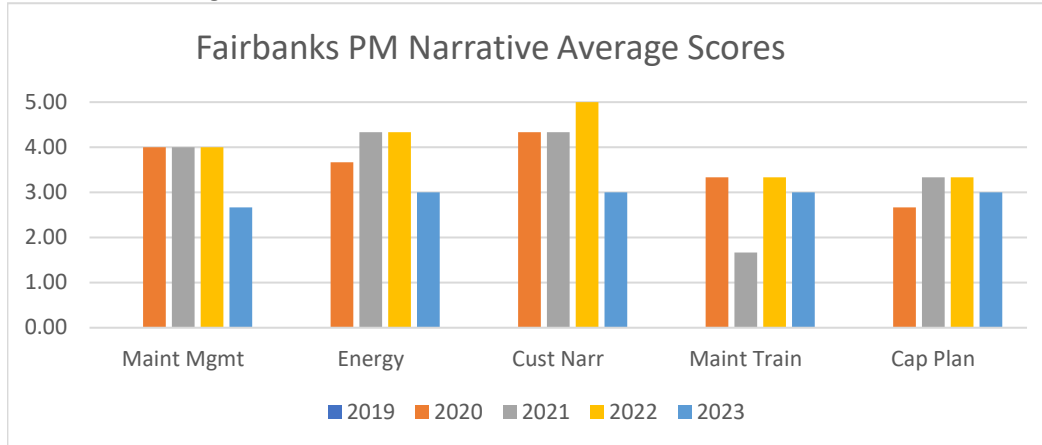
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Craig City	2019	3.33	3.67	3.00	3.00	3.00	16.00
Craig City	2020	3.00	3.00	2.33	2.33	3.00	13.67
Craig City	2021						0.00
Craig City	2022	3.00	3.00	3.33	2.33	3.00	14.67
Craig City	2023	2.00	2.33	3.00	2.00	3.00	12.33



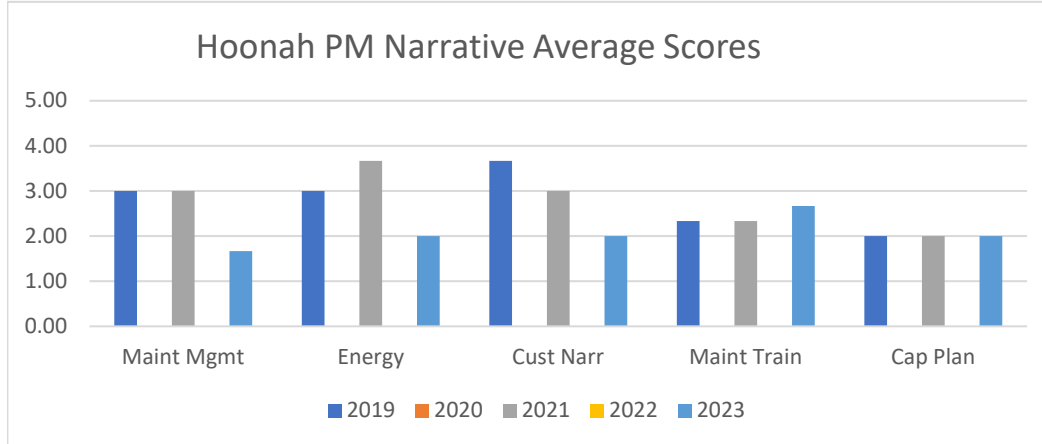
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Denali Borough	2019						0.00
Denali Borough	2020	3.67	3.67	3.00	2.67	3.67	16.67
Denali Borough	2021	3.33	3.67	3.00	3.00	3.33	16.33
Denali Borough	2022	3.33	4.00	3.33	3.33	3.33	17.33
Denali Borough	2023	3.00	2.67	3.00	3.00	3.33	15.00



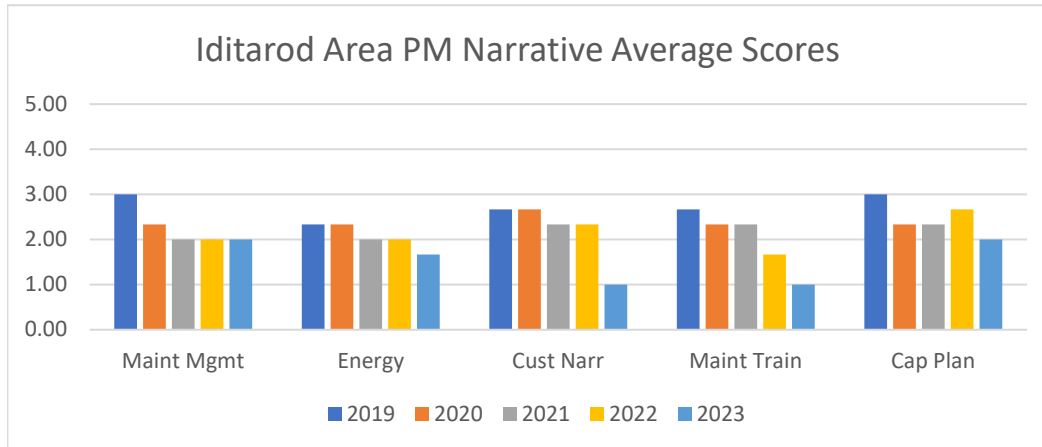
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Fairbanks Borough	2019						0.00
Fairbanks Borough	2020	4.00	3.67	4.33	3.33	2.67	18.00
Fairbanks Borough	2021	4.00	4.33	4.33	1.67	3.33	17.67
Fairbanks Borough	2022	4.00	4.33	5.00	3.33	3.33	20.00
Fairbanks Borough	2023	2.67	3.00	3.00	3.00	3.00	14.67



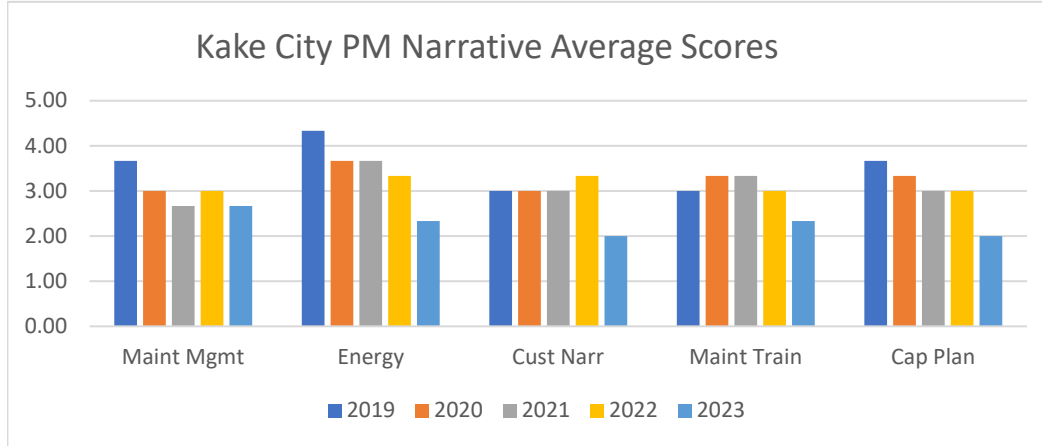
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Hoonah City	2019	3.00	3.00	3.67	2.33	2.00	14.00
Hoonah City	2020						0.00
Hoonah City	2021	3.00	3.67	3.00	2.33	2.00	14.00
Hoonah City	2022						0.00
Hoonah City	2023	1.67	2.00	2.00	2.67	2.00	10.33



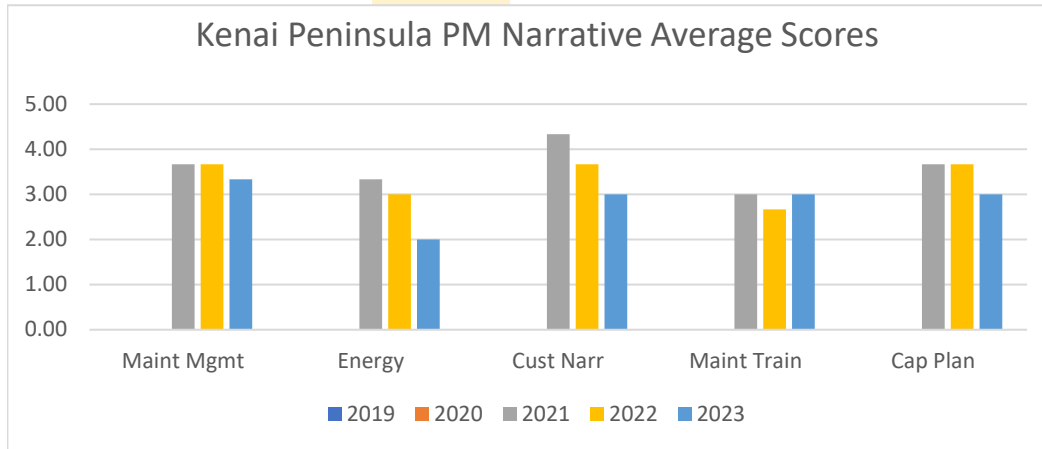
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Iditarod Area	2019	3.00	2.33	2.67	2.67	3.00	13.67
Iditarod Area	2020	2.33	2.33	2.67	2.33	2.33	12.00
Iditarod Area	2021	2.00	2.00	2.33	2.33	2.33	11.00
Iditarod Area	2022	2.00	2.00	2.33	1.67	2.67	10.67
Iditarod Area	2023	2.00	1.67	1.00	1.00	2.00	7.67



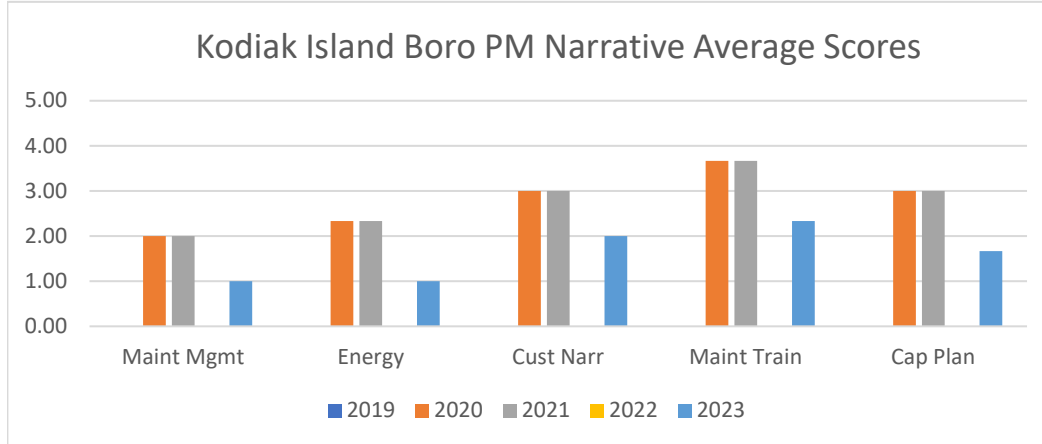
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Kake City	2019	3.67	4.33	3.00	3.00	3.67	17.67
Kake City	2020	3.00	3.67	3.00	3.33	3.33	16.33
Kake City	2021	2.67	3.67	3.00	3.33	3.00	15.67
Kake City	2022	3.00	3.33	3.33	3.00	3.00	15.67
Kake City	2023	2.67	2.33	2.00	2.33	2.00	11.33



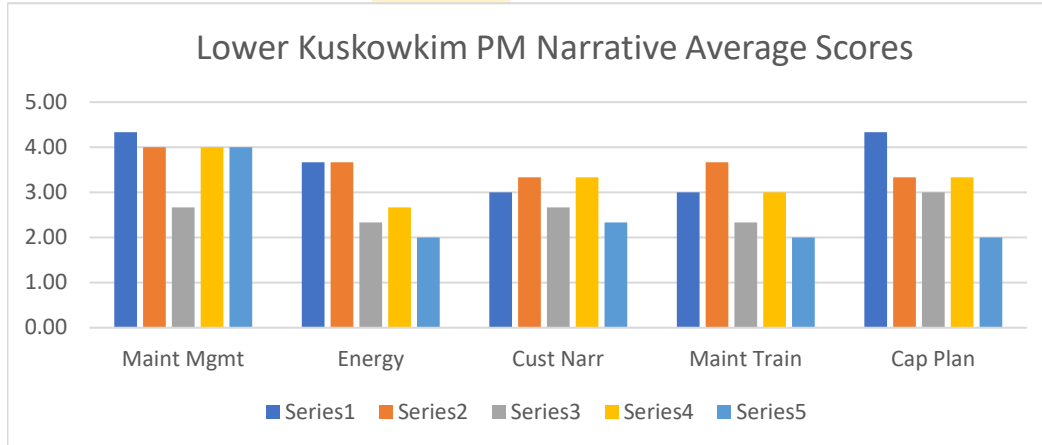
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Kenai Peninsula Bor	2019						0.00
Kenai Peninsula Bor	2020						0.00
Kenai Peninsula Bor	2021	3.67	3.33	4.33	3.00	3.67	18.00
Kenai Peninsula Bor	2022	3.67	3.00	3.67	2.67	3.67	16.67
Kenai Peninsula Bor	2023	3.33	2.00	3.00	3.00	3.00	14.33



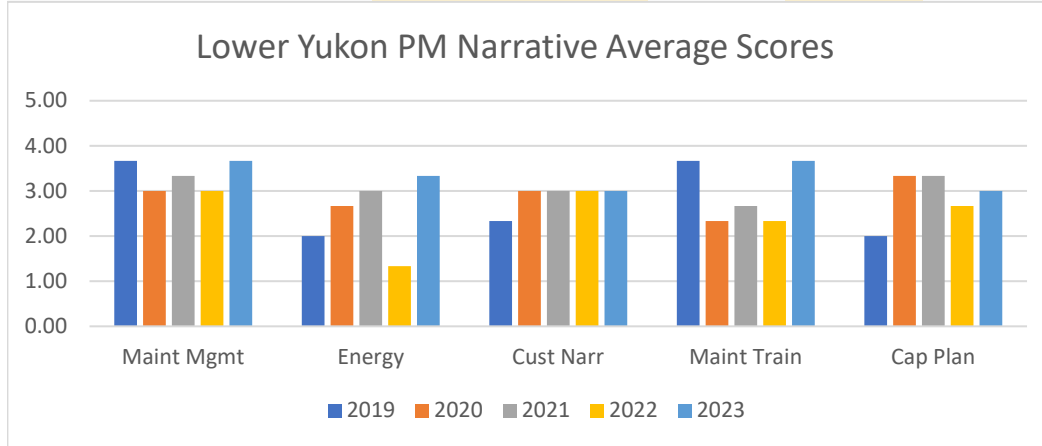
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Kodiak Island Boro	2019						0.00
Kodiak Island Boro	2020	2.00	2.33	3.00	3.67	3.00	14.00
Kodiak Island Boro	2021	2.00	2.33	3.00	3.67	3.00	14.00
Kodiak Island Boro	2022						0.00
Kodiak Island Boro	2023	1.00	1.00	2.00	2.33	1.67	8.00



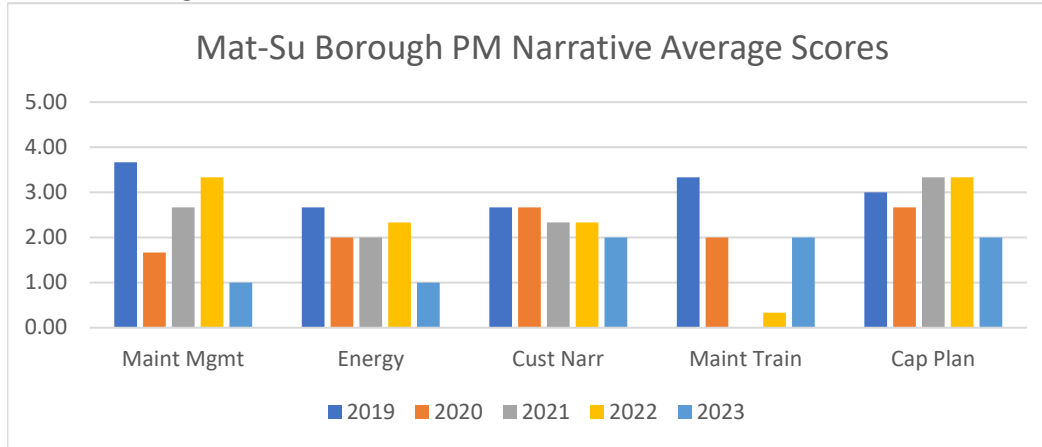
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Lower Kuskokwim	2019	4.33	3.67	3.00	3.00	4.33	18.33
Lower Kuskokwim	2020	4.00	3.67	3.33	3.67	3.33	18.00
Lower Kuskokwim	2021	2.67	2.33	2.67	2.33	3.00	13.00
Lower Kuskokwim	2022	4.00	2.67	3.33	3.00	3.33	16.33
Lower Kuskokwim	2023	4.00	2.00	2.33	2.00	2.00	12.33



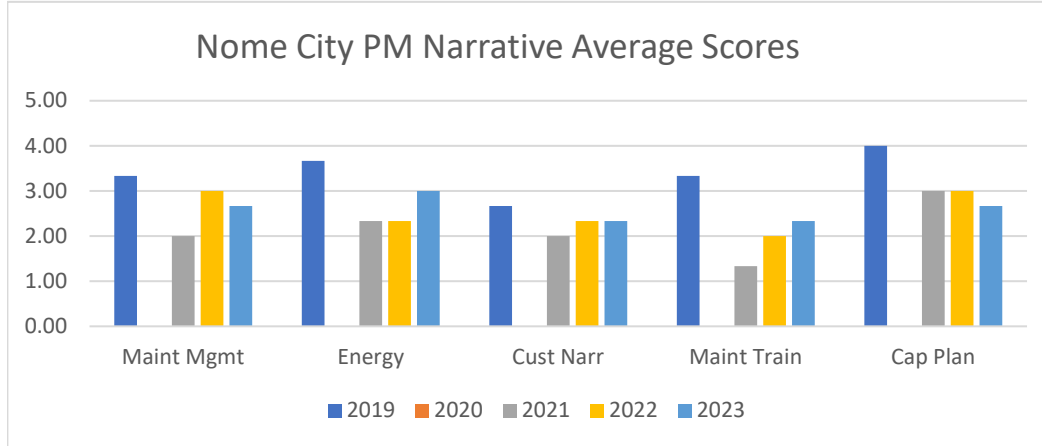
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Lower Yukon	2023	3.67	2.00	2.33	3.67	2.00	13.67
Lower Yukon	2019	3.00	2.67	3.00	2.33	3.33	14.33
Lower Yukon	2020	3.33	3.00	3.00	2.67	3.33	15.33
Lower Yukon	2021	3.00	1.33	3.00	2.33	2.67	12.33
Lower Yukon	2022	3.67	3.33	3.00	3.67	3.00	16.67



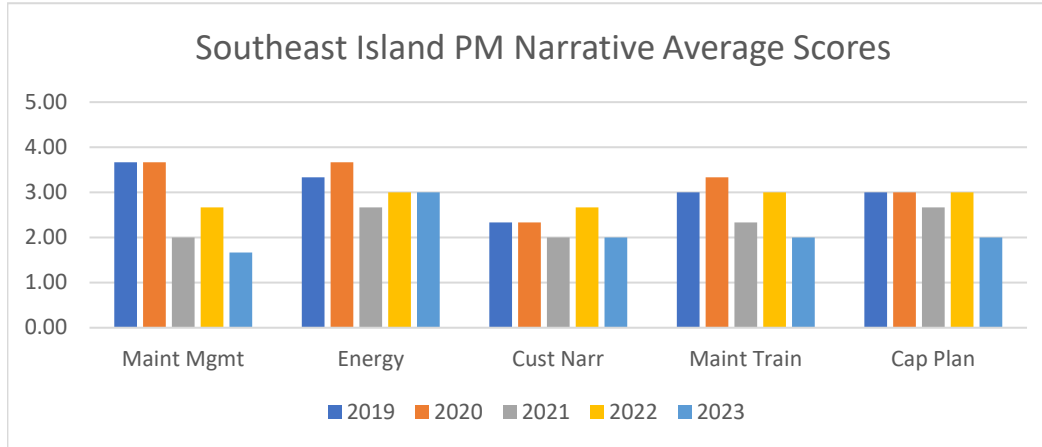
District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Mat-Su Borough	2019	3.67	2.67	2.67	3.33	3.00	15.33
Mat-Su Borough	2020	1.67	2.00	2.67	2.00	2.67	11.00
Mat-Su Borough	2021	2.67	2.00	2.33	0.00	3.33	10.33
Mat-Su Borough	2022	3.33	2.33	2.33	0.33	3.33	11.67
Mat-Su Borough	2023	1.00	1.00	2.00	2.00	2.00	8.00



District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Nome City	2019	3.33	3.67	2.67	3.33	4.00	17.00
Nome City	2020						0.00
Nome City	2021	2.00	2.33	2.00	1.33	3.00	10.67
Nome City	2022	3.00	2.33	2.33	2.00	3.00	12.67
Nome City	2023	2.67	3.00	2.33	2.33	2.67	13.00



District	CIP FY	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan	Total PM Score
Southeast Island	2019	3.67	3.33	2.33	3.00	3.00	15.33
Southeast Island	2020	3.67	3.67	2.33	3.33	3.00	16.00
Southeast Island	2021	2.00	2.67	2.00	2.33	2.67	11.67
Southeast Island	2022	2.67	3.00	2.67	3.00	3.00	14.33
Southeast Island	2023	1.67	3.00	2.00	2.00	2.00	10.67



Preventive Maintenance Narrative Historical Scores – Change Comparison

Change from Median PM Scores FY19-22 to FY23

Change Rank	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan
1	0.50	1.00	0.50	1.17	-
2	-	0.67	-	0.83	-
3	(0.17)	(0.17)	-	0.33	-
4	(0.33)	(0.50)	-	0.33	-
5	(0.33)	(0.67)	-	0.17	(0.33)
6	(0.33)	(0.67)	(0.33)	-	(0.33)
7	(0.33)	(0.83)	(0.33)	(0.17)	(0.50)
8	(0.33)	(1.00)	(0.50)	(0.33)	(0.67)
9	(1.00)	(1.17)	(0.83)	(0.33)	(0.67)
10	(1.00)	(1.17)	(1.00)	(0.33)	(1.00)
11	(1.00)	(1.17)	(1.00)	(0.83)	(1.00)
12	(1.00)	(1.33)	(1.00)	(1.00)	(1.17)
13	(1.33)	(1.33)	(1.33)	(1.00)	(1.17)
14	(1.33)	(1.33)	(1.33)	(1.33)	(1.33)
15	(1.50)	(1.33)	(1.50)	(1.33)	(1.33)
16	(2.00)	(1.67)	(1.83)	(1.67)	(1.67)
Quartile 1	(1.08)	(1.33)	(1.08)	(1.00)	(1.17)
Avg Change	(0.72)	(0.79)	(0.66)	(0.34)	(0.70)
Median Change	(0.67)	(1.08)	(0.67)	(0.33)	(0.67)
Quartile 3	(0.33)	(0.63)	-	0.21	(0.25)

Actual Change from Most Recent Prior PM Score to FY23

Change Rank	Maint Mgmt	Energy	Cust Narr	Maint Train	Cap Plan
1	0.33	0.67	0.33	1.67	-
2	0.33	-	-	0.67	-
3	-	-	-	0.33	-
4	-	-	(0.33)	0.33	(0.33)
5	-	(0.33)	(0.33)	0.33	(0.33)
6	(0.33)	(0.67)	(0.33)	-	(0.67)
7	(0.33)	(0.67)	(0.33)	(0.33)	(0.67)
8	(0.33)	(0.67)	(0.67)	(0.33)	(0.67)
9	(0.33)	(1.00)	(0.67)	(0.33)	(0.67)
10	(0.33)	(1.00)	(0.67)	(0.33)	(0.67)
11	(0.67)	(1.00)	(0.67)	(0.67)	(0.67)
12	(1.00)	(1.00)	(1.00)	(0.67)	(1.00)
13	(1.00)	(1.33)	(1.00)	(0.67)	(1.00)
14	(1.00)	(1.33)	(1.33)	(0.67)	(1.00)
15	(1.00)	(1.33)	(1.33)	(0.67)	(1.00)
16	(1.33)	(1.33)	(1.33)	(1.00)	(1.33)
17	(1.33)	(1.33)	(1.33)	(1.00)	(1.33)
18	(2.00)	(1.67)	(1.67)	(1.00)	(1.67)
19	(2.33)	(1.67)	(2.00)	(1.00)	(2.00)
Quartile 1	(1.00)	(1.33)	(1.33)	(0.67)	(1.00)
Avg Change	(0.72)	(0.91)	(0.83)	(0.39)	(0.83)
Median Change	(0.50)	(1.00)	(0.67)	(0.50)	(0.67)
Quartile 3	(0.33)	(0.67)	(0.33)	(0.08)	(0.67)

Three additional districts scored in FY23 that did not have 3 years of data.

Design Ratio Review

The "Design Ratio Review" packet item will be issued as supplemental material prior to the meeting.

Capital Project Administration Handbook

P U B L I C A T I O N C O V E R

February 28, 2022

Issue

The department has initiated an update of the *Capital Project Administration Handbook*.

Background*Last Updated/Current Edition*

Publication was last updated in 2017. Current edition available on the [department's website](http://education.alaska.gov/facilities/publications/CapitalProjectAdminstrationHandbook.pdf) (education.alaska.gov/facilities/publications/CapitalProjectAdminstrationHandbook.pdf).

Summary of Proposed Changes

The department started the update of this publication with a validation assessment. Based on the survey results (see Validation Survey Results following), the publication remains valid for DEED school capital processes and is expected to continue to be useful for an additional five years. Comments were general in nature and supported a straightforward update of the prior publication.

The department has prepared this initial update to the publication based on changes to the template project agreement, the adopted 2019 regulations, and the department's experience in grant administration. Key revisions/additions to the publication address the following:

- Restructuring of the document to provide required submittal discussion grouped by project phases; additional development of information on the department's project agreement.
- Identification and discussion of submittals added in support of regulation changes: ASHRAE 90.1 compliance checklist, commissioning agent services agreement, and commissioning report.
- Identification and discussion of submittals added to template Project Agreement's Submittal Requirements Appendix that had previously only been identified in the Grant Payment Schedule Appendix. Includes: soils investigation report, condition survey, archeological clearance, construction schedule, and value analysis.
- Updated language to reflect regulation changes.
- Additional detail and information requested DEED-approval for in-house/force account work.

Version Summary & BRGR Review

February 28, 2022: The initial draft update is presented for committee review. Anticipate a period of public comment to follow. A final publication is anticipated in April.

BRGR Input and Discussion Items

Below are questions and comments developed by DEED during the revisions of this draft. Outlined below for consideration by the BRGR Committee:

- Is the restructuring helpful in understanding project progression and requirements?
- Is there additional information (project administration, DEED process) that seem lacking?

Options

Proceed with a final draft to release for public comment.

Revise and proceed with a final draft to release for public comment.

Request additional vetting with districts on initial draft.

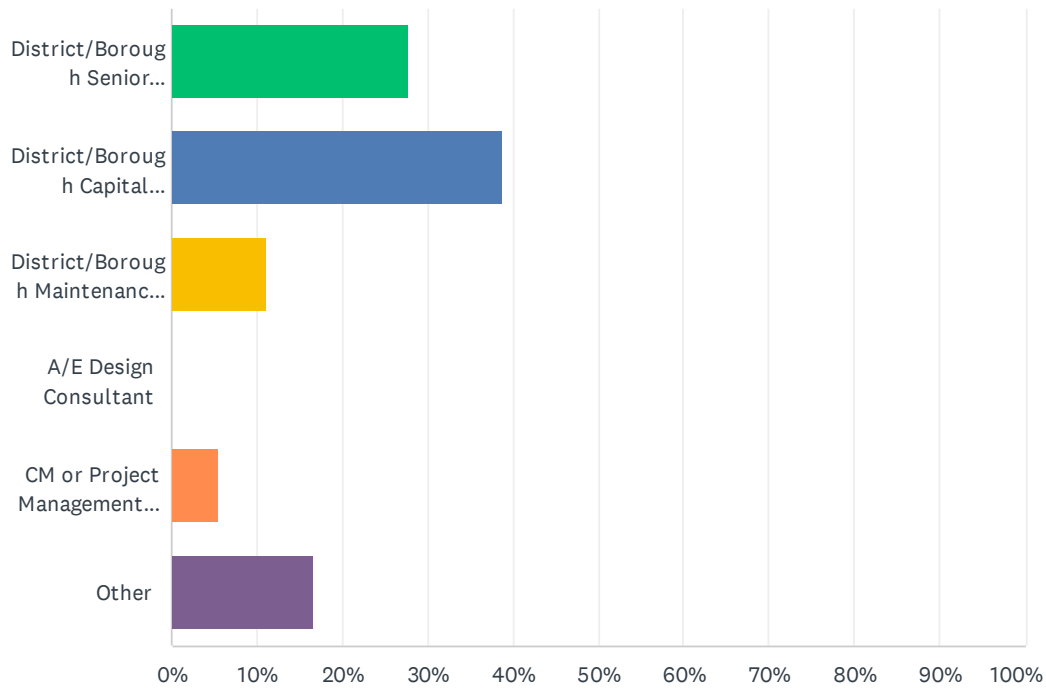
Seek additional information.

Suggested Motion

“I move that the Bond Reimbursement and Grant Review Committee approve the initial draft of the *Capital Project Administration Handbook* publication [*as presented / as edited*] and recommend that the department open a period of public comment.”

Q1 Which of the following best describes your role in relation to school facilities.

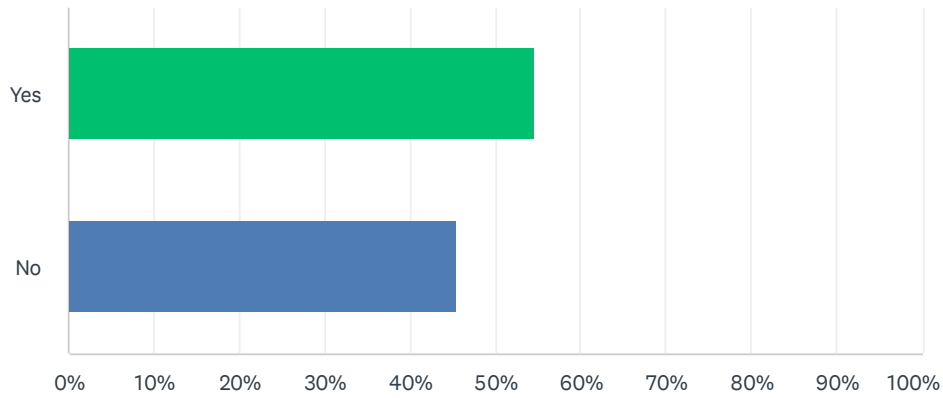
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
District/Borough Senior Management	27.78%	5
District/Borough Capital Projects Staff	38.89%	7
District/Borough Maintenance & Operations Staff	11.11%	2
A/E Design Consultant	0.00%	0
CM or Project Management Consultant	5.56%	1
Other	16.67%	3
TOTAL		18

Q2 In the past five years, have you had an opportunity to use the publication in any aspect of school capital project planning, design, construction, or operations?

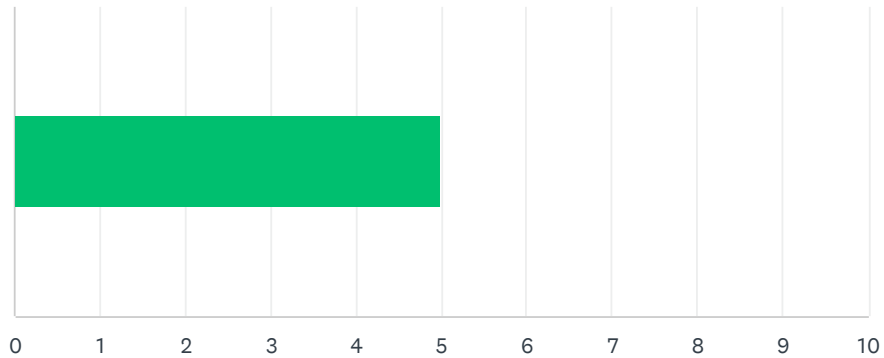
Answered: 11 Skipped: 7



ANSWER CHOICES	RESPONSES	
Yes	54.55%	6
No	45.45%	5
TOTAL		11

Q3 If Yes above, approximately how many projects?

Answered: 7 Skipped: 11

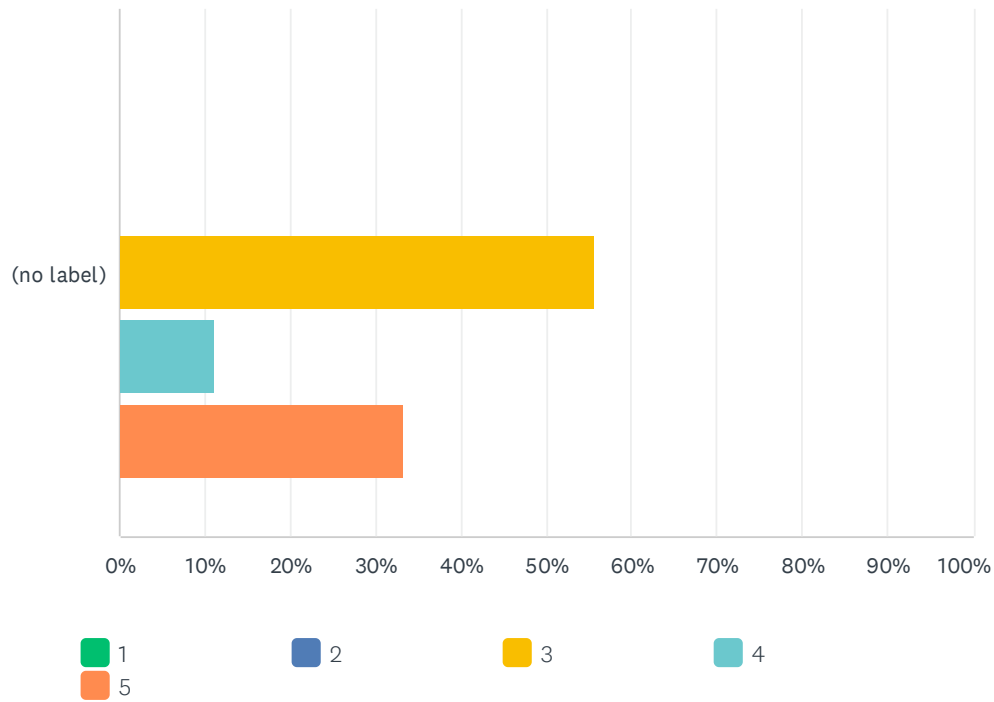


ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	5	35	7
Total Respondents: 7			

#		DATE
1	7	12/28/2021 12:07 PM
2	0	12/28/2021 11:50 AM
3	2	12/28/2021 11:44 AM
4	10	12/15/2021 2:55 PM
5	4	12/15/2021 1:25 PM
6	4	12/15/2021 12:33 PM
7	8	12/15/2021 11:30 AM

Q4 In your opinion, how useful is this publication? 1-low, 5-high

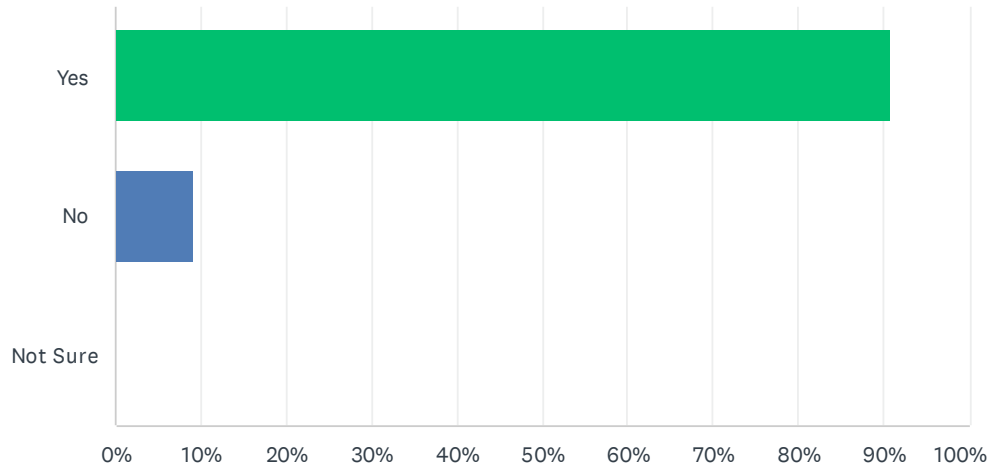
Answered: 9 Skipped: 9



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
(no label)	0.00%	0.00%	55.56%	11.11%	33.33%	9	3.78
	0	0	5	1	3		

Q5 Do you believe this publication will continue to fill a need over the next five years?

Answered: 11 Skipped: 7



ANSWER CHOICES	RESPONSES
Yes	90.91% 10
No	9.09% 1
Not Sure	0.00% 0
TOTAL	11

#	NOT SURE	DATE
	There are no responses.	

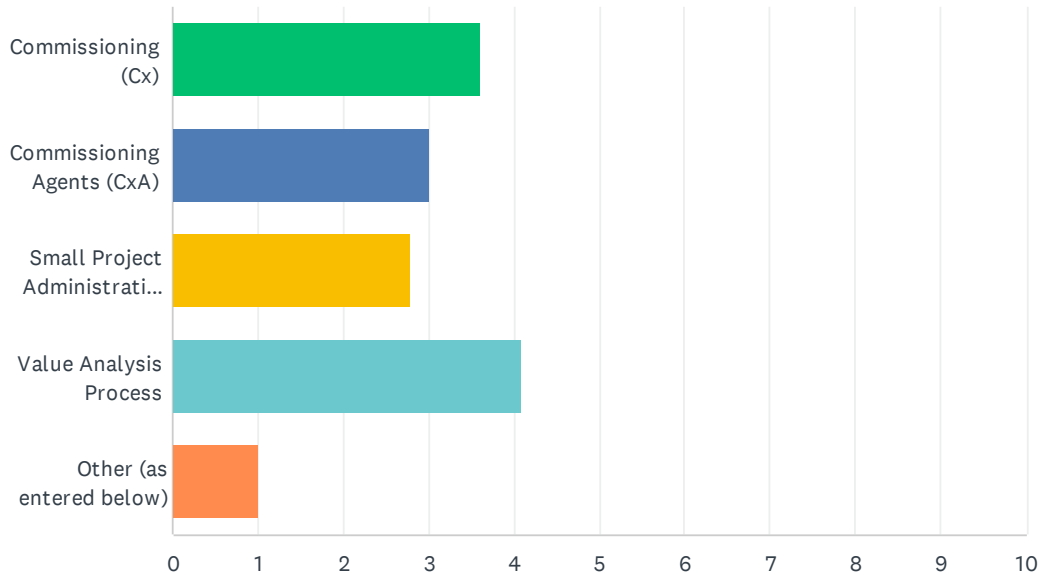
Q6 What, if any, are areas of the publication that could be developed, made more clear, or made more accurate? (Possible topics suggested from internal review include: additional coverage of project agreement standard clauses, restructuring document to lessen emphasis on “payment submittals” to project progression, in-house work approval requests, what to do when unforeseen costs exceed budget allocations, etc. You may comment on these or suggest others.)

Answered: 8 Skipped: 10

#	RESPONSES	DATE
1	Project progression, budget allocations	12/28/2021 12:07 PM
2	Alternate Project Delivery, Additional Work, and how to handle budget overages.	12/28/2021 11:50 AM
3	How to actually get funded.	12/28/2021 11:44 AM
4	Agree that more information on project agreement clauses would be helpful.	12/15/2021 1:25 PM
5	As part of the project closeout, we have been asked for Operations information as part of the requirement for Preventive Maintenance Documents; this can be very limited depending on the project.	12/15/2021 12:33 PM
6	Budget conflicts	12/15/2021 11:43 AM
7	Most of the topics are pretty clear. It's a great resource for the department and for district personnel and consultants. A bit more development on in-house work would be great along with small projects below \$100K.	12/15/2021 11:30 AM
8	While I have not used the publication, I have used staff as a resource with communication assumed to mirror information in the publication. staff communication is always clear and concise.	12/15/2021 11:28 AM

Q7 Rank the following related topics as to the benefit of them being addressed in the publication.

Answered: 11 Skipped: 7



	1	2	3	4	5	TOTAL	SCORE
Commissioning (Cx)	20.00% 2	30.00% 3	40.00% 4	10.00% 1	0.00% 0	10	3.60
Commissioning Agents (CxA)	0.00% 0	37.50% 3	25.00% 2	37.50% 3	0.00% 0	8	3.00
Small Project Administration (under \$100K)	10.00% 1	30.00% 3	10.00% 1	30.00% 3	20.00% 2	10	2.80
Value Analysis Process	54.55% 6	9.09% 1	27.27% 3	9.09% 1	0.00% 0	11	4.09
Other (as entered below)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 3	3	1.00

Q8 Are there other related topics you would like to see addressed in the publication?

Answered: 5 Skipped: 13

#	RESPONSES	DATE
1	Not at this time	12/28/2021 11:50 AM
2	More bid details, and pay requests info.	12/28/2021 11:44 AM
3	No	12/15/2021 1:25 PM
4	None	12/15/2021 12:33 PM
5	Accounting for funds expended before a grant award. How to get a project reviewed before a grant is awarded.	12/15/2021 11:30 AM

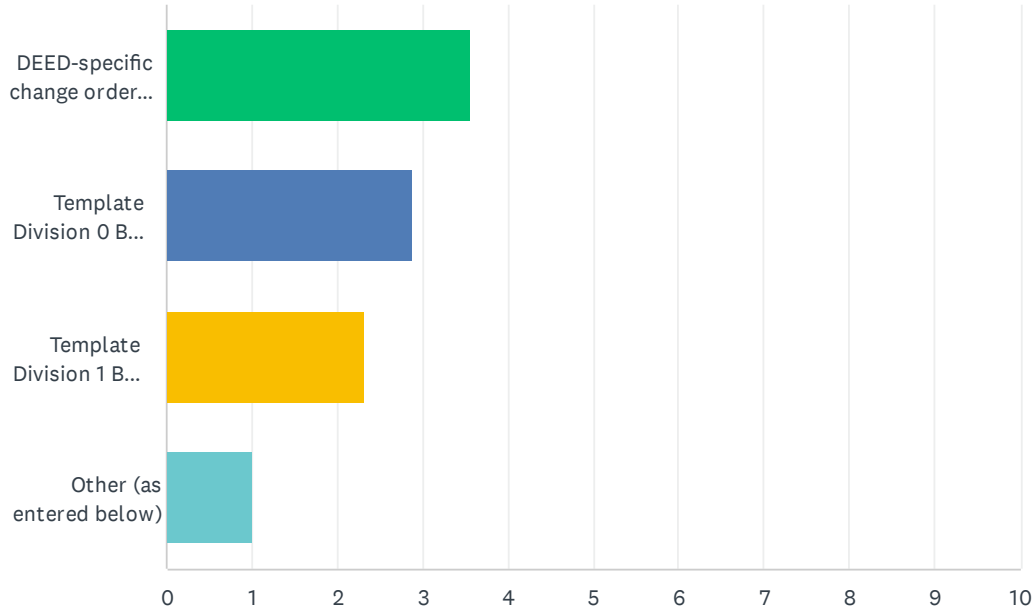
Q9 If supplementary tools are provided, do they work well; are they presented in a useful format?(Current supplementary tools include annual report forms, in-house work request template, ASHRAE compliance design checklist, closeout worksheets)

Answered: 6 Skipped: 12

#	RESPONSES	DATE
1	They work well	12/28/2021 12:07 PM
2	Delivery Options Analysis template should be migrated from MS Publisher and Adobe PDF formats to a format more universally editable such as MS Excel or Word. Other tools seem to be adequate.	12/28/2021 11:50 AM
3	Some do	12/28/2021 11:44 AM
4	Yes	12/15/2021 1:25 PM
5	These are all very helpful tools.	12/15/2021 12:33 PM
6	The annual report and closeout forms are awesome!	12/15/2021 11:30 AM

Q10 Rank the following additional tools the department could develop as to their benefit in improving those aspects of capital project work addressed in this publication.

Answered: 10 Skipped: 8



	1	2	3	4	TOTAL	SCORE
DEED-specific change order log	66.67% 6	22.22% 2	11.11% 1	0.00% 0	9	3.56
Template Division 0 Bid Documents	25.00% 2	37.50% 3	37.50% 3	0.00% 0	8	2.88
Template Division 1 Bid Documents	11.11% 1	33.33% 3	33.33% 3	22.22% 2	9	2.33
Other (as entered below)	0.00% 0	0.00% 0	0.00% 0	100.00% 2	2	1.00

Q11 Are there other additional tools the department could develop that would improve the aspects of capital project work addressed in this publication?

Answered: 2 Skipped: 16

#	RESPONSES	DATE
1	None that currently come to mind. Thank you!	12/28/2021 11:50 AM
2	Not that I can think of.	12/15/2021 11:30 AM



Capital Project Administration Handbook

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Thanks to the Bond Reimbursement and Grant Review Committee members who reviewed the publication in its final form and to those in the Department of Education & Early Development who were responsible for the predecessors to this document.

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Department of Education & Early Development
Juneau, Alaska

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Introduction

Overview

Alaska statutes provide for state aid—through debt reimbursement and grants—for construction, rehabilitation, and improvement of schools and education-related facilities. While the state maintains the resources to responsibly execute such projects when awarded or approved, statutes provide for this responsibility to be transferred to local governments or regional school boards. Statutes require that an agreement be used to document the transfer and authorize the department to adopt regulations establishing the requirements for the agreement.

This document was developed to assist the parties who are, or will be, responsible for the execution of capital improvement projects that include state aid through the Alaska Department of Education and Early Development (DEED). Entities eligible to assume this responsibility include school districts and municipal governments with education oversight.

The goal of this handbook is to provide an outline of the department’s requirements for capital improvement project administration and to ensure that the implementation of the project is in compliance with school construction statutes and the regulations which implement them. From the initiation of the project agreement to the final execution of the termination agreement, the DEED Facilities Section is also available to assist the recipient in executing their capital improvement project in an efficient and timely manner. The handbook provides direction in three major areas: project initiation through the project agreement, submittal requirements, and project closeout. It also touches on the related issues of procurement and project delivery.

In this document, the term “department” will be used to identify the Alaska Department of Education and Early Development. Other State of Alaska departments identified in this handbook will be referred to by their appropriate departmental designations.

Lastly, this handbook provides information on the administration of capital projects from the focused perspective of the department’s statutes and regulations. For a more general overview of construction management concepts and procedures, the Construction Management Association of America publishes a document entitled *An Owners Guide to Construction Management*, which is available on the internet at: <http://cmaanet.org/sites/default/files/files/inline-files/Owners%20Guide%20Ver%202011.pdf>.

Introduction

Authority

AS 14.11.17(a)

(a) The department shall require in the **grant agreement** that a municipality that is a school district or a regional educational attendance area . . .

AS 14.11.020(a)

(a) The assembly or council of a municipality that is a school district or a regional school board may, by resolution or majority vote of the body, assume the responsibilities relating to the planning, design, and construction of a school or an education-related facility located within the boundaries or operating area of the municipality or regional educational attendance area. After receipt of a request by an assembly or council under this subsection, the department shall provide for the assumption of the responsibilities requested. After receipt of a request by a regional school board under this subsection, the department may provide for the assumption of the responsibilities requested.

AS 14.11.020(d))

(d) The commissioner shall adopt necessary regulations implementing this section, and setting out the requirements for agreements between the department and a municipality or regional educational attendance area relating to the assumption by the municipality or regional educational attendance area of responsibilities for the planning, design, and construction of a project.

4 AAC 31.23(c)

(c) The department will, before the disbursement of grant or allocations of other financial assistance money to a school district, require the execution of a grant or other financial assistance agreement, on a form prescribed by the commissioner, that contains the following conditions:

(1) the project will be constructed and equipped under the requirements of 4 AAC 31.020(a), within the project budget determined under 4 AAC 31.022(e);

(2) money will be disbursed as the parties agree to allow the accomplishment of stages in the project, such as site acquisition; design and construction; and to reimburse the district for money actually and necessarily spent, before the award of the grant or allocation of other financial assistance,

(A) for planning costs, design costs, and construction costs incurred not more than 36 months before the submission of the grant application; and

(B) site acquisition costs incurred not more than 120 months before the grant or other financial assistance application for which the department has given its approval under 4 AAC 31.025;

(3) the district's performance under the grant or other financial assistance is subject to financial audit at any time; the cost of an audit required by the state is an allowable cost of school construction;

(4) the site for the school facility is approved under 4 AAC 31.025;

(5) designers of the facility shall be selected under 4 AAC 31.065; and

(6) construction shall be performed by contracts awarded under 4 AAC 31.080.

School Capital Project Funding

Background

The Department of Education and Early Development administers state aid for school capital [improvement](#) projects ([CIP](#)) under two basic funding mechanisms, grants and debt reimbursement. Either of these mechanisms may be used to fund projects in two categories, school construction and major maintenance. The school construction program is designed for construction of new facilities, rehabilitation of facilities to improve instructional programs, or for adding square-footage to existing school facilities. The major maintenance program is designed for maintenance, repair, and rehabilitation of existing school facilities. The minimum project amount for a grant is ~~\$25,000~~[50,000](#),¹ and for debt under the current program, the minimum project amount is \$200,000.²

Grant Projects

The grant program is available to all school districts in Alaska, and consists of an annual application and prioritization process. Districts applying for grant funding need to submit applications to the department by the beginning of September of each year. Applications are then reviewed for eligibility and then ranked by department staff. Initial priority lists are transmitted to the Governor and made available to the public at the beginning of November. Districts have the opportunity to ask for reconsideration of the department's determination once the initial priority lists are published and, if not satisfied, may continue an appeal to the State Board of Education & Early Development. The department publishes final priority lists after appeals are settled. The timing of the grant program is designed to allow the legislature adequate time to consider the project priority lists (one for school construction and one for major maintenance) as they deliberate the budget for the following fiscal year. [Grant awards are allocated based on the priority lists when funds are appropriated in the budget signed into law.](#)

For more information on the grant application process, ~~please~~-visit the department website ~~at:~~ [https://\(education.alaska.gov/Facilities/FacilitiesCIP.html\)](https://education.alaska.gov/Facilities/FacilitiesCIP.html)

Debt Projects

The debt program is available to districts in municipalities or boroughs with the ability to sell bonds to finance local public works projects. Districts applying for state aid through the debt reimbursement program do so on the same application form as the grant program. However, debt applications do not have a prescribed annual cycle. Instead, a variety of factors including legislative allocations and local election cycles establish opportunity for debt reimbursement funding. Over the history of debt reimbursement funding, there have been periods of time where allocations of debt for school projects were unrestricted, periods when limits on the allocations were made based on timeframes and district size, and periods, such as from 2015 – ~~2020~~[2025](#), when the debt program was closed. Once the department receives and approves an application for debt reimbursement, the Recipient's next step is to provide the department with verification of a successful ballot initiative

¹~~Threshold established by the Department of Education and Early Development.~~ [4 AAC 31.900\(21\)](#)

² AS 14.11.100(a)

School Capital Project Funding

authorizing the sale of bonds for the project. Certified election results and a copy of the bond ballot language are adequate to serve this purpose.

Fund Sources

A primary difference between grant and debt projects lies in the source of funding. Under AS 14.11, funding for grant projects is to be appropriated by the legislature into the School Construction Grant Fund, ~~or~~ Major Maintenance Grant Fund, or Regional Educational Attendance Area and Small Municipality Grant Fund and is to be used to fund projects from the department's priority lists that are prepared annually based on the submitted grant applications. The funds are part of the state's operating and capital budgets. Funds for debt projects are 100% local. All project funding for debt projects is locally available at the time the municipality sells the bonds and receives the proceeds. State funding for the debt program is appropriated by the legislature in each year's operating budget and is allocated to each municipality based on its anticipated debt service payments for the subsequent fiscal year.³

Payment Milestones

Another major difference between grant and debt projects is in the processing of payments. Payments under the grant program are based on completion of certain milestones that are evidenced in the form of submittals to the department. Each submittal or series of submittals provides the department with verification on the progress of the project. Once the department confirms the adequacy of a submittal, a payment to the Recipient is processed. Additional description of the standard payment milestones ~~are~~is included as part of this handbook.

Payment for debt projects is based on an annual submittal from the Recipient that provides a projection of the expected municipal obligations for bond repayment. These reports are due to the department by October 15th of each year.⁴ For debt projects, payment to a municipality is not tied to the project submittals; however, a Recipient is still required by law to provide the department with submittals as described in this handbook.

Demonstration of Participating Share

In addition to complying with submittal requirements, Recipients of grant funding are required to provide a participating share in order to secure the state aid. The participating share amount for municipal districts varies between 5% and 35% in five stepped increments. The percentage is indexed to a ratio of taxable property valuations and district enrollments. All regional educational attendance areas—those in unincorporated areas of the state—have a 2% participating share. As a result of the participating share requirement, all grant projects have funds from at least two sources, state and local.⁵ Participating share requirements are discussed further under the payment section of this handbook.

³ AS 14.11.100(a)

⁴ AS 14.11.102

⁵ AS 14.11.008

School Capital Project Funding

Similar to the participating share requirement for grant projects, debt projects also have a shared funding structure between the state and the local entity. The debt reimbursement mechanism establishes a percentage for each debt project at which the municipality's scheduled debt service payment will be reimbursed. The percentage of reimbursement offered by the state has varied over time from 90% to 60%, depending on project type, and could decline even further if reinstated after ~~2020~~[2025](#).

Project Agreement

Introduction

All capital improvement projects, whether funded the grant program or through the debt reimbursement program, begin with the execution of a Project Agreement between DEED and the school district or municipality that is receiving the financial aid. In the Project Agreement, the entity receiving the state aid is referred to as the Recipient; this term will be used for the remainder of this handbook. The Project Agreement transfers the responsibility for execution of the project from DEED to the Recipient. The Project Agreement also establishes the terms and conditions by which the capital improvement project is to be executed. Requirements in the Project Agreement come from state statute, regulation, and state-adopted building codes. Other requirements come from adopted policies and guidelines produced by the department.

Soon after budget approval for a capital improvement project grant award, or receipt of voter approval documentation for debt reimbursement projects, a Recipient will receive a draft Project Agreement. The draft Project Agreement contains two parts: the standardized body of the agreement and either four or five appendices (for debt or grant projects respectively).

The body of the agreement identifies the name of the project, the DEED project number, and the Recipient entity. **All correspondence with the department regarding a project ~~needs to~~ should include the DEED project number.** The first page of the Project Agreement body also defines two important pieces of information: the effective date of the agreement, and the name of the Recipient's project coordinator. For grant projects, the effective date of the agreement establishes the practical starting point~~beginning~~ of the three--year period in which the Recipient is required to provide evidence of the district's participating share in accordance with AS 14.11.008(a)(2). Participating share requirements, and the technical aspects of the beginning date, will be discussed in greater detail later in this handbook. The project coordinator is the individual working for the Recipient entity that will be responsible for the day-to-day management of the capital improvement project. The project coordinator does not have to be the same individual who signs the Project Agreement for the Recipient.

The body of the agreement incorporates the appendices by reference, and defines a number of standard contract clauses or provisions governing the transfer of responsibility between the two parties. The contract provisions are an integral part of the agreement, and modification is not generally considered. The standard provisions identify procedural requirements for the Recipient, cite statute, regulation and guidelines applicable to the project, and clarify important terms for the implementation of the Project Agreement. It is important for the Recipient to read and understand the Project Agreement in its entirety. Department staff is available to help explain the importance of language in the Project Agreement.

The final page of the main Project Agreement contains the signature line. The signatory individual must be an person ~~does not need to be the project coordinator, but the agreement does need to be signed by an individual~~ with the authority to accept the terms and conditions of the agreement on behalf of the Recipient.

Project Agreement

Contract Clauses

A Project Agreement contains clauses that govern all aspects of project administration. Select clauses within the full listing below have additional information highlights; however, Recipients should review the specific language in the agreement.

Assumption of Responsibility / Project Responsibility

This clause assigns the responsibility for planning, design, construction, including procurement of professional services and construction contracts from the state departments (DEED and Department of Transportation and Public Facilities) to the Recipient.

Project Coordinator

Governing Provisions

Grant Funds / Debt Reimbursement (Bonds) Funds

Project Document Reviews

This clause identifies the planning and design documents, and in what formats, that are submitted to the department for review.

Approvals and Permits

Safety Precautions and Programs

Project Scope Review

This clause states that the Recipient is responsible for ensuring that the project conforms to the approved scope of work and any scope modification will be reviewed under the Additional Work section of this publication and submitted to the department for approval. Also states that payments may be suspended if final bid documents do not conform to the approved scope.

Value Engineering

This clause states that the Recipient and its consultants will incorporate value based design efforts appropriate to the size of the project.

Final Inspection and Acceptance

Project Audit

This clause states that the Recipient's performance is subject to financial audit at any time and that project records must be kept for three years after project completion.

Project Accounting

This clause specifies that all revenues and expenditures will be included in the project accounting, which will conform to Governmental Accounting and Financial Reporting Standards. Also states that any proposed change must be approved by amendment.

Project Close-out

Maintenance, Operation, Ownership of the Completed Project

Termination of Contract for Cause / Convenience of the State / Withdrawal of Debt Project Approval

Contracting

Percent for Art

This clause identifies when a percent for art expenditure is required and provides direction on membership of a selection committee.

Project Agreement

State Held Harmless

This clause provides protection for the State and DEED from liabilities that might arise from improper actions of the Recipient in accomplishing the project.

Reporting Requirements

In-House Requests

Alternative Procurement

Project Schedule / Funding Expiration

This clause identifies a five-year window to complete the project, unless the Recipient requests and is granted an extension.

Facility Disposal (grant only)

Participating Share (grant only)

Appendices

The ~~remainder of the~~ Project Agreement ~~consists of~~ appendices ~~that~~ provide supporting information important for the implementation of the Project Agreement.

Project Scope and Budget (Appx A)

Appendix A consists of four parts, and serves a similar purpose for both grant and debt reimbursement projects. It defines the project's scope of work and establishes the project budget by which the work will be executed and accounted. Appendix A is the most important part of the Project Agreement for the Recipient to review because this is one of the few parts of the Project Agreement that is flexible and can be modified.

The first section of Appendix A contains the scope of work. The scope of work specifically defines the project's eligibility for the construction of new space, and provides a brief description of the work to be accomplished by the project. For debt reimbursement projects, the scope also identifies the appropriate debt reimbursement rate. The Recipient should review this part of the Project Agreement carefully to verify that the department's description of the project matches the Recipient's understanding of the work to be completed.

The next section of Appendix A contains special provisions that apply to the project. This section is utilized to specify special or unique circumstances, conditions, or limitations relating to the project. Generally, this section contains standard language regarding the relationship between the municipality and the school district according to AS 14.14.060 for boroughs and AS 14.14.065 for cities. This relationship is clearly defined in statute and will not be covered in this handbook.

The third section of Appendix A details the project budget and funding available for the project. This section contains the name of the project and the source of funding. Total funding is identified by funding source. Some projects may be funded from a combination of state, local, or federal funds with state funding in the form of capital grants or debt reimbursement.

Project Agreement

The final section of Appendix A provides a breakdown of the total project budget into nine categories. The budget categories provide the department with a method of accounting for various project costs. Descriptions of the budget categories are included in Appendix E of the grant Project Agreement and Appendix D of the debt reimbursement Project Agreement. Construction Management by Consultant is limited by AS 14.11.020(c)⁶. [Expenditures beyond the budgeted amounts in any category require the approval of the department and may require, at the department's discretion, an amendment to the agreement.](#)

[Payment Schedule \(Grant Appx B\)](#)

Appendix B of the Project Agreement varies for debt reimbursement and grant projects. Appendix B defines the payment schedule and associated submittal items for grant projects. Debt projects do not have a payment schedule but rather are paid on an annual basis, so the remainder of this paragraph only applies to grant projects. Appendix B identifies the required project submittals and payment amounts by percentage of total grant funds, for each progress payment. The Recipient should carefully review the payment schedule to ensure that the schedule and specific submittals are applicable to the proposed project.

[Applicable Codes \(Grant Appx C; Debt Appx B\)](#)

Appendix C of the grant Project Agreement and Appendix B of the debt reimbursement agreement contain the applicable statutes, codes, regulations, standards, and guidelines that govern the implementation of the project. Some of the governing provisions are federal requirements, others are state requirements, and others are department requirements. Not all of the provisions apply to every project.

[Required Submittals \(Grant Appx D; Debt Appx C\)](#)

Appendix D of the grant Project Agreement and Appendix C of the debt reimbursement agreement are also identical and identify the submittal requirements and required approvals for the project. The requirements identified in this appendix duplicate the submittal requirements identified in the Appendix B Payment Schedule for grant projects. Again, not all submittal items are required for every project. For instance, a Site Selection Report is not required for a roof replacement project. The Recipient should review the required submittal items and discuss any questions or issues regarding the required items with the department prior to signing the Project Agreement.

[Budget Definitions \(Grant Appx E; Debt Appx D\)](#)

Appendix E of the grant Project Agreement and Appendix D of the debt reimbursement agreement are also identical. This appendix provides definitions for the nine budget categories itemized in the Appendix A budget and also provides financial coding to be used when accounting for expenditures in a particular budget category. This standard appendix is included with the Project Agreement to facilitate proper categorization and accounting of the project costs. The definitions provided will help the Recipient when reviewing the proposed budget for the project.

⁶ 4% for projects less than \$500,000; 3% for projects over \$500,000, but less than \$5,000,000; and 2% for projects over \$5,000,000

Project Agreement

Project Agreement Amendments

As a project progresses, the Recipient may encounter situations where a change to the project agreement's scope or budget is necessary to achieve a successful outcome. Common examples include: new design solution for more cost-effective construction or additional Recipient funding to meet cost overruns. Any amendment proposed by the Recipient will require a written request and justification for the department to evaluate.

Summary

The reading and understanding of the Project Agreement used to transfer responsibility for the execution of the project from the department to the Recipient is a very important step in understanding the Recipient's relationship with the department. If a Recipient does not fully understand the department's expectations and requirements, administration of the project will be more difficult.

Project Administration Submittals Requirements

Department regulations and project agreements are set up to mirror industry best practices in project performance and administration. As such, the submittal requirements flow with a standard design-bid-build construction project process. The ~~required~~ submittals ~~for grant and debt reimbursement projects~~ provide the department with information ~~the department uses~~ to verify both project progress and conformance with the scope identified in Appendix A. A listing of the submittals and required review and approvals can be found in Appendix C of the debt reimbursement Project Agreement and Appendix D of the grant Project Agreement.

[Relocated text of section “Grant Project Appendix B: Payment Schedule” to new Appendix A]

Appendix: Submittal Requirements

~~The Project Agreement contains a list of submittal requirements and required review and approvals in Appendix D for grant projects and Appendix C for debt projects.~~

The submittals listed in the Appendix constitute the actual deliverables required for each Project Agreement. These submittals are required for both grant and debt projects; however, depending on the project, all submittals may not be required. Other submittals may be included as additional requirements for payment milestones in the grant project agreement payment schedule. The department will work with the Recipient in development of the Project Agreement to clearly identify which project submittals a Recipient will be required to submit.

~~Except as provided for in 4 AAC 31.040 for construction and bid documents, the department will process submittal reviews within a week of receipt, or will notify the Recipient if a longer time period is required.~~

Project Administration

It is important to ensure that each party has a firm understanding of the project scope, the allocated revenue, the project budget, and the reporting requirements. Clear communication between the department and the Recipient should occur throughout the administration of the project.

Executed Project Agreement

As described above, the Project Agreement transfers the responsibility for execution of the project from DEED to the Recipient and establishes the terms and conditions by which the capital improvement project is to be executed. This contract ensures that both parties are on the same page when it comes what is needed for a successful completion of a project. Receipt of an executed Project Agreement authorizes the encumbrance of funds and subsequent issuance of payments.

Financial Structure

In order to ensure that the project’s financial reporting is consistent with the Project Agreement, documentation showing the financial structure established in the Recipient’s accounting system is required. The budget categories and allocations should conform to the Project Budget in Appendix A. The accounting structure detail may vary by Recipient but should conform to the current version of

Submittal Requirements

the DEED Chart of Accounts (education.alaska.gov/publications/chart_of_accounts.pdf); pertinent sections are provided as an appendix to the Project Agreement.

Participating Share (Grants)

Each district is required by law to provide evidence of participation in the project. A district's participating share "...may be satisfied by money from federal, local, or other sources, or with locally contributed labor, material, or equipment".⁷ A district's participating share is based on percentages codified in statute.⁸ A district has three years from the passage date of the bill funding the project to satisfy the participating share requirement. For ease of implementation, the department normally uses the effective date of the funding bill, which typically aligns with the start of the fiscal year. In certain instances, the department has authority to grant an extension of the three-year requirement⁹ if requested by the district; however, it is a rare circumstance.

The submittal can take the form of a resolution that directs a commitment of funding for the project in an appropriate amount, or in the form of a letter identifying appropriate in-kind contributions that a district or borough will be directing towards the project. A report from the accounting system documenting the transfer to the capital project account will also be accepted.

If a district plans on using an in-kind contribution of land, the land needs to be provided as a budget item in the project application and in the project agreement. If a district plans on using other local contributions, such as labor or equipment, the department needs to be notified within 30 days of signature of the project agreement.¹⁰

In-House Work Request

In-house work or "force account" is an alternative project delivery method that must be approved in advance by the department. For additional information, see [In-House Services](#).

1) Annual Report

~~The department requires that annual reports be submitted for all active grant and debt projects. Annual report forms are available on the department's website at (education.alaska.gov/forms):~~

~~<https://education.alaska.gov/forms/default.cfm#Facilities>~~

Annual reports are required for all active capital improvement projects funded through the Department of Education and Early Development. There are separate annual report forms for debt reimbursement projects and for grant projects. Annual report forms are available on the department's website (education.alaska.gov/forms).

The "Annual Report for Grant Capital Improvement Project" form~~Form number 05-08-01619-059~~ is used for grant projects and it is due on or before July 31 each year that a project is active. The report consists of a two-page form requiring updated financial information for the project, and a narrative description of the progress on the project. ~~Form number 05-08-01519-058~~The "Annual Project

⁷ AS 14.11.008(c)

⁸ AS 14.11.008(b)

⁹ AS 14.11.008(g)

¹⁰ 4 AAC 31.023(d)

Submittal Requirements

[Summary for Debt Retirement” form](#) is used for debt projects and is due on or before October 15 each year a project is active.

Much of the budget information required on the forms is available from Appendix A of the Project Agreement, or from any subsequent budget amendments to the Project Agreement. The forms include two columns for project budget information, the Original Budget and the Current Budget. The current budget should be the same as the original budget unless the Recipient and the department have agreed to modify the original budget by an amendment to the Project Agreement. The Expenditures to Date column should reflect the total project expenditures ~~up to~~ [from inception through](#) the end of the reporting period, for each budget category. [The Encumbrances column should track all committed future expenses \(balance of professional services contracts, construction contract, etc.\).](#)

In addition to the financial information, the forms also require brief descriptions of the work performed to date, the work planned for next year, and reasons or explanations for any delays that might have occurred.

In addition, for debt projects, and in accordance with state law,¹¹ by October 15th of each year, all municipal school districts are required to submit to the department the amount of funds they will need in order to meet their anticipated debt service payments on DEED-approved debt projects for the following fiscal year. This request will also need to include anticipated debt reimbursement on unsold bonds requiring payment during the subsequent fiscal year.

[Projects that do not submit an annual report by the required deadline will have payments withheld until the report is received.](#)

Planning & Pre-Design

[Project planning lays important groundwork for successful completion of a project. Work at this stage is focused on gathering, both information and personnel. Obtaining accurate information regarding facility conditions and owner/Recipient needs and expectations ensures that the design solution meets the current and future needs. Getting the right team of professional services personnel will help the project achieve the intended goals. Review and request for approval of alternative project delivery methods may also occur during this phase.](#)

[Many aspects of planning and pre-design often occur prior to approval of funding and execution of the Project Agreement; projects that anticipate applying for state aid should follow the identified requirements to ensure that the project will be eligible for funding and reimbursement.](#)

2) Site Selection Report

Projects that require the acquisition of land are required to provide a report detailing the site selection process. The department’s publication entitled *Site Selection Criteria and Evaluation Handbook* summarizes the department’s suggested process for evaluating and selecting potential school sites. A district is not required to utilize the department’s procedure for selecting a site, but this process has

¹¹ AS 14.11.102

Submittal Requirements

been identified by the department as a comprehensive and objective method of site selection. The department's handbook is available from the department's website:

<https://education.alaska.gov/Facilities/publications/SiteSelection.pdf>

Selection of a school site is complex and difficult decision not to be taken lightly by a district. The department's handbook provides general guidelines that will assist a district in identifying and acquiring an appropriate site.

In order to receive funding or reimbursement for the costs of site acquisition, the site needs to be approved by the department.¹² The value of land eligible for funding or reimbursement is fair market value as determined by appraisal, not to exceed the amount identified in the project agreement.¹³ If a district intends on using the purchase or exchange of land as part of the district's participating share, the department will need to be notified within 30 days of signing the grant agreement¹⁴. It is important to note that only land purchased within the 120 months preceding the application will be determined eligible for reimbursement by the department.¹⁵

3) Soils Investigation Report

A site or soils investigation report, also known as a geotechnical report, provides important data to design and construction personnel on the type and quality of the subsurface material under a proposed construction site. This information is used by designers and engineers to properly design foundations and any site earthwork that may be needed.

4) Condition Surveys

A condition survey of the facility or building systems is a critical part of documenting the need for a project. It informs and supports the scope of a project in the planning stage to ensure that the project is complete in addressing any deficiencies. Department has published a *Guide for School Condition Surveys* (education.alaska.gov/facilities/publications/ConditionSurvey.pdf) and a template; however, other formats are acceptable.

Any needed hazardous material assessments or surveys may also be included under this submittal requirement.

3)5) Educational Specifications

The department requires submittal of an Educational Specification for "all new public elementary and secondary schools, and additions to and rehabilitations of existing facilities."¹⁶

Educational Specifications ("Ed Specs") describe the general educational goals of a proposed school construction project. ~~and at a minimum should include the following components:~~¹⁷

¹² 4 AAC 31.025(a)

¹³ 4 AAC 31.025(e)

¹⁴ 4 AAC 31.023(d)

¹⁵ 4 AAC 31.023(c)(2)(B)

¹⁶ 4 AAC 31.010

~~¹⁷ 4 AAC 31.010~~

Submittal Requirements

- ~~(1) the current year and five-year post-occupancy projected attendance area enrollments in the grades affected by the facility;~~
- ~~(2) a statement of educational philosophy and goals for the facility;~~
- ~~(3) the curriculum to be housed by the facility;~~
- ~~(4) the activities that will be conducted in the facility;~~
- ~~(5) the anticipated community uses of the facility;~~
- ~~(6) the specific and general architectural characteristics desired;~~
- ~~(7) the educational spaces needed, their approximate sizes in square feet, their recommended equipment requirements, and their space relationships to other facility elements;~~
- ~~(8) the size, use, and condition of existing school spaces in the facility;~~
- ~~(9) the recommended site and utility requirements;~~
- ~~(10) the proposed budget and method of financing; and~~
- ~~(11) the technology goals of the curriculum and their facility requirements.~~

Educational Specifications The document is intended to communicate the facility owner or user's spatial and functional requirements of a project to the design team. The design team will then develop project constraints and requirements that ultimately guide the design solution for the project.

A more detailed description of the Educational Specifications and guidelines for its development are is located in the department's *A Handbook to Writing Educational Specifications—2005 Edition*, which is available on the department's website:

<https://education.alaska.gov/Facilities/publications/EdSpec2005Edition.pdf>

6) Archeological Clearance

All public construction or improvement projects are required to get an archeological clearance from the state's Office of History and Archaeology within the Department of Natural Resources.¹⁸ Also known as a "SHPO" (State Historical Preservation Office) clearance. These are projects that are affecting undisturbed areas, not previously granted clearance. The clearance ensures that culturally significant resources are not affected by the project.

47) A/E Services Agreement

Submittal of an A/E Services Agreement provides the department with verification that the Recipient has entered into a contractual arrangement with a design professional for development of the project design. The department will also use this opportunity to review the design contract amount and verify that it does not exceed the amount budgeted in the project agreement for design services. The Recipient can use the AIA standard form B141-1997B101-2007 as a model agreement between the Recipient and design consultant.

The department will review the A/E Agreement, and may solicit additional information from the Recipient regarding the design services selection process in cases where the estimated consultant contract fee is in excess of \$50,000.¹⁹ In these cases, consultant selection needs to be accomplished by:

- soliciting written proposals;

¹⁸ [AS 41.35.070](#)

¹⁹ 4 AAC 31.065

Submittal Requirements

- advertising at least 21 days in advance of the proposal due date in a newspaper of general circulation, ~~for at least 21 days in advance of the proposal due date;~~ or by an alternate means of notice through publication on the Internet if approved by the department;
- awarding the contract to the most qualified offeror; and
- providing a 10-day administrative review process for aggrieved offerors.

Nothing in the A/E selection requirements “precludes a school district from retaining the services of a consultant on an as needed basis under a multi-year contract, if the term of the contract is not more than five years.”²⁰

Design fees should not exceed 10% of the construction cost of a project unless additional services are required over and above standard architectural and engineering services, such as a facility condition survey, site survey, geotechnical investigation, or an educational specification. In cases where the design fee exceeds 10%, the Recipient should be prepared to provide a detailed explanation of the additional services or costs that resulted in the increased design fee.

Additional information on the selection and contracting of professional services, including A/E, construction management, and commissioning agent, is provided in the department’s *Professional Services for School Capital Projects*, which is available on the department’s website: education.alaska.gov/facilities/publications/ProfessionalServices.pdf

Commissioning Agent Services Agreement

Commissioning, as defined in regulation, is the functional testing activities for a mechanical, electrical, fuel oil, controls, or building envelope system to ensure that a facility or a system operates as the owner and designers intended and that prepares an owner to efficiently operate its systems and equipment. Commissioning and use of a commissioning agent (CxA) is required for projects constructing or adding over 5,000 square feet or rehabilitating an education-related facility over 10,000 square feet, as set out in regulation.²¹ The commissioning agent must be certified by a DEED-approved program;²² a list of approved certifications is available on the department’s website (education.alaska.gov/facilities/publications/DEED-Approved-CxA.pdf)

Commissioning and commissioning agent services must be procured under 4 AAC 31.065(a), see the above referenced *Professional Services for School Capital Projects*.

Commissioning is permitted and encouraged on systems impacted by the project but not substantially upgraded in the rehabilitation.

Design

During the design phase, the Recipient’s design team takes the original conceptual design or general scope and refines and defines it into a concrete biddable solution. Along the way, different

²⁰ 4 AAC 31.065(b)

²¹ 4 AAC 31.080(j)

²² 4 AAC 31.900(32)

Submittal Requirements

[approaches to accomplish the project may be evaluated to determine the most appropriate and cost-effective solution.](#)

5)8) Schematic Design Documents

The schematic design documents are sometimes referred to as the 35% documents, and they provide the department with a milestone review of progress on the project. The department will review the documents for compliance with state statute and regulation regarding development of educational facilities.²³ The documents will be compared with the direction provided in the Educational Specifications, and the budget will be compared with the Project Agreement and any associated project amendments. The review should not be considered as a code compliance review, or a value engineering review; however, if the department identifies a design issue, comments will be offered for consideration to the project designer.

At this stage of the project, the department will also review the square-footage of the facility and compare it with the amount of square-footage authorized in the Project Agreement in order to verify compliance with the department's space requirements, so a summary table of square footage is helpful.

Schematic design documents should include the following components:

- Site Civil Drawings (including utility information)
- Architectural Drawings
- Structural Drawings
- Mechanical Drawings
- Electrical Drawings
- Project Specifications

Along with the schematic design documents, the Recipient will also need to submit a schematic level cost estimate for the project. [A checklist establishing design compliance with the adopted energy efficiency standards will need to be completed and submitted by the Recipient \(see submittal #9\).](#)

At this stage of the project, the Recipient should also submit any preliminary reports that were produced during the early stages of the design process such as a site survey, geotechnical investigation, value analysis, and any additional reports that have a bearing on the design of the project.

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, submittal requirements will be worked out on an individual basis between the department and the ~~district~~ [Recipient](#).

9) ASHRAE Compliance Checklist

[An ASHRAE Compliance Checklist should be initially completed by the design team during the schematic design phase for review and approval by the department. This checklist will be reviewed](#)

²³ 4 AAC 31.030

Submittal Requirements

and updated at each stage as the design progresses; this will form a final checklist for use at substantial completion. The Excel checklist template is available on the Facilities' publication webpage at: education.alaska.gov/facilities/docs/ASHRAE90-1-2016_DEED-Checklist.xlsx.

10) Value Analysis

The value analysis process will vary based on the scope of the project and should occur prior to a design being full developed. Straightforward component replacement projects may have only a few options evaluated by the project team. New construction or renovation projects should anticipate soliciting the services of a value analyst consultant for a 3-7 day evaluation process.

6)11) Design Development Documents

The design development submittal is sometimes referred to as the 65% submittal, and provides the department with a milestone review that helps track progress on the project. Like the schematic review, this submittal should include the following components:

- Site Civil Drawings (including utility information)
- Architectural Drawings
- Structural Drawings
- Mechanical Drawings
- Electrical Drawings
- Project Specifications

Along with the design development documents, the Recipient will also need to submit a design development level cost estimate for the project.

The department's review of the design development documents will focus on a verification of issues identified during the schematic design review. The department will also verify eligible space, and compare the cost estimate with previous estimates and the original project budget.

In the case where a district is utilizing in-house resources, or where alternative procurement methods are used, submittal requirements will be worked out on an individual basis between the department and the district.

7)12) Energy Consumption and Cost Report

In accordance with AS 14.07.020(a)(11), the district is required to provide an Energy Consumption and Cost Report. This report will not be required for all projects. Projects that will require an Energy Consumption and Cost Report include new construction projects, major renovation projects where multiple buildings systems are being renovated or replaced, or renovation/addition projects where space is being added to an existing building and existing building systems are being renovated or replaced. This report will provide an annual estimate of energy consumption and cost for both electricity and heating.

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8)13) Construction Documents

The Construction Document submittal is sometimes referred to as the 95% submittal. At this stage of project development, the drawings and specifications should be virtually complete.

The department has several roles and requirements when it comes to the review of the construction documents.

The 95% documents need to be submitted to the department at least 20 working days before a bid invitation is made.²⁴ This provides the department with adequate time to review the documents for compliance with DEED statutes and regulations.

If construction bids are to be invited, the Recipient needs to supply the department with fully stamped and signed construction documents at least five working days before bid invitation. The exception is if the 95% documents submitted to the department were stamped and signed.²⁵

If the Recipient is not planning to invite bids, stamped and signed drawings need to be submitted to the department no less than 15 working days prior to the start of each construction phase.²⁶

A Recipient may request a waiver to the construction document submittal requirements identified above if the district or municipality is able to demonstrate the capacity to provide a “through and complete independent review.”²⁷

The approval of construction documents submitted for review is void after two years unless construction is started.²⁸

In addition to the previously mentioned requirements, the department will review the documents to verify that the Recipient has addressed issues identified during the Design Development review, to verify square-footage, and to verify that the construction cost estimate is below the available construction budget as identified in the project agreement and associated project amendments.

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, submittal requirements will be worked out on an individual basis between the department and the district.

9)14) Bid Documents

The department reviews bid documents for compliance with state statute and regulation.

Bid documents need to be submitted to the department at least five working days prior to invitation to bid.²⁹

²⁴ 4 AAC 31.040(a)(1)

²⁵ 4 AAC 31.040(a)(2)

²⁶ 4 AAC 31.040(a)(3)

²⁷ 4 AAC 31.040(a)(4)

²⁸ 4 AAC 31.040(b)

²⁹ 4 AAC 31.040(a)(2)

Submittal Requirements

The Recipient is required to select a contractor on the “basis of competitive sealed bids”.³⁰ The Recipient is also required to advertise the invitation to bid in accordance with 4 AAC 31.080(b), which is included here for reference:

~~The school district shall provide notice of its solicitation at least three times before the opening of the offers. The first printing of the advertisement must occur at least 21 days before opening the offers. The department may approve a solicitation period shorter than 21 days when written justification submitted by the school district demonstrates that a shorter solicitation period is advantageous for a particular offer and will result in an adequate number of responses. A school district may provide additional notice by mailing its solicitation to contractors on any list it maintains, and any other means reasonably calculated to provide notice to prospective offerors.~~

The school district shall publish the first notice of its solicitation at least 21 days before the opening of the offers. The department may approve a solicitation period shorter than 21 days when written justification submitted by the school district demonstrates that a shorter solicitation period is advantageous for a particular project and will result in an adequate number of responses. A school district may provide additional notice by mailing its solicitation to contractors on any list it maintains, and any other means reasonably calculated to provide notice to prospective offerors. The district shall provide notice of its solicitation by publication at least three times in a newspaper of general circulation in the state. The department may approve an alternate means of notice through publication on the Internet if the website has the express purpose of advertising similar solicitations, has unrestricted public access, and is equally likely to reach prospective offerors.

The Recipient is must provide for the “administrative review of a complaint filed by an aggrieved offeror that allows the offeror to file a bid protest, within 10 days after notice is provided of intent to award the contract”.³¹

Under no circumstances should the Recipient require a local contractor preference,³² or include provisions in a bid request that requires or requests local hire as a criterion for contractor selection.

The department may deny or limit its participation in the costs of construction ~~for debt projects~~ if a district does not comply with department’s requirements, ~~and can deny payment of construction funds for grant projects that are not~~ for competitively selected contracts.³³

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, submittal requirements will be worked out on an individual basis between the department and the district.

³⁰ 4 AAC 31.040(a)

³¹ 4 AAC 31.080(c)

³² 4 AAC 31.080(d)

³³ 4 AAC 31.080(e)

Submittal Requirements

~~10)15)~~ 15) **Building Permit**

The Division of Fire and Life Safety is the State Building Official. Construction, repair, remodel, addition, or change of occupancy of any building/structure, or installation or change of fuel tanks must be approved by the Division of Fire and Life Safety unless that review authority is delegated to specific community jurisdictions. Delegated jurisdictions typically provide a building permit following their approval. The Division of Fire and Life Safety issues a plan review certificate.

The building permit submittal provides verification that the appropriate building officials have reviewed the plans and that they are in compliance with state and local requirements.

Many cities and boroughs also have zoning or site plan permits that are needed and which fall under the general designation of building permit for the purposes of the Project Agreement. Project Coordinators should become familiar with these requirements and, when necessary, secure these additional permits and submit them to the department.

Construction

The construction phase is an amalgam of physical activity and administrative checks and balances. The core of these administrative processes—which happen both within each party and between the parties—are coordination meetings, submittals, and construction observation. This phase begins with ‘paperwork’ and, if successful, also ends with ‘paperwork’—though much of this documentation is now accomplished using electronic platforms.

Unlike the design phase, where the Recipient and DEED may be in regular communication during the development of the project scope, it is not uncommon for very little correspondence to occur during construction after the bid is awarded. The three scheduled touch-points include: any requests for change orders that may require department approval (see Additional Work section), 50% completion with A/E certification and change order logs to date, and notification to DEED when the substantial completion inspection is scheduled.

~~11)16)~~ 16) **Bid Tabulation**

Once a Recipient receives and opens bids for a project, the department requires submittal of the bid tabulation. This document provides verification to the department that the lowest responsive bid is from the contractor selected to perform the work. This submittal document is typically in the form of a table that provides a list of bidders, base bids, additive alternates, and architect or engineers estimate for the work. This document can be faxed or emailed to the department.

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, submittal requirements will be worked out on an individual basis between the department and the district.

If no bids are received that are within the amount budgeted in the project agreement for construction, contact the department to discuss the options available. These options can include discussion of value engineering options with the low bidder, a budget amendment to the project agreement to add

Submittal Requirements

additional funds from Recipient or to shift allocation from other budget categories, an amendment to the project scope identified in the project agreement, or the need to re-design and re-bid the project.

12)17) Construction Contract

Once the Recipient has selected the Contractor, the next submittal is the actual construction contract. The department reviews the construction contract to verify that it is consistent with the bid, and that it adequately protects the state interests in regard to project funding.

After the contract is awarded, the district must register the project with the Department of Labor and Workforce Development, per AS 36.05.035. This will allow the contractor to file a Notice of Work with that department. This filing should be confirmed by the district to ensure that submittal #23-29 Notice of Completion will be available.

18) Construction Schedule

The schedule for mobilization, completion of construction phases, substantial completion, final completion, and demobilization is agreed to as part of the construction contract. Small single-scope projects may have a commencement date and substantial completion date noted in the construction contract and not need further documentation. Larger new construction and renovation project may have multi-page documents with intricate overlapping timelines.

13)19) Contractor's Payment/Performance Bond

Along with the construction contract, the Recipient needs to provide evidence that the Contractor has obtained payment and performance bonds.³⁴ This demonstration provides the department with the assurance that the project can be completed if the Contractor fails to meet its obligations under the contract.

14)20) Substantial Completion Certificate/Occupancy Permit

Once construction is complete, the Recipient is required to submit documentation that the project is substantially complete. Typically, a completed AIA form G704 will satisfy this submittal requirement. If the document references a list of items to be completed or corrected that list should be provided to the department with the submittal.

If a certificate of occupancy is required by the local jurisdiction, it should be supplied to the department at this time.

11) Release of Liens

~~The Release of Liens submittal assures the department that the Contractor has no pending financial obligations in regard to the project. The Recipient can have the Contractor complete AIA form G706A to satisfy this submittal.~~

³⁴ AS 36.25.010

Submittal Requirements

~~15)21)~~ Change Order Log

In order for the department to verify that the work completed is the work specified in the project agreement scope, the Recipient is required to submit a change order log that lists all approved change orders for the project. The change order log can be in the form of an Excel spreadsheet listing the change order description, date requested, date completed, and associated increase or decrease in the project cost associated with the change. In addition to the log, documents providing supporting detail for each change order may be requested for review. Department review of change orders may find scope and associated costs not eligible within the project. Review the Additional Work section to determine whether department pre-approval may be needed for a particular change order.

Construction Closeout

As construction wraps to a close the Recipient should take steps to ensure that the contractor has met the scope and terms of the contract have been meet. Prior to final payment, the contractor should also provide assurances that there are no outstanding liens, subcontractor payments, or state taxes due.

22) Release of Liens

The Release of Liens submittal assures the department that the Contractor has no pending financial obligations in regard to the project. The Recipient can have the Contractor complete AIA form G706A to satisfy this submittal. Submittal of individual release of liens from all subcontractors can be accepted; this list is cross-checked to the Department of Labor Notice of Completion of Public Works (#29 submittal).

~~16)23)~~ Release from Contract

The Release from Contract provides the department with the assurance that the Contractor has completed the work on the project, and that there are no outstanding obligations expected by the Contractor of the Recipient. The Recipient can have Contractor complete AIA document G707 in order to satisfy the submittal requirement.

Prior to the Recipient issuing final payment to the contractor, Alaska statutes require the clearances in submittals #28 – #30 to be obtained.

24) Commissioning Report

The commissioning report will be a written document that addresses each system commissioned under the services provided in the CxA agreement. The report will describe the function tests applied to the systems, their performance, corrective actions taken at the time of commissioning, and any recommendations for continued monitoring or final adjustments.

Project Closeout

The following final Recipient actions on a project allow the department to close a project. These actions assure the department that the final project funding can be released without concern of encumbrance by any of the involved parties and that the Recipient is in a position to adequately operate and maintain the facility.

Submittal Requirements

~~17~~25) Preventive Maintenance and Facility Management Documents

The preventive maintenance and facility management submittal provides the department with the assurance that the improvements have been ~~added to~~integrated into the Recipient's preventive maintenance program. Documentation updated with the project-specific information can be supplied in the form of reports from the district's maintenance management system listing preventive maintenance components by building system and preventive maintenance schedules, a copy of the district's custodial care plan, certification of training on installed building systems, and an updated renewal and replacement schedule. The reports should clearly identify the inclusion of the improvements made by the project.

In addition, the Recipient should provide the department with verification that equipment purchased as a part of the project ~~is included in~~ has been added to the district's fixed asset inventory system.

~~18~~26) Recorded Building Title

In the case of a replacement school project in a Regional Educational Attendance Area, the department will provide a quitclaim deed relinquishing any state interest in the new facility.

~~19~~27) Final Project Accounting

The final project accounting provides the department with the ability to reconcile the original project budget with actual project expenditures. In general, the agreement provides for an independent project audit to be submitted by the district; however, when acceptable to the department, the requirement may be satisfied with the submittal of a project closeout worksheet that includes a certification of funds expended consistent with the project agreement. The Microsoft Excel workbooks for grant and debt projects are available on the department's website (~~Ⓧ~~ <https://education.alaska.gov/Facilities/publications.html>). The closeout worksheet includes a certification by the Recipient that the funds were expended consistent with the project agreement; provides the department with verification that the funds paid to the recipient were spent to complete the project scope as identified in the Project Agreement. The department will review the submitted transactions and may ask for detailed backup to support any particular transaction.

Percent for Art Expenditure

A project requires an art allocation if it involves construction of a new facility or a remodel or renovation of an existing facility.³⁵ If a project requires art, the amount is identified in the project agreement and may be adjusted by amendment if necessary. The Recipient needs to confirm, through final project accounting, that the amount allocated for art has been expended. Assistance is available from the Alaska State Council on the Arts in completing the requirements for expenditures on art.

~~20~~28) Corporate Income Tax Clearance

The corporate income tax clearance is requested by the Recipient from the State of Alaska, Department of Revenue (DOR), Tax Division for the Contractor. The Recipient provides DOR with the Contractor's name, address and tax ID number, and the DOR will provide the department with the

Submittal Requirements

requested clearance. [Clearance should be received by the Recipient prior to final payment to the contractor.](#)

~~21)29)~~ 29) ~~Un~~**Employment Security Tax Clearance**

The Recipient requests an ~~un~~employment security tax payment clearance from the State of Alaska, Department of Labor & Workforce Development (DOLWD), [Employment Security Tax](#). [Clearance should be received by the Recipient prior to final payment to the contractor.](#) The clearance is then submitted to the department; [no payroll documents should be provided to DEED as a submittal.](#)

~~22)30)~~ 30) **Notice of Completion of Public Works**

The Contractor requests a Notice of Completion of Public Works ~~from~~ [through the](#) DOLWD, Labor Standards and Safety Division, [Wage and Hour Administration website](#) (~~www.labor.state.ak.us/lss/home.htm~~ labor.alaska.gov/lss/home.htm). This provides verification that the contractor paid the prevailing wage rates to its employees. The agency will issue the document to the Contractor. Required for public construction contracts exceeding \$25,000.³⁶

Termination Agreement

Once all of the required submittals have been received, and the department verifies the accuracy of the final project accounting, the department will have the Recipient sign a Termination Agreement. This document terminates the relationship between the department and Recipient for a particular Project Agreement.

[A Recipient should verify the total amount referenced the agreement and the amount received.](#)

³⁶ AS 36.05.005

~~Alternative Project Delivery~~

~~In 2004, the department implemented the *Project Delivery Method Handbook*. The handbook provides guidance to districts interested in utilizing alternative procurement methods for school construction. The publication can be viewed at:~~

~~https://education.alaska.gov/Facilities/publications/project_delivery_handbook.pdf~~

~~Alternative project delivery offers districts additional choices for completing school construction projects in cases where the traditional design-bid-build process will not accomplish the desired result in terms of project flexibility or schedule.~~

~~Alternative project delivery does not allow a Recipient to provide any kind or type of local preference in selecting contractors or hiring staff for a particular project.~~

~~A decision to utilize alternative project delivery is a complicated one, and the department recommends that a district interested in exploring this type of procurement work closely with the department to identify if one of the methods described in the *Project Delivery Method Handbook* will accomplish the goals of the recipient.~~

Additional Work

Managing Changes in Scope

It would be extremely rare for a project to move from the award of a construction contract to completion of work without any changes in the scope of work contained in the Construction Documents. The purpose of this section is to define when changes in scope are allowed as Additional Work and when they become new work, and are not permitted. The following establishes the department's guidelines for managing changes in scope. The guidelines are based on four principles:

- 1) grants and approval for debt reimbursement are made to a specific, defined project,
- 2) funding for those projects is based on reasonable estimates and includes contingencies for unknowns,
- 3) it should be the norm for successful projects to have funds remaining at completion, and
- 4) those funds are reserved to the state as established within the provisions of AS 14.11 and 4 AAC 31 for use on subsequent department-approved projects.

For a district needing a change in scope on a grant or debt project funded or approved under AS 14.11.020 or AS 14.11.100, the following procedures apply:

- a. If the proposed change in scope is the result of a clarification of the department-approved Construction Documents and is necessary for the completion of the work as awarded, that change will be considered Additional Work. Approval from the department is not required for this activity, however, the district is required to capture the change in a change order log and must provide that log for review by the department as provided for in the submittal Appendix. This review could result in disapproval of unsupported change order work and a requirement that the Recipient self-fund that change.
- b. If the proposed change in scope is for the award of an Alternate which was listed in the department-approved Construction Documents but was not awarded due to a lack of funding available to award the alternate under the original construction contract, that change will be considered Additional Work. Approval from the department is not required for this activity; however, the district is required to notify the department of this change in scope and shall provide a budget analysis demonstrating that the cost of the change is within the project's budget. [Note: a district is permitted to reduce, but shall not increase, the scope of an alternate to match the budget.]
- c. If the proposed change in scope was an element of the project in the department-approved Schematic, Design Development, or Construction Documents submittals but was removed as a result of a lack of funding available to continue including that element in the project's scope of work, that change will be considered Additional Work. Approval from the department is required prior to issuing any contract document for this work and the district shall provide both evidence as to where the work was originally included in the project and a budget analysis demonstrating that the cost of the change is within the project's budget.
- d. If, during the design phase of a project, a proposed change of scope from that identified in Appendix A of the Project Agreement is sought, that change will be considered Additional

Additional Work

Work if: 1) it provides a different technical solution to a building system defined in the scope, and 2) it is the result of additional information gained during the design process that was not available when the scope was defined, or 3) it is the result of a change to regulatory or code standards that were established—or should have been established—in the original scope. Approval from the department is required prior to incorporating these changes into the project and the district shall provide supporting evidence. An amendment to the Project Agreement scope will be issued by the department as needed.

- e. If, following substantial completion of the construction contract, a proposed change in scope to correct a project deficiency is sought, that change will be considered Additional Work only if all the following conditions are met: a) it is to correct a specific design or construction deficiency within the project’s approved scope, or it is to correct an unanticipated life-safety deficiency caused by the project, b) the item is not a warranty issue as defined in the contract, c) it is identified within 12 months of substantial completion.
- f. If the proposed change in scope does not meet these definitions of Additional Work, then it will be considered new work and the proposed change will be denied. New work will be subject to inclusion in a new project under the provisions of AS 14.11 and 4 AAC 31 including the specific procedures identified in 4 AAC 31.064 for redirection of bond proceeds.

**At A Glance
Table: Allowable Scope Change**

Reason for Scope Change	DEED Approval	District Action Needed
a Changes due to clarifications, minor oversights, latent conditions	Not Required	1) include description and cost in change order log provided with submittals
b Award of alternate, previously DEED-approved in Construction Docs	Not Required	1) provide analysis proving change is within budget 2) provide CO log at closeout
c Award of scope from DEED-approved SD or DD design documents , not included in bid	Required	1) demonstrate where work was previously included in approved plans 2) provide analysis proving change is within budget
d Changes in approach or changes necessary due to additional info or code/regulation updates	Required	1) provide supporting evidence of new or additional info or updated codes 2) provide analysis proving change is within budget 3) wait for approval of PA amendment
e Corrects deficiency in approved scope or life-safety issue caused by project, within 12 months of substantial completion	Required	1) provide supporting evidence of new or additional info or updated codes 2) provide analysis proving change is within budget 3) wait for approval of PA amendment
f Re-direction of bond proceeds	Required	1) follow procedures in 4 AAC 31.064

Additional Work

Contracting for Changes in Scope

Additional Work will, unless otherwise approved by the department, be accomplished within the existing design and construction contracts issued for the project. However, on occasion, such contracts may no longer be available for use or may have constraints which limit their effective use. If, in contracting for changes in scope within a project, the Recipient supports the use of new project management, design, or construction contracts, and the department concurs, the provisions of 4 AAC 31.065 and 4 AAC 31.080 will apply.

Alternative Project Delivery

In 2004, the department implemented the *Project Delivery Method Handbook*. The handbook, which is periodically updated, provides guidance to districts interested in utilizing alternative procurement methods for school construction. The department's website hosts the most current document publication can be viewed at: https://education.alaska.gov/Facilities/publications/project_delivery_handbook.pdf

Alternative project delivery offers districts additional choices for completing school construction projects in cases where the traditional design-bid-build process will not accomplish the desired result in terms of project flexibility or schedule.

Alternative project delivery does not allow a Recipient to provide any kind or type of local preference in selecting contractors or hiring staff for a particular project.

A decision to utilize alternative project delivery is a complicated one, and the department recommends that a district interested in exploring this type of procurement work closely with the department to identify if one of the methods described in the *Project Delivery Method Handbook* will accomplish the goals of the Recipient.

In-House Services

In-House Services

A Recipient may choose to accomplish a project with a combination of in-house and/or contracted services. Materials for the project may be directly procured and or included in the construction contract, as appropriate. ~~A letter certifying that all procurement will be accomplished in accordance with established district procedures that fully comply with the provisions of 4 AAC 31.080(h) – Construction and Acquisition of Public School Facilities must be provided to the department.~~ These construction delivery methods are permissible under state guidelines when it is in the best interests of the state. Examples of situations where in-house project delivery is appropriate~~for the possible following reasons:~~

- The limited size and scope of a project makes this type of alternative project delivery appropriate.
- A District has experience on particular types of work where unknown factors may exist, and where the situation does not lend itself to a competitive traditional contractor bid process.
- A district's project timeline does not easily accommodate traditional construction processes.
- Small project size, and remote rural location does not provide enough incentive for general contractors to bid on the work, however, specialty and sub-contractors are, may be available to supplement district staff and capabilities.

A district may proceed with in-house services only after a request has been made with the department and has been approved. This approval may include some stipulations to ensure that proper delivery is in the state's best interest. This request can be in the form of a letter and should include the following:

- A statement showing that this project is approved by the school board that in-house performance is approved for this project or as a board approved policy
- A clear statement of the project showing the total scope of work and how it is in the best interest of both the district and to the state.
- A work plan that includes:
 - A schedule of activities
 - A listing of all in-house trades required and proof that the district personnel has the required expertise
 - A detailed take-off and budget showing all labor, materials, equipment, mobilization and delivery, contracted services and professional services if required
- If the project budget exceeds \$100,000, the district will be required to provide a detailed explanation showing why it is in the states' interest and estimate of project costs if the project was to be contracted out
- Discussion of design services proposed or why it is not required
- A statement acknowledging that all procurement including professional and contracted services are competitively procured per this handbook and all statutes and regulations under AS 14.11 and 4 AAC 31

The department has a sample letter available~~for the~~upon districts request of the Recipient and is available to work with the Recipient in preparing the letter.~~use and can be found at: www.Don't have a clue.com.....~~

In-House Services

Upon receipt of the ~~district's~~ Recipient's application the department will review to determine completeness and reasonableness. The department will make a determination and either; approve as requested, approve with changes or deny. Those projects where the ~~district~~ Recipient will apply for recovery of funds expended ~~need~~ should contact the department in advance so that a project file can be initiated under its Pre-CIP program.

~~A sample letter is available from the department that addresses these issues and provides a work plan template.~~

Project Closeout

The following final Recipient actions on a project allow the department to close a project. These actions assure the department that the final project funding can be released without concern of encumbrance by any of the involved parties.

- ~~Releases and Clearances~~

~~The department needs to receive copies of all appropriate releases and clearances (Submittals 14, 15, 16, 20, 21, and 22) in addition to copies of the Recipients preventive maintenance documents (Submittal 17) in order to process project closeout.~~

- ~~Final Project Accounting and Certificate of Funds Expended~~

~~In order to process the closeout, the department needs to receive the final project accounting (Submittal 19) in addition to a certification by the recipient that the grant funds were expended consistent with the project agreement. The certification provides the department with verification that the funds paid to the recipient were spent to complete the project scope as identified in the Project Agreement.~~

- ~~Percent for Art Expenditure~~

~~A project requires an art allocation if it involves construction of a new facility or a remodel or renovation of an existing facility.³⁷ If a project requires art, the amount is identified in the project agreement and may be adjusted by amendment if necessary. The Recipient needs to confirm, through final project accounting, that the amount allocated for art has been expended. Assistance is available from the Alaska State Council on the Arts in completing the requirements for expenditures on art.~~

- ~~Termination Agreement~~

~~Once all of the required submittals have been received, and the department verifies the accuracy of the final project accounting, the department will have the Recipient sign a Termination Agreement. This document terminates the relationship between the department and Recipient for a particular Project Agreement.~~

³⁷ ~~AS 35.27.020~~

Conclusion

This handbook provides some general guidelines and describes statutory limitations that a Recipient needs to be aware of when completing a capital improvement project for school construction or major maintenance.

The department also publishes other documents that are designed to help a district with various stages or components of the department's project application and funding processes. [For a list of these publications, which may be downloaded in their latest editions, r](#)Refer to the [department's website \(](#)~~for a list of these publications, which may be downloaded in their latest editions.~~
<https://education.alaska.gov/Facilities/publications.html>).

Appendix A – Grant Payment Schedule

[Moved from “Submittal Requirements”]

Grant Project Appendix B: Payment Schedule

Payment approval milestones for grant projects:

In ~~the ease of~~ grant projects, ~~the~~ submittals and payments are integrated. The following section provides a discussion of the submittal requirements ~~for typically associated with each~~ grant project payment ~~submittals~~.

In the grant Project Agreement, Appendix B contains the payment schedule the department uses for approval of payment requests. Throughout the life of most projects, there are ten milestones, each of which is more fully described below. The payment milestones provide the department with a means for tracking progress on the project. The payment schedule is structured so that the Recipient is able to receive up to 50% of the available funding prior to award of the construction contract. This allows the district to keep the project moving forward throughout the payment review process.

Payment #1: Financial Structure (In-House Letter)

The requirements for processing of payment #1 include submittal of a completed, signed Project Agreement, and DEED approval of the district’s financial structure. ~~The financial structure detail will vary from district to district, but must comply with DEED’s reporting structure. This information helps the department ensure at the outset of a project that the financial reporting done by the district is in accordance with the budget categories established in the project agreement. The submittal should conform to the DEED Chart of Accounts, pertinent sections are provided as an appendix to the project agreement, and budget amounts should reflect the values approved in the project agreement.~~

This is the time that a district should be preparing an in-house letter for the department’s approval if the district intends on completing any of the work with in-house forces. ~~A sample in-house letter is available from the department, and department staff is available to work with a district in preparing the letter. The~~ A sample request letter is available that provides an example of the items ~~that need to~~ be covered when making such a request; however, all portions of the letter may not need to be completed for all projects. For more information see In-House Services.

Payment #1 submittals qualify for release of 5% of the project funding.

Payment #2: Participating Share

Payment #2 documentation establishes that the Recipient has committed to provide the local participating share required by statute. Each district is required by law to provide evidence of participation in the project. A district’s participating share “...may be satisfied by money from federal, local, or other sources, or with locally contributed labor, material, or equipment”^{22,38}. A

³⁸ AS 14.11.008(e)

~~district's participating share is based on percentages codified in statute.³⁹ A district has three years from the passage date of the bill funding the project to satisfy the participating share requirement. For ease of implementation, the department normally uses the effective date of the funding bill, which typically aligns with the start of the fiscal year.~~

~~The submittal can take the form of a resolution that directs a commitment of funding for the project in an appropriate amount, or in the form of a letter identifying appropriate in-kind contributions that a district or borough will be directing towards the project.~~

~~If a district plans on using an in-kind contribution of land, the land needs to be provided as a budget item in the project application and in the project agreement. If a district plans on using other local contributions, such as labor or equipment, the department needs to be notified within 30 days of signature of the project agreement.⁴⁰~~

Payment #2 submittals qualify for release of 5% of the project funding.

Payment #3: Pre-Design Submittals

Payment #3 combines receipt of submittals # 2, ~~3, and 4~~ [through 7](#) as listed in Appendix D of the grant agreement. ~~These submittals are more fully described in the next section of this document, but are listed here for reference.~~

- [2\) Site Selection Report](#)
- [3\) Soils Investigation Report](#)
- ~~2)4)~~ [Condition Surveys](#)
- [5\) Educational Specifications](#)
- ~~3)6)~~ [Archeological Clearance](#)
- [7\) A/E Services Agreement](#)
- [Commissioning Agent Services Agreement](#)

In order to qualify for Payment #3, the department needs to receive copies of the documents mentioned above. In some instances, a project may not require Educational Specifications or Site Selection report, but a project will generally always have some type of [Condition Survey and A/E services agreement](#).

In the case of a district completing work in-house, where ~~none of~~ the above-referenced documents ~~are~~ [may not be available to be submitted](#), the department will work individually with the district to determine the most appropriate submittals for pre-design work on a project.

Submittals for payment #3 show the department that the Recipient has made the necessary arrangements to begin a school construction project.

Payment #3 submittals qualify for release of 10% of the project funding.

³⁹ ~~AS 14.11.008(b)~~

⁴⁰ ~~4 AAC 31.023(d)~~

Payment #4: Schematic Design Submittal

The submittals for Payment #4 are the Schematic Design Documents, which are sometimes referred to as the 35% documents. ~~This item is listed as submittal #5 in Appendix D of the grant agreement.~~ For more information on the schematic design submittal, please see the discussion in the next section of this document. Payment #4 combines receipt of submittals #8, 9, and 10 as listed in Appendix D of the grant agreement. These submittals are more fully described in the next section of this document, but are listed here for reference.

- 8) Schematic Design Documents
- 9) ASHRAE Compliance Checklist
- 10) Value Analysis

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, Payment #4 submittal requirements will be worked out on an individual basis between the department and the district.

Provide an Energy Consumption and Cost Report in accordance with AS 14.07.020(a)(11) and as further described under submittal #7-12 in the next section of this document.

Payment #4 submittals qualify for release of 10% of the project funding.

Payment #5: Design Development Submittal

The submittals for Payment #5 are the Design Development Documents, which are sometimes referred to as the 65% documents. This submittal is listed as submittal #6-11 in Appendix D of the grant agreement. ~~For more information on the design development submittal, please see the discussion in the next section of this document.~~

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, Payment #5 submittal requirements will be worked out on an individual basis between the department and the district.

In the case of a new school in a Regional Education Attendance Area, the Recipient will need to provide evidence to the department that adequate site control exists for the project. Adequate site control is demonstrated in the form of a long-term lease, or document showing adequate title interest in the property on which the project will be constructed.

Provide an Energy Consumption and Cost Report in accordance with AS 14.07.020(a)(11) and as further described under submittal #7-12 in the next section of this document. Submittal of this report under Payment #5 is only necessary if the report was not submitted under Payment #4.

Payment #5 submittals qualify for release of 10% of the project funding.

Payment #6: Construction Document Submittal

The submittals for Payment #6 are the Construction and Bid Documents, which are sometimes referred to as the 95% documents. These submittals are listed as submittals #8-13 and #9-14 in

Appendix D of the grant agreement. ~~For more information on the construction and bid document submittal, please see the discussion in the next section of this document.~~

In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, Payment #6 submittal requirements will be worked out on an individual basis between the department and the district.

Payment #6 submittals qualify for release of 15% of the project funding.

Payment #7: Contract Award Submittals

Payment #7 submittals include the following documents:

- 15) Building Permit
- 16) Bid Tabulation
- 17) Construction Contract
- ~~17)18) Construction Schedule~~
- ~~18)19) Contractors Payment/Performance Bonds~~

This series of documents shows the department that construction start is imminent. In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, Payment #7 submittal requirements will be worked out on an individual basis between the department and the district.

Payment #7 submittals qualify for release of 10% of the project funding.

Payment #8: Certification of 50% Completion

Payment #8 submittals include a letter from the Architect or Engineer signifying that the project construction is 50% complete, a copy of the current request for information (RFI) log between the contractor and the designer, the current request for proposals (RFP) log between the owner and the contractor, and the current change order log.

These submittals document the project progress and provide an opportunity for the department and Recipient to review the status of current and possible future changes and their categorization as change orders. In the case where a district is utilizing in-house procedures, or where alternative procurement methods are used, Payment #8 submittal requirements will be worked out on an individual basis between the department and the district.

Payment #8 submittals qualify for release of 20% of the project funding.

Payment #9: Substantial Completion Submittal

The submittal for Payment #9 consists of a Substantial Completion Certificate or Occupancy Permit, this is listed as submittal ~~#14~~20 in Appendix D of the grant agreement. This submittal provides the department with verification that construction activities are complete. ~~These items are described in more detail under the discussion of Appendix D submittals.~~

Note: ~~that~~ one year after the date of substantial completion the Recipient is to submit an auditable accounting of project expenditures.

Payment #9 submittals qualify for release of 10% of the project funding.

Payment #10: Final Audit/Project Closeout

Payment #10 submittals consist of the following documents:

[Commissioning Checklist](#)

- ~~21) Release of Liens~~
- [21\) Change Order Log](#)
- 22) [Release of Liens](#)
- 23) Release from Contract
- 24) Preventive Maintenance and Facility Management Documents
- 25) Recorded Building Title
- 26) Final Project Accounting
- 27) Corporate Income Tax Clearance
- 28) Unemployment Security Tax Clearance
- 29) Notice of Completion of Public Works

The submittals for Payment #10 provide the department with the assurance that all necessary accounting and closure procedures are complete.

~~These items are described in more detail under the discussion of Appendix D submittals.~~

In addition to the above submittals, in the case of a Regional Education Attendance Area, the Recipient will need to provide evidence to the department of building disposal or demolition of abandoned or excess buildings. Evidence can be in the form of a letter from the district assuring the department that the appropriate disposition action has taken, or will take place.

Payment #10 submittals qualify for release of 5% of the project funding.

Alaska School Design and Construction Standards

P U B L I C A T I O N C O V E R

February 28, 2022

Issue

The department presenting draft public comment responses on the initial draft of the new *Alaska School Design and Construction Standards* handbook.

Background*Last Updated/Current Edition*

This is a new publication; no current edition is available.

Public Comment

A public comment period opened October 19, 2021 and closed November 18, 2021. Comments were received from 14 entities during this period and one additional entity shortly after the close of the comment period. In total, over 1100 individual comments were registered. The Model School Subcommittee was tasked by the Committee to review the comments and to prepare draft responses. The subcommittee and department worked throughout December and January to prepare a response to each comment for Committee review, and to incorporate edits into a new draft document.

Publication Summary & Summary of Proposed Changes

The draft publication is organized in three parts to accomplish the mandate in AS 14.11.017(d) to develop regionally based model school construction standards that describe acceptable building systems to achieve cost-effective school construction: Part 1 – Purpose and Applications, Part 2 – Design Principles, Part 3 – System Standards. Within Parts 2 and 3, narrative background is provided followed by specific standards in either tabular or list form. The standards are grouped into three categories: Baseline, Provisional, and Premium.

Version Summary & BRGR Review

Drafts of the publication were presented to the committee at the following meetings:

September 8, 2020 – original BDS draft presented that provided an overall structure to the publication and completed Part 1 describing its purpose and use. Part 2 Design Standards, and Part 3 System Standards were left incomplete due to limited funding for the consultant assistance; committee directed DEED to develop incomplete sections.

February 25, 2021 – DEED presented four draft sections for Part 3: 01 Site and Infrastructure; 02 Substructure; 03 Superstructure; and 07 Conveying Systems. Updated Part 3 structure and numbering to index to *DEED CostFormat*.

March 17, 2021 – DEED presented two additional Part 3 sections: 10 Equipment and Furnishings, and 11 Special Conditions. Part 2 had several sections with further development and included some alternative formats for comparison and consideration.

July 21, 2021 – DEED presented subcommittee work primarily aimed at finalizing the structure and level of detail of the document. New content was also developed for ~10 subsystems.

September 8, 2021 – DEED presented an initial draft for consideration of issuing for public comment.

December 9, 2021 – DEED presented a revised draft with only grammatical edits drawn from public comment and internal review. Content edits were discussed.

February 28, 2022 – DEED is presenting subcommittee work on review of the public comments received on the initial draft and a revised draft with department and subcommittee edits responding to public comment as well as additional revisions.

BRGR Input and Discussion Items

The Model School Subcommittee used a robust and thorough process for preparing recommended comment responses. Assignments were made to subcommittee participants based on areas of expertise and those individuals crafted an initial proposed response. All initial responses were reviewed by a second person and either validated or modified with an alternate proposal. A list of 67 divergent comment responses were identified; those were reviewed together by the subcommittee as a whole for a conforming response. A consensus was reached on most responses. Since these divergence issues provide a good summary of the key pressure points with the Standards, these are included as an attachment to this memorandum.

Following the consensus meeting, department personnel performed a final review for format and content and identified 82 comments that needed re-validated based on edits made. All of those were re-validated prior to the issuance of this cover memorandum; nine of them have residual alignment disparities and are so annotated in the attached proposed comment response worksheet.

Committee questions, discussion, and input is solicited for any of the proposed review comment responses, especially those in the list of 67 or those in the list of nine pending final alignment which aggregate into the following topics: 1) security cameras in classrooms, 2) accepted/appropriate classroom technologies and wired network support, 3) full operable partitions vs. ‘communicating’ hinged double doors, 4) headbolt heaters, 5) support of renewable or ‘combined-heat-power’ energy systems.

Options

Approve proposed comment responses for issuance by the department to commenting entities.
Revise proposed comment responses for issuance by the department to commenting entities

Approve the proposed updated draft publication for an additional period of public comment.
Amend the proposed updated draft publication and approve for additional period of public comment.
Seek additional information.

Suggested Motion

“I move that the Bond Reimbursement and Grant Review approve the proposed review comments [as presented / as revised] for distribution.”

“I move the that the Bond Reimbursement and Grant Review Committee approve the updated draft *Alaska School Design and Construction Standards* [as presented / as edited] for a second period of public comment.”

BOND REIMBURSEMENT & GRANT REVIEW COMMITTEE MODEL SCHOOL SUBCOMITTEE

MS Teams
MEETING NOTES

MEETING DATE & TIME

FEBRUARY 1, 2022

DISCUSSION / NOTES

Formatting

1. Use DEED standard publication format (see attached)
2. Relocation of Model School elements to Appendix A (see attached)
3. Inclusion of an Acronyms glossary (see attached)
4. Alignment with other DEED publications to include:
 - o Part 2 Space Types – norm to CIP Instructions Appendix C and revise jointly
 - o Part 3 Systems – norm to CostFormat and revise jointly (also Guide to Condition Surveys)
 - o Appendix A – norm to Cost Model’s *Escalation Model School* file and revise jointly

Content – General

5. Are Baseline elements required minimums? Should they be?
6. Line 12 – Is the use of LCCAs outlined in the Standards burdensome? Appropriate? Also, how can we efficiently and equitably apply these Standards to projects; will it take more staff?
7. p.3 – Use and treatment of LCCA and CF to bracket additional costs (CF) and probable savings (LCCA) between zero and 15%. Used to determine Provisional and Premium breakpoints. (Example: 2.3.A General Planning, Premium #23)
8. Line 23 – Can and do these Standards speak to ensuring Alaskan schools perform for their intended use (e.g., are they high-performance facilities that effectively support teaching and learning?)
9. Line 42 – Are descriptive paragraphs needed/important for the Part 3 elements *Design Criteria & Ratios*, *System Summary*, and *Design Philosophy*? (Note: *Model Alaskan School* moved to Appendix A with descriptive heading.)
10. We define the Climate Zones – but they don’t seem used / not referenced within Standards to differentiate acceptable scope. Might be helpful in Part 3? I.e. Zone 9 Baseline vs. Zone 6?
11. Confirm that Provisional uses should always have a “consider”-type lead-in.
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33. Line 229 – Should ceramics/kilns always be Premium?
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35. Line 274 – Do window coverings need to be blackout/room darkening or is glare control sufficient?
36. Line 275 – Do instructional kitchens have to be accessible with all surfaces below 34in and all cabinets reachable, etc.?
37. Line 441 – What about non-instructional at break rooms, general/public use etc.?
38. Line 384 – Door relites with blinds at Counseling? What about door relites in general? Baseline, Provisional, Premium?
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47. Line 634 – Should night-setback systems be incorporated in these Standards? Baseline? Provisional? Premium?
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50. Lines 651 – 656 – Should a new section on Resiliency be included in the High Performance Facilities section of the Standards?
51. Line 698 – Standards suggest on-site storm water retention. Is this a good practice?
52. Line 712 – Makes electronic gauged fuel level monitoring Premium. Should this be Provisional?
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54. Line 733 – Should sites requiring radon mitigation be listed as a Premium?
55. Line 735 – Includes a piling stick-up limitation aimed at limiting excessively sloped sites. Is this reasonable? Needed?
56. Line 739 – Do we want to allow foundations with active refrigeration systems? LCCA?
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58. Line 784 – One daub or four daubs for handtabbing shingles?
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BOND REIMBURSEMENT & GRANT REVIEW COMMITTEE MODEL SCHOOL SUBCOMITTEE

MS Teams
MEETING NOTES

MEETING DATE & TIME **FEBRUARY 1, 2022**

DISCUSSION / NOTES

Formatting

1. Use DEED standard publication format (see attached)
2. Relocation of Model School elements to Appendix A (see attached)
3. Inclusion of an Acronyms glossary (see attached)
4. Alignment with other DEED publications to include:
 - Part 2 Space Types – norm to CIP Instructions Appendix C and revise jointly
 - Part 3 Systems – norm to CostFormat and revise jointly (also Guide to Condition Surveys)
 - Appendix A – norm to Cost Model’s *Escalation Model School* file and revise jointly

Content – General

5. Are Baseline elements required minimums? Should they be?
6. Line 12 – Is the use of LCCAs outlined in the Standards burdensome? Appropriate? Also, how can we efficiently and equitably apply these Standards to projects; will it take more staff?
7. p.3 – Use and treatment of LCCA and CF to bracket additional costs (CF) and probable savings (LCCA) between zero and 15%. Used to determine Provisional and Premium breakpoints. (Example: 2.3.A General Planning, Premium #23)
8. Line 23 – Can and do these Standards speak to ensuring Alaskan schools perform for their intended use (e.g., are they high-performance facilities that effectively support teaching and learning?)
9. Line 42 – Are descriptive paragraphs needed/important for the Part 3 elements *Design Criteria & Ratios, System Summary, and Design Philosophy*? (Note: *Model Alaskan School* moved to Appendix A with descriptive heading.)
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Alaska School Design and Construction Standards
 Public Comment (November 2021) Review Worksheet
 February 2022 - DRAFT for BRGR REVIEW



Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 3	0			What amount of certified educators, teachers and administrators, are participating in these reviews? How do facilities staff statewide know what is best for successful delivery of education in our schools?	Thank you for your comment. Online Public Notice (OPN) is available to all and was highlighted in the DEED Information Exchange. Inclusion of student and staff input is anticipated (ref. Page 1).
C 1	0			4AAC 31.020(c) 1-6: Question about space calculation for schools - When was the last time this formula was revisited? Does it appropriately calculate for space needs in the modern day?	Thank you for your comment. This topic is not addressed within this publication. Please participate in future discussions on school space through the BRGR Committee.
C 2	0			Method of measuring facilities: Suggestion to measure allowable space to the interior face of walls. Measuring to the exterior walls leads to smaller usable space for colder climate schools.	Thank you for your comment. This topic is not addressed within this publication. Please participate in future discussions on school space through the BRGR Committee.
C 4	0			Emergency conditions do not provide for the evaluation of impending or present conditions.	Thank you for your comment. This topic is not addressed within this publication. Please participate in future discussions on emergency conditions through the BRGR Committee.
F 1	0			We appreciate the need to standardize a lot of difficult issues.	Thank you for your comment.
F 2	0			Because of high energy costs in Fairbanks, we also greatly appreciate the inclusion of ASHRAE 90.1 standards. This will benefit projects in Climate Zone 8.	Thank you for your comment. Compliance with ASHRAE Standard 90.1 is also required under 4 AAC 31.014.
F 3	0			On the premiums, we feel a significant number of them can be very limiting on what could be good design; however, this may depend on the ability or availability of quality control and design review capabilities of other school districts around the state.	Thank you for your comment. We look forward to additional details in support of this feeling.
G 1	0			An area that might need expansion is playfields and site development. These two are quite different for rural schools. I think most rural planners recognize that but it might be worth addressing. Landscaping and plantings are a local requirement for urban schools and a waste of effort for most remote locations. Likewise with playfields. Outdoor basketball courts might make sense in some rural locations. I would recommend that a satisfactory geo tec evaluation be provided before approving one for funding.	Thank you for your comments. The focuses of this Standard are consistency and cost-effectiveness (ref. <i>Background</i>). Overlapping with both these areas is the matter of equity. These Standards should bring clarity to all of these areas.

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G 2	0			Another thing that should be added to the narrative is the percent for art requirement and that this funding with careful thought can be used to fund some of the elements that might be considered premium – if an artist is involved in the design. Tiles on columns, decorative railings, acoustical wall panels covered with art, designs in flooring etc., creative signage, lighting elements are just some examples. Sooner these are incorporated into the design the better.	Thank you for your comment. Building-integrated art is certainly worth exploring but should stand on its own and not be seen as a means to the end of incorporating Premium elements.
N 1	0			Something to keep in mind is that LCCAs are not cheap to run. It costs more time from the Design Team and the cost estimator to identify and design the alternatives, price them and then run the numbers to see the long term cost impacts. There will be more fee needed by the Design Team to prove or justify anything that is considered premium by this standard. I think there may also need to be more DEED staff to handle the back and forth questions that will be generated.	Thank you for your comment. Cost analysis of project options and alternatives is essential to cost-effective school construction projects. The provisions in these Standards for life-cycle cost analysis (LCCA) and cost factor (CF) need additional development and clarification. Regarding DEED staff, the point is well taken. One solution may be the future creation of a Project Checklist under an Appendix B that would be used by Recipients of state aid and the department similar to our ASHRAE process.
O 1	0			Should a page a acronyms be included?	Accepted.
D 1	1	1 Purpose & Applications	backgrou	The Standards also provide a framework for research, “best practices,” accepted procedures, “lessons learned,” statutory and regulatory requirements, and for inclusion of the experience of students and educators across the State of Alaska. " Students is reviewer of interest?	Students are a key stakeholder in the process of education and their experience interfacing with school facilities can inform these Standards.
D 2	1	1 Purpose & Applications	backgrou	Neither are the Standards district-level facilities manuals. Odd sentence structure.	Considered; minor revisions made.
D 3	1	1 Purpose & Applications	Backgrou	They do not, for example, establish a preference for a side-coiling <i>grill</i> versus an upward acting <i>grill</i> for security or access separation. " <i>Grille</i> " is more common construction industry spelling.	Accepted.
E 3	1	1.1 Background	4th parag	2nd sentence: "These Standards...". 4th sentence change "the" to "these".	Accepted.
E 4	1	1.1 Background	4th parag	Suggested footnote after (AHJ). 1) For a list of building codes applicable to school facilities, reference 4 AAC 31.016(a).	Accepted; correct citation is 4 AAC 31.014(a).
J 1	1	1.1 Background	Standards	define use of "Standards"- Alaska School Design and Construction Standard (referred to as Standards in this document).	Not accepted. The term and title Standards, as used is self-referential and defined within the publication.
E 1	1	1.1 Background		Would it be helpful to reference AS/AAC in this section where pertinent? E.g. dept power to modify budget/scope; building code (ref to 4 AAC 31.014)	No change. Statements claiming certain powers and authority are not controversial in nature or lacking support.
E 2	1	throughout		change "cost effective" to "cost-effective" where applicable	Accepted.

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D 5	2	1 Purpose & Applications	2 parag, last sentence	"...focusing efforts on the creation of the best possible educational environments for each project. " Focus appreciated.	Thank you for your comment.
D 4	2	1 Purpose & Applications	Backgrou	With a deep financial involvement by the State of Alaska, the Department of Education and Early Development has a responsibility to assure that projects meet established criteria for cost effectiveness including durability, economy, and quality . Not performance for intended use.	No change. Conformance with approved scope and intended use is covered in the DEED publication <i>Capital Project Administration Handbook</i> .
E 6	2	1.2 Doc Org	1st parag	Capitalize "Standards"; add comma after "DEED"	Accepted.
E 7	2	1.2 Doc Org	1st parag	Include "educational specifications" to listed planning guides.	Accepted.
D 6	2	1.2 Doc Org	1st senter	When available, the Standard may also incorporate design ratios whose purpose will be to measure the efficiency of a school design as it relates to cost effectiveness. Which Standard? Now singular instead of plural?	Accepted; revised to plural.
J 2	2	1.2 Doc Org	1st senter	What about the "A Handbook to Writing Educational Specifications"?	Accepted.
G 3	2	1.2 Doc Org	Baseline Def	Appreciate this definition flexibility is critical, although the devil is likely in the details of implementation.	Thank you for your comment.
G 4	2	1.2 Doc Org	Premium Def	Appreciate this definition flexibility is critical, although the devil is likely in the details of implementation.	Thank you for your comment.
D 7	2	1.2 Doc Org	Prov	Provisional: These elements are improvements, upgrades, and educational program related enhancements to Baseline elements. These are also accepted practice by DEED. Always accepted? Or sometimes?	Accepted; clarified.
E 5	2	1.2 Doc Org		Somewhere in the beginning we need to include a abbrev. and acronym section. Possibly under this heading, at the end?	Accepted.
E 8	2	1.2 Doc Org		Provide lead-in for description of parts: "This document is organized into three main parts:"	Accepted.
E 9	2	1.2 Doc Org; throughout	Lvls of Imp	Decide on formatting for 'Baseline' 'Provisional' and 'Premium' references outside of headings - underline, no underline, other? (Currently mostly Capitalized, no underline -- but some mixing)	Accepted; will conform to capitalized only.
N 2	2	1.2 Lvl of Imp	Base	word missing? "Applicability and will vary..."	Accepted; removed 'and'.
F 17	2	1.2 Lvl of Imp	Base Def	Missing word after "Applicability and"	Accepted; removed 'and'.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 12	3	1.2 Doc Org	Base def	1st sent edit: "...accepted <u>minimum</u> practice by DEED <u>for inclusion in a state-funded project scope and project.</u> "	Partially accepted, see edits. Baseline is not necessarily minimum project standard, it is a level of basic scope and cost the department will approve to fund.
N 3	3	1.2 Doc Org	CF	We have seen where material costs can change rapidly due to supply chain issues and global pandemics. What might be most cost effective at one point in design might not remain the most cost effective during submittals and then construction. How would a change in material costs such as that be handled?	Thank you for your comment. These Standards primarily apply to a project's defined scope prior to executing a construction contract. For guidance on Changes, see the DEED publication <i>Capital Project Administration Handbook</i> .
E 10	3	1.2 Doc Org	Lvls of Imp	comma after Part 3, capitalize Standards	Accepted.
E 11	3	1.2 Doc Org	Lvls of Imp	Part 3 def - could add a footnote after "cost structure" pointing to Cost Format webpage. See DEED Standard Construction Cost Estimate Format. https://education.alaska.gov/facilities/facilitiescostformat	Accepted.
E 15	3	1.2 Doc Org	new	Add a heading for "Best Practice/Lessons Learned" with explanation, "In Part 2, in addition to the Levels of Implementation, there are considerations..."	Accepted.
E 16	3	1.2 Doc Org	new	If we are going to keep the portions of Part 3 speaking to the Model Alaskan School (the name of which is confusing in the context of this document), it needs to be clearly identified what it is and means for this document. Add a heading for "Model Alaskan School" with explanation, "In Part 3, ..."	Thank you for your comment. Model Alaskan School information, which aligns with the DEED Cost Model, will be moved to an Appendix.
E 17	3	1.2 Doc Org	new	Add a heading for "Design Criteria & Ratios" with explanation, "In Part 3, ..."	Thank you for your comment. Headings will be evaluated for inclusion.
E 14	3	1.2 Doc Org	Prem def	Edit last sentence to "Inclusion of Premium elements <u>in a project</u> requires DEED review."	Accepted.
E 13	3	1.2 Doc Org	Prov def	add "... for inclusion in a state-funded project scope and project."	No change. Implied by context.
J 4	3	1.4 Flex & Innov	2 parag	(Indicated as Premium) Premium items should not be eligible for MM funds in the future.	Not accepted at this time. This matter may need development in a future edition.
J 3	3	1.4 Flex & Innov	2nd sente	Design "and District" professionals	Accepted.
J 5	3	1.4 Flex & Innov	3 para	"School Capital projects" -Does this include Major Maintenance funding?	Thank you for your question. Yes, as stated earlier in the document, "Renovations will adhere to the Standards whenever possible ..."
D 8	3	1.4 Flex & Innov	3 parag, last sentence	These standards and guidelines will be used by DEED when reviewing school capital projects approved for state-aid. Same "Standards" discussed as main topic, or other standards and guidelines? No capitalization causes question.	Accepted; revised to Standards.

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E 19	4	1.4 Flex & Innov	3 parag	3rd Parag, last sentence: Consider conforming to "Standards" to reduce uncertainty with inclusion of word "guidelines"	Accepted.
E 20	4	1.4 Flex & Innov	3 parag	3rd parag: change "in order" to "so"	Accepted.
E 18	4	1.4 Flex & Innov		Is "the State" leftover from the base Maine document? Change to "DEED" in lead-ins. Capitalize "Standards"	Accepted.
A 1	5	2.1 Design Principles	Table A30	The climate regions identified in Table A301 for zones seven and eight are too large. It does not seem legitimate to have a school on the Bering Sea coast in Goodnews Bay be held to the same climate considerations as a school in Venetie. Although the standards account for variances, these variances seem to apply to a large number of schools within these two climate zones. It begs the question; can the state of Alaska be divided into only four climate zones?	No change. The climate zones are based on Alaska (AHFC) amendments to the International Energy Conservation Code and represent a balance of complexity for climate differences across the state.
A 2	5	2.1 Design Principles	Table A30	Colder climates will require thicker walls to maintain energy efficiency, which takes away from allowable square footage. This desire for energy efficiency drives colder communities into smaller schools. This is not equitable. It could easily be made equitable by the department standardizing an exterior wall assembly's thermal efficiency, regardless of climate zone, and measuring allowable square footage to the inside face of exterior walls, as opposed to the exterior.	Thank you for your comment. This topic is not addressed within this publication. Please participate in future discussions on school space through the BRGR Committee.
C 3	5	2.1 Design Principles	Table A30	The proposed climate zones are too large to adequately account for different climates.	Thank you for your comment. The four climate zones align with those in the International Energy Conservation Code (IECC) amended for Alaska.
J 6	5	2.1 Design Principles	Table A30	Why aren't you using ASHRAE zones that are part of 90.1-2016???	Thank you for your question. Climate zones currently referenced by Alaska code jurisdictions are indexed to the International Energy Conservation Code versus ASHRAE. If you have an analysis showing ASHRAE would be more beneficial to the Standards, please bring that to the attention of the Department.

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E 21	5	2.1 Regional Design	new	Add new paragraph after zones image and table with history of zones selected: The four identified zones have been chosen to align with existing zones established by the Alaska Housing Finance Corporation's Commercial and Residential Building Energy Efficiency Standards (BEES) in their Alaska-specific amendments to the International Energy Efficiency Code (IECC).	Accepted.
E 22	5	2.1 Regional Design		Sentence on geographic costs used to evaluate strategies: This seems unclear. Maybe speak to the "how" they will be used? Adjusting the LCCA costs?	Accepted. Also differentiated between climate zones primarily guiding building operation and geographic factors guiding construction costs.
E 24	5	2.2, 2.2.A, 2.2.B		Rearrange section to move the paragraph "The State must be involved..." into the Building Location & Orientation heading. Consider making this section A. Move paragraph "(delete "Recent") Tragedies at schools..." under Safety & Security Site Design heading. Consider making this section B.	Accepted; all changes made.
E 23	5	2.2; 2.3; 2.4		None of these following sections Site & Infrastructure, School Buildings, etc., have a "Best practices/lessons learned" area. Should this be included, there seem to be some items that may be better suited to including in that type of heading than in the Baseline or Provisional.	Accepted. For Building Location & Orientation, a 'Best Practices/Lessons Learned' was added and two items moved from the lead-in paragraph. This will help flag the 'acceptability' of developing such items for all other sections.
H 1	6	2.2 Site & Infra	1 parag	"Sites requiring extensive earthwork, long driveways, or environmental challenges should be avoided" Add verbiage 'when possible.' Some school projects, the intent is to move the school in its entirety due to poor existing conditions. This may create above-mentions characteristics and unavoidable.	No change; however this was moved to Best Practice.
D 9	6	2.2.A Safety Site Design	4 Base	Consider administrative passive eyes on entry preferred	Accepted; added as Provisional.
B 1	7	2.2.A Safety Site Design	15 Base	Recommend this be revised to indicate above ground tanks with double wall UL construction are preferred. Underground fuel tanks are not used unless site constraints require them. Most schools are using electric kitchen equipment and small Bunsen burners with fuel canisters in lieu of propane systems piped to classroom where there is a safety hazard.	Accepted; included alternative science option in Provisional.
E 25	7	2.2.A Safety Site Design	15 Base	Is this leftover from Maine? I didn't think we'd encourage UST vs. AST.	Concur; revised.
G 5	7	2.2.A Safety Site Design	15 Base	Regulatory issues with USTs	Concur; revised.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
D 10	7	2.2.A Safety Site Design	17 Base	Keep perennial bushes and trees a minimum of 20'-0 away from each side of major entrance doors. is this necessary? Or should plantings closer be of a limited maximum height without trimming maintenance?	No change- based on CPTED principals
K 1	7	2.2.A Safety Site Design	17 Base	This seems excessive. 10' is probably plenty, especially if the landscape and site design already meets requirements for clear site lines noted in item #4 in this list.	No change- based on CPTED principals
N 4	7	2.2.A Safety Site Design	17 Base	Some perrenial bushes are only 2' tall or are thin and wispy. Maybe add a ht criteria such as "keep perennial bushes and trees over 30" tall a minimum of 20' away from major entrances" or similar as set by a licensed landscape architect.	No change- based on CPTED principals
E 26	7	2.2.A Safety Site Design	18 Base	Is "preferred method of proteccion, underground service" as applicable to rural with boardwalks and above-ground utilidors?	Accepted. Revised to 'elevate or bury ...'.
G 6	7	2.2.A Safety Site Design	20 Base	Implies school site is fenced	No change. This provision seeks to limit access using developed vehicular surfaces.
N 5	7	2.2.A Safety Site Design	24 Prov	Most sidewalks walk parallell along a school building face to get to the main entrance and this is almost always greater than 50'. See Bristol Bay and most schools in Anchorage.	Concur. Revised to 100ft, afterwhich a less expensive pedstrian surface can be used.
H 2	7	2.2.A Safety Site Design	25 Prem	If this is required by local governments, why shouldn't it be a covered cost?	No change. This premium provides better statewide equity.
G 7	7	2.2.A Safety Site Design	Base	Is this a good place to state that schools on pilings must be fenced preventing access under the school per fire marshal?	No change. We are striving not to restate applicable codes within this document.
H 3	7	2.2.B Bldg Loc	2 Base	"...avoid entrances facing north." This can't always be avoided	Concur. Added a Provisional criteria. "Consider building and entry orientations other than provided in Baseline when competing factors such as prevailing wind or length of entry drives govern in an LCCA."
D 12	7	2.2.B Bldg Loc	2 Base	Orient the main entrance to face primarily south. Avoid entrances facing north. This might benefit from explanation or description of what is being avoided. placing entries to avoid snow drifting may be more important in some regions	Concur. Added a Provisional criteria. "Consider building and entry orientations other than provided in Baseline when competing factors such as prevailing wind or length of entry drives govern in an LCCA."
K 2	7	2.2.B Bldg Loc	2 Base	#2 and # 3 might be in direct conflict with each other, depending on site conditions. Snow drifting and wind are more important factors for building entrances. Sun access is important for overall building heating/cooling and for outdoor spaces such as gathering areas and playgrounds. forcing the main entry to face south will limit the site designer's ability to respond to local environmental factors.	Concur. Added a Provisional criteria. "Consider building and entry orientations other than provided in Baseline when competing factors such as prevailing wind or length of entry drives govern in an LCCA."
E 27	7	2.2.B Bldg Loc	25 Prem	delete ", etc." or change "i.e." to "e.g."	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
D 11	8	2.2.A Safety Site Design	24 Prov	"Consider how an emergency evacuation will be conducted. " is this not a requirement for every school site?	No change. If it is, the Provisional criteria allows for its inclusion and cost.
G 8	8	2.2.B Bldg Loc	1 Prem	Suppose this can be addressed in plan review but split level sites can be very functional and cost effective (ie Golden View MS) – potentially much more practical than 2 story school on a level site	No change. Can almost guarantee that initial costs will always be higher on steep sites notwithstanding that a well developed two-story or split level school could minimize that cost or result in lower operating costs.
F 18	8	2.2.B Bldg Loc	6 Prov	Top of page. Should the long axis be East-West to maximize southern exposure in classrooms? See also Baseline 1 under C. High -Performance - Site Principles	Concur; the correct long axis is East-West.
K 3	8	2.2.B Bldg Loc	6 Prov	This is dependent on the overall building design. Classrooms should primarily be located on the south side of the building, with east and west as secondary alternatives. Per the US Dept of Energy Guidelines for High Performance Schools, 2004: Elongating the school design on an east-west axis maximizes the potential for cost-effective daylighting. Consider daylighting strategies that primarily use south-facing glass and secondarily incorporate southeast- or southwest-facing glass. An elongated building that has its major axis running east-west will increase the potential for capturing winter solar gain through south glass. Kitchens, gymnasias, lockers, and other spaces where daylighting is less important should be located on the north side of the building.	Concur; the correct long axis is East-West.
N 6	8	2.2.B Bldg Loc	6 prov	Please clarify the wording on this. Many schools in Anchorage are oriented so the classroom windows face south, see South HS, Hanshew, Clark. A prominent firm who designs a lot of schools designs their schools so the classroom windows face east and west.	Thank you for your comment. Corrected long axis to East-West.
D 13	8	2.2.B Bldg Loc	6 Prov and	Consider orienting the longer axis of the building using a North-South for classrooms for maximum solar impact. Why is this in two places? Also under C. High -Performance site principles 1. Site buildings to maximize daylighting (a north-south orientation for classrooms).	No change. Will let solar and daylighting remain in respective locations.
K 4	8	2.2.C High Perf	1 Base	See comment on Building Location & Orientation Provisional #6.	Thank you for your comment. See prior response.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
N 7	8	2.2.C High Perf	1 Base	Please clarify the wording on this. Is the classroom wing oriented N-S so the classroom windows face east or west, assuming a double loaded corridor, or is the hallway running east and west so the classrooms are entered into at the north with windows facing south?	Thank you for your comment. Corrected long axis to East-West.
E 28	8	2.2.C High Perf	1, 2 Base	Duplicative with Building Location and Orientation above. Item 1 is a provisional above	No change. First is solar, second is daylighting (though net result is the same orientation).
M 1	8	2.2.C High Perf	10 Prem	Recommend school vegetable gardens be moved to Provisional. These systems provide food security for remote areas but also provide a wealth of educational opportunities. The initial cost is typically minimal.	Accepted.
N 8	8	2.2.C High Perf	10 Prem	School vegetable gardens and greenhouses are an important food sustainability educational program component in many rural districts, and food insecurity is also a major problem in many rural and poorer districts. Teaching kids how to grow their own food is part of a sustainable education. I would reconsider this.	Accepted.
K 5	8	2.2.C High Perf	2 Base	see note above re: wind and snow drifts.	Accepted; also removed duplication.
K 6	8	2.2.C High Perf	7 Prov	this should be standard practice	Thank you for your comment.
K 7	8	2.2.C High Perf	8 Prem	on-site infiltration can actually save the school money occasionally. Not sure why this is premium.	Concur; moved to provisional.
J 7	8	2.2.D Bldg Entrance	3 Base	Is this intend to be bold?	No; bold removed.
J 8	8	2.2.D Bldg Entrance	3b Base	Do they have to be hidden or accessible?	Accepted; accessible seems primary.
J 9	8	2.2.D Bldg Entrance	3c Base	This statement should be considered for a revision. This idea was when "hunker down" was the adopted method. The "Safe Room" has changed with the current thought about school safety.	Considered; no revisions made as this remains intended to be a safe place to communicate with occupants and first responders.
E 30	8	2.2.D Bldg Entrances	1 Base	Edit to "This arrangement may not be practical <u>to accommodate</u> in a renovation..."	Accepted.
E 31	8	2.2.D Bldg Entrances	3 Base	Remove bold from "at"? Not sure shy emphasis is needed	Accepted.
E 29	8	2.2.D Bldg Entrances		The items in this section seem less "Site and Infrastructure" and more "School Buildings", consider moving. Consider adding an initial explanatory paragraph, per recommended move/edits above.	Will consider; concur there is duplication between this section and 3. School Buildings, B. Safety & Security Building Design.
D 14	8	2.C	7 Prov	Is snow storage and drainage and appropriate consideration?	Accepted; added as a Provisional criteria to High Performance Site Principals.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
D 16	9	2.2.D Bldg Entrance	10 base	In buildings that are at or or near grade, protect all front entrances and other major doors used on a regular basis throughout the school day with concrete-filled steel bollards or other appropriate, rugged obstructions.	Edit incorporated
F 4	9	2.2.D Bldg Entrance	13 Prem	ADA may require more than one accessible entrance based on the 60% entrance requirement	Accepted. Entry doors required to be accessible under ADA may have automatic openers.
D 17	9	2.2.D Bldg Entrance	13 Premiu	Electric door openers other than at the ADA main entrance. Consider 'at ADA public entrances' code likely requires more than one.	Accepted. Entry doors required to be accessible under ADA may have automatic openers.
J 10	9	2.2.D Bldg Entrance	2 D base	a secondary egress from the main offices	Comment is not clear.
D 15	9	2.2.D Bldg Entrance	4 Base	In a secure vestibule arrangement, the interior bank of doors of the vestibule should be equipped with an electronic strike that allows the door to be unlocked electronically by main office personnel after visitors have been approved for entrance. Is electric strike the only means to achieve? electromagnetic locks should work also.	Accepted; edited to describe function and not method for achieving.
E 33	9	2.2.D Bldg Entrances	10 Base	Typo "at <u>or</u> near"	Edit incorporated
G 10	9	2.2.D Bldg Entrances	14 Prem	This needs more clarity as this section is referring to the overall design of the entrance (rather than a ceiling). What is the distinction between an inviting entrance and excessive design? Most school have a canopy over the main entrance to not only shelter the entrance but too provide some distinction.	Accepted; comment removed.
E 32	9	2.2.D Bldg Entrances	5 Base	For clarity, add "entrance" after "main" and "kitchen".	Accepted.
G 9	9	2.2.D Bldg Entrances	5 Base	These systems sound great but can be a waste of money if not aggressively managed.	Thank you for your comment.
H 4	9	2.2.D Bldg Entrances	5 Base	Not all school districts have adopted proximity card readers as part of their door hardware. Will that be required?	This establishes what is acceptable. Have updated language to general "electronic access control system".
E 34	9	2.3 School Bldgs	lead-in	If utilizing footnotes, change paranthetical AAC to footnote	Will consider.
N 9	9	2.3 School Bldgs	sentence	"visioning process at local expense that" - Isn't Educational Specification development a reimburseable part of a project and visioning often occurs during concept design which is also reimbursable?	Concur; removed. Wording leftover from a sample document.
D 18	10	2 a. Planning principles	12 Prov	Consider achievements for rewarding good behavior to include, but not be limited to: Student or designer behavior?	Thank you for your comment; item was removed.
D 19	10	2 a. Planning principles	14 Prov	Group rooms -group rooms confusing. I saw group as a verb. Consider Small group study rooms or Flexible breakout classrooms	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
D 20	10	2 a. Planning principles	19 Premiu	Building plans with more than one elevator. Curious why. larger two-story schools will require for ADA and material movement more than one	No change, additional elevator in almost all cases would be a premium and would need justification.
D 21	10	2 a. Planning principles	23 Premiu	Complex ceilings with multiple levels and decorative soffits. In previous section also, why twice?	Removed from 2. D. Building Entrances.
A 5	10	2 Gen Cat A	16. Premi	Creating imaginative and though provoking finishes in school is a benefit to instruction and learning. Straight cut lines and curved cut lines in flooring materials are well within the abilities of skilled tradesmen and tradeswomen. This should ve removed from premium and allowed as baseline.	Partially accepted. Allowed where cost premium is less than CF-3 (i.e. <5%).
J 11	10	2.3.A Gen Plan	1 Base	no round angles or weird crap??	Thank you for your comment.
G 11	10	2.3.A Gen Plan	10 Base	"Structural" (roof or ceiling?)	No change; the structural floor or roof element.
N 10	10	2.3.A Gen Plan	10 Base	This adds cost to install as well as cost for all of the trades to cut through the walls, or block out for ducts, conduit, etc. Is it necessary given the baseline ceiling requirements in this document?	No change. Sound control between classrooms is a highest priority, this is the most cost effective method to achieve.
N 11	10	2.3.A Gen Plan	11 Prov	Is this double as in a pair of doors or like a Dutch door? Dutch doors can pinch fingers.	This is a pair of doors.
J 12	10	2.3.A Gen Plan	12b Prov	State intends to buy nintendos?????	Thank you for your comment; item was removed.
J 13	10	2.3.A Gen Plan	14 Prov	Only marker boards? What about TV's or interactive white boards?	No change. These spaces do not warrant this level of amenity.
G 12	10	2.3.A Gen Plan	16 Prem	Curves and patterns in flooring can create much more interesting spaces with very little additional cost. Greatly enhances the appeal of a space for comparatively little cost.	Partially accepted. Allowed where cost premium is less than CF-3 (i.e. <5%).
H 5	10	2.3.A Gen Plan	16 Prem	Move to provisional- in rural schools this may be the only way to provide color, way finding or differentiate between elementary, middle, and high school areas. This is also a way to make a school 'their' home	Partially accepted. Allowed where cost premium is less than CF-3 (i.e. <5%).
F 5	10	2.3.A Gen Plan	19 Prem	Is this one elevator or elevator bank? This could be limiting if you are not considering the size of the school and ability to provide equal access to potential disabled students if a significant number of classrooms and activity rooms are on second or higher floors.	No change, additional elevator in almost all cases would be a premium and would need justification.
E 35	10	2.3.A Gen Plan	2 Base	edit to " <u>to accommodate</u> public and..."	Edit incorporated
N 12	10	2.3.A Gen Plan	20 Prem	See maintenance requirement section for stairs to service equipment and into fan rooms, to the roof, etc. Ladders can sometime satisfy code, but they make maintenance and access more difficult.	No change. This is considering additional stairs for staff/students.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 13	10	2.3.A Gen Plan	23 Prem	This may have justification to make media or common spaces more inviting and special	Partially accepted. Allowed where cost premium is less than CF-3 (i.e. <5%).
N 13	10	2.3.A Gen Plan	23 Prem	An exception might be musical or performance spaces?	Partially accepted. Allowed where cost premium is less than CF-3 (i.e. <5%).
F 6	10	2.3.A Gen Plan	24 Prem	This could be limiting the architects/engineers' ability to select appropriate material for specific buildings.	No change; would need justification. Also, removed and covered in 0653 Ceiling Finishes.
G 14	10	2.3.A Gen Plan	24 Prem	Again limited use of these materials can create more inviting public area.	No change; would need justification. Also, removed and covered in 0653 Ceiling Finishes.
H 6	10	2.3.A Gen Plan	24 Prem	These ceilings can be used for acoustical purposes.	No change; would need justification. Also, removed and covered in 0653 Ceiling Finishes.
E 36	10	2.3.A Gen Plan	3 Base	"Consider" is routinely used for Provisional items. Move to Provisional or amend to an imperative verb as used for Baselines: "Zone the building..."	Accepted.
K 8	10	2.3.A Gen Plan	5 Base	this may be outdated; there may be a new version of this referenced standard (revised 2015) and the new ANSI 117.1-2017 (not yet adopted in AK but soon-ish) includes acoustic requirements for classrooms for accessibility related to learning styles and hearing/speech impediments	Have removed year reference from Standard.
E 37	10	2.3.A Gen Plan	7 Base	Delete "should" - indicates a Provisional item	Accepted.
B 2	10	2.3.A Gen Plan	7 Prov	The education benefit of the classroom sinks should be reviewed compared to cost of installation. In locations with building on pilings, the classroom sinks complicate plumbing systems and require extensive utilidor systems to provide freeze protection for piping. Most children have water bottles for drinking water that can be filled at bottle filler in central location.	Thank you for your comment.
A 4	10	2.3.A Gen Plan	9 Base	Would this expansion be provided by additional space, or reconfiguring existing space within the facility?	Thank you for your question. Clarified to designate which types of projects would need this activity.
D 22	11	2 B. Safety	3 base	Provide a secure steel service door - why does it need to be steel?	No change. Indicates most efficient material to meet the need.
B 3	11	2.3 Cat A, Gen Use Classroom	12 Prem	The education benefit of the classroom sinks should be reviewed compared to cost of installation. In locations with building on pilings, the classroom sinks complicate plumbing systems and require extensive utilidor systems to provide freeze protection for piping. Most children have water bottles for drinking water that can be filled at bottle filler in central location.	The document states "consider" for Pre-K to 5th does not mean it is required. The district could opt out of doing sinks based on costs.
B 4	11	2.3 Cat A, Gen Use Classroom	12 Prem	duplicate	

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 6	11	2.3 Safety Cat B	2 Base	Shoud these standards restate international bldg code requirements for egress? If space is small enough to occupancy is below 50 person a second exit would not be required. Is the intention to require additional means of exit beyond the code requirement?	Concur if the area is small there is no need for two exits. Edited the sentence.
A 8	11	2.3 Safety Cat B	3 Base	This feature of releasing doors is a likely function that would be possible with the "Baseline" Proximity card reader system. Consider moving this provisional to baseline.	Concur if the area is small there is no need for two exits. Edited moved from Provisional to Baseline.
A 7	11	2.3 Safety Cat B	7 Base	Will proximity card readers be viewed as baseline standard for access to control in education facilities?	Thank you for your question. Wording will be generalize to 'electronic access control'. This will be listed as Baseline for exterior doors with traditional keyed access listed in Provisional.
H 7	11	2.3.A Gen Plan	26 Prem	What is the reason behind limiting size on ceiling panels?	Thank you for your question. In an effort to provide schools that are cost effective encouraging the use of more standard and easily obtained ceiling tiles is encouraged.
J 14	11	2.3.B Safe Bldg Design	7 Base	Add design building to reduce nooks and areas where visibility is reduced.	Concur. Added to the Baseline under Safety & Security Building Design.
J 15	11	2.3.B Safe Bldg Design	8 Prov	This probably should be baseline. Not a cost issue.	Concur. Added to the Baseline under Safety & Security Building Design.
E 38	11	2.3.C Class Safety	5 Base	Is this code, so should it be duplicated in this Standard?	Thank you for your question. Item removed; will consider referencing in Best Practice/Lessons Learned if appropriate as a reminder.
G 15	11	2.3.C Safety Classroom	3 Base	"laminated security glass" (lexan?)	Thank you for your question. Revised "laminated security glass" to "security glass" to allow various types if cost-effective.
J 16	11	2.3.C Safety Classroom	3 Base	Move to provisional	Accepted. Moved vision panel with "security glass" to Provisional.
G 16	11	2.3.C Safety Classroom	4 Base	These can and should be the same instrument	Concur; changed and to and/or.
J 17	11	2.3.C Safety Classroom	5 Base	Move to provisional	Thank you for your comment. Item removed; will consider referencing in Best Practice/Lessons Learned if appropriate as a reminder.
G 17	11	2.3.C Safety Classroom	Prov, new	Interior security	Thank you for your comment. Please provide specific classroom interior security elements for consideration.
G 18	11	2.3.C Safety Classroom	Prov, new	camera systems	Thank you for your comment. Security cameras in classrooms will be listed as Premium, not Baseline or Provisional.
H 8	11	C. Safety & Security	5 base	Where is it necessary to provide an NFPA approved escape window?	Thank you for your question. Item removed; will consider referencing in Best Practice/Lessons Learned if appropriate as a reminder.
E 39	12	2.3 Cat A - Cat D	2 Base	Throughout Finishes: conform to periods between Floor. Ceiling. Wall info	Edit incorporated.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 41	12	2.3 Cat A - Cat D	2 Base	remove random capitalizations (e.g., wall, window, teacher); spellout abbreviation (PT - paper towel)	Edit incorporated.
E 40	12	2.3 Cat A Gen Classroom	7 Prov	Move to be new Baseline Item 3?	Thank you for your question. Sinks K-5 to remain as a Provisional item. Grade 6 added in K-6 schools.
G 19	12	2.3 Cat A Gen Use Classroom	2 Base	Recommended edits "Floor: vinyl or rubber sheet at project and entry/exit areas (where used) <u>classroom sink and cubbie areas</u> , carpet <u>tiles</u> at teacher and student stations. "	Thank you for your comment. Standards have been edited for flexibility and clarity.
G 20	12	2.3 Cat A Gen Use Classroom	2 Base	Specialities: add "Interactive white boards are standard classroom equip"	This is included in Special Systems. Note: adjusted "interactive whiteboard" to "interactive display" to keep it broad because the use of TVs is becoming more common.
G 21	12	2.3 Cat A Gen Use Classroom	2 Base	Special Systems: delete "projector"; add "wireless internet" (reduces # ports needed)	Thank you for your comments. Acceptable classroom technologies will be listed.
G 22	12	2.3 Cat A Gen Use Classroom	2 Base	Equipment/Furnishings: of course a classroom needs furniture	Thank you for your comment. Baseline is not equal to 'required'. Document is being normed to exclude FF&E.
H 10	12	2.3 Cat A Gen Use Classroom	2 Base	Specialties: Does it mean that we must have these specific sizes and quantities? Or is this the maximum?	Thank you for your question. Sizes removed from some Specialties.
H 9	12	2.3 Cat A Gen Use Classroom	2 Base	Why specifically tilt/turn- can it be amended to Operable?	Concur; adjusted.
J 19	12	2.3 Cat A Gen Use Classroom	2 Base	Planning factors: Recommend taking the max up to 1,000 sf.	Concur. Separated Elementary and Secondary; revised Elementary to 1250sf and Secondary to 1000sf.
J 20	12	2.3 Cat A Gen Use Classroom	2 Base	Windows: Tend to be maintenance issues	Changed to operable windows vs. tilt/turn.
J 21	12	2.3 Cat A Gen Use Classroom	2 Base	Specialties: Does the state want to be this specific on items like tack boards and white boards?	Concur; Standards will not specify sizes.
J 22	12	2.3 Cat A Gen Use Classroom	2 Base	Plumbing: This is program dependent. What about programs like Art and Science?	No change; specific use spaces such as Science and Art are discussed elsewhere.
J 27	12	2.3 Cat A Gen Use Classroom	2 Base	Special Systems: Wireless Access Points	No change, a wireless access point is not needed in each classroom.
J 28	12	2.3 Cat A Gen Use Classroom	2 Base	Specialities: 16' WB/8' TB max	Concur; Standards will not specify sizes.
N 14	12	2.3 Cat A Gen Use Classroom	2 Base	Planning factors: This minimum is larger than most of the classrooms at Bristol Bay which is a large school by rural standards.	Thank you for your comment. The minimum listed conforms to most schools reviewed.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
N 15	12	2.3 Cat A Gen Use Classroom	2 Base	Finishes: Assuming the rubber can be tiles as well. Please confirm carpet with an interiors specialist, specifically in rural areas where the school is not surrounded by hard surfaces such as pavement and concrete, thus a lot of sand and dirt gets brought into the building. There is concern on cleanliness and what can be held in the carpet.	Thank you for your comment. These finishes are the accepted Baseline. Will discuss flooring in Best Practice/Lessons Learned.
N 16	12	2.3 Cat A Gen Use Classroom	2 Base	Finishes: acoustic tile- Why cant this be a gyp ceiling? If ceiling is rated for some reason and helps with acoustics.	Thank you for your question/comment. Baseline will continue to list acoustic treatment. Gypsum will be allowed under Provisional. Please consider providing a Best Practice statement for ceiling design in classrooms.
N 17	12	2.3 Cat A Gen Use Classroom	2 Base	Specialites: Does not meet accessibility regs and some cabinets may be lower for younger students to wash their hands, access a bubbler, etc. .	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility requirements.
A 10	12	2.3 Cat A Gen Use Classroom	2 Base	finishes, walls could be painted gypsum wallboard, rather than painted	Thank you for your comment. Will try to clarify substrates and finishes when appropriate.
A 9	12	2.3 Cat A Gen Use Classroom	2 Base	Does the table's planning factors sq. footage comply with 4 AAC 31.020 Space calculations? Do the calculations support a minimum of 550 sq footage?	Thank you for your question. Planning factors are drawn from a spectrum of successful schools--all of which complied with 4 AAC 31.020.
K 10	12	2.3 Cat A Gen Use Classroom	2 Base	Finishes: Flooring: re. vinyl or rubber: resilient (allows for advances in the flooring industry without needing to edit the standard)	Thank you for your comment. Standards have been edited for flexibility and clarity.
K 11	12	2.3 Cat A Gen Use Classroom	2 Base	Finishes: Flooring: inclusion of walk-off systems which impact indoor air quality as well as maintenance and longevity of flooring systems throughout the facility; generally throw-down mats are insufficient and actually cause discoloration/long term damage of resilient flooring they may be laid upon	Thank you for your comment. Please consider submitting a Best Practice/Lessons Learned for this area.
K 12	12	2.3 Cat A Gen Use Classroom	2 Base	Specialities: too tall for accessibility compliance; 36" is suitable only where required to accommodate below-counter equipment, but should be 34" typical throughout a school facility or district support facilities	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
K 13	12	2.3 Cat A Gen Use Classroom	2 Base	Specialities: re. window coverings: glare control or actual black-out? our limited daylight and a physiological need to connect with daylight cycles implies a preference for glare control; appropriate digital displays can overcome ambient light levels for quality viewing	Accepted; revised to glare control. Black-out may move to Provisional or Best Practice/Lessons Learned.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 9	12	2.3 Cat A Gen Use Classroom	2 Base	Finishes: Flooring: sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Thank you for your comment. Standards have been edited for flexibility and clarity.
D 23	12	2.3 Cat A Gen Use Classroom	2 Table	specialties- Why 36 base and 42 uppers? doors on uppers could become unwieldy and more expensive for larger upper cabinet size	No change. 42in accepted as Baseline to maximize storage potential. This does not preclude 36in uppers.
D 24	12	2.3 Cat A Gen Use Classroom	2 Table	Special Systems-extra data ports are becoming unnecessary with wifi routers in most schools. More outlets may be more valuable and cost efficient. and/or consider limiting number of extra drops at each data location - saving cost. Cables usually need replacement due to upgrade before they need the backup	Thank you for your comment. Will revise to discuss wireless and wired in the context of Baseline, Provisional and Best Practice/Lessons Learned.
A 11	12	2.3 Cat A Gen Use Classroom	4 Prov	Should be a baseline for K-12?	No change. Classrooms serving K-5 may incorporate this as Baseline.
A 12	12	2.3 Cat A Gen Use Classroom	4 Prov	Does DEED fund Pre-K Educational space? If not, why specify the space you do not support?	Thank you for your question. Funding for special needs Pre-K is part of the state's allocation.
J 23	12	2.3 Cat A Gen Use Classroom	4 Prov	Extend through Primary Pre-K through 6th in elementary schools.	Agree; adjusted to Pre-K through 6th for this school type.
N 18	12	2.3 Cat A Gen Use Classroom	4 prov	There are concerns with open cubbies and the spread of lice, etc. Bristol Bay installed lockers for this reason.	Thank you for your comment. The divisions between cubbies can be manufactured to make sure that students personal items do not touch other students items.
D 25	12	2.3 Cat A Gen Use Classroom	5 Prov	cubbies may be required for pre	The wording includes Pre-K.
G 23	12	2.3 Cat A Gen Use Classroom	5 Prov	Recommended edits "Consider toilets <u>directly adjacent to</u> classrooms for grades Pre-K- <u>1st</u> ." Also, I'd make FRP standard and ceramic provisional	Partially accepted. Clarified wording to within classrooms. Premium will remain at 1st grade except for combination classrooms.
G 24	12	2.3 Cat A Gen Use Classroom	6 Prov	They scare little kids	Thank you for your comment. The wording currently reads consider, the use of standard flushers is an option.
J 26	12	2.3 Cat A Gen Use Classroom	6 Prov	Tilt turn are not user friendly. Maintenance headache	Agree; edited wording to be just operable.
G 25	12	2.3 Cat A Gen Use Classroom	7 Prov	Increase 5 to 6; add "with bubblers"	Thank you for your comment. Adjusted to Pre-K through 6th when in K-6 school type.
J 29	12	2.3 Cat A Gen Use Classroom	7 Prov	PT-Spell out for the first time used.	Edit incorporated

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 26	12	2.3 Cat A Gen Use Classroom	8 Prov	Agree but this is contradicted later in document	Accepted; will correct.
K 14	12	2.3 Cat A Gen Use Classroom	8 Prov	Delete "acrylic and" acrylic is a polymer; this is redundant and inconsistent with solid surface industry standards	Agreed; wording has been edited.
K 15	12	2.3 Cat A Gen Use Classroom	8 Prov	drop-in sinks w/ plam counters on marine-grade plywood is more durable, cost-effective and easier to deal with longterm. SLDS is a significant upgrade and can be field-repaired, but requires a specialist be flown into rural locations to do that work	No change. Plam is Baseline except in 'wet' counters.
J 18	12	2.3 Cat A Gen Use Classroom	Gen class	Recommend breaking apart primary and secondary schools for all educational spaces. Could be a table of systems and features that apply to both and tables with systems and features that are specific to that group of schools.	Thank you for your comment. Will consider but most can be adequately described by proper differentiation in single table.
G 27	12	2.3 Cat A Gen Use Classroom	Prov, new	Seamless vinyl flooring with cove base in toilet rooms	Agreed; wording has been edited.
J 24	12	2.3 Cat A Gen Use Classroom		Recommend breaking apart primary and secondary schools for all educational spaces. Could be a table of systems and features that apply to both and tables with systems and features that are specific to that group of schools.	Thank you for your comment. Will consider but most can be adequately described by proper differentiation in single table.
J 25	12	2.3 Cat A Gen Use Classroom		Equip/Furnishing: Tackboards, whiteboards, TV, interactive whiteboards	Thank you for your comment. Tackboards and whiteboards are addressed under Specialties. Added interactive display to Special Systems.
J 36	13	2.3 Cat A Art	13	Should be premium always	Concur.
B 5	13	2.3 Cat A Art	2 Base	Art Dedicated Classroom Baseline Ventilation: Recommend making negative pressure a provisional item only where necessary for program. Many art classrooms and elementary level are not using products like water colors, cranyons, etc that do that require ventilation	Agree; edited wording.
F 19	13	2.3 Cat A Art	2 Base	Specialties: Lists both 36 in and 52 in base cabinets.	Thank you for your comment. Will clarify. 52in base cabinets are for 24in deep storage unit greater than counter height.
G 30	13	2.3 Cat A Art	2 Base	Specialties: interactive whiteboard - make this consistent throughout document as either specialities or special systems	Thank you for your comment. Will consolidate in Special Systems as "interactive display".
J 32	13	2.3 Cat A Art	2 Base	Planning factors: What about secondary schools?	No change. Elementary and secondary are differentiated in Baseline and Provisional.
J 33	13	2.3 Cat A Art	2 Base	windows: Natural light is important for art spaces.	Thank you for your comment; windows are possible as drafted.
J 34	13	2.3 Cat A Art	2 Base	Specialties: This is really specific on the length of whiteboards and tackboards.	Agree; wording adjusted. Standards will not specify size/length.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
J 35	13	2.3 Cat A Art	2 Base	What about the wall finishes in ceramic areas, should they be tile for easier cleaning?	Agree; wording adjusted.
N 21	13	2.3 Cat A Art	2 Base	Planning: This criteria basically wipes out having a dedicated art room in most rural schools. can wording be added to allow the cultural education space to also serve for school art?	Thank you for your comment. Schools with small populations will rely on multi-use spaces.
N 22	13	2.3 Cat A Art	2 Base	Specialties: "52in base cabinets" Is this service or working ht counter? Not sure where this ht came from. Not typical	Thank you for your comment. Will clarify. 52in base cabinets are for 24in deep storage.
N 23	13	2.3 Cat A Art	2 Base	Specialities: "36in base cabinets" Does not meet accessibility regs.	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
A 13	13	2.3 Cat A Art	2 Base	finishes, walls could be painted gypsum wallboard, for wall substrate, painted	Thank you for your comment. Will try to clarify substrates and finishes when appropriate.
K 18	13	2.3 Cat A Art	2 Base	Finishes: resilient sheet is most appropriate. true polished concrete is great/ideal, but fewer than 3 contractors that can do it and it's a costly process; faux polished concrete is a maintenance nightmare and often presents a slip/fall hazard in art classroom	Thank you for your comment. Polished concrete to remain as Baseline subject to LCCA requirements.
K 19	13	2.3 Cat A Art	2 Base	Specialities: too tall for accessibility compliance; 36" is suitable only where required to accommodate below-counter equipment, but should be 34" typical throughout a school facility or district support facilities	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
D 26	13	2.3 Cat A Gen Use Classroom	10 Prov	is this in general planing as a baseline?	Thank you for your question. Item has been realigned to Provisional under General Planning Principles.
G 28	13	2.3 Cat A Gen Use Classroom	12 Prem	Increase grade 5 to 6	Thank you for your comment. Adjusted to Pre-K through 6th when in K-6 school type.
H 11	13	2.3 Cat A Gen Use Classroom	12 Prem	Some classrooms have the bubblers in older classrooms, so they don't lose students when they leave the classroom.	No change; 'wet' classrooms above grades 5 (6 when Provisional) will be Premium.
G 29	13	2.3 Cat A Gen Use Classroom	13 Prem	These can be very effective in providing flexible multi use spaces Recommend this move to provisional category	No change. Provisional to remain hinged double doors.
H 12	13	2.3 Cat A Gen Use Classroom	13 Prem	The use of demountable partitions have been installed to easily reconfigure space needed to support large changes in student populations	Thank you for your comment. This has seldom been proven in practice/experience.
D 27	13	2.3 Cat A Gen Use Classroom	13 Premiu	Provisional in section above.	Concur; will correct to Premium only.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
J 30	13	2.3 Cat A Gen Use Classroom	13 Premi	How is this under Premium in this section but in General Planning [pg 10] it is under Provisional [15 Prov]? Should be premium always	Concur; will correct to Premium only.
J 31	13	2.3 Cat A Gen Use Classroom	13 Premi	Should be premium always	Concur; will correct to Premium only.
N 19	13	2.3 Cat A Gen Use Classroom	15 Prem	wainscoting: Wall protection protects walls from little people pushing chairs, tables and other things up against them. This can be helpful in a reading nook corner or other active space. Saving gyp walls from being damaged can save the district repair money in the long run.	No change; few classroom perimeter walls are subject to this abuse.
H 13	13	2.3 Cat A Gen Use Classroom	17 Prem	Modest specialty lighting can add much to the feel of the building	Thank you for your comment.
K 16	13	2.3 Cat A Gen Use Classroom	B Best Pra	if nearly all classrooms have sinks, this conflicts with direction to consider solid surface at sinks	No change. Schools are likley to have counter tops in 'non-wet' areas.
K 17	13	2.3 Cat A Gen Use Classroom	B Best Pra	3mm PVC edge fare better longterm than post-formed edge and is less expensive and easier to install if you have L- or U-shaped counter arrangements	Thank you for your comment. Added to Best Practice/Lessons Learned.
N 20	13	2.3 Cat A Gen Use Classroom	Best Prac	such as wall protection.	Thank you for your comment. Assuming the note is for some form of wall protection above counters in lieu of traditionl backsplash. If so, please submit as a separate Best Practice.
N 25	14	2.3 Cat A Art	12 Prem	These are often used to hang up work below them and have class discussions and reviews of work, they are part of the teaching process. What is the distinction between utility and special light track lighting? This distinction is not made in this document for shop spaces. [Ref also Baseline 2 "utility track lighting"]	Thank you for your comment. Utility track lighting is curriculum driven and has function over form. Can add this to Standards in the future if not understood.
F 20	14	2.3 Cat A Art	2 Base	Special Systems: It appears there are less data ports per student in the art room than in a regular classroom, With the increase in digital media this seems backwards.	Thank you for your comment. Will revise to discuss wireless and wired in the context of Baseline, Provisional and Best Practice/Lessons Learned.
J 38	14	2.3 Cat A Art	2 Base	Lighting: "utility track lighting at display walls" - Premium	No change. Instructional lighting will be Baseline; decorative lighting will be Premium.
M 2	14	2.3 Cat A Art	2 Base	Plumbing: Solids interceptor should be standard regardless of anticipated programs as this will change with time.	Agree; adjusted wording.
A 14	14	2.3 Cat A Art	2 Base	Reconsider Kilns as a Premium. Kilns require additional ventilation, extra fire protection etc.	No change. Ceramic arts are supported for upper grades in feasible population sizes.

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K 20	14	2.3 Cat A Art	2 Base	Plumbing: in 7-12, ideally 1-piece stainless steel with integral splash, marine edge and drain board, especially for ceramics programs	Agree with the sinks. Added marine edge and drain board to Lesson Learned.
K 21	14	2.3 Cat A Art	2 Base	Power: retractable ceiling is preferred; floor aren't as flexible to support rearrangement and are susceptible to spills/craft supplies jamming outlets and rendering them useless.	Agree; wording updated
J 37	14	2.3 Cat A Art	9 Prem	In secondary schools this is part of the curriculum should this be provisional under secondary and premium under primary?	No change. Wording supports Baseline and Provisional items as stated.
N 24	14	2.3 Cat A Art	9 prem	This criteria seems to eliminate pottery in almost every school outside of Anchorage and every elementary school in the state. Several, if not most, elementary schools in Anchorage have kilns. Was that the intent?	Thank you for your question. Factors support the realities you mentioned. Also, non-fired sculpting art can be provided with other materials.
G 31	14	2.3 Cat A Science	1 Base	Prep room?	Concur; added prep room under planning factor support spaces.
J 47	15	2.3 Cat A Music/Drama		For 6-8 and 9-12 does Band, Orchestra and Choir are encompassed in Music? Each room has different needs and requirements	Thanks you for your comment. Larger programs may provide for additional differentiated spaces.
G 32	15	2.3 Cat A Science	2 Base	Finishes: Floor: there may be more durable products for the application	Thank you for your comment. Resilient flooring is Baseline. Please suggest material and parameters for additional types for consideration.
G 33	15	2.3 Cat A Science	2 Base	consider using bottled propane rather than plumbing gas to stations. Movable lab tables can be very effective rather than built in stations. Consider is resin counter tops are actually needed.	Thank you for your comment. Will include these in Provisional.
J 39	15	2.3 Cat A Science	2 Base	Educational space- Will this apply for both primary and secondary?	Thank you for your question. Below grade 7, a dedicated Science room is not Baseline.
J 40	15	2.3 Cat A Science	2 Base	Specialties: Does the state want to manage how long whiteboards and tackboard are? This is very specific.	Agree; wording adjusted. Standards will not specify size/length.
J 41	15	2.3 Cat A Science	2 Base	windows: Science classrooms should have access to natural lighting, windows should be encouraged.	No change. Windows not restricted except by program elements (e.g., wall storage, fume hoods, prep rooms, etc.).
J 42	15	2.3 Cat A Science	2 Base	Will this apply for both primary and secondary?	Thank you for your question. Below grade 7, a dedicated Science room is not Baseline.
J 43	15	2.3 Cat A Science	2 Base	Specialties: Does the state want to manage how long whiteboards and tackboard are?This is very specific.	Agree; wording adjusted. Standards will not specify size/length.
J 44	15	2.3 Cat A Science	2 Base	Plumbing: Eye wash stations and deluge showers are in provisional if plumbed in why is portable identified here?	Thank you for your question. Many programs can be supported adequately with portable eye wash. Plumbed systems are allowed under Provisional.
J 45	15	2.3 Cat A Science	2 Base	What about prep rooms?	Agree; added.
M 4	15	2.3 Cat A Science	2 Base	Vent/Exh: This may not capture all odors (<i>speaking to direct exhaust at demonstration center</i>)	Thank you for your comment. This is a permitted Baseline element for integration into total system design.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
O 2	15	2.3 Cat A Science	2 Base	When say" Optional" What does this mean?	Thank you for your question. Optional at Windows acknowledges limitation presented by program elements (e.g., wall storage, fume hoods, prep rooms, etc.). It does not restrict including windows. Edited to specify one operable unit minimum.
K 22	15	2.3 Cat A Science	2 Base	Finishes: "vinyl or rubber" - resilient (allows for advances in the flooring industry without needing to edit the standard)	Agree; wording adjusted
K 23	15	2.3 Cat A Science	2 Base	Equipment/Furnishings: separate acid, flammables and general chemical storage cabinets, lockable, provides better inventory control and safety, especially in case of earthquake which could otherwise render chemicals spilling and mixing in storage area	Thank you; added to Best Practice/ Lessons Learned.
J 46	15	2.3 Cat A Science	2 Prov	Add Gas for Chemistry and fume hoods.	Concur; added under Provisional number 5.
G 34	15	2.3 Cat A Science	5 Prov	Consider where chemical resistance is actually needed – significant cost factors	Agree; adjusted
G 35	15	2.3 Cat A Science	Prov, new	Built-in lab stations – especially in smaller schools- consider movable counter height lab tables.	Agree; will add as Provisional.
M 5	15	2.3 Cat A Science	X Prov	Add. Consider power for hot plates for chemistry labs in place of gas.	Agree; will add as Provisional.
M 6	15	2.3 Cat A Science	X Prov	Add. Consider dedicated room exhaust for chemistry, biology, and other labs that may have objectionable odors.	Agree. Codes and Standards limit or prohibit recirculation of air from Educational Science Classrooms; not provisional. Added to Baseline Ventilation
M 3	15	2.3 Cat A Science		Specialities: Typically higher storage requirements for microscopes and other teaching aids.	Agree; the storage does not have a maximum amount of storage identified.
G 38	16	2.3 Cat A Music/Drama	13 Prem	Seems like these might be cost effective	Agree; will add to Provisional
G 36	16	2.3 Cat A Music/Drama	2 Base	Finishes: Walls: acoustical wall treatment	Accepted; added sound absorptive material.
G 37	16	2.3 Cat A Music/Drama	2 Base	Special Systems: Interactive WB	No change. Not included in majority of sample ed spec, not supported.
J 48	16	2.3 Cat A Music/Drama	2 Base	Finishes: Four accoustical reasons carpet is recommendable for music classrooms	Change to rubber only for 'foot traffic' absorption. Carpet not supported in majority of sample ed specs.
J 49	16	2.3 Cat A Music/Drama	2 Base	Specialties: Does the state need to state how long a white board is? Missing tackboards. What about acoustical panels? What about sheet music storage for secondary programs?	Whiteboard lengths removed from Standards. Free standing bandshell panels can be FF&E, added as Provisional.
J 50	16	2.3 Cat A Music/Drama	2 Base	Special Systems: should humidity be taken into consideration for orchestra spaces?	No change. Humidity control would be a Premium.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 24	16	2.3 Cat A Music/Drama	2 Base	Finishes: sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Accepted; generally tile vs. sheet is acceptable.
K 25	16	2.3 Cat A Music/Drama	2 Base	Finishes: include acoustical treatment at walls and ceilings to manage reverb, sound levels during practice, and transfer to adjacent spaces in facilities that cannot beef up physical separations/assemblies	Accepted.
K 26	16	2.3 Cat A Music/Drama	2 Base	Finishes: "vinyl or rubber" - resilient (allows for advances in the flooring industry without needing to edit the standard)	Accepted.
K 27	16	2.3 Cat A Music/Drama	2 Base	Specialities: window coverings: glare control or actual black-out? our limited daylight and a physiological need to connect with daylight cycles implies a preference for glare control; appropriate digital displays can overcome ambient light levels for quality viewing	No change. Windows not Baseline in 7-12 programs.
E 42	16	2.3 Cat A Music/Drama	4 Prov	Edit to "Consider adjacency to Multipurpose Room, Auditorium, or Stage; access to performance areas."	Partially accepted; conformed to Standards' space names.
N 26	16	2.3 Cat A Music/Drama	7 prov	a word or punctuation is missing here -after doorways	Accepted; added 'where'.
J 51	16	2.3 Cat A Music/Drama	9 Prov	Should the space have recording capabilities for secondary programs?	No change. Recording capabilities could be FF&E in support of curriculum.
A 15	16	2.3 Cat A Music/Drama	Base Table	Finishes should identify acoustic sound absorbing materials for walls and ceilings in addition to acoustic separation	Accepted.
E 43	17	2.3 Cat A - Bi- cultural	3 Prov	If afterhours or community use, are the associated locking features to isolate from other educational areas not open to public?	Thank you for your question. After hours access into other interior spaces will also need attention.
K 28	17	2.3 Cat A Bi- Cultural	2 Base	Finishes: Flooring: sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Accepted; tile added.
K 29	17	2.3 Cat A Bi- Cultural	2 Base	Finishes: Flooring: re. vinyl or rubber: resilient (allows for advances in the flooring industry without needing to edit the standard)	Accepted.
K 30	17	2.3 Cat A Bi- Cultural	2 Base	Equipment/Furnishings: any laundry appliances, too?	No change to Baseline or Provisional. Added as Premium.
K 31	17	2.3 Cat A Bi- Cultural	2 Base	Specialities: too tall for accessibility compliance; 36" is suitable only where required to accommodate below-counter equipment, but should be 34" typical throughout a school facility or district support facilities	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 32	17	2.3 Cat A Bi-Cultural	2 Base	Specialities: re. window coverings: glare control or actual black-out? our limited daylight and a physiological need to connect with daylight cycles implies a preference for glare control; appropriate digital displays can overcome ambient light levels for quality viewing	Accepted; revised to glare control. Black-out may move to Provisional or Best Practice/Lessons Learned.
K 33	17	2.3 Cat A Bi-Cultural	2 Base	Equipment/Furnishings: conventional residential appliances may not meet requirements for accessibility; at least 1 kitchen space must provide access and possibly more depending on the size of the program	Thank you for your comment. Standard appliances will be part of Baseline subject to requirements of accessibility standards.
K 34	17	2.3 Cat A Bi-Cultural	4 Prov	Delete "acrylic and" acrylic is a polymer; this is redundant and inconsistent with solid surface industry standards	Accepted.
K 35	17	2.3 Cat A Bi-Cultural	4 Prov	drop-in sinks w/ plam counters on marine-grade plywood is more durable, cost-effective and easier to deal with longterm. SLDS is a significant upgrade and can be field-repaired, but requires a specialist be flown into rural locations to do that work	No change. Plam is Baseline.
M 8	17	2.3 Cat A Bi-Cultural	2 Base	Vent/Exh: Provide a Type II unit with integral fire extinguishing system. System to be designed for ADA compliant operation. Verify that Fire Marshal will allow just the use of a range hood as you are potentially cooking for the public. Will DEC kitchen requirements (hand sink, three comp, prep sink) be required?	No change. See Premium for commercial appliances.
M 9	17	2.3 Cat A Bi-Cultural	2 Base	Equip: Verify commercial <i>dishwasher</i> units (high temperature or chemical sanitation) are not required.	No change. See Premium for commercial appliances. Will consider adding this question/comment under Best Practice/Lessons Learned.
J 52	17	2.3 Cat A Bilingual	2 Base	Planning factor: Consider reducing space and coordinating with MPR	No change. Such options are not prevented by these Standards.
J 53	17	2.3 Cat A Bilingual	2 Base	windows: Recommend removing 42 inches.	No change; establishes a baseline.
J 54	17	2.3 Cat A Bilingual	2 Base	Does the state want to measure whiteboards and tack boards?	Standards will not specify size/lengths.
J 55	17	2.3 Cat A Bilingual	2 Base	Specialities: Assuming this is height.	Thank you for your comment.
J 56	17	2.3 Cat A Bilingual	2 Base	Planning factor: Consider reducing space and coordinating with MPR	No change. Such options are not prevented by these Standards.
N 27	17	2.3 Cat A Bilingual	2 base	Lighting: This is limiting when there are so may activities that could be happening in this space, may that require task lighting.	Accepted. Added a Provisional item.
M 7	17	2.3 Cat A Music/Drama	Best Practice B	And ventilation systems	Accepted; revised the statement for clarity.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 16	18	2. best practices	1. and 2.	this is a copy from the music/drama space. Bi-cultural space needs to be observant of the cultural an historical needs of the area/students being served.	Accepted; revised to a more general statement.
E 44	18	2.3 Cat A - Bi-cultural	Best Prac	Both items duplicated from Music above, what are more relevant items to Bi-Cultural?	Thank you for your comment. Intent was to acknowledge similarities of oversized materials and greater sound volumes in this instructional space. Wording revised to a more general statement.
G 39	18	2.3 Cat A Bi-Cultural	A Best Prac	Delete	Thank you for your comment. Wording revised to a more general statement.
M 11	18	2.3 Cat A Bi-Cultural	Best Practice B	And ventilation systems	Accepted; revised the statement for clarity.
M 10	18	2.3 Cat A Bi-Cultural	X Prem	Add. Fancy finishes?	No change. Not common for this instructional space.
F 7	18	2.3 Cat A Bi-Cultural/ Consumer Ed	11 Prem	All appliances in schools should be commercial grade or UL listed. We are not sure why commercial appliances if needed would be a premium.	No change. Commercial appliances are not needed; their inclusion would be Premium.
F 8	18	2.3 Cat A Bi-Cultural/ Consumer Ed	12 Prem	Not sure what is considered oversized or non-standard doors?	Thank you for your comment. Generally doors larger than 36in width/80in height.
N 28	18	2.3 Cat A Bilingual	8 prov	which often need special lighting	Accepted. Added a Provisional item.
E 45	18	2.3 Cat A Spec Ed	2 Base	Walls: add "48in in wet areas"; delete last sentence - duplicative?	Accepted; corrections made.
E 46	18	2.3 Cat A Spec Ed	2 Base	Windows: just say "42in" and delete "~"?	Partially accepted; corrections made.
N 29	18	2.3 Cat A Spec Ed	2 base	Finishes: Carpet on the floor and tile on the wall is an odd, nontypical combination	Accepted; corrections made.
K 36	18	2.3 Cat A Spec Ed	2 Base	Finishes: Flooring: re. vinyl or rubber: resilient (allows for advances in the flooring industry without needing to edit the standard)	Accepted throughout.
K 37	18	2.3 Cat A Spec Ed	2 Base	Specialities: too tall for accessibility compliance; 36" is suitable only where required to accommodate below-counter equipment, but should be 34" typical throughout a school facility or district support facilities	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
G 40	18	2.3 Cat A Special Ed	1 Base	Rural schools this space often supports itinerant school staff staying overnight in the school	Thank you for your comment. State aid through AS 14.11 cannot be used to support this use.
J 57	18	2.3 Cat A Special Ed	12 premiu	3'0" or 3'6"/ 7'0" or 8'0" ????	Thank you for your question. If related to standard door size, 36in width/80in height.
G 41	18	2.3 Cat A Special Ed	2 Base	Specialties: interactive whiteboard	No change. Listed in Special Systems.
J 58	18	2.3 Cat A Special Ed	2 Base	Does the state want to measure whiteboards and tack boards?	Standards will not specify sizes.
M 12	18	2.3 Cat A Special Ed	2 Base	Finishes: Do walls need to be impact resistant?	Accepted; added at OT/PT in Baseline.

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M 13	18	2.3 Cat A Special Ed	3 Prov	Probably OK with residential as this is primarily for training purposes.	Thank you for your comment.
K 39	19	2.3 Cat A Spec Ed	3 Prov, 9 Prem	at least 1 instructional kitchen must meet accessibility requirements	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
K 38	19	2.3 Cat A Spec Ed	4 Prov	Delete "acrylic and" acrylic is a polymer; this is redundant and inconsistent with solid surface industry standards	Accepted throughout.
K 40	19	2.3 Cat A Spec Ed	4 Prov	drop-in sinks w/ plam counters on marine-grade plywood is more durable, cost-effective and easier to deal with longterm. SLDS is a significant upgrade and can be field-repaired, but requires a specialist be flown into rural locations to do that work	No change. Plam is Baseline.
E 47	19	2.3 Cat A Spec Ed	D Best Pra	Swings and hanging equip not addressed in baseline/provisional. Include this accompanying structural item.	Accepted; added examples in Baseline Equipment.
G 42	19	2.3 Cat A Special Ed	2 Base	Special Systems: delete "projector," delete "(~1 per 4 students + teaching station" too many especially if school has wireless)	No change. Equipped equal to General Classroom.
G 43	19	2.3 Cat A Special Ed	3 Prov	Washer/dryer	Accepted; added as Provisional.
J 60	19	2.3 Cat A Special Ed	3 Prov	Transition programs usually include washer and dryer.	Accepted; added as Provisional.
J 59	19	2.3 Cat A Special Ed	7 Prov	Consider changing table and lift.	Accepted; added examples in Baseline Equipment.
J 61	19	2.3 Cat A Special Ed	9 premium	Why only K-5? older students needs to have access to Kitchenettes as part of Life Skills program	No change. As written excludes program in K-5 only schools except as Premium.
M 14	19	2.3 Cat A Special Ed	Best Practice D	And health/hygiene support room?	No change. Not seeing this need at restroom spaces.
M 15	19	2.3 Cat A Special Ed	Best Practice D	Consider impact resistant accessories and fastener systems.	Thank you for your comment. No change; suggested edit is unclear.
J 62	19	2.3 Cat A Special Ed	Best pract	What about adjacencies and location on ground floors in multi story buildings?	Accepted; added as Best Practice/Lessons Learned.
H 14	19	Cat A Spec Ed	19 base	2. ADD: washer and dryer	Accepted; added as Provisional.
H 15	19	Cat A Wood	12 base	This description seems like a description of a art room not a shop...possibly amend description to reflect a maker-space.	Accepted; revisions made.
D 28	20	2 Design principles-library /Media	1 base	replace "supports" with support	Accepted.
M 22	20	2.3 Cat A Shop	10 Prem	Portable HEPA filter for welding shops to support activities outside of hooded areas under FF&E.	Thank you for your comment. Added under Lessons Learned.
M 16	20	2.3 Cat A Shop	2 Base	Finishes: At least 6ft boards are swung around in here.	Thank you for your comment. Wall protection Baseline raised to 8ft.
M 17	20	2.3 Cat A Shop	2 Base	Specialities: Lockable tool cabinets and/or parts storage room.	Accepted. Added to Specialities and as a Provisional item.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 18	20	2.3 Cat A Shop	2 Base	Vent/Exh: Dedicated room exhaust for odor control (baseline)	No change. Baseline provides for exhausting per code.
M 19	20	2.3 Cat A Shop	2 Base	Power: ; 220v power for equipment as needed; emergency shunt for tool circuits; See Premium below.	Accepted; revisions made.
M 21	20	2.3 Cat A Shop	8 Prov	Best practice is to use recirculating dust collection system to reduce energy usage (make-up air)	Accepted; revisions made.
M 20	20	2.3 Cat A Shop	Baseline X	Is there a Fire Suppresion section? Sprinkler heads should have guards when located within 10 ft of the floor. Design system in this space for Ordinary Hazard.	Thank you for your question. Section 084 Fire Protection contains guidelines but this standard does not restate applicable codes (NFPA).
K 41	20	2.3 Cat A Shops	2 Base	Finishes: "or steel dimond plate" - expensive! overkill	Thank you for your comment. Added provision to meet CF-4 for cost control.
J 66	20	2.3 Cat A Wood	10 premiu	Compressed air in shops are typical.	No change. Unable to verify this claim in sample ed specs reviewed.
G 44	20	2.3 Cat A Wood	2 Base	Doors: Pair of 3'0 with removable mullion exterior door. Ramp as required	Accepted. Added to Best Practice/Lessons Learned as an alternative to an overhead door.
G 45	20	2.3 Cat A Wood	2 Base	Ventilation: For small schools provision for interior welding is a premium. Most of these spaces end up unused for that purpose.	No change. Provisional 9 references larger programs.
J 63	20	2.3 Cat A Wood	2 Base	Finishes: Ceiling: Open to structure. No tiles	No change. Provisional 4 addresses this.
J 64	20	2.3 Cat A Wood	2 Base	Specialties: Does the state want to measure lockers, whiteboards and tack boards?	Standards will not specify size/length.
J 65	20	2.3 Cat A Wood	2 Base	Power: What about emergency equipment shut offs?	Thank you for your question. Added under Baseline.
G 46	20	2.3 Cat A Wood	9 Prov	Define large	Accepted. Added a Premium definition requiring three or more welding booths.
N 30	20	2.3 Cat A Wood Shop	2 base	Finishes: Steel- this can get really slick with sawdust on it. Where would this be?	Thank you for your comment. Added a Provisional item.
G 47	21	2.3 Cat A Library	2 Base	In lead-in, add "for schools with a dedicated librarian:"	No change. Document set out an accepted baseline.
G 48	21	2.3 Cat A Library	2 Base	Equipment/Furnishings: Circulation desk optional book cases, tables, chairs	Partially accepted. Baseline allows for this casework. Other FF&E added.
M 23	21	2.3 Cat A Library	2 Base	Vent/ExH: system designed to minimize acoustics.	Accepted; added to Baseline.
K 42	21	2.3 Cat A Library	2 Base	Finishes: re "vinyl or rubber" - the term "resilient" is more consistent with industry standard terminology and more appropriate & evergreen for a standards doc	Accepted throughout.

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K 43	21	2.3 Cat A Library	4 Prov	"Provide 36in base cabinets" - too tall for accessibility compliance; 36" is suitable only where required to accommodate below-counter equipment, but should be 34" typical throughout a school facility or district support facilities	Thank you for your comment. Standard casework will be part of Baseline subject to requirements of accessibility standards.
E 48	21	2.3 Cat A Library	5 Prov	Consider making second sentence of item 5 and item 6 into sub-bullets to item 5.	No change. Thank you for your comment.
N 31	21	2.3 Cat A library	5 prov	36in?	No change. Intent is standard height.
G 52	22	2.3 Cat A Gym	1 Base	Very much agree with objective but it might benefit from being specific about court size provided. I.e: identify the size of the basketball court different size school qualify for (jr high, high school)(and what that sq ft is) and be specific that the allocation is just the court and overall size of school is per sq ft formula – unless the Department amends the formula to carve out gym space.	Thank you for your comment. Added a common court size for each bracket. Not sure this will ultimately prove helpful.
G 53	22	2.3 Cat A Gym	2 Base	Planning Factor Note 1: I think this is confusing as written. Gym including bleacher area is going to be high bay space	Thank you for your comment. The addition of spectator space to these defined brackets will be dependent on additional available space within the overall space allocation.
G 50	22	2.3 Cat A Library	11 Prem	This is appropriate for library – cost effective why to make space special	No change. Thank you for your comment.
G 51	22	2.3 Cat A Library	12 Prem	Within reason this is appropriate	No change. Thank you for your comment.
F 9	22	2.3 Cat A Library	13 Prem	Generally agree with reducing the number of exterior doors, but spaces with an occupancy load of more than 50 persons may require multiple exits depending on the design	Thank you for your comment. Code provisions would govern over this Standard.
E 49	22	2.3 Cat A Library	6 Prov	edit "&" to "and"	Accepted.
G 49	22	2.3 Cat A Library	8 Prov	??? Consider afterhours entrance to support extended use	Accepted. Added to Provisional 8.
E 50	22	2.3 Cat A Library	B Best Pra	Rewrite for more clarity	Accepted; revised.
M 24	22	2.3 Cat A Library	Prov, new	Design walls, doors, structural and ventilation systems to minimize noise transmission into space.	Accepted; added to Best Practice/Lessons Learned .
A 17	23	2. Gym	base	Consider wall padding for gym wall as a baseline for safety reasons.	No change. Provisional provides flexibility.
E 51	23	2.3 Cat A Gym	2 Base	Windows: any recommendations if the option is considered?	Accepted; Provisional item added.
G 54	23	2.3 Cat A Gym	2 Base	Finishes: Floor: it is more typical to have exposed ceilings and put acoustics on the wall. Walls: is wall or players being protected	Partially accepted; exposed structure option added to Ceilings.

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G 55	23	2.3 Cat A Gym	2 Base	Doors: Need exterior doors for exiting. Need at least one pair of 3'0 doors	Accepted; added 'exterior' at Doors and referenced Safety & Security Building Design.
G 56	23	2.3 Cat A Gym	2 Base	Windows or insulated translucent panels. Standard windows as generally a problem in gyms due to glare	Accepted; Provisional item added.
G 57	23	2.3 Cat A Gym	2 Base	Specialies: Wall pads behind backboards	No change. Addressed by Provisional 11.
G 58	23	2.3 Cat A Gym	2 Base	Lighting: High-bay fixed or pendant <u>with ball protections</u>	Accepted; revised.
G 59	23	2.3 Cat A Gym	2 Base	Special Systems: protected sprinkler heads	Accepted; added to Provisional 8.
G 60	23	2.3 Cat A Gym	2 Base	Equip: in floor volley ball sleeves	No change; included as Provisional 13.
K 44	23	2.3 Cat A Gym	2 Base	Finishes: add impact mats over protective wainscot - recommended for general K-12 gymnasium use and not just for basketball	No change. Adequately covered in Provisional 11. Could consider full padding in Premium.
G 61	23	2.3 Cat A Gym	22 Prov	Baseline	Accepted; added at Baseline.
E 52	23	2.3 Cat A Gym	23 Prov	Baseline or Provisional. Change lead-in for provisional to "Consider providing..." (also, correct list numbering)	Accepted; revisions made.
G 62	23	2.3 Cat A Gym	23 Prov	Baseline	Partially accepted. Left in Provisional with additional items noted.
M 25	23	2.3 Cat A Gym	23 Prov	Add. Sprinkler heads	Accepted; revisions made.
G 63	23	2.3 Cat A Gym	24 Prov	Ventilation an issue for all gyms condensation is often a problem	Thank you for your comment.
A 18	24	2. Gym	Best Pract	Provide after hour access to gym space while restricting access while restricting to remainder of school	Accepted; revisions made.
G 64	24	2.3 Cat A Gym	28 Prov	standard	No change. Thank you for your comment.
F 10	24	2.3 Cat A Gym	30 Prem	In Climate zone 8, a reasonable and justifiable consideration for indoor activity spaces is prudent because of severe winters.	No change. Thank you for your comment.
E 53	24	2.3 Cat A Gym	33 Prem	singular "system" (also, correct list numbering)	Accepted.
F 11	24	2.3 Cat A Gym	34 Prem	This premium maybe too limiting. Designers and operators should have the flexibility to specify material that are reasonable and durable for the project based on use.	No change. Thank you for your comment.
G 65	24	2.3 Cat A Gym	34 Prem	Want to add oversized courts?	Thank you for your question. Item does not address court size, only floor system.
M 28	24	2.3 Cat A Gym	Best Prac, new	Avoid radiant floor systems. They may damage the floor system and cannot react quick enough to large gatherings resulting in over heating.	Accepted; revisions made.
M 29	24	2.3 Cat A Gym	Best Prac, new	Zone heating and ventilation system so that gymnasium and after hour space activities can operate separately from the rest of the school. (This really should be a Base Condition)	Accepted; revisions made.
M 27	24	2.3 Cat A Gym	Best Practice C	Locate doors to be able to isolate gymnasium, restrooms, and other after hour spaces from rest of school.	Accepted; added as a new item.

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M 26	24	2.3 Cat A Gym	Prov, new	Consider destratification fans, protected against damage.	Accepted; added as a new item.
G 66	24	2.3 Cat A Gym		Where is locker room info?	Thank you for your question. See Category C - General Support for Locker Room.
G 67	24	2.3 Cat B Office	2 Base	remove carpet at breakroom	No change. Agree that some resilient may be needed at food prep area.
K 45	24	2.3 Cat B Teacher Workroom	2 Base	Finishes: sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Accepted throughout.
K 46	24	2.3 Cat B Teacher Workroom	2 Base	Finishes: Flooring: re. vinyl or rubber: resilient (allows for advances in the flooring industry without needing to edit the standard)	Accepted throughout.
H 16	24	Cat A Gym	30 prem	In some communities, the only option for this type of activity is indoors. This activity does not have to be on a mezzanine- it could also be stripping on the first floor	Thank you for your comment. Running is permitted; a 'running track' will remain Premium.
E 54	25	2.3 Cat B Counseling	2 Base	Planning Factor: change verbiage from "levels provide" to "range provides"	Accepted.
G 72	25	2.3 Cat B Counseling	2 Base	Doors: Relite to corridor with blinds	Accepted. Will add under Doors or a line for interior glazing.
G 73	25	2.3 Cat B Counseling	2 Base	Windows: Optional	Accepted.
G 68	25	2.3 Cat B Teacher Workroom	2 Base	Specialties: interactive whiteboard	No change. Not typical for these Support Teaching spaces.
G 69	25	2.3 Cat B Teacher Workroom	2 Base	16' of board doesn't leave much room for cabinets I'd delete length	Accepted; sizes removed throughout.
G 70	25	2.3 Cat B Teacher Workroom	2 Base	Power: needs more than one for appliances	Accepted; added power for appliances.
G 71	25	2.3 Cat B Teacher Workroom	2 Base	Equip: coffee maker	Thank you for your comment. All FF&E will be removed from the document tables unless connection to building services is required.
K 47	25	2.3 Cat B Teacher Workroom	6 Prov	Delete "acrylic and" acrylic is a polymer; this is redundant and inconsistent with solid surface industry standards	Accepted throughout.
K 48	25	2.3 Cat B Teacher Workroom	6 Prov	drop-in sinks w/ plam counters on marine-grade plywood is more durable, cost-effective and easier to deal with longterm. SLDS is a significant upgrade and can be field-repaired, but requires a specialist be flown into rural locations to do that work	No change. Plam is Baseline.
F 12	25	2.3 Cat B Teacher Workroom	8 Prem	A flexibility in selecting and specifying commercial appliances maybe reasonable based on use and availability.	No change. Not typical for these Support Teaching spaces.

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D 29	26	2 Ed Resource	2 Base	Equipment/Furnishings- this space could get structural loading greater than library..	Accepted. Added as Best Practice/Lessons Learned.
A 19	26	2. dedicated space	3. Prov	Provisional consideration specifies an STC rating for counseling/testing spaces. Should DEED also Specify STC rating for other educational space where sound control is desired?	Thank you for your question. Not seen as necessary at this time.
A 20	26	2. Educ Resource Storage	2. Prov	Education Resource storage- is carpet the right flooring choice for a storage room?	Accepted; revisions made.
G 74	26	2.3 Cat B Counseling	2 Base	Specialties: delete "Open wall shelving, 8lf"	No change. Provided in lieu of casework.
G 75	26	2.3 Cat B Counseling	2 Base	Equip: delete "refrigerator, microwave" add "Work station, conference table chairs"	Accepted; revisions made.
M 30	26	2.3 Cat B Counseling	2 Base	Vent/Exh: . . . provide acoustic separation.	No change. White noise acceptable within reason.
E 55	26	2.3 Cat B Counseling	3 Prov	Why specific here but not in other areas previously?	Thank you for your question. This space is more acoustically sensitive than other spaces.
M 31	26	2.3 Cat B Counseling	3 Prov	Wouldn't this be base?	Thank you for your question. Can be a design decision based on other factors.
G 76	26	2.3 Cat B Counseling	Best Practice	Some separation from admin office desirable	Accepted; revisions made.
E 56	26	2.3 Cat B Ed Storage	2 Base	Planning Factor: change verbiage from "levels provide" to "range provides"	Accepted.
G 77	26	2.3 Cat B Ed Storage	2 Base	Finishes: delete "carpet" add "vinyl or VCT"	Accepted; revised to resilient.
G 78	26	2.3 Cat B Ed Storage	2 Base	Equip: Shelving	No change. Included under Specialties.
K 49	26	2.3 Cat B Teacher Workroom	2 Base	Finishes: recommend resilient tile flooring for zero-threshold transition at door (easier cart rolling) and easier clean-up of supplies and classroom prep activities	Accepted; added threshold as a Best Practice.
J 67	27	2.3 Cat B Ed Storage	best pract	High density shelving can reduce sq footage.	Accepted; revisions made.
M 32	27	2.3 Cat B Timeout	2 Base	Finishes: <i>Ceiling</i> on impact resistant surface (not ACT). <i>Walls</i> 'vandal and impact resistant.'	Accepted; revisions made.
M 33	27	2.3 Cat B Timeout	2 Base	Lighting: Vandal and impact resistant light.	Accepted.
M 34	27	2.3 Cat B Timeout	2 Base	Power: No power in this room, not safe for the student.	Accepted.
M 36	27	2.3 Cat B Timeout	Best Prac, new	If your walls are less than 5 feet in any direction, they will be climbed.	Accepted.
M 35	27	2.3 Cat B Timeout	Prov, new	Sprinkler heads in timeout spaces to be tamper-proof and anti-ligature heads. Consider vandal resistant floor drain with trap primer in space with retractable hose reel under adjacent counter for wash down.	No change for drain and hose. Mop cleanup sufficient.

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G 80	27	2.3 Cat B Time-out	2 Base	Specialties: Needs to be observable	Thank you for your comment; incorporated. Will also consider camera system at Special Systems.
G 81	27	2.3 Cat B Time-out	Best Practice	Add "direct" supervision. Many schools have moved away from an isolated space and have students sit in a quiet area of the admin office or is large school a counseling area with assigned staff.	Accepted; added note as Best Practice.
G 79	27	2.3 Cat B Time-out		Rename to "In School Suspension" Optional as dedicated space	No change. Room names conform to CIP appendix.
E 57	27	2.3 Cat C Admin	1 Base	Lead-in for Counseling/Testing above. Rewrite appropriate for Administration activities.	Accepted; revisions made.
G 82	27	2.3 Cat C Admin	1 Base	Schools I work with want counseling and testing away from admin so student are more positive and less self conscious about going there.	Accepted; added as a Best Practice/Lessons Learned.
G 83	27	2.3 Cat C Admin	new	Reception and principal's office are major functions not adequately addressed here. Secure records and files need to be in this area. This section needs more work. Separate counseling and testing from admin – principal and reception and secure file room	Accepted; revisions made.
E 58	28	2.3 Cat C Admin	2 Base	Planning Factor: change verbiage from "levels provide" to "range provides"	Accepted; planning factors reworked.
G 84	28	2.3 Cat C Admin	2 Base	Windows: (not necessarily) if office needs to communicate with visitors in vestibule. view of front entrance	Partially accepted; clarifications made.
G 85	28	2.3 Cat C Admin	2 Base	Specialties: 8lf whiteboard may be too large	Thank you for your comment. Standards will not specify size.
G 86	28	2.3 Cat C Admin	2 Base	Special Systems: remove "head end"; add ability to control main entry	Partially accepted; added entry control.
G 87	28	2.3 Cat C Admin	2 Base	Equip: not needed in counseling but definately in office	Thank you for your comment.
G 88	28	2.3 Cat C Admin	6 Prov	Edit to "Consider <u>locating</u> a dedicated conference room <u>near by</u> "	Partially accepted; revisions made.
F 21	28	2.3 Cat C Admin	7 Prov	Blank	Accepted, removed.
G 89	28	2.3 Cat C Shared Space	1 Base	Edit to "for student and visitors", delete "visitor entry and welcome". Community meetings and may be used for student dining and large group instruction May serve as dining area.	Partially accepted; revisions made.

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K 50	29	2.3 Cat B Student Commons	2 Base	sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Accepted throughout.
G 90	29	2.3 Cat C Shared Space	2 Base	Windows: depends on design – often open area in middle of the school without windows	No change. Doesn't seem to be best-practice.
G 91	29	2.3 Cat C Shared Space	2 Base	Special Systems: remove phone, add projection screen	Accepted.
G 92	29	2.3 Cat C Shared Space	2 Base	Equip: delete table length; add dining tables lounge furniture, informal instructional furniture	Partially accepted; revisions made.
G 94	29	2.3 Cat C Shared Space	Best Practice	Larger K-12 schools may consider an additional smaller commons for secondary student use. This commons will be for informal student gathering and also breakout space.	Thank you for your comment.
G 93	29	2.3 Cat C Shared Space	Prov, new	New provisional items: 1. Consider for student dining. 2. Overflow or congregation space in support of gym activities. 3. Student store should be adjacent to the commons.	Partially accepted; some added as Provisional.
E 59	29	2.3 Cat C Student Commons	2 Base	Finishes: "FRP" Add to acronyms or spell out	Accepted.
E 60	29	2.3 Cat C Student Commons	4 Prov	Adjacencies better as a Best Practice/Lessons Learned?	Thank you for your question. Standards will address space adjacencies as Best Practice/Lessons learned vs Provisional.
K 51	30	2.3 Cat B Auditorium	2 Base	in aisle paths, carpet is recommended to minimize distracting noise from foot traffic	Accepted; added as Provisional.
E 61	30	2.3 Cat C Auditorium	2 Base	Finishes: What about carpet to muffle? Maybe a best practice/lessons learned?	Accepted; added as Provisional.
J 68	30	2.3 Cat C Auditorium	5 Prov, 6 P	Trap room?	Thank you for your question. Trap rooms will be treated as Premium.
E 63	30	2.3 Cat C Auditorium	7 , 8, 11 P	change " '-0" " to "ft"	Edit incorporated
E 62	30	2.3 Cat C Auditorium	7 Prem	edit "x" to "of"	Edit incorporated
K 52	31	2.3 Cat B Auditorium	Prem	variable acoustics (manual/mechanical or digital) in 9-12?	No change. Need additional clarity in comment.
K 53	31	2.3 Cat B Multipurpose	2 Base	Finishes: sheet is great for restrooms, art, science and pre-K/K, but tile may be more appropriate for rural locations - allowing installation and/or repair to occur with smaller crews and less specialized knowledge	Accepted throughout.
K 54	31	2.3 Cat B Multipurpose	4 Prov	kitchenette intended for student, staff or public use (i.e. potluck, visiting team, etc.) must be designed to accessible standards	Thank you for your comment. Standard casework will be part of Baseline or Provisional subject to requirements of accessibility standards.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 37	31	2.3 Cat C Multi	Prov, new	If this too is an after-hour space, then access to after-hour public restrooms will be needed. Same recommendation on HVAC zoning.	Accepted; revisions made.
J 69	32	2.3 Cat C Multipurpose	5 Premium	Gym/athletic finishes and equipment where school has a gym	Thank you for your comment; not seen as necessary.
G 96	32	2.3 Cat C Lunch	1 Base	disagree with "dedicated space" - should be a multipurpose space. "Student dining" Can occur in commons.	Thank you for your comment; dedicated space can still function in a multipurpose way.
G 95	32	2.3 Cat C Lunch		Should be in Multi-use, not dedicated space type.	Thank you for your comment.
K 55	33	2.3 Cat B Weight Rm	2 Base	Equip/Furnishing: weight lifting padstypical weight room flooring is still insufficient to protect structure and flooring from damage over time resulting from dropped weights. weight lifting pads are generally more accessible and provide protections of lifting platforms	Accepted; revisions made.
G 97	33	2.3 Cat C Lunch	2 Base	Equip: doesn't have to have integral seating; wall mounted folding tables are an option.	Partially accepted; edited Baseline and added pocket table provision at Lessons Learned.
J 70	33	2.3 Cat C Pool		Premium!!!!	Thank you for your comment.
M 38	33	2.3 Cat C Weight Rm	1 Base	Provide sound-batt in the walls and acoustical treatments for noise transfer.	Accepted; added as Provisional.
G 100	33	2.3 Cat C Weight Rm	2 Base	Lighting: Pendant not a good idea	No change. Comment not adequately supported.
G 101	33	2.3 Cat C Weight Rm	2 Base	Equip: Doesn't seem appropriate for a weight room – exercise equipment.	Thank you for your comment. Intent is for mats, fitness balls, etc.
G 99	33	2.3 Cat C Weight Rm	2 Base	Windows: Optional	Accepted.
M 39	33	2.3 Cat C Weight Rm	2 Base	Vent/Exh: Provide sound-batt in the walls and acoustical treatments for noise transfer.	Accepted; edits made.
M 40	33	2.3 Cat C Weight Rm	2 Base	Vent/Exh: negaitve pressure, general exhaust	Accepted; added as Provisional.
G 98	33	2.3 Cat C Weight Rm		Suggest grouping this with gym as they are related spaces	Accepted; added as Best Practice/Lessons Learned.
N 32	33	2.3 Cat C weight room	2 base	plumbing: Water fountains and bottle filters are good to have here. Will "none required" restrict having these in these spaces?	No change. Yes, this provision limits this fixture type outside of Premium.
O 3	33	Pool		Should the link to publication be included?	Thank you for your question. May add this feature in post 1st Edition if viable.
G 103	34	2.3 Cat C Locker Rm	2 Base	Finishes: Floor: ceramic tile- this is a premium. Sealed Sheet vinyl with cove base. Walls: ceramic tile – premium - FRP.	Accepted; revisions made.
G 104	34	2.3 Cat C Locker Rm	2 Base	Specialties: <u>Non-metalic</u> Partitions/curtains at showers. Plastic (not metal) lockers with locks	Accepted; added as Best Practice/Lessons Learned.
G 105	34	2.3 Cat C Locker Rm	2 Base	Plumbing: recessed hose bib stainless steel	Accepted.
G 106	34	2.3 Cat C Locker Rm	2 Base	Lighting: typo "override"	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 107	34	2.3 Cat C Locker Rm	2 Base	Special Systems: hair/hand dryers	Accepted.
M 41	34	2.3 Cat C Locker Rm	2 Base	Plumbing: lockable recessed hot and cold hose bibb.	Partially accepted; cold only.
M 42	34	2.3 Cat C Locker Rm	2 Base	Plumbing: restroom with toilet and lavatory.	No change. Referenced in Baseline 1.
M 43	34	2.3 Cat C Locker Rm	2 Base	Plumbing: showers are sometime being omitted as they are not being used. (more often used as storage) Would move this to Provisional.	Accepted.
M 44	34	2.3 Cat C Locker Rm	2 Base	Ventilation: negative pressure, dedicated exhaust.	No change; will let codes govern.
G 102	34	2.3 Cat C Locker Rm		Move this to follow gym description. These spaces all go together	Thank you for your comment; there are other factors.
E 64	34	2.3 Cat C Locker Room	1 Base	Align last sentence to other space name "Often combined with space from Category D - Supplementary Restroom/Toilet allocations."	Edit incorporated
N 34	34	2.3 Cat C locker room	2 base	Specialities: will privacy panels (reduced gaps between panel components) vs. regular panels for showering be a premium?	Thank you for your question. Added as a Provisional item.
N 33	34	2.3 Cat C weight room	best pract	On Bristol Bay we found cracked joists from dropped weights when the weight room was on the 2nd floor and frames in with regular floor joists and sheathing. Special (read Expensive) absorbing floor structure may be needed depending on where in the buuilding the room is located.	Accepted; added as Best Practice/Lessons Learned.
K 57	35	2.3 Cat C Kitchen	2 Base	Finishes: Flooring: porcelain or quarry tile typical; slip-resistant resilient safety flooring w/ integrally covered base is a good alternative that is cost-effective, safer from a slip/fall standpoint, more comfortable for staff standing long periods of time, and more durable in facilities where foundation systems may be moving (wood subfloors, permafrost concerns)	Accepted; added as Provisional.
G 108	35	2.3 Cat C Kitchen		Relocate to follow commons area	No change; sequence governed by other factors.
K 56	35	2.3 Cat C Nurse	2 Base	Finishes: resilient sheet w/ integrally-covered base for easier cleanup and improved infection control	Accepted; edits made.
M 45	35	2.3 Cat C Nurse	2 Prov	New CDC Guidelines for COVID recommends dedicated exhaust to the outside for each isolation and treatment room with local on/off switch. Ventilate per ASHRAE 170 at 10 ACH.	Accepted; add as Provisional.
N 35	35	2.3 Cat C Nurse	5 Prov	spelling- omit on and add en-suite?	Accepted.
J 71	35	2.3 Cat C Nurse	Best pract	Adjacency with administration suite in order for coverage if needed.	Accepted; added as Best Practice/Lessons Learned.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 22	35	Equip/furnishings	6. prov	consider an exam type bed for the nurse toom for children feeling ill while at school.	Partially accepted; added cots and exam curtains to Baseline.
O 4	35	Nurse	1 Base	Should the table be under baseline as it is for other sections? What about toilet & sink? Is this allowable?	Accepted; revisions made.
A 21	35	Nurse	base	If space for a nurse is not a baseline element for space, and assuming the space is likely a factor in the 4 AAC 31.020 space calculations where is space being utilized in the facility?	Accepted; revisions made.
B 6	36	2.3 Cat C Kitchen	2 Base	Art Dedicated Classroom Baseline Ventilation: Recommend revising to read: "As calculated for code compliance; commercial Type 1 or 2 hood"	Accepted; revisions made.
E 65	36	2.3 Cat C Kitchen	2 Base	change ' 42" ' to "42in"	Edit incorporated
G 109	36	2.3 Cat C Kitchen	2 Base	Finishes: ceramic/quarry tile/ sealed slip resistant sheet goods with cove base;	Accepted; added as Provisional.
G 110	36	2.3 Cat C Kitchen	2 Base	Lighting: don't see dimming as necessary	Accepted.
M 46	36	2.3 Cat C Kitchen	2 Base	Plumbing: Grease interceptor.	Accepted (though really code).
M 47	36	2.3 Cat C Kitchen	2 Base	Vent/Exh: This could be a Type I depending on the appliances. Recommend "commercial Type 1 or 2 hood and make-up air per code compliance".	Accepted; revisions made.
M 48	36	2.3 Cat C Kitchen	2 Base	Going to need hand sink, three compartment sink, and likely a prep sink.	Accepted; revisions made.
M 50	36	2.3 Cat C Kitchen	Best Prac, new	In larger schools, consider using transfer air from the school for exhaust hood make-up air in place of dedicated make-up air unit.	Accepted.
M 49	36	2.3 Cat C Kitchen	Prov, new	Commercial dishwasher.	Accepted; added at Baseline #2.
N 36	36	2.3 Cat D Kitch	best pract	A custodial closet should be near the kitchen.	Accepted.
A 23	36	Kitchen	2 Base	do the allowable space calc in 4 AAC 31.020 account for the difference in space of seasonal vs reg delivery? What is the definition of the two types of delivery? Should this be firther defines by a school location and transportation logistics? Consider adding a small amt of space for kitchen staff/manager.	Thank you for your questions. Yes, these factors are included in department space allocations. Added a Provisional planning factor for staff/planning space.
G 111	37	2.3 Cat C Student Store	2 Base	Spatial Elements: Ceilings: Think 8 ft is acceptable	No change. Thank you for your comment.
G 112	37	2.3 Cat C Student Store	2 Base	Lighting:	Not clear; removed dimming.
G 113	37	2.3 Cat C Student Store	2 Base	Power: delete "at each" data port (repeated below)	No change. Standard applies for POS equipment.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 114	37	2.3 Cat C Student Store	2 Base	Equip: Refrigerator, Popcorn, hot dog and nacho machines, etc	Partially accepted; general provision entered.
M 51	37	2.3 Cat C Student Store	2 Base	Plumbing: I'd give them a single compartment sink. You don't want them washing grease (or nacho cheese) laden dishes in there.	No change. Intent is single or double bowl for general cleanup.
M 52	37	2.3 Cat C Student Store	2 Base	Equipment: microwave, refrigerator/freezer.	Partially accepted; general provision entered.
K 58	37	2.3 Cat C Student Store	2 Base	inventory storage and display casework? accessible service counter for transactions?	Partially accepted; general provision entered.
M 53	37	2.3 Cat C Student Store	Prem, new	Coffee shop (espresso) equipment.	Partially accepted; general provision entered.
F 22	37	2.3 Cat D (all)		Cat D- Supplementary -- Needs updating- lots of XXXs and whiteboards and carpets.	Concur. Thank you for your comment.
K 59	37	2.3 Cat D Circulation	2 Base	Finishes: recommend resilient over carpet in corridors; walk-off carpet is preferable to throw-down mats in vestibulescarpet with rubber trims or 1-piece rubber riser/tread/nosing at stairs	Accepted.
G 115	37	2.3 Cat D Circulation		This section needs refinement as they have different functions. Address visibility and supervision	Concur. Thank you for your comment.
N 37	37	2.3 Cat D Corridors	2 base	Standard chart doesn't seem to be created for this part.	Concur. Thank you for your comment.
N 38	37	2.3 Cat D Corridors	2 base	Finishes/carpet: Walk off mat at vestibules and entries, not normally in hallways or stairs	Accepted.
N 39	37	2.3 Cat D Corridors	2 base	? Ceilings-acouststic tile? Windows-operable? specialties- 8lf tackboard?	Concur. Thank you for your comment.
E 66	37	2.3 Cat D Corridors		Placeholder reminder to fill in missing (XXX) data	Concur. Thank you for your comment.
E 67	37	2.3 Cat D Corridors		Reference back to Building Entrances?	Thank you for your question. The goal is for robust cross referencing within the document.
G 117	37	2.3 Cat D Corridors, etc.	2 Base	Finishes: Floors: : remoe "carpet", resilient flooring, walk off carpet in entries. Walls in corridors need protective wainscotting – for durability	Accepted.
G 118	37	2.3 Cat D Corridors, etc.	2 Base	Windows: This does not seem appropriate for these spaces	Concur. Thank you for your comment.
G 119	37	2.3 Cat D Corridors, etc.	2 Base	Specialties: "8lf whiteboard, 8lf tack board, window coverings" NA	Concur. Thank you for your comment.
G 116	37	2.3 Cat D Corridors, etc.	Base	Not all the items below apply to these spaces	Concur. Thank you for your comment.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 24	37	Cat C student store	2. base	Consider making a cash register standard equipment. Food Prep equip can vary by school.	Accepted.
A 25	37	Cat D Circulation	Base	These need to be variable based on student population for corridor widths, as well as climate zones for entryways and vestibules. Every school should be required to have walk off mats at all entries. These grab loose dirt and water at the door, reducnt the amount tracked in the schools, thereby reducing cleaning time	Accepted.
A 30	37	Non-Instructional spaces	Part 2,3	School buildings are not yet deveoped for a draft review of this document	Concur. Thank you for your comment.
J 72	38	2.3 Cat C Corridors	4 Prem	Rounded walls or built in seating.	No change (excpet as noted elsewhere).
G 120	38	2.3 Cat D Corridors, etc.	2 Base	Lighting: dimming generally not required	Concur. Thank you for your comment.
G 121	38	2.3 Cat D Corridors, etc.	2 Base	Special Systems: Not required in these spaces	Concur. Thank you for your comment.
N 40	38	2.3 Cat D Mech	2 base	Standard chart doesn't seem to be created for this part.	Concur. Thank you for your comment.
M 54	38	2.3 Cat D Mech/Elec	1 Base	Provide sound batt insulation n all walls between mechanical spaces and occupied spaces. Be mindful of what rooms are located directly below mechanical rooms.	Accepted for rooms with ventilation equipment.
G 122	38	2.3 Cat D Mech/Elec	2 Base	Flooring: depends on the space	Concur. Thank you for your comment.
G 123	38	2.3 Cat D Mech/Elec	2 Base	Windows: No windows	Concur. Thank you for your comment.
G 124	38	2.3 Cat D Mech/Elec	2 Base	Specialties: No	Concur. Thank you for your comment.
G 125	38	2.3 Cat D Mech/Elec	2 Base	Special Systems: Phone/intercom - usually not. Head end systems - this is a special space of its own. Remove synchronized clock. duplex data port (2) - not in electrical room.	Accepted but left a data ports "as required".
M 55	38	2.3 Cat D Mech/Elec	2 Base	Doors: Exterior door for boiler room access. Exterior door(s) to be sized appropriately to remove and replace all mechanical equipment.	Accepted.
M 56	38	2.3 Cat D Mech/Elec	2 Base	Plumbing: Floor drain with trap primer.	Accepted.
K 60	38	2.3 Cat D Mechanical	2 Base	Finishes: carpet?! resilient in occupied spaces or facilities with wood subfloors sealed concrete in unoccupied equipment spaces electrostatic dissipative resilient flooring where required by electrical/comms equipment	Concur, also included epoxy coatings for wood substrates.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
A 26	38	Cat C Mech/Elec		Please explain how the mech/Elec space in school is educational space. These should not e identified as educational space, see Utilities/Maintance N+Mechanical/Electrical Baseline #2. Typically these spaces do not have windows or display boards. A whiteboard would be useful for operational notes and important iformation. Dimmable lighting is not necessary in these spaces.	These space types are categorized as Supplementary educational spaces. Revisions accepted.
M 57	39	2.3 Cat D Mech/Elec	Best Pract, new	Locate boiler rooms at grade with exterior access near parking.	Accepted.
K 61	39	2.3 Cat D Storage	2 Base	Finishes: Ceilings: open to structure, with or without acoustical control, may be appropriate in receiving areas	Accepted.
K 62	39	2.3 Cat D Storage	2 Base	Finishes: Flooring: resilient tile flooring	Accepted.
G 126	39	2.3 Cat D Supply Storage	2 Base	Finishes: remove carpet, add resilient	Accepted.
G 127	39	2.3 Cat D Supply Storage	2 Base	Windows: No	Concur. Thank you for your comment.
G 128	39	2.3 Cat D Supply Storage	2 Base	Specialties: No	Concur. Thank you for your comment.
G 129	39	2.3 Cat D Supply Storage	2 Base	Power: remove "110v quadplex at each data port"	No change; data ports and electrical support remain.
G 130	39	2.3 Cat D Supply Storage	2 Base	Special Systems: delete all	No change except head end system deleted.
G 131	39	2.3 Cat D Supply Storage	2 Base	Equip: Shelving	Accepted
N 41	39	2.3 Cat D supply storage	2 base	Standard chart doesn't seem to be modified for this part.	Concur. Thank you for your comment.
A 27	39	Cat C supply Storage& receiving areas		These should be variable based on school type, location, climate zone, and student population. Operational savings could be realized by adequate torage space. As this is a utiity area, dimmable lighting is not necessary. Windows may not be needed depending on loacetion of the space in the facility.	Concur. Thank you for your comment.
G 132	40	2.3 Cat D Custodial	2 Base	Finishes: no carpet	Accepted.
G 133	40	2.3 Cat D Custodial	2 Base	Windows: delete all	Accepted.
G 134	40	2.3 Cat D Custodial	2 Base	Specialties: delete all	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 135	40	2.3 Cat D Custodial	2 Base	Lighting: remove dimming	Accepted.
G 136	40	2.3 Cat D Custodial	2 Base	Power: remove "110v quadplex at each data port"	Accepted.
G 137	40	2.3 Cat D Custodial	2 Base	Special Systems: remove all	Accepted.
G 138	40	2.3 Cat D Custodial	2 Base	Equip: Shelving, stacked washer/drier opt. floor cleaner	Accepted as Provisional.
G 139	40	2.3 Cat D Telecom	2 Base	Finishes: remove carpet, add resilient (non-electrostatic)	Accepted.
G 140	40	2.3 Cat D Telecom	2 Base	Windows: delete all	Accepted.
G 141	40	2.3 Cat D Telecom	2 Base	Specialties: delete all	Accepted; less phone/intercom.
G 142	40	2.3 Cat D Telecom	2 Base	Heating/Cooling: Need to be cool space (verify max temp)	Accepted as Provisional.
M 58	40	2.3 Cat D Custodial	2 Base	Plumbing: Janitor sink?	Accepted.
M 59	40	2.3 Cat D Custodial	2 Base	Vent/Exh: If there's a janitor sink, space should be exhausted and under negative pressure.	Accepted.
N 42	40	2.3 Cat D Custodial	2 base	Standard chart doesn't seem to be modified for this part.	Concur. Thank you for your comment.
K 63	40	2.3 Cat D Custodial	2 Base	Finishes: resilient sheet with integrally coved base	Accepted.
K 64	40	2.3 Cat D Custodial	2 Base	Specialities: "8lf whiteboard, 8lf tack board" - often insufficient space for these in custodial spaces	Concur. Thank you for your comment.
K 65	40	2.3 Cat D Custodial	2 Base	Specialities: sd, ptd	Accepted as Provisional.
K 66	40	2.3 Cat D Custodial	2 Base	Plumbing: floor mop sink	Accepted.
K 67	40	2.3 Cat D Custodial	2 Base	Equip/Furnishing: chemical dispenser, chemical storage cabinet, shelving	Accepted.
N 44	40	2.3 Cat D Telecom	11 prov	Some of these systems are more often located in other spaces.	No change. Offered as a provisional allowance.
M 60	40	2.3 Cat D Telecom	2 Base	Windows: As required to remove heat.	No change. Mechanical temperature control is standard.
N 43	40	2.3 Cat D Telecom	2 base	Standard chart doesn't seem to be modified for this part.	Concur. Thank you for your comment.
K 68	40	2.3 Cat D Telecom	2 Base	Finishes: no carpet. sealed concrete or resilient tile flooring. electrostatic dissipative is preferred	Accepted.
K 69	40	2.3 Cat D Telecom	2 Base	Specialities: "8lf whiteboard, 8lf tack board" - insufficient space for these; best kept in office/workspace areas	Accepted.
A 28	40	2.3 Cat D Telecom	Prov	Many of the provisional items should be considered as baseline. School facilities are becoming more reliant on a functioning robust LAN/WAN network	Accepted. System requirements 'moved' to 0942.
E 68	40	2.3 Cat D Telecom		Placeholder reminder to fill in missing (XXX) data	Concur. Thank you for your comment.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 149	41	2.3 Cat D Restroom	2 Base	Finishes: remove carpet, add "sealed sheet goods with cove base". Walls: Wall protection is typical Plastic partitions as appropriate	Accepted.
G 150	41	2.3 Cat D Restroom	2 Base	Windows: delete all	Accepted.
G 151	41	2.3 Cat D Restroom	2 Base	Specialties: delete all	Accepted.
G 152	41	2.3 Cat D Restroom	2 Base	Plumbing: sinks, toilets	Accepted.
G 153	41	2.3 Cat D Restroom	2 Base	Power: remove "110v quadplex at each data port"	Accepted.
G 154	41	2.3 Cat D Restroom	2 Base	Special Systems: remove all	Accepted.
G 155	41	2.3 Cat D Restroom	2 Base	Equip:	No action.
G 147	41	2.3 Cat D Telecom	11 Prov	I am not sure if all of these are compatible or if fire alarm and access control needs to be with admin and DDC with maintenance	Concur. Limited to electrical.
G 148	41	2.3 Cat D Telecom	14 Prov	This is typically unoccupied space	Phone/intercom maintained in space.
G 143	41	2.3 Cat D Telecom	2 Base	Lighting: remove dimming	Accepted.
G 144	41	2.3 Cat D Telecom	2 Base	Power: remove "110v quadplex at each data port"	Accepted.
G 145	41	2.3 Cat D Telecom	2 Base	Special Systems: remove synchronized clock, duplex data port (2)	Accepted.
G 146	41	2.3 Cat D Telecom	5 Prov	Add racks "or rings"	Accepted.
N 45	41	2.3 Cat D restroom	2 base	Standard chart doesn't seem to be modified for this part.	Concur. Thank you for your comment.
K 70	41	2.3 Cat D Restroom	2 Base	Finishes: Ceiling: paint; typically semi-glos	Accepted.
K 71	41	2.3 Cat D Restroom	2 Base	Finishes: Walls: above impact-resistant, water-impervious wainscot (i.e. tile, FRP, high-impact plastic sheeting)	Accepted.
K 72	41	2.3 Cat D Restroom	2 Base	Finishes: Flooring: resilient sheet flooring w/ integrall-coved base	Accepted; and ceramic tile.
K 73	41	2.3 Cat D Restroom	2 Base	Specialities: delete existing. mirror, SD, PTD, grab bars (smaller profile for Pre-K to 1st grade), TPD, sanitary napkin receptacle, sanitary napkin dispenser @ 6-12	Accepted.
K 74	41	2.3 Cat D Restroom	2 Base	Windows: delete all	Accepted.
E 74	41	2.3 Cat D Restroom		Placeholder reminder to fill in missing (XXX) data	Concur. Thank you for your comment.
M 63	41	2.3 Cat D Restrooms	1 Base	This section needs editing.	Concur. Thank you for your comment.
E 73	41	2.3 Cat D Telecom	10 Prov	Remove "where possible"	Accepted; moved item to Baseline narrative.
E 72	41	2.3 Cat D Telecom	3-14 Prov	Imperative verbs for Baseline items, add "Consider" and change verb ending "ing".	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 69	41	2.3 Cat D Telecom	6 Prov	Make Baseline 3	Alternate action taken to resolve.
E 70	41	2.3 Cat D Telecom	8 Prov	Make Baseline 4	Alternate action taken to resolve.
E 71	41	2.3 Cat D Telecom	9 Prov	Make Baseline 5	Alternate action taken to resolve.
M 62	41	2.3 Cat D Telecom	Best Prac, new	Have mechanical cooling system be separate from central HVAC system so that central equipment does not need to operate during unoccupied times.	Accepted.
M 61	41	2.3 Cat D Telecom	Prov 9	Cooling system to be operational during school occupied and unoccupied conditions.	Accepted with revisions above.
A 29	41	Cat C Telecom	16 Premiu	Consider vent fans for cooling in climates where this can provide enough cooling, air conditioning for high heat telecom rooms and warmer climates schools.	Accepted as Provisional.
G 156	42	2.3 Cat D	new	BREAKOUT SMALL GROUP AREAS are not addressed but are integral to most educational programs.	Thank you for your comment. Will add to list of considerations for changes to CIP Appendix D and conformance with other DEED publications.
K 75	42	2.3 Cat D Restroom	2 Base	Plumbing: water closets, urinals, lavatories or sinks in vanity casework	Accepted; opted for 'by code'.
K 76	42	2.3 Cat D Restroom	2 Base	Lighting: delete existing wall-mount at vanity; recessed or surface-mount for ambient lighting	Accepted.
J 73	42	2.3 Cat D Restrooms	2 Base	No plumbing require in bathrooms????	Concur. Thank you for your comment.
M 64	42	2.3 Cat D Restrooms	Best Prac, new	Do not use baseboard or wall mounted cabinet unit heaters to heat these spaces.	Accepted.
J 74	42	2.3 Cat D Restrooms	Prov	Stay tuned- these are changing	Concur. Thank you for your comment.
N 46	42	2.3.4 High Perf	1 parag	after "save money" add " in the long term"	Accepted; use 'over time'.
N 47	42	2.3.4.A Integrative Design	1 parag	Construction-Full Team should include the contractor as soon as practicable and traditional design bid build often pushes teams away from collaboration and into an "us vs. them" mentality. DEED might consider the Integrative process approach in relationship to the alternate delivery methods and the preferred Design-Bid-Build approach. If you want a team approach throughout the entire project, traditional DBB might not be the best way to get there. Contractors have much to bring to the table and can offer different and helpful input.	Thank you for your comment. This will remain a 'light' reference to alternate project delivery with full development under the department's dedicated publication.
E 75	42	2.4 High Performance		Delete lead-in "The Alaska"	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 76	42	2.4 High Performance		Last paragraph: Required/premium maybe not the best word choices here. If we're encouraging high performance, but not allowing 'premium'...	Concur; edits incorporated.
E 77	42	2.4 High Performance		Last paragraph: What/where are resources provided in the document? We only speak to certifications at the end of this section.	Concur; wording was from Maine and is revised. DEED doesn't intend to list or track the multitude of public and privately high performance guides within this standard.
D 30	42	4 High Performance	1st senter	Underline overall health and well-being of students,	No change. Thank you for your comment.
N 48	43	2.3.4.A Integrative Design	4 bullet	decision making-this should be carried into value engineering and design changes during construction.	Concur. Thank you for your comment.
N 49	43	2.3.4.A Integrative Design	last parag	Energy use benchmarking is one of the first steps in energy use reduction because you have to know where you are starting in order to see where opportunities exist and then measure impact of various options. I am not clear how #5 on the premium list on page 45 works with this.	Concur. Section D will be reworked to differentiate between Baseline, Provisional, and Premium items.
N 50	43	2.3.4.B Human Health	17 Prem	Will funding for this be supported by DEED, or are schools expected to increase maintenance contracts to cover?	No changes. While encouraged for consideration, Premium category items do not qualify for DEED funding.
N 51	43	2.3.4.B Human Health	19 Prem	Not all utility companies allow schools to produce their own power because they are often the biggest energy uses in small communities. Check with local utility first. Renewables that produce power for more than on facility, i.e. owned by the utility, are often the most cost effective. It can be more challenging to make renewables "pencil" for an individual building due to lack of surface area on south facing facades who are often designed to allow daylight, thus more fenestration. LCCA by qualified people are needed here.	Concur; no changes. Thank you for your comments.
M 65	43	2.4.A Integrative	Last para.	Whole paragraph on the need to include the maintenance team on these designs... Reminder that we are designing these facilities for the Users, not the Design Team's wants and wishes.	Will consider. However, may be appropriate to stay with Owner as the general term. It's the Owner's responsibility to include the maintainers and operators of their buildings.
E 80	43	2.4.B Health	12 Prov	Move to new Best Practice/Lessons Learned section	Edited wording to be consistent with Provisional section.
E 78	43	2.4.B Health	2 Base	Edit: "Engage third-party commissioning agent starting at project concept design."	Concur; rewritten to explicitly comply with 4AAC.
E 79	43	2.4.B Health	2 Base	DEED regulation allows in-house CxA. Rewrite to conform to regulation. May also want to reference appropriate Cx/CxA regulations.	Accepted; 4AAC 31.900(32) defines Cx Agent; refer to statute for requirements. Edited to match and directly reference statute.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
B 7	43	2.4.B Health & Comfort	5 Base	Recommend eliminating statement "such as variable refrigerant flow (VRF) systems". VRF systems are good solution in Southeast regions of Alaska but would be overly complex and not functional for a design in arctic climates.	Concur; added "where appropriate for local climate"
B 8	43	2.4.B Health & Comfort	7 Base	Recommend revising to read "Utilize low temperature heating systems when the building heating system is gas/propane with a high efficiency condensing boiler system"	Concur. Deleted item; topic is covered in 0821 Heating Equipment under Provisional
K 77	43	2.4.B Human Health & Comfort		HHC is a valid point and the beginning narrative is comprehensive. the baseline, provisional and premium items ignore elements outside of a typical LEED checklist pertaining to daylighting and glare control, acoustical performance as is noted an ANSI 117.1-2017 and the WELL standard, material science-based guidance for finish selection based on makeup and maintenance/cleaning materials that might also introduce hazards to students, staff and custodians. Other aspects of HHC include right-sizing elements for the population using them (anthropometrics, ergonomics)	Considered; no changes. While valid, comments are beyond the scope of this document.
M 73	43	2.4.B Human Heath	11 Base	... sensors <i>or similar technology</i> installed in <i>all classrooms and</i> spaces with high ...	Considered; edited to say "such as" CO2 sensors. Demand controls not appropriate for all classrooms.
M 66	43	2.4.B Human Heath	14 Prov	No. Not a good idea. Owner can adjust setpoint on demand ventilation sensors (800 ppm vs 1000 ppm CO2) to achieve this. Setting minimums just wastes energy.	Accepted; Provisional item deleted and Premium item added for exceeding 62.1 beyond CF-2 at Owner's option.
M 68	43	2.4.B Human Heath	2 Base	Can't find the final Cx recommendations online. Wasn't there an option for Owner being Cx on small projects? Recommend adding a reference to the Cx standards. The use of a third party is a Conditional item later in mechanical under Section 0831.	Accepted; 4AAC 31.900(32) defines Cx Agent; refer to regulation for requirements. Edited to match and directly reference regulations.
M 69	43	2.4.B Human Heath	3 Base	We discussed bringing in Cx at 65%. In some situations Cx only needs to be brought in during construction. Bringing CxA in during concept design (and even 65%) should be Provisional.	Concur; edited and moved to Provisional.
M 70	43	2.4.B Human Heath	3 Base	Be mindful of the humidification requirements this may entail and especially ensure that the envelope can handle positively pressurized humidification. It is extra maintenance and complexity.	Concur; added "except where humidification is not practical".

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 71	43	2.4.B Human Health	5 Base	Delete 2nd sentence. VRF systems are a very bad idea for schools. They require refrigeration expertise that most Districts either do not have or do not have enough of. Distributed systems like this greatly increase maintenance as there is a fan and filter at every location that needs servicing. The small energy savings is greatly outspent with maintenance. Reality is that for schools, you only have swing season (May and August) where you might be both cooling and heating. Most schools do not have mechanical cooling so you have no energy loss with a system like the traditional VAV with reheat coils.	Considered; edited to add "where appropriate for local conditions and maintenance capabilities".
M 72	43	2.4.B Human Health	7 Base	Recommend this be a Provisional item. They are good for comfort and integrating in renewable energy but they have a higher first cost. Making it a baseline hamstrings the designer and owner. Radiant floor can be especially expensive in areas where concrete/gypcrete is expensive (raised structures).	Concur; edited to remain in Baseline by adding "where appropriate and practical"
M 67	43	2.4.B Human Health	Baseline	Move items that are energy efficiency under Paragraph 'C'. I didn't do this for clarity purposes	Concur. Edited as needed and moved to new subsection.
D 31	43	B. Human Health	1 Base	Access to daylight and views from all student or staff occupied spaces?	Concur; introduction mentions daylight/views but is missing from list. Added Provisional item "Consider... daylight and views".
A 31	43	B. Human Health & Comfort	2 Base	Third party consultants add to facility final costs. Can engineers of record perform commissioning services? Even if third party, if the owner does not understand the commissioning process or practice in it, the commissioning effort may not achieve intended results. The commissioning agent is not able to enforce corrective actions required to complete the facility per the construction contract documents.	Accepted; 4AAC 31.900(32) defines Cx Agent; refer to regulation for requirements. Edited to match and directly reference regulations.
A 32	43			Is ASHRAE 55 in addition to requirements of 90.1? Will ASHRAE standards be adopted by DEED in full, or piece-meal as needed?	No changes. Requirements of ASHRAE 55 do not supersede other ASHRAE standards mentioned in this document or in regulation. See other documents for ASHRAE 90.1 implementation.
E 82	44	2.4.B Health	17 Prem	Do we want to qualify that this is good practice, but not an allowable project expense?	No changes. The "Premium" category is for non-allowable project expenses, there is no need to re-state this for each item.
E 81	44	2.4.B Health	all Prem	Delete all "provide" and "consider"	Concur. Edited to delete consider and provide.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
J 75	44	2.4.B Human	18, 19 Premium	If to be "considered", probably should be provisional.	Concur. Edited to delete consider and provide.
M 74	44	2.4.B Human Heath	14 Prov	The minimum ASHRAE airflow is used to size initial equipment. When using a demand ventilation control strategy, you don't want to be putting in minimum OA requirements above the floor area volumes as it would defeat much of the benefit of demand ventilation control.	Not accepted. Exceeding 62.1 is Premium if cost increase is >5%.
M 75	44	2.4.B Human Heath	14 Prov	Replace 1st sentence with "Consider utilizing a lower CO2 setpoint of 800 ppm to increase outside air quantity."	Not accepted. Exceeding 62.1 is Premium if cost increase is >5%.
M 76	44	2.4.B Human Heath	16 Prov	Recommend this be a Baseline. Flush out the new construction VOCs prior to student occupancy.	No changes. Flushout is not practical for every facility. Keep in Provisional.
M 77	44	2.4.B Human Heath	18 Prem	Huge maintenance and first cost. Can't see this being a good idea for a public facility that doesn't need to be LEED Platinum Certified.	Concur; no changes. The items in Premium section are specifically excluded from DEED funding of projects.
M 81	44	2.4.C Demand Reduction	1 Base, new	Utilize night-setback control systems for unoccupied times.	No changes. Night setback is required for ASHRAE 90.1 compliance.
M 82	44	2.4.C Demand Reduction	2 Base, new	Add new: 1. Zone the HVAC system and security doors such that the rest of the facility does not be operated or be occupied during after hour public use. Common after-hour public usage spaces include the gymnasium and library. a. Consider separate ventilation systems for the gymnasium and public restrooms. b. Arrange school such that public restrooms are accessible to after hour spaces without gaining access to the rest of the school.	Considered; not relevant to HPB criteria. Refer to Sec. 0831 Provisional for HVAC after-hours controls item. Refer to Sec. 0943 for security system items.
M 83	44	2.4.C Demand Reduction	3 Base, new	Utilize LED lighting. Provide multiple levels of lighting control as well as occupancy control as appropriate.	No change. High performance lighting covered in new subsection E and 092 Lighting.
M 86	44	2.4.C Demand Reduction	4 Prov, new	Add new: Consider displacement ventilation for classrooms and larger spaces. Displacement ventilation systems have lower energy requirements (reduction in cooling loads and higher Zone Air Distribution Effectiveness ratio) compared to traditional overhead ventilation systems. Systems are also typically quieter and have been shown to reduce transfer of germs between occupants.	Considered, no changes. System selection for demand reduction should be part of an integrative design process specific to each project and location.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 87	44	2.4.C Demand Reduction	5 Prov, new	Add new: Consider heat pump supplemented heat plants where geographically appropriate and where District has maintenance capabilities to support.	Considered, no changes. System selection for demand reduction should be part of an integrative design process specific to each project and location.
M 88	44	2.4.C Demand Reduction	6 Prem, new	Add new: Consider extending Waste/Captured Heat Systems from nearby power plants.	Accepted; added as Provisional.
M 84	44	2.4.C Demand Reduction	Best Prac, new		Comment missing; no change.
M 78	44	2.4.C Demand Reduction	Gen	Most of the items listed under 'B' are actually under Demand Reduction and not User Comfort.	Accepted; appropriate items moved to subsection C, and new E.
M 80	44	2.4.C Demand Reduction	New Para	Design systems such that minimal energy is used during unoccupied times. The highest efficiency piece of equipment is one that is turned off.	Concur; this topic is covered in Mechanical items.
M 79	44	2.4.C Demand Reduction	Para 2	Not seeing how lighting controls can offset the size of a mechanical system. The heat gain from lights in a classroom is minimal with current LED technology and no engineer is going to take that load out of their cooling load calc. Unless there are significant budget limitations that reduce what systems can be installed. They should be recommended to implement all energy saving strategies with a simple payback within 10 years that they can afford. Now, if you were to increase the building envelope to allow a smaller mechanical system, then the cost of the increase in building materials (say triple pane windows) could offset the additional cost of a higher efficient boiler for the same total energy usage.	Accepted; high performance lighting move to new subsection E.
M 85	44	2.4.C Demand Reduction			Comment Missing?
A 34	44	High Performance Facility	2. 4	These standards address constructing a facility that is capable of high performance. However, in order to realize the high performance, a skilled and trained operator is the responsibility of the Principa or site administrator. Do these standards address skills, training, or experience of these operationa leaders?	No changes. This document scope does not include requirements for operator capabilities.
A 33	44	Human Health and Comfort	6 Prov	Please describe what a building flush out post construction would involve? What is the process?	No changes. Commentor is directed to building flush-out procedures described in various publications regarding high-performance buildings such as LEED.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
N 52	45	2.3.4.D. high performance	5 prem	School's are required to track their energy use which is Performance Benchmarking, AHFC's ARIS or EPA's Energy star can provide a means/framework for school's to supply that reporting, I think some wording clarification between what is DEED required related to this and what is considered premium would be helpful.	Concur. Energy reporting is required elsewhere. Deleted item as redundant and confusing.
E 83	45	2.4.D Certs		Are there other certifications we can mention so we aren't exclusively promoting LEED? E.g. CHPS, etc.	Concur. Edited to clarify other rating systems are acceptable.
K 78	45	2.4.D High Perf	1st parag	at the least, acknowledge there are other applicable certifications/guidance that address the human factors in conversations of sustainability and resilience such as WELL, which has specific provisions for learning environments intended to positively impact productivity and learning outcomes as well as occupant health and wellbeing	Concur. Edited to clarify other rating systems are acceptable.
J 76	45	2.4.D High Perf Certs	5 Prem	This is required for EM and Retro-commissioning. Why Premium?	Concur. Energy reporting is required elsewhere. Deleted item as redundant and confusing.
M 90	45	2.4.E Resiliency NEW section	1 Base, new	Add new: Provide standby generator or power source. This may be excluded in urban location.	Thank you for your comment. A Resiliency subsection will be added. See also electrical section 0951 for standby generation.
M 91	45	2.4.E Resiliency NEW section	2 Base, new	Add new: Provide redundancy in heat plant equipment including boilers and main circulation pumps. Use appropriate redundancy factors for boilers (i.e. two at 67% or three at 50% of total heat load).	Thank you for your comment. A Resiliency subsection will be added. See Mechanical 08 for cross reference.
M 92	45	2.4.E Resiliency NEW section	3 Prov, new	Add new: Consider high mass structures that will retain heat for extended periods of time.	Thank you for your comment. A Resiliency subsection will be added, this will be a Provisional item with appropriate CF analysis.
M 93	45	2.4.E Resiliency NEW section	4 Prov, new	Add new: Consider redundancy in domestic hot water heaters for rural sites where a loss of domestic hot water will impact kitchen/nutritional capabilities of the school.	Thank you for your comment. A Resiliency subsection will be added. See Mechanical 08 for additional cross reference.
M 95	45	2.4.E Resiliency NEW section	6 Prem, new	Add new: (Reserved)	Thank you for your comment. A Resiliency subsection will be added.

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M 89	45	2.4.E Resiliency NEW section	Para 1, new	Add new: Schools are typically the Emergency Shelter for the community. As such, they must be designed to ensure they will be safe and operational for the students and community during minor events such as a power outage as well major natural disasters. This goes beyond the traditional redundancy in mechanical and electrical systems to include structural and building envelope design that will sustain a comfortable indoor environment for occupants during prolonged periods without power.	Thank you for your comment. If a Resiliency subsection is added, this will be a Premium item.
E 84	45	2.4.E Resources	new	Add a section on "High-Performance Design Resources" or remove reference to resources above.	Concur. Noted for correction.
M 94	46	2.4.E Resiliency NEW section	5 Prov, new	Add new: Consider having all air handling units inside of the building envelope instead of roof mounted air handling equipment.	Considered. Covered elsewhere in Mechanical section.
A 35	46	3.01.B	2.A	Design, philosophy, paragraph two identifies cost factors for school construction. It does not identify the costs of constructing a contractor camp, operating a contractor camp, or travel costs of skilled workers for schools in locations off the road system.	Thank you for your comment
A 36	47	3.01.C Site Model School	C	Why is the "Model Alaskan School" limited to the "less remote locations"? Possibilities for these schools do not exist for the "more remote locations". Will two separate standards be developed to insure educational equity between rural sites and urban sites?	Two separate standards will not be developed. The Model Alaskan School is an integral part of the DEED Cost Model.
A 37	47	3.01.C Site Model School	C	I see no reason to review the remaining draft standards in this document following the last sentence of the paragraph with heading C. Model Alaskan School. It does not appear that REAA schools are considered a Model Alaskan School.	Thank you for your comment. The Model Alaskan School identifies the building systems and their features for the accepted baseline school. Provisional departures from the model school are driven by geographic and climatic factors.
E 85	47	3.0131 Vehicular Surfaces	2 Base	Edit "Provide parking spaces at a ratio of 1 per 20 elementary students and 1 per 15 secondary students..."	Accepted.
E 86	48	3.0131 Vehic Surface	21 Prem	spell out %	Edit incorporated
J 77	48	3.0131 Vehic Surface	21 Prem	Many contracts require HBUs for all employees in arctic/sub arctic.	Concur - should be provisional for all staff in zones 8 & 9 and 50% of anticipated staff in zone 7.
F 13	48	3.0132 Ped Surfaces	1 Prem	Sidewalks that are 6ft are actually easier for maintenance for snow removal with a 6 or 8 ft snow blade	Thank you for your comment, the document allows for up to 6'

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F 14	48	3.0132 Ped Surfaces	5 Prem	Limited and newly designed radiant snow melt system in the areas around the entrance can be more cost effective in Zone 8 compared to constant snow shoveling and application of salts and sand that has an adverse impact on door thresholds and flooring system.	Accepted
H 17	48	3.0132 Ped Surfaces	5 prem	add: Except at main entrances	Accepted
G 157	48	3.0132 Ped Surfaces	6 Prov	local fill or grates	Accepted
O 5	49	3.0133 Elevated Surfaces	1 Base	Do we not have items we know are allowable?	Thank you for your comment, none are required.
M 96	49	3.0135 Landscape	5 Base	. . . as well as access to the roof.	Thank you for your comment
F 15	50	3.0136 Fencing	12 Prem	Does this exclude fencing around playground areas within the school boundaries?	No, See Base Line
H 18	50	3.0136 Fencing	12 prem	Recommend moving this to the Provisional Category	Considered, see baseline for used portion of property
H 19	50	3.0137 Site Equip	6 prem	Recommend moving this to the Provisional Category or if to remain as Premium, increase the SF, 35 SF is very low for a building sign that is visible and readable	Partially accepted; building mounted signage is included at 0443 Other Exterior Accessories. Moved site signage to Provisional; increased maximum to 45sf at Premium.
L 1	50	3.0138 Playgrounds		Does this publication support an outdoor playground area and football/track field at every school site? How many does one community need? Premium is what exceeds "DEED's minimum standards" but minimum standards are weak.	Standards revised to strongly support outdoor play as Baseline. Provisional elements consider geographic constraints on Baseline elements. Premium items additionally developed.
E 87	51	3.0138 Playgrounds	10 Prem	Where/What are DEED's minimum standards? Are we referencing the future Outdoor Spaces pub?	Thank you for your questions; see revisions.
J 78	51	3.0138 Playgrounds	12 prem	These are standard for athletic fields. Understand concessions and irrigation. The rest are not premium.	No change. None of these items are required for physical education curriculum.
K 79	51	3.0138 Playgrounds	7 Base	delete all. design play areas to accommodate snow removal and access for maintenance	Accepted/Concur
G 158	51	3.0139 Other Site	3 Prem	For large schools in urban areas sledding hills can be a good use of overburden and potentially save costs – depends on location	Accepted; made this allowance under Provisional.
M 97	51	3.0139 Other Site	6 Prem, new	Gardens.	Accepted as Provisional.
G 159	52	3.0143 Support Bldgs	new Prov	Bus barn for rural schools??	Accepted; will count as GSF.
E 88	52	3.015 Civil/Mech		This section could benefit from some regional standards/ considerations -- e.g. rural communities where there is not public water/sewer available.	Concur - Standards needed for onsite septic (DEED?)

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M 99	52	3.0151 Water Systems	2 Base, new	Add new: Request/Perform hydrant flow test and provide static pressure, residual pressure, and residual flow data to mechanical engineer at beginning of project for fire suppression design and assessment of if a fire pump will be required for the facility.	Accepted/Concur
M 100	52	3.0151 Water Systems	3 Base	. . . <i>wastewater, storm water, and fuel</i> . . .	Accepted/Concur
M 98	52	3.0151 Water Systems	General	Add Reference to Section 0812 [Plumbing Piping]	Accepted/Concur
M 101	53	3.0151 Water Systems	8 Prov, new	Add new: Consider provisions for water treatment systems. This may be a designated location noted on the drawings for a water treatment system if the extent of the treatment system is not known at the time of design (well water quality is unknown).	Accepted/Concur
M 107	53	3.0152 Sanitary Sewer	10 Prov	Include force mains (not just vacuum)?	Accepted/Concur
M 108	53	3.0152 Sanitary Sewer	11 Prov, new	Add new: Consider not locating septic tanks and leach fields in playground areas. Consider implications of a failure of the tank or field	Accepted/Concur
M 109	53	3.0152 Sanitary Sewer	12 Prov, new	Add new: Consider kitchen waste design with DEC and local Authority Having Jurisdiction to ensure exterior grease interceptors or sampling manholes, if required, are incorporated into the documents and specifications.	Accepted/Concur
M 103	53	3.0152 Sanitary Sewer	3 Base	. . . <i>water, stormwater, and fuel</i> . . .	Accepted/Concur
O 6	53	3.0152 Sanitary Sewer	6 Base	Can 6,7,8 go under the kitchen section? Maybe provide see kitchen for waste?	Accepted/Concur
E 89	53	3.0152 Sanitary Sewer	6-8 Base	Seems odd to speak to solid waste with wastewater systems? No better place to include?	Accepted/Concur
F 23	53	3.0152 Sanitary Sewer	6-8 Base	Appear to be in the wrong section.	Accepted/Concur
M 105	53	3.0152 Sanitary Sewer	7, 8 Base	Site layout, not sanitary sewer.	Accepted/Concur
M 106	53	3.0152 Sanitary Sewer	9 Prov	Recommend moving to Premium. Not sure very many Districts have the staff who can run this.	Thank you for your comment.
M 104	53	3.0152 Sanitary Sewer	9 Prov, new	Design sanitary discharge piping/system with an invert that allows gravity flow throughout the school without the need for a lift station.	Accepted/Concur

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M 102	53	3.0152 Sanitary Sewer	General	Add reference to new Section 0813 [Waste & Vent Piping]	Accepted/Concur
M 111	53	3.0153 Storm Water	1 Base, new	Add new: Select sites with public stormwater available to the site.	Thank you for your comment. The goal is for robust cross referencing within the document.
M 112	53	3.0153 Storm Water	2 Base	Is this a good idea? Deferring to the civil engineers on how School Districts like this.	Thank you for your question. Generally, this is seen as a sustainable practice or in some cases may be required EPA standards to manage on site stormwater.
M 113	53	3.0153 Storm Water	5 Base, new	Add new: Coordinate stormwater system overflow spout locations away from public walkways but locate such that they will be noticed if the standard stormwater system backs up.	Accepted/Concur
M 110	53	3.0153 Storm Water	General	Add reference to new section 0814 Storm Water	Thank you for your comment. The goal is for robust cross referencing within the document.
M 114	54	3.0153 Storm Water	5 Prov	Replace "(Reserved)" with "Consider providing heat trace on stormwater discharge piping if system daylights."	Accepted/Concur
M 115	54	3.0153 Storm Water	6 Prov, new	Add new (May be more applicable for plumbing section.): Consider providing electric heat trace on stormwater overflow spouts.	Accepted/Concur
M 118	54	3.0154 Fuel Systems	1 Base	... fuel oil <i>and propane</i> storage ...	Accepted/Concur
M 117	54	3.0154 Fuel Systems	1 Base, new	Add new: Where available, provide natural gas utility connections.	Accepted/Concur
M 120	54	3.0154 Fuel Systems	2 Base	... bulk fuel oil <i>and propane</i> storage areas ...	Accepted/Concur
M 119	54	3.0154 Fuel Systems	2 Base, new	Add new: Locate fuel oil and propane storage in a location that is readily accessible for year-round filling by fuel trucks.	Accepted/Concur
M 121	54	3.0154 Fuel Systems	3 Base	Change 6' to 8'-high	Accepted/Concur
M 122	54	3.0154 Fuel Systems	4 Base	Move to 0851 as this will be the mechanical engineer.	Accepted ADD to 0851
M 123	54	3.0154 Fuel Systems	5 Prov	Move to 0851 as this will be the mechanical engineer	Accepted ADD to 0851
E 90	54	3.0154 Fuel Systems	6 Prem	Premium is already a "no", so sentence is a double negative? Consider "Buried ferrous fuel oil piping." if that's the intent?	Accepted/Concur; removed.
M 124	54	3.0154 Fuel Systems	6 Prem	Redundant with underground comment above.	Accepted/Concur; removed.
E 91	54	3.0154 Fuel Systems	7 Prem	Don't we have district's doing this with good effect? Should check with Wayne Marquis, DEED, on use.	Accepted/Concur. Will move to provisional, ADD to 0851
G 160	54	3.0154 Fuel Systems	7 Prem	Thought this might be something department would want for more accurate readings and ability to detect potential spills/leaks by central maintenance	Accepted/Concur. Will move to provisional, ADD to 0851

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H 20	54	3.0154 Fuel Systems	7 prem	Agree on the fuel management but for remote viewing for fill level should be moved to Provisional Category	Accepted/Concur. Will move to provisional, ADD to 0851
M 125	54	3.0154 Fuel Systems	7 Prem	Move to 0851 as this will be the mechanical engineer	Accepted ADD to 0851
M 116	54	3.0154 Fuel Systems	General	(reference 0851 for additional comments)	Accepted note to consider section 0851
M 126	55	3.0161 Elect Service	3 Base, new	Add new: Locate service entry near electrical room and generator.	Accepted/Concur
M 127	55	3.0161 Elect Service	4 Prov	Consider moving to electrical as that would be designed by EE.	Accepted move to 0913
M 128	55	3.0161 Elect Service	6 Prov, new	Locate generator modules near service entry and fuel source. Provide year-round access to module.	Accepted/Concur; added as Baseline.
M 129	55	3.0162 Data/ Comm Service	General	Maybe add references between this and Electrical section so both designers are aware of recommendations.	Accepted cross reference 0162 and 0942
E 92	55	3.0163 Lighting & Equip	3 Base	We exclude development of sledding hills in Site above. Just confirming we're okay with funding associated lighting?	Considered, if structure exists it should be properly lighted for safety
M 132	55	3.0163 Lighting & Equip	7 Prem	Replace "(Reserved)" with "Consider lighting for trails."	Accepted/Concur
M 130	55	3.0163 Lighting & Equip	General	Maybe add references between this and Electrical section so both designers are aware of all recommendations.	Accepted cross reference 0163 and 092
M 131	55	3.0163 Lighting & Equip	General	Add reference to section 092	Accepted cross reference 0163 and 092
M 133	55	3.0164 Security Systems	General	Maybe add references between this and Electrical section so both designers are aware of all recommendations.	Accepted cross reference 0163 and 092
M 134	56	3.0164 Security Systems	7 Prem	... coverage of <i>trails and</i> off-site ...	Accepted/Concur
M 135	57	3.01.D Design Criteria	2 Criteria	... water, sewer, <i>stormwater</i> , electrical, and fuel ...	Accepted add "stormwater"
M 136	57	3.01.D Design Criteria	5 Criteria	" ... fire service roads... is not required..." Should it be recommended in case the community later on does create an organized fire fighting group? This access also provides for maintenance and future construction access.	Accepted - design for but not necessarily construct.
M 137	58	3.02.B Design Phil	2 parag	Add sentence, new second to last: Access to readily available raw materials or the cost of importing raw materials (i.e. gravel for concrete) should be taken into account in the selection of foundation systems.	Accepted/Concur
F 24	60	3.0221 Slab	13 Prov	Correct wording.	Accepted - "Consider perimeter insulation when required by site conditions and supported by appropriate life-cycle cost analysis."

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M 138	61	3.0222 Trench, Pit & Pad	6 Prem	...support of CTE and vehicle storage are acceptable.	No change. Premium only modified by a curricular need vs O&M.
M 139	61	3.0223 Underslab	1 Base	Replace "None." with "Provide underslab insulation, minimum R-10, where slab-on-grade radiant floor is provided."	Accepted/Concur
M 140	61	3.0223 Underslab	4 Prem, new	Add new: Sites requiring underslab radon mitigation.	Accepted/Concur
J 79	61	3.0241 Piling	1 base	Need to show by LCCA it is more expensive	Thank you for your comment. Please add detail (i.e., more expensive than ???).
H 21	62	3.0241 Piling	5 prem	Placing a height restriction on pile stick ups seems extremely limiting especially when there are many buildings where a 6ft space would be a minimum given the location and site conditions. The height of these elements are hard given that environments are changing at a more rapid pace.	No change. Pile stick-up starts where thermopile ends, normally 24 to 36in above grade. This provides for a general under building height of over 8ft.
E 93	62	3.0241 Piling	6 Prem	spell out "40#/FPA"	Accepted/Concur
H 22	62	3.0241 Piling	6 prem	Placing a height restriction on pile stick ups seems extremely limiting especially when there are many buildings where a 6ft space would be a minimum given the location and site conditions. The height of these elements are hard given that environments are changing at a more rapid pace.	No change. Pile stick-up starts where thermopile ends, normally 24 to 36in above grade. This provides for a general under building height of over 8ft.
E 94	62	3.0243 Grade Beams	2 Prov	typo "piling"	Edit incorporated
H 23	63	3.0244 Arctic Foundation	6 Prem	In some conditions and sites this would be the recommended approach for a building by the engineers- recommend moving this into the Provisional category	No change. To preserve an existing investment, perhaps. Undesired for new sites/new construction.
H 24	63	3.0244 Arctic Foundation	7 Prem	Similar to above	Thank you for your comment. Will add appropriate LCCA conditions for this.
H 25	66	3.0313 Ramps	4 prem	Wording is confusing, not sure what this means- recommend defining more clearly	Accepted/Concur
E 95	66	3.0313 Ramps	5 Prem	spell out %	Edit incorporated
H 26	67	3.0321 Pitched Roofs	10 Prem	Would the design team have to demonstrate or 'prove' this up for the building	Thank you for your question. Deleted; this standard only applies to 031 Floor Structure sections.
M 141	67	3.0321 Pitched Roofs	7 Base, new	Add new: Consider the impact of combustible pitched roof materials and cold attic construction methodologies in fully sprinkled schools. This will require a dry sprinkler coverage which impacts maintenance costs.	Accepted; added as Best Practice/Lessons Learned.
J 80	67	3.0322 Flat Roof	General	Title: or low slope roof <3/12	No change. Titles to conform to CostFormat util updated.
H 27	67	3.0322 Flat Roof	section tit	Rename to 'Low Slope Roofs'	Considered; no change since title is indexed to DEED CostFormat.
E 96	69	3.0331 Stair	7 Prem	spell out %	Edit incorporated
H 28	69	3.0331 Stair	7 prem	Wording is confusing, not sure what this means- recommend defining more clearly	No change; seems reasonably clear.

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J 81	73	3.0411 Exterior Walls	18 Base	Consider PERSIST System	Thank you for your comment. PERSIST would require additional definition, etc. An ASHRAE 90.1 compliant exterior wall is Baseline and can be constructed from the materials presented.
M 142	73	3.0411 Exterior Walls	24 Prov, new	Add new: Consider heavy mass systems to enhance thermal resiliency.	Thank you for your comment. Such construction is not excluded but can rarely be utilized at scale in Alaska.
M 146	74	3.0412 Facias	10 Base	replace "(skirting)" with "(chain link fencing)"	Concur. Item 3.0412.11 (chain link fence) should be removed and added to 3.0412.10 as a baseline option for skirting material.
M 143	74	3.0412 Facias	2 Base	There are no conditions where a soffit needs to be more than 4 ft. Even door entries can be properly covered by 4 ft. Reduce the number of exterior sprinklers as much as possible for maintenance and vandalism purposes.	Will add 4ft rule to Best Practice.
M 144	74	3.0412 Facias	2 Base	Revise to: Soffit areas that separate exterior space from heated space: This construction should be avoided or minimized. Where used in fire sprinklered buildings, and the soffit should be made of non-combustible materials or not extend more than 4'-0" beyond the edge of the building to eliminate the need for sprinkler coverage.	Thank you for your comment. There are instances where soffits greater than 4 feet are appropriate such as at a main entrance or where students gather outside waiting for pick up. Will add 4ft rule to Best Practice.
M 145	74	3.0412 Facias	3 Base	"consider enclosure with sheathing or another weather-resistant covering" - This is a bad idea. You need scouring for snow and you also need to make sure that the space below the building stays frozen for permafrost and/or making sure your piling doesn't move. Typically, we just put a fence around the perimeter to keep kids from getting under there and starting a fire. A see-through skirting also provides extra security.	Thank you for your comment. Elevated buildings may or may not need blow through area based on conditions but State ammendments for schools requires no storage and means of limiting access. Edits made for this provision.
E 97	74	3.0412 Facias	4 Base	Delete "Consider"	No change. Consider as Provisional works as SIPs are not the only option.
E 98	75	3.0412 Facias	13a Prem	Delete "or", add period after 'panel'	Edit incorporated
F 25	75	3.0421 Windows	4 Base	10% glazing seems restrictive.	Concur. This single factor is not appropriate; edited to anticipate additional standards.
E 99	77	3.0424 Translucent Panel	all	change "X." to "(Reserved)"	Edit incorporated
F 26	77	3.0424 Translucent Panel		Translucent Panels: What is DEED's stance on these?	Thank you for your question. Will add as Provisional.
G 161	77	3.0424 Translucent Panel		Kalwall very effective for gym lighting (typically on one wall)	Agree, will add as Provisional.
E 100	78	3.0432 Special Doors	1 Base, 2	change "X." to "(Reserved)"	Edit incorporated

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H 29	78	3.0432 Special Doors	4 prem	The use of larger sliding doors and overhead doors has become an integral part of some school design to allow rooms to open into each other and provide a wider variety of uses- giving the rooms and school a greater flexibility in use.	No change. The condition described will be handled under Flexibility & Innovation provisions.
G 162	78	3.0432 Special Doors	5-7 Prem	Highlighted	Thank you for your comment. Please restate it more fully for additional consideration.
H 30	78	3.0432 Special Doors	6 prem	The use of larger sliding doors and overhead doors has become an integral part of some school design to allow rooms to open into each other and provide a wider variety of uses- giving the rooms and school a greater flexibility in use. part of some school design to allow rooms to open into each other and provide a wider variety of uses- giving the rooms and school a greater flexibility in use.	No change. The condition described will be handled under Flexibility & Innovation provisions.
M 147	78	3.0441 Louvers	1 Base	...in high wind <i>and arctic</i> environments ...	No change. Arctic is included in the phrase "all climate zones".
M 148	78	3.0441 Louvers	1 Base	Remove "within louvers" - The inclusion of both a louver and hood is rare. Traditional design of an arctic designed hood is sufficient in most applications.	Partially concur. Louvers + hoods are common in high wind and rain areas such as Kodiak. Will edit to "within louvers or openings".
M 149	78	3.0441 Louvers	3 Base, new	Add new: Coordinate location of ventilation intakes with prevailing wind direction(s) and location of combustion flues, plumbing vents, and other sources of objectionable odors.	Accepted.
M 150	78	3.0441 Louvers	5 Prov, new	Add new: 4.6. In elevated structures, consider utilizing the space below the school for exhaust and relief air discharge but only where skirting is such that heat can be easily dissipated. Organics below the structure may create objectionable odors for outside air intakes. Provide security screening across face of termination points.	Partially accepted. In areas of wind and fine blowing snow this very effective as an air intake. Exhausting warm air under a building should be considered carefully with soil temperature and foundation type.
E 102	79	3.04.D design ratios	1, 2, 3 Rat	edit to for leading zero: " <u>0</u> .8", "0.7", "0.6"	Edit incorporated
E 103	79	3.04.D design ratios	4 Ratio	Shouldn't this be the BRGR/design ratio scmt's Opening to Exterior Wall (O:EW) ratios (per climate zone)?	Accepted; Design Ratio four removed.

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N 53	79	3.04.D design ratios	criteria	Has this been tested ou on some recent school new construction projects? What is the resource that these criteria were set on? I think it would be good to have a presentation or demonstation of these criteris, likely at A4LE, applied to some Alaska school projects to understand its implications or how it works. Most of the school building stock is already built and school projects are renovations. We will need some guidance on if or how remodels are to address this.	Thank you for your questions and comments. These ratios were formulated and validated in 2004 but have not been extensively revalidated since.
H 31	79	3.04.D design ratios	Gen comr	Recommend add'l discussions in regard to ratios of exterior enclosure vs SF as it is dictating massin and building heights. Percentage for glazing appears insufficient for daylighting. Door count should be expanded to include verbiage referencing code requirements.	Thank you for your questions and comments. These ratios were formulated and validated in 2004 but have not been extensively revalidated since.
E 101	79	3.0443 Other Ex Access	all	change "X." to "(Reserved)"	Edit incorporated
N 54	80	3.05.B Design Phil	2 line	especially those are?	Accepted - Delete the word "are"
G 163	80	3.05.B Design Phil		Edit in second sentence: "..., especially those which [delete "are"] allow water ..."	Accepted - Delete the word "are"
G 164	80	3.05.C Model School		Highlighted "8in" of rigid insulation	No change. This is the accepted convention for units in this document.
G 165	81	3.051 Pitched Roof	1 Base	NWABSD did an LCC several years ago and found low sloped roofs were more cost effective to construct and to heat given regional costs.	Thank you for your comment
G 166	81	3.051 Pitched Roof	2 Base	Highlighted "On"	Accepted - Replace "on" with "for"
N 55	81	3.051 Pitched Roof	2 base	snow shedding- "shall not" is too strong especially when emergency exiting is required out of classrooms W/smaller children. Suggest change to "should be avoided". You could add that if doors do fall under an eave, they have to have a canopy or snowguards.	Considered, not accepted this is a high priority in the State of Alaska. A canopy is acettable snow managment at an exit.
H 32	81	3.051 Pitched Roof	J Base	Gauge of material seem light	Considered, not accepted this is the accepted Baseline gauge
E 104	81	3.051 Pitched Roofs	1 Base	Particularly due to the mis-mash of unit markings in the document, this could be restated more clearly (3 in 12 to 6 in 12, 3:12 to 6:12?)	Accepted/Concur
E 106	82	3.051 Pitched Roofs	10 Prov	Replace 'Fasten' with "Consider fastening"	Accepted/Concur
E 107	82	3.051 Pitched Roofs	11 Prov	Replace "Provide" with "Consider providing"	Accepted/Concur
E 108	82	3.051 Pitched Roofs	12 Prov	add "consider" before "minimum"	Accepted/Concur. Will revise hand-tabbing to manufacturer's recommendation.

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E 109	82	3.051 Pitched Roofs	13 Prov	add "consider" before "asphalt coated.."	Accepted/Concur
E 105	82	3.051 Pitched Roofs	Prov	These provisional items could use some rewording for consistent presentation. Maybe group according to material/topic with sub-items?	Accepted/Concur
G 167	82	3.052 Flat Roof		Change from "Flat Roof" to "Low Slope Roof"	Partially accepted. Title will remain consistent with CostFormat. Will add "(Low Slope)".
N 57	83	3.052 Flat Roof	13 Prov	single ply membrane - also under 4 y base?	Considered /Not accepted - Leave in provisional and add the word "consider"
N 56	83	3.052 Flat Roof	6 base	Assume for renovation work where you aren't impacting the unsulation level but they have freezing issues, you can still add heat trace that has sensors to operate only in freezing conditions?	Thanks for your commnet, heat trace should be used as last option.
M 152	83	3.052 Flat Roof	13 Base, new	Add new: Provide access to the roof from an interior location.	Accepted/Concur
E 110	83	3.052 Flat Roof	13 Prov	Add "Consider, for EPDM..."	Accepted/Concur
H 33	83	3.052 Flat Roof	13 Prov	This is what some school districts are wanting- it is the difference between a reinforced vs. non reinforced membrane	Thank you for your comment. 60mil reinforced and 90mil non-reinforced are both listed as Baseline. Provisional item will be removed.
E 111	83	3.052 Flat Roof	14 Prov	Add "Consider, at BURs..."	Accepted/Concur
E 112	83	3.052 Flat Roof	17 Prov	Make a Baseline?	Accepted/Concur
M 151	83	3.052 Flat Roof	6 Base	In second sentence replace "available" with "code allows"	Accepted "available and code allows"
E 113	84	3.05.D	Criteria	Bullet 7: edit "is not to..."	Edit incorporated
N 58	84	3.053 Roof Acces	3 base	See interior section about having only egress stairs.	Thank you for your comment; will clarify.
N 59	84	3.053.D Design Crit	criteria	design teams have to present a two story option at SD's for any schools over 40,000sf? That seems really late in the process, suggest this occurs in Concept design. How in depth does " considered and presented" have to be? Do you draw up a plan, do an LCCA on it, demonstate the pros and cons?	Thank you for your comment. This criteria has not gained sufficient support and wil be removed.
K 80	85	3.06.B Design Phil		end of paragraph: and directly impact the health, wellness and productivity of occupants, influencing learning outcomes, absenteeism and recruiting/retention of faculty and staff.	Accepted; will incorporate here or in Introduction
K 81	85	3.06.C Model School		Edit sentence "Finishes include carpet, <u>resilient</u> flooring, paint, file, and <u>impact-resistant rigid wall covering (i.e. FRP, HIP)</u> , and suspended and glue-on acoustic ceilings."	Thank you for your comment. Model school elements will be reviewed for accuracy.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 82	85	3.0611 Fixed Partitions	2 Base	"ANSI/ASA S12.60 on Classroom Acoustics" - also look at ANSI 117.1; newest iteration issued in 2017 updates acoustical requirements for classroom accessibility	Thank you for your comment. Codes adopted for Alaska will not be 'restated'. Will verify ANSI S12 for applicability.
E 114	85	3.0611 Fixed Partitions	3 Base	Move "CF-3 LCCA-3" before "Add the following:"	Edit incorporated
K 83	86	3.0611 Fixed Partitions	6 Base	as recommended in the gypsum handbook? otherwise there is, technically, no requirement and they're often omitted.	Accepted.
G 168	86	3.0611 Fixed Partitions	7 Base	Add "of FRP" to options ceramic or porcelain tile. Food Service section says stainless steel is acceptable	Accepted.
K 84	86	3.0611 Fixed Partitions	7 Base	"... to allow rebound of balls." - and provide impact-resistance for bodies in play/sport?	Accepted. Will revised to impact resistant.
K 85	86	3.0611 Fixed Partitions	8 Base	is sheet metal flashing (SSTL) here? seems tile should be a premium level finish	Concur; need to include stainless steel in kitchens
K 87	86	3.0611 Fixed Partitions	New Prem	xx. Full-height ceramic or porcelain tile at food service areas.	Accepted.
K 86	86	3.0611 Fixed Partitions	New Prov	xx. Ceramic or porcelain tile at grease-prone areas.	Accepted.
K 88	86	3.0612 Soffits	New Base	Add new: 5. suspended acoustical ceilings (mineral fiber or fiberglass)	Accepted.
K 89	87	3.0612 Soffits	New Prov	Add new: 6. wood or metal suspended ceiling systems 7. layered ceiling systems/suspended ceiling clouds	No change. May consider for Premium.
G 169	87	3.0621 Op Partitions	3 Prem	These should be provisional. Used properly they increase multiuse of spaces.	No change. Provisional to remain hinged double doors (ref. General Use Classroom).
F 27	87	3.0621 Op Partitions		Operable Partitions: Are these considered Premium in gymnasiums?	No change. For communicating between classrooms Provisional to remain hinged double doors (ref. General Use Classrooms). Gym curtains are included in 1012 Athletic Equipment.
G 170	87	3.0622 Demountable Partitions	2 Prov	Demountable partitions can be a cost effective way of providing future program flexibility – especially for small schools	Thank you for your comment. This has seldom been proven in practice/experience.
G 171	87	3.0623 Glazed Partitions	2 Prov	Not sure where this would be appropriate in a school – possibly in school suspension. Safety glazing can produce shards when broken.	Thank you for your comment. Transparency in schools can be an important consideration.
K 90	87	3.0623 Glazed Partitions	New Base	Add new: 1. rectangular-framed anodized aluminum storefront systems w/ safety glazing; modules no greater than 48"w x X"h	Accepted. Will add a Provisional element for full height partitions. With a Premium limit.
G 172	88	3.0631 Personnel Door	6 Base	elsewhere document says hollow metal and does not refer to wood doors (inconsistent)	No change. Reference in Baseline 1 is to a door system with hollow metal frame.
G 173	89	3.0632 Special Doors	3 Prem	These do add flexibility to multiuse spaces and the use increases with easy to operate motorized doors (although adding motors is not common) consider moving to provisional	No change. The condition described will be handled under Flexibility & Innovation provisions.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
F 16	89	3.0633 Windows	1 Base	With the current developments in window technology, it is often more energy efficient to use less but larger windows than multiple smaller windows or windows with many mullions. The weakness and worst leakage of the windows are at the corners and framing. Designer should specify better high performing windows.	Thank you for your comment, however, 0633 is referring to interior windows. The comment is valid for exterior windows; a Best Practice/Lessons Learned will be considered.
G 174	90	3.0651 Floor Finishes	3 Base	Make sure this is consistent in space descriptions	Accepted; will conform.
G 175	90	3.0651 Floor Finishes	3d Base	Science labs to have chemical resistant flooring. (OK)	Thank you for your comment.
F 28	91	3.0651 Floor Finishes	13 Prem	What is DEED's definition of cove base? Isn't most "Standard resilient wall base" coved?	Thank you for your question. Will revise to 'integral coved base'.
G 177	91	3.0651 Floor Finishes	13 Prem	Add locker rooms, custodial closets and kitchen. Science?	Accepted.
K 93	91	3.0651 Floor Finishes	13 Prem	add "and food service areas"	Accepted.
J 82	91	3.0651 Floor Finishes	5 prov	Strip Maple not appropriate for areas with swings in RH. End cut is best.	No change. Mechanical systems will provide adequate RH control.
G 176	91	3.0651 Floor Finishes	6d Prov	This doesn't belong in floor section. Padding on side walls may be needed if there is limited space between court and wall	Agree; removed.
K 91	91	3.0651 Floor Finishes	7 Prem	replace "rubber, vinyl composition tile, linoleum" with resilient flooring	Partially accepted. Will add resilient flooring in front of the list of flooring choices, and add sheet vinyl to list.
K 92	91	3.0651 Floor Finishes	9 Prem	delete "recycled rubber, or other expensive"	Accepted.
K 94	91	3.0652 Wall Finishes	1b Base	alkyds are no longer the gold standard in high performance paint systems a light industrial, water-based, low-VOC acrylic latex paint performs similarly, is less expensive, more sustainable and much easier for facility maintenance to address over the life of a building	Accepted.
K 95	92	3.0652 Wall Finishes	1e Base	including (1) primer coat as recommended by top coat manufacturer for substrate to be painted	Accepted.
G 178	92	3.0652 Wall Finishes	2 Base	Wall pads could be addressed here. Pads may be needed if sidelines are limited	Thank you for your comment. Wall padding will be in 066 Specialties.
G 179	92	3.0652 Wall Finishes	3 Base	Seems FRP would be baseline and tile provisional	No change. May consider an item for Best Practice/Lessons Learned.
K 96	92	3.0652 Wall Finishes	3 Base	is FRP or epoxy paint another option worth considering? certainly less expensive than tile for a baseline option and more easily transported/installed to all Alaska school locations. Tile seems a provisional or premium option.	No change. May consider an item for Best Practice/Lessons Learned.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 97	92	3.0652 Wall Finishes	4 Prem	certification of a building shouldn't fall under a specific category of building element; just because a product achieves good performance on LEED or WELL LCA doesn't mean it should be considered premium, especially as material transparency, embedded energy/carbon footprint, bio-based and recycled content and other aspects of material sustainability are increasingly common and affordable in the marketplace	Accepted. Item removed and included elsewhere.
G 180	92	3.0652 Wall Finishes	4 Prov	FRP panels should be baseline. Also, not clear which areas are meant.	No change. May consider an item for Best Practice/Lessons Learned.
E 115	92	3.0652 Wall Finishes	5 Prem	LEED already covered in Part 2	Accepted. Item removed and included elsewhere.
F 29	92	3.0652 Wall Finishes	5 Prem	We are assuming there is a distinction between building and products certification. Some of the third party certified products such as by LEED, Red List w/i Living Building Challenge, Passive House, and WELL are no longer necessarily more expensive. They have become mainstream and standard i.e. some carpets and windows.	Accepted. Item removed and included elsewhere.
K 98	92	3.0653 Ceiling Finishes	3 Prov	Rigid PET Felt acoustical panels	Partially accepted. Moved to 0661 Interior Specialties.
K 99	93	3.0653 Ceiling Finishes	4 Prem	Delete "Acoustical felt wall panels" replace with "linear, panel grille and perforated wood wall panels"	Partially accepted. Moved to 0661 Interior Specialties.
K 100	93	3.0653 Ceiling Finishes			
E 116	93	3.0661 Int Specialties	1b Base	delete blank	Edit incorporated
E 117	93	3.0661 Int Specialties	9 Prov	change "X." to "(Reserved)"	Edit incorporated
K 101	93	3.0661 Interior Specialties	1b Base	reserved?	Will be removed.
G 181	93	3.0661 Interior Specialties	2 Base	ventilated plastic construction; Metal corrodes too quickly.	Thank you for your comment. Will add as Provisional.
G 182	93	3.0661 Interior Specialties	3 Base	Not sure built-in is correct term how about accessories?	Accepted; revised to 'Toilet room accessories ...'
K 102	93	3.0661 Interior Specialties	3 Base	add to end: "and compatible with district's supply contracts for consumable goods"	Thank you for your comment. Will consider for Best Practice/Lessons Learned.
G 183	93	3.0661 Interior Specialties	4 Base	Stainless steel is recommended in high traffic areas. Plastic materials are easily damaged and detached.	Accepted; stainless steel will be added as Provisional.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
K 103	93	3.0661 Interior Specialities	5 Base	semi-recessed? meets requirements for projections in accessible path and allows for continuity of acoustic or smoke/fire barrier behind device without a double-thickness or furred wall	Accepted.
K 104	93	3.0661 Interior Specialities	6 Base	"sliding double whiteboards" - provisional? static white boards should be baseline	Thank you for your comment. Standard marker boards will be Baseline. Sliding marker boards will be moved to Provisional.
G 184	93	3.0661 Interior Specialities	7 Base	Change "cork bulletin" to "tack bulletin"	Accepted.
G 185	93	3.0661 Interior Specialities	8 Base	Retractable, recessed projection screens outdated, replaced by smart board. Large screen needed only in MPR or gym	Thank you for your comment. Will adjust between Baseline, Provisional, and Best Practice.
K 105	93	3.0661 Interior Specialities	9 Prov	Add new: 9. stainless steel corner guards 10. recessed fire extinguisher cabinets	Accepted.
F 30	94	3.0661 Interior Specialities	10 Prem	Wouldn't signage with changeable inserts show a life cycle cost savings?	Accepted; will revise.
H 34	94	3.0661 Interior Specialities	10 Prem	This is more of a standard, would recommend moving into Baseline or Provisional category	Accepted; will revise.
K 106	94	3.0661 Interior Specialities	10 Prem	provisional; there is minimal additional cost to this, but the flexibility of changeable inserts supports flexible use of classrooms term to term	Accepted; will revise.
J 83	94	3.0661 Interior Specialities	10 Premiu	Changeable inserts should be standard.	Accepted; will revise.
G 186	94	3.0661 Interior Specialities	11 Prem	Dryers save paper towels and shipping costs move to provisional	Partially accepted; will be Provisional in locker rooms.
K 107	94	3.0661 Interior Specialities	11 Prem	max privacy partitions (bottom <9" AFF requires larger stalls/larger restroom for accessibility compliance)	Thank you for your comment. Will consider for Best Practice/Lessons Learned.
G 187	94	3.0661 Interior Specialities	14 Prem	These are essential in high traffic areas!! Save considerable damage and continuous repairs. Plastics do not hold up! Baseline	Accepted; stainless steel will be added as Provisional.
H 35	94	3.0661 Interior Specialities	14 prem	This is more of a standard, would recommend moving into Baseline or Provisional category	Accepted; stainless steel will be added as Provisional.
K 108	94	3.0661 Interior Specialities	14 Prem	remove	Accepted; stainless steel will be added as Provisional.
G 188	94	3.0661 Interior Specialities	15 Prem	Smartboards are standard in all classrooms! Move to baseline, they are included in space descriptions	Accepted.
G 189	94	3.0661 Interior Specialities	16 Prem	Move to provisional	Accepted.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 190	94	3.0661 Interior Specialities	18 Prem	Move suspended acoustical felt baffles to provisional	No change. Surface mount is Provisional. Suspended baffles remain Premium.
K 109	94	3.0661 Interior Specialities	18 Prem	"and wall panels" - move to provisional for 0654	No change. Surface mount is Provisional. Suspended baffles remain Premium.
K 110	94	3.0661 Interior Specialities	18 Prem	"acoustical felt baffles" - move to Premium for 0653	No change. Surface mount is Provisional. Suspended baffles remain Premium.
K 111	94	3.0662 Casework	1 Base	3mm is preferable to 4mil for baseline durability	Accepted.
K 112	94	3.0662 Casework	1 Base	insert AWI reference for grade and performance/durability categories since AWI Economy Grade is insufficient to meet the target 30-year life span of rather expensive constructed elements.old AWI would be Custom Grade (to achieve baseline institutional grade casework)new AWI would be (these two factors are used together for a complete specification): Aesthetic Performance: CustomStructural Performance: Duty Level 3 (institutional)	Accepted.
G 191	94	3.0662 Casework	1a Base	Premium for rural school	No change.
K 113	94	3.0662 Casework	1b Base	these storage cabinets are specialties, not casework; coordinate with requirements for Science classrooms on room data sheets	Accepted; will cross reference with 10 Equipment.
G 192	94	3.0662 Casework	1c Base	wired glazing is a hazard when it breaks.	Thank you for your comment. Wired glass as 'safety glass' has been removed from building codes. There is no practical reason to use it in this situation. Removed.
G 193	94	3.0662 Casework	1f Base	typo "lab"	Accepted.
K 114	94	3.0662 Casework	1f Base	what is "sab"?	Thank you for your question. The word is 'lab'.
G 194	94	3.0662 Casework	1g Base	only for schools with dedicated librarian	Thank you for your comment. This will be coordinated with Part 2 Libraries/Media Centers, and with 1015 Equipment.
K 115	94	3.0662 Casework	1g Base	this seems excessively specific, especially given variations in how libraries are operated at each facility	Concur. This will be coordinated with Part 2 Libraries/Media Centers, and with 1015 Equipment.
G 195	94	3.0662 Casework	2 Base	???	Thank you for your question. Will work to add clarity.
K 116	94	3.0662 Casework	3 Prov	Add new: 3. solid surface polymer counters and backsplashes 4. stainless steel counters w/ integral splash, marine edge, sinks and drain board at art and shop classrooms	Accepted. Will coordinate with Part 2, School Buildings.
G 200	95	3.06.D Design	Criteria	Bullet 2: What about movable FF&E cabinets	No change; please submit a full statement for consideration as a Best Practice/Lessons Learned.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 201	95	3.06.D Design	Criteria	Bullet 4: Also consider possibility of sprinkler damage to wood flooring	Thank you for your comment.
K 117	95	3.0662 Casework	4 Prem	remove. difficult for dept to verify; excessive control	Accepted.
G 196	95	3.0662 Casework	5 Prem	This is not premium in high use toilet rooms	Accepted; will conform with document.
H 36	95	3.0662 Casework	5 Prem	The solid surface material is more durable and longer lasting in all wet locations. It is also best for window sill applications. Would recommend moving this to provisional category.	Accepted; will conform with document.
K 118	95	3.0662 Casework	5 Prem	this should be provisional, as these are specified as provisional in majority of classroom room data sheets	Accepted; will conform with document.
G 197	95	3.0662 Casework	6 Prem	repeated item	Accepted; will revise.
K 119	95	3.0662 Casework	6 Prem	revise:specialy solid surface counters and backsplashes including composite quartz solid surface, recycled glass, cast terrazzo, or polycarbonate counters	Accepted; will revise.
K 120	95	3.0662 Casework	9 Prem	casework construction to AWI Premium standard	Accepted; will add.
G 198	95	3.0663 Seating	3 Prem	??? you aren't referring to gym are you?	Thank you for your question. This items will be removed.
H 37	95	3.0663 Seating	3 Prem	There would be bleachers in the gymnasium... is this specific item in reference to something else?? Possibly define this more clearly-or state specifics	Thank you for your question. This items will be removed.
J 84	95	3.0663 Seating	3 premium	What's left???	Thank you for your question. This items will be removed.
K 121	95	3.0664 Window Covering	3 Prov, 4 Pre	dual roller shades with light filtering and black-out shade cloths for general daylight/glare management and optimum digital media/performance settings	Accepted; revised to glare control. Black-out may move to Provisional or Best Practice/Lessons Learned.
G 199	95	3.0664 Window Coverings	4 Prem	Motor needed if windows are high	No change. Will remain Premium with intent that high windows not be placed where glare control is needed.
E 118	97	3.0711 Elevators	13 Prem	edit to "Education-related", delete square brackets	Edit incorporated
J 85	97	3.0711 Elevators	14 premiu	3500 lbs	No Change. Load capacities above 2500lbs are generally considered excessive for schools.
G 202	98	3.0722 Hoists	3 Prem	Hoist for voc ed provisional	Thank you for your comment. Will specify a maximum load rating for Provisional.
M 153	99	3.08.A Bldg Sys Summary	1 parag	...integration with other building systems such as <i>Civil/Mechanical Utilities</i> , Exterior Closure, Interiors, and Electrical systems.	Concur, edited as suggested.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 157	100	3.08.B Design Phil	3 parag	"and incorporating operable windows into the design calculations," - This is new to me. I'm unaware of provisions within ASHRAE 62.1 or the IMC that incorporates operable windows for minimum ventilation though this may reduce cooling loads. My cooling load software does not have provisions for this so unsure how that impacts the ventilation rate. This would be a good training seminar for engineers.	Considered, no changes. Operable windows can be considered natural ventilation and avoid need for mechanical ventilation. This is not always practical for cold climates. Refer to 08-E Criteria.
M 158	100	3.08.B Design Phil	3 parag	New last sentence: Dry sprinkler systems are also a maintenance burden and are prone to failure from pockets of condensate freezing.	Concur. Already covered in 0842.
M 154	100	3.08.B Design Phil	New Para	Add new paragraph 3: The Design Team should work very closely with the School District's Facility Manager throughout the design to identify and conform to District Design Guides and Standards. The Facility Manager should be an active participant in the selection of the final mechanical systems and provide input on manufacturers and equipment to standardize parts and training throughout the District. The Facility Staff should review and comment on the design at each milestone. The Facility Staff are the ultimate Users of the mechanical system and will be living with the installation for decades.	Considered, no changes. Valid points, but outside the scope of this Standard.
M 155	100	3.08.B Design Phil	New Para	Add new paragraph 4: Select mechanical systems based on the ability of the local community to operate and maintain the equipment. Often times a simpler, less efficient solution that is more easily understood and maintainable can provide a better long-term energy savings and user comfort than a more complex system. Long term operational costs includes energy efficiency but also includes the cost and time impacts of maintenance. School District Facility Staff are typically stretched for budget and time and are forced to work in a reactive rather than the more ideal preventative maintenance conditions. To reduce the impacts of mechanical systems on maintenance, minimize the quantity of maintained pieces of equipment (filters, pumps, fans, etc.) by consolidating systems when possible.	Considered, no changes. Valid points, but outside the scope of this Standard.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 156	100	3.08.B Design Phil	New Para	Add new paragraph 5: To minimize parts and training time, the designer should try and standardize the plumbing fixtures and mechanical equipment being used throughout a facility. Work closely with the School District Facility Staff to identify preferred manufacturers and model numbers that are standardized throughout the District. Coordinate with DEED to identify if critical components, such as boilers or VFDs, can be specified as "No Substitutions" to ensure a District Standard is provided on bid date. Preferably, have two or more acceptable standards for critical components to provide competitive pricing.	Considered, no changes. Valid points, but outside the scope of this Standard.
M 159	100	3.08.C Model School	1 parag	1st sentence edits: ...cast-iron waste <i>and vent</i> piping... End sentence here at piping. Start new sentence with edits: <i>H</i> ot, and cold, <i>and hot water recirculation</i> domestic water ...	Considered. Partially accepted edits.
M 160	100	3.08.C Model School	1 parag	2nd sentence edits: Heating systems are <i>two</i> oil/gas fired boilers, <i>pip</i> ed in a <i>primary/secondary configuration</i> , and hydronic heat distribution to terminal devices.	Thank you for your comment. Adjustments are only possible if they conform with current Model School elements or if those elements are revised.
M 161	100	3.08.C Model School	1 parag	Add new sentence: Heating distribution system includes two variable speed driven pumps in a primary/back-up configuration along with a bladder type expansion tank and inline air separator.	Thank you for your comment. Adjustments are only possible if they conform with current Model School elements or if those elements are revised.
M 162	100	3.08.C Model School	1 parag	"Cooling is a 10T DX air conditioner supplying fan coils" - Fan-coils are heavy maintenance. It increases the quantity of fans and filters that require maintenance by at least 20. Model school mechanical cooling should be a DX coil in the air handling unit or no mechanical cooling at all.	Thank you for your comment. Adjustments are only possible if they conform with current Model School elements or if those elements are revised.
M 163	100	3.08.C Model School	1 parag	"a single AHU" - Model school should have a separate air handling unit for the Gym allowing the main air handler to be off during unoccupied use.	Concur, edited as suggested.
M 164	100	3.08.C Model School	1 parag	There is no mention of heat recovery in the model school. IECC pretty much will require it. Unsure if current 90.1 requires it.	Concur, edited as suggested.
G 203	100	3.08.C Model School		PEX piping?	Concur. Already covered in Sec. 0812.
M 165	100	3.08.D Mech General	2 Base	delete "at remote sites"	Concur. Edited item.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 166	100	3.08.D Mech General	3 Base	Add after existing: Clearly identify on the drawing designated spaces for future equipment so that it is not encroached on during construction. Examples of this may be a potential water treatment skid for schools with wells.	Concur: refer to Item 10.
M 167	100	3.08.D Mech General	3 Base, new	Add new: If a standby generator is provided, ensure that all system components required to maintain building heat, water and wastewater functions, fire detection and suppression systems, and other vital facility/community functions are powered from standby power panels. Include the controls systems and also identify circuits for control transformers located throughout the school.	Concur; no changes. Standby generators are Provisional in 0951. Specific systems to be supported are part of electrical scope to determine.
M 168	100	3.08.D Mech General	3 Base, new	Add new: Locate all equipment in easily accessible locations. Avoid locating any equipment requiring maintenance above 6 ft above the finished floor unless the function requires it to be higher (e.g. VAV boxes above a ceiling).	Concur; added statement on maintenance access.
M 169	100	3.08.D Mech General	3 Base, new	Add new: Consolidate equipment into mechanical spaces whenever possible to facilitate maintenance and daily condition inspections.	Concur; added statement on placing equipment in mechanical rooms.
M 170	100	3.08.D Mech General	4 Base, new	Add new: Select and specify piping and materials that are plenum rated where return air plenums are utilized, including in fan rooms.	Concur; added statement on plenum ratings.
B 9	100	3.08.D Mech General	7 Base	Recommend moving this item to provisional list and combining with Provisional item #13. Most remote sites with limited potable water will have raw water capture in summer months and water treatment systems. Adding a rainwater/snowmelt collection system would be an unnecessary complication and cost to the projects.	Concur, moved to Provisional.
M 171	100	3.08.D Mech General	7 Base	Bad idea. These are complex systems and heavy on maintenance. Where this is required, they won't have the maintenance ability to keep it operational. Even honeybucket communities have water piping going from the washeteria/water treatment plant to the school. And then there is the seasonability aspect of this. At least, move to Premium.	Concur, moved to provisional, see next item.
M 172	100	3.08.D Mech General	7 Base, new	Add new: Utilize variable frequency drives or EC motors to minimize energy use and allow for fluctuations in building operation. Avoid fan belts due to the extra parts and maintenance requirements.	Considered; VFDs are covered in 0823. Edited to add energy reduction and fluctuation. Added item on fan belts.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 173	101	3.08.D Mech General	11 Base, new	Add new: Commission mechanical systems in accordance with DEED standards.	Concur; Cx requirements consolidated to High Perf Buildings
M 174	101	3.08.D Mech General	11 Prov	Move to Baseline and expand: <i>Provide means for future removal and replacement of all mechanical equipment without the need for extensive removal of other equipment. Clearly show intent of replacement methodology on documents if it includes removal of architectural components (e.g. removable wall panels or louvers). Coordinate requirements with other disciplines.</i>	Considered; kept in Provisional; encouraged by DEED but not appropriate to require for all schools.
M 175	101	3.08.D Mech General	13 Prov	Again, bad idea. Would be good to hear from School Districts on this. At least, move to Premium.	Noted. Refer to comments on 7 Base.
J 86	101	3.08.D Mech General	17 Premium	Probably should be utilizing geo,biomass, or thermal storage without a cost/benefit or LCCA.	Noted; no changes. Premium items are not eligible for funding.
B 10	101	3.081 Plumbing	3 Base	Some districts prefer floor mounted water closets over wall mounted water closets with wall carriers. I recommend modifying this to read "Specify floor mounted tank style water closets or wall mounted water closets with floor mounted carriers in a plumbing chase. Specify floor mounted carriers for all urinals and lavatories."	Considered; clarified wording to emphasize that carriers should be specified for all wall-mounted fixtures. Floor-mounted W.C.'s are not affected.
B 11	101	3.081 Plumbing	4 Base	Recommend increasing minimum chase size to 15" for single wall and 18" for back-to-back.	Considered; added language to required coordination with manufacturers.
M 179	101	3.0811 Plumbing Fixt	10 Base, new	Add new: Install floor drains in all restrooms, regardless of number of fixtures.	Considered; added to Provisional instead to allow flexibility for small schools and buildings on piles etc.
M 180	101	3.0811 Plumbing Fixt	10 Base, new	Add new: Install floor drains near janitor sinks and clothes washers.	Considered; added to Provisional instead to allow flexibility for small schools and buildings on piles etc.
M 181	101	3.0811 Plumbing Fixt	10 Base, new	Add new: Install floor drains in mechanical rooms.	Considered; no changes. Floor drains in mech rooms are subject to misuse such as glycol and oil contamination. Standard focuses on providing drains where specifically needed. Not prohibited in mech rooms but not required by default.
M 182	101	3.0811 Plumbing Fixt	12 Base	change "practicable" to "applicable"	Concur; edits made.
M 183	101	3.0811 Plumbing Fixt	13 Base	...maintenance spaces, <i>kitchens (when using chemical sanitizing)</i> , and any ...	Concur; edits made.
M 176	101	3.0811 Plumbing Fixt	3 Base, new	Add new: Standardize fixtures, faucets, and accessories within the school and preferably within the District to minimize spare parts storage and facilitate maintenance knowledge.	Considered; no changes. Should be part of the district's design standards.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 204	101	3.0811 Plumbing Fixt	5 Base	Edit to "Provide toilet rooms accessed from Pre-K–1st grade classrooms."	Concur; edits made.
M 177	101	3.0811 Plumbing Fixt	5 Base	...Provide <i>child height</i> toilets...	Considered; no changes. Left to district preferences.
G 205	101	3.0811 Plumbing Fixt	6 Base	Change grade 5 to grade 6.	Concur; edits made.
M 178	101	3.0811 Plumbing Fixt	6 Base	Add to end: Provide ASSE 1017 tempering valves.	Concur; edits made.
M 184	102	3.0811 Plumbing Fixt	20 Prov	Add: Avoid refrigeration on drinking fountains.	Concur; edits made.
M 185	102	3.0811 Plumbing Fixt	21 Prov	Change "Install" to "Consider"	Concur; all items use "Consider".
G 206	102	3.0811 Plumbing Fixt	24 Prem	some food service directors would disagree- especially for larger schools	Considered; added exception for commercial kitchens.
M 188	102	3.0812 Plumbing Piping	4 Base	delete	Considered; moved to 0814.
M 187	102	3.0812 Plumbing Piping	General	add reference to section 0151	Thank you for your comment. The goal is for robust cross referencing within the document.
M 186	102	3.0812 Plumbing Piping	Title	Change to 0812 <i>Domestic Water</i> Piping	Concur; edits made.
M 202	103	3.0813 Plumb Equip	1 Base	Add: Coordinate additional grease trap or sampling ports outside of the facility with the Civil Designer and AHJ.	Concur; edits made.
M 203	103	3.0813 Plumb Equip	2 Base	Add: Provide central ASSE 1017 tempering valve for rest of facility.	Concur; edits made.
M 204	103	3.0813 Plumb Equip	3 Base	Add: Provide separate hot water recirculation piping system for 140°F system.	Concur; edits made.
M 205	103	3.0813 Plumb Equip	5 Prov	move to 0814 Waste and Vent Piping Provisional.	Declined; lift stations are specified as plumbing equipment and belong here.
M 206	103	3.0813 Plumb Equip	5 Prov, new	Add new: If the facility is to use well water, make provisions for the installation of a water softener/treatment system. High iron systems can greatly reduce the life of plumbing fixtures and equipment.	Concur; will be conformed with 0151 Water.
M 207	103	3.0813 Plumb Equip	5 Prov, new	Add new: Consider providing redundant water heaters, particularly in rural locations or where an off-site kitchen is not available to provide nutritional health.	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 208	103	3.0813 Plumb Equip	5 Prov, new	Add new: If a DDC system is provided, consider monitoring the water heater discharge temperature (downstream of tempering valve if applicable) and provide high temperature alarm.	Concur; edits made.
M 209	103	3.0813 Plumb Equip	5 Prov, new	Add new: If domestic water pressure boosting stations are required, utilize variable frequency or ECM driven pumps. Provide redundant pumps to ensure a minimum of 20 PSI is being maintained at the highest/most remote fixture at all times.	Concur; edits made.
M 201	103	3.0813 Plumb Equip	General	Renumber to 0815 Plumbing Equipment (accommodate new and moved sections)	Noted; numbering TBD.
M 198	103	3.0814 Storm Water NEW	Base, new	Baseline: 1. Rainleader and Overflow piping to be insulated throughout the interior of the facility. 2. Use cast iron dome strainers on roof drains and overflow drains. Do not use plastic. 3. Try and locate roof drains and overflow drains above heated portions of the facility. This will greatly reduce the potential for freezing and the need for heat trace. 4. Specify insulated roof drain sumps to prevent condensation from forming inside the building. 5. Provide overflow spout on stormwater piping at point of exit out of building to protect school from freezing in stormwater piping outside of facility. Heat trace spout as required by region. 6. Provide yard cleanout on waste piping main once it leaves the building. 7. Locate overflow spouts in locations that will not create icing and hazardous walking conditions during the winter. Locate spouts where they will be visible to Staff. 8. If heat trace is provided, locate switches/controls in readily available location and clearly label power switches/controls.	Partially accepted; some edits made. Disagree with overflow outlet on main rain leader as baseline since overflow pipe system serves that purpose. Moved to Provisional. Removed YCO requirement - it is already required by code.
M 200	103	3.0814 Storm Water NEW	Prem, new	Premium: 12. This is where I would put rainwater capture systems. (Reserved)	Declined. See previous comments on rainwater capture. Refer to D. General.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 199	103	3.0814 Storm Water NEW	Prov, new	Provisional: 9. Heat trace roof drain and overflow drains as required based on region and District standards. 10. Heat trace stormwater discharge piping as required based on location and installation. Provide interior access to where heat trace enters system. 11. Consider staging/cycling heat trace systems to conserve electricity.	Concur; edits made.
M 197	103	3.0814 Storm Water NEW	Section, new	Add new Section 0814 Storm Water include reference to section 0153 [site and infrastructure storm water]	No change. This work is covered in 0522 Roof Drains in the DEED universe.
M 192	103	3.0814 Waste & Vent Piping	3 Base	"visually discrete locations" - What architect added this note? :)	Concur; edits made.
M 193	103	3.0814 Waste & Vent Piping	4 Base	Add sentence: If practical, extend cleanouts up into walls and locate in areas with washable surfaces (wainscot walls and hard surface floors) to facilitate sterilization during/after use.	Concur; edits made.
M 191	103	3.0814 Waste & Vent Piping	4 Base, new	Add new: Coordinate plumbing vent locations with outside air intakes, taking into account predominant wind directions throughout the year.	Considered; edited item 2 to include OA intakes.
M 194	103	3.0814 Waste & Vent Piping	5 Prov	Replace "(Reserved)" with 3.0813 Provisional 5: Consider install ceiling anchor points above lift stations, for mounting equipment to aid in removing pumps.	Declined; belongs in Plumbing Equipment.
M 195	103	3.0814 Waste & Vent Piping	6 Prov, new	Add new: Consider using cast iron waste piping for below slab piping for higher wear resistance against snaking of piping.	Concur; edits made.
M 196	103	3.0814 Waste & Vent Piping	6 Prov, new	Add new: Provide yard cleanout on waste piping main once it leaves the building.	Concur; edits made.
M 189	103	3.0814 Waste & Vent Piping	General	Renumber to 0813 Waste & Vent Piping	Concur; numbering TBD
M 190	103	3.0814 Waste & Vent Piping	General	Include reference to Section 0152	Thank you for your comment. The goal is for robust cross referencing within the document.
M 211	103	3.0815 Special Systems	3 Prem	Replace "(Reserved)" with "Water and wastewater treatment infrastructure."	No change. This is not Premium where required and is a Section 01 provision.
M 212	103	3.0815 Special Systems	3 Prem, new	Add new: Grey water reclamation systems.	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 210	103	3.0815 Special Systems	General	Renumber to <i>0816</i> Special Systems to accommodate new section	Concur; numbering TBD
M 213	104	3.0821 Heating Equip	1 Base	... educational spaces <i>that are sound sensitive</i> to avoid ...	Considered; no changes. Additional qualifications seem unnecessary.
M 214	104	3.0821 Heating Equip	1 Base	Add sentence: "Coordinate with architect to provide sound batt insulation in mechanical room walls." I added a comment earlier to add sound batt insulation on the room criteria sheet.	Concur; edits made.
M 222	104	3.0821 Heating Equip	13 Prem, new	Add new: Renewable energy systems such as heat pumps and biomass boilers in place of or to supplement boilers.	Declined; such systems are not prohibited from consideration as heat sources but may be Premium.
M 221	104	3.0821 Heating Equip	13 Prov, new	Add new: Consider installing laminated heat plant piping diagrams on the boiler room wall along with the written sequence of operation and instructions on how to start up the heating system from a power outage or event.	Considered; no changes.
M 215	104	3.0821 Heating Equip	2 Base	replace "heating equipment" with "boiler room combustion air openings"	Concur; edits made.
M 216	104	3.0821 Heating Equip	3 Base, new	Add new: Provide redundancy in all critical heating system equipment including boilers and main circulating pumps.	Concur; redundancy is discussed elsewhere.
M 217	104	3.0821 Heating Equip	5 Base	move to Provisional	Concur; edits made.
M 218	104	3.0821 Heating Equip	6 Base, new	Add new: Consider using glycol for air handler heating and pre-heat coils where freezing conditions can occur. This may include a separate glycol system for just the ventilation equipment, allowing the use of water in the remainder of the building.	Considered; added to Provisional instead
M 219	104	3.0821 Heating Equip	6 Base, new	Add new: If renewable energy or utility waste/recovered heat systems are potentials, make provisions in mechanical room piping and layout for future installation. Clearly indicate how system will be integrated into the system in the future to facilitate future design as well as ensure equipment space is not encroached on during construction.	Considered; added to Premium to make clear that funding is not provided for these systems.
M 220	104	3.0821 Heating Equip	7 Prov	This comment is for ventilation equipment. You don't put boilers or pumps on roofs. Move to 0823 Ventilation Equipment Baseline with edits: replace "heating" with "ventilation", after Alaska add "to facilitate maintenance and lengthen the life of equipment"	Considered; added to 0823 but also kept here to address gas-fired MAUS and similar.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 225	104	3.0822 Heating Distribution Systems	1 Base	Replace "None." with "Locate isolation valves, control valves, and balancing valves to allow easy access for testing and balancing."	Concur; edits made.
M 226	104	3.0822 Heating Distribution Systems	2 Base, new	Add new: Provide isolation valves throughout building to be able to isolate portions of the building for maintenance (leaks) without having to drain entire system.	Concur; edits made.
M 227	104	3.0822 Heating Distribution Systems	2 Base, new	Add new: Provide ceiling identification tags on ceiling grids where equipment, isolation valves and control valves are located.	Considered; not a requirement so moved to Provisional.
M 230	104	3.0822 Heating Distribution Systems	3 Prem	Replace "(Reserved)" with "Snowmelt systems."	Concur; edits made.
M 228	104	3.0822 Heating Distribution Systems	3 Prov, new	Add new: Consider utilizing low temperature heating systems, such as radiant floor.	Concur; edits made.
M 229	104	3.0822 Heating Distribution Systems	3 Prov, new	Add new: Consider installing strainers upstream of all modulating control valves. The orifices in modern control valves are small and prone to clogging from system debris.	Concur; edits made.
M 223	104	3.0822 Heating Distribution Systems	General	Rename section to 0822 <i>Terminal</i> Heating Systems	Concur; edits made.
M 224	104	3.0822 Heating Distribution Systems	General	There are a lot of items up in the Human Health and Comfort areas that should also be down here (or moved here).	Considered; chose to keep as is.
M 238	105	3.0823 Vent Equip	10 Base	Edit: Use arctic-tee hoods <i>or other snow-proof hood designs</i> instead.	Concur; edits made.
M 239	105	3.0823 Vent Equip	11 Base, new	Add new: For sites prone to wind driven snow, identify predominant wind directions for the entire year and locate outside air intakes away from that side of the building. Identify this at the time of massing and concept design so that the mechanical rooms can be appropriately located. Avoid putting air intakes in corners that may be prone to wind eddies.	Concur; edits made.
B 12	105	3.0823 Vent Equip	15 Base	Recommend changing this to 6 ACH.	Concur; edits made.
M 240	105	3.0823 Vent Equip	16 Base	delete. Redundant with Distribution System	Declined; State of Alaska requires 5 ACH.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 241	105	3.0823 Vent Equip	16 Base, new	Add new: Consider using return air for kitchen hood make-up air instead of a dedicated make-up air unit. This would be for larger installations where minimum school outside air volumes exceed kitchen hood exhaust. Interlock a damper into the plenum with the exhaust fan to minimize odor contamination back into the plenum when the hood is not in use.	Considered; added to Provisional.
M 242	105	3.0823 Vent Equip	17 Base, new	Add new: Consider providing variable frequency drives (VFD) or electrically commutated motors (ECM) on all equipment for balancing. Avoid using belt driven fans.	Considered; split between base and prov.
M 243	105	3.0823 Vent Equip	17 Base, new	Move in from Provisional 18	Considered; keep in Provisional.
M 244	105	3.0823 Vent Equip	17 Prov	Delete	Considered; keep in Provisional.
M 245	105	3.0823 Vent Equip	18 Prov	move to Baseline	Considered; keep in Provisional.
H 38	105	3.0823 Vent Equip	20 Prem	Add 'except in Natatoriums'	Declined; Natatoriums are not part of school design standards - refer to separate publication.
M 246	105	3.0823 Vent Equip	20 Prem	Edit to " <i>Humidification and</i> dehumidification systems."	Concur; edits made.
M 232	105	3.0823 Vent Equip	4 Base	And then there's the contradiction... I would delete this item as it is redundant with the previous paragraph.	Considered; disagree, not redundant; no changes
M 231	105	3.0823 Vent Equip	4 Base, new	Move from 0821 Heating Equipment Baseline with edits: replace "heating" with "ventilation", after Alaska add "to facilitate maintenance and lengthen the life of equipment" This comment is for ventilation equipment. You don't put boilers or pumps on roofs.	Concur; edits made.
M 233	105	3.0823 Vent Equip	5 Base	delete. Should be in Distribution section.	Considered; disagree, demand control belongs in equipment section.
M 234	105	3.0823 Vent Equip	5 Base, new	Add new: "Minimum MERV-13 filtration on all ventilation systems." This is bounced around in a couple locations.	Considered; edited Sec. 0824 Baseline 7 instead.
J 87	105	3.0823 Vent Equip	6 base	Not appropriate for cold conditions.	Considered; kept as is. Left to each project to evaluate practicality.
M 235	105	3.0823 Vent Equip	7 Base, new	Move from 0824 Ventilation Distribution Systems Baseline 3	Concur; edits made.
M 236	105	3.0823 Vent Equip	7 Base, new	Add new: Provide filter pressure gauges across each individual filter bank.	Concur; edits made.
M 237	105	3.0823 Vent Equip	8 Base	Edit: Exceed minimum distances as needed between outside air intakes and pollution sources <i>including plumbing vents and boiler flues</i> if subject to entrainment and carryover from wind. <i>Be mindful that cold air inversions can carry pollutants across long distances to intakes.</i>	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
B 13	106	3.0824 Vent Dist System	3 Base	Recommend revising to read "with winter design mixed air temperatures below 40 Deg F".	Considered; left to designers to evaluate when condensation is a concern. Moved to Provisional item in Sec. 0823.
M 247	106	3.0824 Vent Distribution	1 Base	delete "valves and"	Concur; edits made.
M 248	106	3.0824 Vent Distribution	3 Base	move to 0823 Ventilation Equipment Baseline	Concur; moved to 0823 Provisional.
M 249	106	3.0824 Vent Distribution	5 Base	...Use <i>minimum 3/4"</i> birdscreen ...	Concur; edits made.
M 250	106	3.0824 Vent Distribution	6 Base	...mounted equipment <i>and VAV box reheat coils</i> .	Considered; left as is.
M 251	106	3.0824 Vent Distribution	7 Base	Replace with "Provide Minimum Efficiency Reporting Value (MERV) 13 filters at central equipment. Consider installing standard MERV 8 filters prior to increase life of MERV 13 filters."	Concur; added MERV 8 to Provisional.
M 252	106	3.0824 Vent Distribution	8 Base, new	Add from Human health section: Demand control ventilation, with carbon dioxide (CO2) sensors or similar technology installed in all classrooms and spaces with high occupant density.	Considered; prefer to say in 1 location; not added here.
M 253	106	3.0824 Vent Distribution	8 Base, new	Add new: Provide ceiling identification tags on ceiling grids where equipment, and dampers are located.	Concur; edits made.
M 254	106	3.0824 Vent Distribution	9 Prov, new	Add new: Consider displacement ventilation for classrooms and larger spaces. Displacement ventilation systems have lower energy requirements (reduction in cooling loads and higher Zone Air Distribution Effectiveness ratio) compared to traditional overhead ventilation systems. Systems are also typically quieter and have been shown to reduce transfer of germs between occupants.	Considered; added 1st sentence only
M 255	106	3.0824 Vent Distribution	9 Prov, new	Add new: Consider using destratification fans in gymnasiums to reduce heat stratification. Utilize units that are designed for high-impact conditions.	Concur; edits made.
M 256	106	3.0825 Cooling Equip	1 Base	...air conditioning <i>or heat removal systems</i> in computer rooms...	Concur; edits made.
M 257	106	3.0825 Cooling Equip	2 Base, new	Add new: Design space cooling systems such that they can operate during unoccupied times without the need of the central ventilation system to be operational.	Concur; edits made.
M 258	106	3.0825 Cooling Equip	3 Prov	Replace "None." with "Consider providing DX cooling coils in air handling units to reduce total air volume in the school during swing seasons under economizer mode. Be mindful of location of condensing units and noise/vibration transfer to interior spaces."	Considered; partially added.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 259	106	3.0825 Cooling Equip	4 Prov, new	Add new: Consider locating refrigerator and freezer condensing units in mechanical rooms as long as ventilation fans are sized appropriately to remove the heat from the space.	Concur; edits made.
M 261	107	3.0827 Heat Recovery	1 Base	Can you provide a direct reference for where these standards are noted?	Concur; reference added to ASHRAE 90.1-2016 6.5.6.1 Exhaust Air Energy Recovery.
M 260	107	3.0827 Heat Recovery	General	Nice!	Thank you for your comment.
M 262	107	3.0831 Control Systems	2 Base	Add sentence: Shared zones to be limited to office spaces.	Declined. Goal is to provide individual controls.
M 263	107	3.0831 Control Systems	4 Base, new	Add new: Provide methods of putting after-hour spaces (gymnasiums, libraries, etc.) into temporary occupied mode. Ensure that support spaces such as public restrooms are also activated if that is not on local control. Consider putting spring-wound timers in Administration area with labels noting what area will be in occupied mode to provide easy access to staff. Consider adding an LED light noting if the system is in occupied mode.	Considered; added parts to Provisional
M 264	107	3.0831 Control Systems	6 Base	add to end of sentence: "or utilize plate type temperature sensors"	Concur; edits made.
M 266	107	3.0831 Control Systems	9 Base	...for operating/ <i>staging</i> boiler plants ...	Considered; deemed unnecessary clarification.
M 265	107	3.0831 Control Systems	9 Base, new	Move Provisional 16 with edits: "When direct digital control (DDC) systems <i>are provided, provide</i> with remote (web) access, alarms, graphics of all monitored and controlled equipment and systems, and programming tools for maintenance personnel. <i>Specify trending of critical points to facilitate troubleshooting and system performance evaluation. Provide method for remote monitoring and programming ."</i>	Considered; revised DDC requirements language to clarify which are baseline and which are provisional. Also to avoid implying that DDC systems are required.
M 267	108	3.0831 Control Systems	15 Prov	Third party is noted as Baseline under High Performance Buildings.	Considered; moved all general Cx items to High Performance Buildings
M 268	108	3.0831 Control Systems	15 Prov	Edits: spell out "third" and add "plumbing" to commissioning system list	Considered; added plumbing; see edits from other comments
M 269	108	3.0831 Control Systems	16 Prov	move to Baseline with edits	Concur; edits made.
M 270	108	3.0831 Control Systems	19 Prov	edit to "2 months prior"	Considered; see edits from other comments.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 271	108	3.0831 Control Systems	20 Prov, new	Add new: Consider recommissioning system 2 months prior to 1-year warranty date. This will identify any failed actuators and sensors within warranty period and correct any mis-programming that the User may have accidentally done while learning the system.	Concur; edits made.
M 272	108	3.0831 Control Systems	22 Prem	...to track water, <i>fuel</i> , and <i>power</i> consumption,...	Declined; energy is more comprehensive wording.
J 88	108	3.0831 Control Systems	22 Premium	Why premium? Managing energy and utilities is part of facilities management.	Concur; moved to Provisional (not Baseline because BMS is not required).
M 273	108	3.0831 Control Systems	23 Prem, new	Add new: Providing an active display of current and accumulated water, fuel, and power consumption in a commons space in the school for students to understand energy usage.	Concur; already included in High Performance Building section.
F 31	108	3.0831 Control Systems	24 Prem	Re-commission after 2 years seems like a good and justifiable use of DEED funds.	Considered; re-commissioning after warranty is considered a District responsibility.
M 274	109	3.0841 Rise & Equip	8 Base	delete "if practicable"	Considered; changed wording to "Avoid"
M 275	109	3.0842 Sprinklers	1 Base	delete "black"	Concur; edits made.
M 276	109	3.0842 Sprinklers	3 Base	Add sentence to end: Utilize dry sprinkler heads, detached entry canopies, and other methods within NFPA 13 to eliminate the need for the systems.	Concur; edits made.
M 277	109	3.0842 Sprinklers	4 Base	...vestibules <i>and loading docks</i> on wet ...	Concur; edits made.
M 278	109	3.0842 Sprinklers	6 Base	Add sentence to end: Utilize sidewall heads for stairwells where possible. For heads below 8 feet, utilize sprinkler head guards or tamper/vandal resistant heads.	Concur; edits made.
M 279	109	3.0842 Sprinklers	8 Base, new	Add new: Provide sprinkler head guards in gymnasiums, mechanical spaces, and utilitarian areas that may be subject to damage from ladders or other materials.	Concur; edits made.
M 280	109	3.0842 Sprinklers	8 Prov	Replace "(Reserved)" with "Utilize institutional/tamper-resistant heads in time-out rooms."	Concur; edits made.
M 281	109	3.0843 Spec Suppression	1 Base	Would this be provisional?	Concur; edits made.
M 282	109	3.0843 Spec Suppression	3 Prem	Replace "(Reserved)" with "Clean agent suppression systems."	Concur; edits made.
B 14	110	3.085 Fuel Supply	1 Base	This appears to be a typo.	Concur; edits made.
G 207	110	3.0851 Fuel Supply	1 Base	Is this in the right spot?	Concur; edits made.
M 285	110	3.0851 Fuel Supply	1 Base	delete	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
M 284	110	3.0851 Fuel Supply	1 Base, new	add from 0154 Fuel System Baseline 4: "Provide containment for fuel oil piping installed below ground including double-wall fuel-rated piping, corrugated carrier pipe, pipe transition and containment sumps."	Concur; edits made.
M 286	110	3.0851 Fuel Supply	2 Base, new	Add new: Protect fuel oil storage tanks from vandalism and theft.	Concur; edits made.
M 287	110	3.0851 Fuel Supply	2 Base, new	Add new: Natural gas, propane, and fuel oil piping should be a minimum of Schedule 40 steel with either welded, threaded, or mechanically pressed fittings.	Concur; edits made.
M 288	110	3.0851 Fuel Supply	2 Base, new	Add new: Avoid routing gas piping up the exterior side of a building due to the ability to reduce access to the roof.	Concur; edits made.
M 289	110	3.0851 Fuel Supply	2 Prov	Replace "(Reserved)" with 0154 Fuel System Provisional 5: "Consider installing a fuel leak detection system with alarms to monitor integrity of fuel storage tank and distribution piping."	Concur; edits made.
M 291	110	3.0851 Fuel Supply	3 Prem	Replace "(Reserved)" with 0154 Fuel System Premium 7: "Consider installing a fuel leak detection system with alarms to monitor integrity of fuel storage tank and distribution piping."	Not accepted; accepted as Provisional, per prior comment.
M 290	110	3.0851 Fuel Supply	3 Prov, new	Add new: Consider providing a day tank for fuel oil systems.	Concur; edits made.
M 283	110	3.0851 Fuel Supply	General	add reference to section 0154 for additional comments	Concur; edits made.
M 292	110	3.0852 Dust Collection	General	Rename section to 0852 Dust Collection and Fume Exhaust Systems	Considered; renamed to Specialty Exhaust Systems
M 293	110	3.0852 Dust Collection	1 Base	...designed to <i>the IFC, IMC and</i> NFPA 68, 69 and 654 , 652, 664 as applicable...	Considered; edited to remove specific standard callouts.
M 294	110	3.0852 Dust Collection	1 Base	I don't think 68 and 654 apply to schools. This is industrial plant type standards. NFPA 664 is specific to Wood Dust Collection Systems. 652 is referenced in the IFC.	Considered; edited to remove specific standard callouts.
M 295	110	3.0852 Dust Collection	2 Base, new	Add new: Consider using recycled air systems to reduce make-up air energy.	Concur; edits made.
M 296	110	3.0852 Dust Collection	2 Base, new	Add new: Provide general room exhaust with manual switch or spring-wound timer switch to remove general odors, fumes, and smoke not captured by the dust/fume system.	Concur; edits made.
M 297	110	3.0852 Dust Collection	2 Prov	Replace "(Reserved)" with "Consider using point-of-use HEPA filters for welding."	Concur; edits made.
M 298	110	3.0852 Dust Collection	3 Prem	Replace "(Reserved)" with "Vehicle exhaust systems."	Concur; edits made.
M 299	110	3.0853 Compressed Air	1 Base	delete "based on the type of gases stored"	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 208	111	3.08.E Design Criteria	Criteria	Bullet 2: This is not consistent in different sections of the document. Suggest higher than 6	Concur; edited to be Elementary only.
M 300	111	3.08.E Design Criteria	Criteria	Bullet 3: Edit to: "Ventilation systems shall be sized per the room occupancy as provided by the School District rather than ASHRAE occupancy or fire egress code occupancy."	Considered; edited to add "provided by the District"
E 119	113	3.0911 Main Dist Panel	4-6 Prov	Change to "Consider limiting" and "Consider providing"	Mostly concur, though spare capacity was subject to discussion relative to funding, need to discuss
M 301	113	3.0911 Main Dist Panels	5 Prov	...surge protection <i>and phase loss protection</i> at the main ...	Concur; edits made.
M 302	113	3.0911 Main Dist Panels	7 Prov	...systems <i>for branch circuit panels 225 Amps or less</i> to lower rating...	Considered, series-rated combinations are between larger and smaller equipment so would leave verbiage as is.
M 303	113	3.0911 Main Dist Panels	9 Prem	Replace "(Reserved)" with "Consider making provisions within the electrical equipment for the inclusion of renewable energy systems or Combined-Heat-and-Power systems."	Committee: I don't have an issue with this, let's discuss.
E 120	113	3.0912 Panels	3-6 Prov	Change to "Consider limiting" and "Consider providing"	Mostly concur, though spare capacity was subject to discussion relative to funding, need to discuss "Consider Limiting" item 4
E 121	114	3.0913 Transformers	6 Prov	Change to "Consider utilizing"	Concur; edits made.
M 304	114	3.092 Lighting	General	add reference to section 0163 Site Lighting	Concur; edits made.
E 122	115	3.092 Lighting	18-19 Pro	Change to "Use <u>of</u> "	Concur; edits made.
M 306	115	3.092 Lighting	5 Base	edit to: Provide fixtures that are easily cleaned and maintained.	Concur; edits made.
M 305	115	3.092 Lighting	5 Base, new	Add new: Coordinate fixtures and lamps with District and look to standardize within multiple facilities.	Concur; edits made.
M 307	115	3.092 Lighting	9 Base	change "zero" to "full"	Concur; edits made.
E 124	116	3.093 Power	11 Prov	Change to "Consider floor boxes..."	Concur; edits made.
M 308	116	3.093 Power	2 Base	...drives <i>or ECM motors</i> on electrical motors...	Concur; edits made.
J 89	116	3.093 Power	4 Base	Update per 2016	Concur, will edit to more broadly align with energy code so standard can live past next code cycle
J 90	116	3.093 Power	4 Base	Or control by occ/unocc with DDC.	Concur; edits made.
M 309	116	3.093 Power	4 Base	Consider moving this to Premium. The benefit is low compared to cost and maintenance issues.	Considered but cannot move as this control is required per ASHRAE 90.1
M 310	116	3.093 Power	8 Base, new	Add new: Provide dedicated GFCI circuit for 120V receptacle(s) on roof as required by the IMC for any maintainable mechanical equipment (e.g. fans).	5 Base calls out GFCI placement as required by code, but this would be a good addition to remind designers. Will add.
M 311	116	3.093 Power	8 Base, new	Add new: Provide GFCI receptacles in boiler and fan rooms for maintenance.	This is covered by 5 Base, if GFCI receptacles are required in those areas.
M 312	116	3.093 Power	8 Base, new	Add new: Coordinate power requirements and locations for control panels and control transformers with mechanical.	Concur; edits made.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 123	116	3.093 Power	9-10, 12 P	Change to "Consider limiting" and "Consider providing"	Concur; edits made.
M 313	116	3.0941 Fire Alarm	2 Base	include ", duct smoke detectors, "	Concur; edits made.
E 125	116	3.0941 Fire Alarm	5 Prov	Change to "Consider additional..."	Concur; edits made.
E 127	117	3.0942 Data	10 Prov	Change to "Use of"	Concur; edits made.
E 128	117	3.0942 Data	14 Prem	Spell out "PON"	Concur; edits made.
M 314	117	3.0942 Data	8 Base, new	Add new: Coordinate data and communication requirements and locations with building controls system.	Concur; edits made.
E 126	117	3.0942 Data	8-9 Prov	Change "Provide" to "Consider"	Concur; edits made.
E 129	118	3.0943 Security	10 Prov	Change to "Consider utilization of"	Concur; edits made.
E 130	118	3.0943 Security	11 Prov	Change to "Consider locating"	Concur; edits made.
E 131	118	3.0943 Security	15 Prov	Change "Provide" to "Consider"	Concur; edits made.
E 132	118	3.0943 Security	16 Prov	Change to "Consider providing"	Concur; edits made.
E 133	118	3.0943 Security	19 Prov	Add "via surveillance camera" or other more specific recommendation e.g. "to ensure adequate coverage of all play structures and areas." I'm assuming this is not speaking to a staffing recommendation.	Concur; edits made.
E 134	118	3.0943 Security	20 Prov	Change to "Consider use of"	Concur; edits made.
E 135	118	3.0943 Security	21 Prov	Is this speaking to glass, door, other - if speaking to cameras, already recommended in item 18 with "IK10 impact resistance".	Concur, will update 18 to align
E 136	118	3.0943 Security	26 Prov	Change to "Consider broadcasting"	Concur; edits made.
E 137	118	3.0943 Security	27 Prov	Change "Provide" to "Consider"	Concur; edits made
H 39	118	3.0943 Security Systems	28 Prem	This appears to contradict the above, where keypads were recommended.	Not contradictory, keypads are part of intrusion detection system.
E 138	119	3.0945 Intercom	2 Prov	Change to "Consider providing"	Concur; edits made.
M 316	120	3.0951 Power Gen	11 Prem, new	Add new: Combined heat and power systems.	Concur; edits made.
E 139	120	3.0951 Power Gen	2 Prov	Change to "Use of"	Concur; edits made.
M 315	120	3.0951 Power Gen	3 Prov	include "heating system, building controls,"	Concur; edits made.
E 140	120	3.0951 Power Gen	4 Prov	Change to "Consider locating"	Concur; edits made.
G 209	120	3.0951 Power Gen	8 Prem	I don't agree that this is premium for rural schools cheaper per sq ft than inside school	Noted, the premium aspect is that walk-in modules are punitive with respect to program space, so they should not be standard design.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
G 210	122	3.1011 Food Service Equip	1 Base	Hood depends on the menu, if producing grease DEC requires type 2	Considered; no changes; "basic" food preparation is deemed to exclude grease-producing equipment.
M 317	122	3.1011 Kitch Equip	1 Base	edit "Dishmachine" to "Dishwashing machine" edit "Type 1 vent hood" to "Type 1 exhaust hood"	Concur; edits made.
M 318	122	3.1011 Kitch Equip	1 Base	...for code required <i>handwash</i> , prep and cleanup ...	Concur; edits made.
M 319	122	3.1011 Kitch Equip	2 Base	edit "Type 2 vent hood(s)" to "Type 1 and/or 2 exhaust hood(s)"	Declined; text states design to include basic categories AND full-service categories.
M 320	122	3.1011 Kitch Equip	2 Base	...for code required <i>handwash</i> , prep and cleanup ...	Concur; edits made.
M 321	122	3.1011 Kitch Equip	4 Prov	edit "Type 1 vent hood(s)" to "Type 1 or 2 exhaust hood"	Considered; no changes; "warming" food preparation is deemed to exclude grease-producing equipment.
M 322	122	3.1011 Kitch Equip	4 Prov	...for code required <i>handwash</i> , prep and cleanup ...	Concur; edits made.
G 211	123	3.1012 Athletic Equip	5 Prov	Or new light weight gym mats	No change. Mats often still require 'off floor' storage.
M 323	124	3.1013 CTE Equip	2 Base	add ", portable HEPA filter exhaust cart"	No change. This is FF&E.
M 324	124	3.1013 CTE Equip	7 Prov, new	Add new: Consider Fabrication Lab/Maker Space equipment including small CNC machines, 3D printer(s), and laser/plasma cutters."	Accepted; with modifications.
G 212	124	3.1014 Science Equip	1 Base	Free standing lab tables are good option	No change. These will be FF&E.
G 213	124	3.1014 Science Equip	2 Base	Only if using chemicals that require it	Concur; this is program driven.
M 325	125	3.1017 Art Equip	6 Prem, new	Add new: Paint booths.	Concur; will add.
E 141	127	3.011.B		Change "The State" to "DEED"	Edit incorporated
E 142	127	3.111 Special Const	throughou	Conform CF/LCCA references with use in 08 Mechanical: move period to after item description, no parentheses, no period after CF/LCCA.	Edit incorporated
G 214	127	3.1111 Package Utility Mod	1 Base	Good addresses earlier concern	Thank you for your comment.
M 326	127	3.1111 Package Utility Mod	4 Prem, new	Add new: Packaged modules that provide water and/or wastewater treatment systems.	Accepted; added as Baseline #2.
E 143	128	3.1112 Pools	1 Base	If adding footnotes, could provide link to publication	Will consider.
E 144	128	3.1112 Pools	3 Prov	If adding footnotes, move AAC ref to footnote?	Will consider.

Com ment ID	Pub Cmt Doc Pg	Section	Item No.	Review Comments	Proposed Review Response
E 145	128	3.1113 Greenhouse	2 Prov	I like the internal cross-references. This may need to happen more often. Choose format of cross reference and conform. (italized or not, blue or black, etc.)	Concur. Thank you for your comment.
M 327	128	3.1113 Greenhouse	4 Prov, new	Add new: Consider providing hydroponic systems in place of greenhouses to provide year-round production and educational benefits.	Accepted.
E 146	128	3.1121 Demo	1 Base	Delete "and" from "repair and or transfer". Confirm with DEED that it would support repairing AND transferring a facility with project funds.	Accepted.
E 147	129	3.1122, 1123	4 Prem	"education related facility" is italized here and in items following, probably doesn't need to be? Otherwise, ensure that it is defined (reg. referenced) early in document and that it is treated the same elsewhere in the document	Accepted.



Alaska School Design & Construction Standards

~~ALASKA SCHOOL DESIGN &
CONSTRUCTION STANDARDS~~

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The Alaska Department of Education and Early Development complies with Title II of the 1990 Americans with Disabilities Act. This publication is available in alternative communication formats upon request. To make necessary arrangements, contact the Employee Planning and Information Center of the Division of Personnel and Labor Relations at (907) 465-4434 or the TDD for the hearing impaired at (800) 770-8973.

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Acronyms

The following acronyms are used throughout this publication:

<u>AAC</u>	<u>Alaska Administrative Code (regulations)</u>
<u>ADA</u>	<u>American Disability Act</u>
<u>ADM</u>	<u>average daily membership (AS 14.17.990)</u>
<u>AHJ</u>	<u>agency having jurisdiction</u>
<u>AS</u>	<u>Alaska Statute</u>
<u>A/V</u>	<u>audio/video</u>
<u>AWW</u>	<u>all weather wood</u>
<u>BAS</u>	<u>building automation system</u>
<u>BRGR</u>	<u>Bond Reimbursement and Grant Review Committee</u>
<u>CCTV</u>	<u>closed circuit television</u>
<u>CIP</u>	<u>capital improvement program</u>
<u>CMU</u>	<u>concrete masonry unit</u>
<u>CY</u>	<u>cubic yard</u>
<u>DDC</u>	<u>direct digital control</u>
<u>DEED</u>	<u>Department of Education & Early Development</u>
<u>ECM</u>	<u>electrically commutated motors</u>
<u>FF&E</u>	<u>furniture, fixtures & equipment</u>
<u>FPA</u>	<u>footprint area</u>
<u>FPSF</u>	<u>frost protected shallow foundation</u>
<u>FRP</u>	<u>fiberglass reinforced plastic</u>
<u>FT or ft</u>	<u>foot</u>
<u>GA or ga</u>	<u>gauge</u>
<u>GFCI</u>	<u>ground fault circuit interrupter</u>
<u>GLB</u>	<u>glue laminated beam/timber; glulam</u>
<u>GPF</u>	<u>gallons per flush</u>
<u>GPM or gpm</u>	<u>gallons per minute</u>
<u>GSF or gsf</u>	<u>gross square footage</u>
<u>HDMI</u>	<u>high-definition multimedia interface</u>
<u>HP or hp</u>	<u>horsepower</u>
<u>HHS</u>	<u>hollow structural shapes</u>
<u>HVAC</u>	<u>heating, ventilation, and air conditioning</u>
<u>IMC</u>	<u>intermediate metal conduit</u>
<u>IT</u>	<u>information technology, computer hardware</u>
<u>LBS or lbs</u>	<u>pounds</u>
<u>LAN</u>	<u>local area network</u>
<u>LCCA</u>	<u>life-cycle cost analysis</u>
<u>LCD</u>	<u>liquid crystal display</u>
<u>LED</u>	<u>light emitting diode</u>
<u>LF or lf</u>	<u>linear foot</u>
<u>MAU</u>	<u>make-up air units</u>
<u>MERV</u>	<u>minimum efficiency reporting values (air filter standard)</u>
<u>MIL or mil</u>	<u>millimeter</u>
<u>MPR</u>	<u>multi-purpose room</u>
<u>O&M</u>	<u>operations & maintenance</u>
<u>OT/PT</u>	<u>occupational therapy/physical therapy</u>
<u>PRP</u>	<u>potentially responsible party</u>

<u>PSI or psi</u>	<u>pounds per square inch</u>
<u>SF or sf</u>	<u>square foot\feet</u>
<u>SIP</u>	<u>structural insulated panels</u>
<u>STC</u>	<u>sound transmission class</u>
<u>TARR</u>	<u>texture appearance retention rating</u>
<u>UPS</u>	<u>uninterruptible power supply</u>
<u>V or v</u>	<u>volume</u>
<u>VFD</u>	<u>variable frequency drives</u>
<u>VOC</u>	<u>volatile organic compounds</u>
<u>WAN</u>	<u>wide area network</u>

The following standards and organization abbreviations are used throughout this publication:

<u>AASL</u>	<u>American Association of School Librarians</u>
<u>ADA</u>	<u>American Disability Act</u>
<u>ANSI</u>	<u>American National Standards Institute</u>
<u>ANSI-S12.60-2010</u>	<u>Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools Part I</u>
<u>ASHRAE</u>	<u>American Society of Heating, Refrigerating, and Air-Conditioning Engineers</u>
<u>ASHRAE 55</u>	<u>Thermal Comfort in Buildings (latest edition)</u>
<u>ASHRAE 90.1</u>	<u>Energy Standard for Buildings Except Low-Rise Residential Buildings</u>
<u>ASSE</u>	<u>American Society of Sanitary Engineering</u>
<u>ASTM</u>	<u>American Society of Testing Materials</u>
<u>BEES</u>	<u>Building Energy Efficiency Standards; adopted by Alaska Housing Finance Authority as Alaska-specific IECC</u>
<u>CHPS</u>	<u>Collaborative for High Performance Schools</u>
<u>IECC</u>	<u>International Energy Efficiency Code</u>
<u>IES</u>	<u>Illuminating Energy Society of North America</u>
<u>LEED</u>	<u>Leadership in Energy and Environmental Design certification, through United States Green Building Council</u>
<u>NEC</u>	<u>National Electrical Code</u>
<u>NFPA</u>	<u>National Fire Protection Association</u>
<u>NFRC</u>	<u>National Fenestration Rating Council</u>
<u>OSHA</u>	<u>Occupational Safety and Health Administration</u>
<u>SMACNA</u>	<u>Sheet Metal and Air Conditioning Contractors' National Association</u>
<u>UL-142</u>	<u>fuel tanks standard</u>
<u>UL 752 Ballistic Rating</u>	<u>bullet-resisting equipment standard</u>
<u>USGBC</u>	<u>United States Green Building Council</u>
<u>US EPA</u>	<u>United States Environmental Protection Agency</u>
<u>WELL</u>	<u>International WELL Being Institute certification</u>

Part. I. PURPOSE & APPLICATION

Overview

Alaska statutes provide for state aid—through debt reimbursement and grants under AS 14.11—for construction, rehabilitation, and improvement of schools and education-related facilities. The Alaska Department of Education and Early Development (DEED) has the responsibility to execute and oversee such projects when awarded or approved. Design documents for those projects are required to be submitted for approval by the department. This document was developed to assist the parties who are, or will be, responsible for the design of capital improvement projects that include state aid.

These Standards achieve two primary objectives. They fulfill a statutory mandate to provide cost-effective construction standards and they establish consistency for state aid. The focus will always be cost effectiveness from a state perspective. The Standards apply to all new school construction and new additions to existing buildings. Renovation to existing facilities will adhere to the Standards, whenever possible, as approved by DEED.

Background

~~These Standards achieve two primary objectives. They fulfill a statutory mandate and they establish consistency for state aid.~~ In 1993, the Alaska legislature created the Bond Reimbursement and Grant Review Committee under AS 14.11.014 and identified the committee’s purpose. Among ~~their~~^{its} many tasks, the committee was charged, through ~~the Department of Education & Early Development (DEED)~~, with the development of criteria intended to achieve cost-effective school construction in the State of Alaska. These Standards are those criteria and are the result of decades of work by the committee. They also set the stage for continued work toward ensuring cost-effective school construction into the future.

Regarding consistency, powers granted to DEED 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. These Standards have been developed to make these determinations more transparent; to provide consistent, clear information for school districts and design professionals, and to establish a uniform level of quality and performance for all of Alaska’s public-school ~~buildings~~^{facilities}.

The Standards also provide a framework for research, “best practices,” accepted procedures, “lessons learned,” statutory and regulatory requirements, and for inclusion of the experience of students and educators across the State of Alaska. The best of what is currently known and available in these areas is included; future knowledge and understanding will be incorporated through a vetted public process.

It should be acknowledged that the Standards are also very DEED-centric in fulfilling the two objectives stated above. ~~These~~^{These} Standards are not a building code. Alaska’s adopted statewide building code requirements for schools are already well developed and are enforced by the

appropriate authority having jurisdiction (AHJ).¹ Neither are these Standards district-level facilities manuals. They do not, for example, establish a preference for a side-coiling grille versus an upward acting grille for security or access separation. These Standards fit between ~~national code standards~~adopted building codes and local preferences. ~~The focus will always be cost effectiveness from a state perspective. The Standards apply to all new school construction and new additions to existing buildings. Renovation to existing facilities will adhere to the Standards, whenever possible, as approved by DEED.~~

School construction in Alaska encompasses a wide range of climates, differences in school sizes, and the logistics of building in remote areas with limited access to labor and materials. Building system and component types, quantities, and quality vary widely across school projects with state aid. Where applicable, the Standards are tailored to address this wide range of conditions.

The Standards recognize the need to consider the long-term operations and maintenance of a school facility rather than focus solely on initial construction cost. Therefore, these Standards will not only consider the initial cost of construction but also operations and maintenance expenses, by looking at design and construction decisions on a life cycle basis.

It is evident that there is an extensive need for new and renovated school facilities. Many of the older schools in Alaska do not meet the program needs of today's complex learning environments. Older schools tend to be costly to maintain, energy inefficient, and in some cases, non-code compliant. There are also many safety issues within and outside of older school buildings. With a deep financial involvement by the State of Alaska, the Department of Education and Early Development has a responsibility to assure that projects meet established criteria for cost effectiveness including durability, economy, and quality.

One of the major objectives of the State is to address as many projects as possible within the limited financial resources at both the State and local levels. To this end the State wants to avoid unnecessarily expensive designs, inappropriate assemblies, and products that carry premium costs. The Standards are intended as a baseline for architects, engineers, and other design professionals, along with school districts, to develop cost-effective solutions to meet the needs of individual school communities. The information is provided to allow the planning, design, and construction process to proceed most efficiently—without undo restriction on the design of facilities—focusing efforts on the creation of the best possible educational environments for each project.

¹ [For a list of building codes applicable to school facilities, reference 4 AAC 31.014\(a\).](#)

Authority

AS 14.11.013. Department review of grant applications.

(a) With regard to projects for which grants are requested under AS 14.11.011, the department shall ...

(5) consider the regionally based model school construction standards developed under AS 14.11.017(d).

AS 14.11.014. Bond reimbursement and grant review committee.

(b) 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;

AS 14.11.017. Grant conditions.

(a) The department shall require in the grant agreement that a municipality that is a school district or a regional educational attendance area

(1) agree to construction of a facility of appropriate size and use that meets criteria adopted by the department if the grant is for school construction; ...

(d) The department shall develop and periodically update regionally based model school construction standards that describe acceptable building systems and anticipated costs and establish school design ratios to achieve efficient and cost-effective school construction. In developing the standards, the department shall consider the standards and criteria developed under AS 14.11.014(b).

Document Organization

These ~~s~~Standards are intended to be used in conjunction with other school planning guidelines developed by DEED, including those for alternative project delivery, [educational specifications](#), school condition surveys, and site selection. When available, the Standard may also incorporate design ratios, ~~the whose~~ purpose [of which](#) will be to measure the efficiency of a school design as it relates to cost effectiveness. The Standards do not include all possible building components and materials used in school construction. They reflect the department’s belief that good design is occurring every day based on the compendium of knowledge present in Alaska’s design firms and school districts. Instead, they are to provide both general guidance to the design professional in key areas of concern, and specific guidance on selected design elements and materials that DEED has identified, based on experience from prior projects.

[This document is organized into three main parts:](#)

Part 1 – Purpose and Applications is an introduction to the Standards, their background, the intended purpose, and implementation.

Part 2 – Design Principles deals with overall planning and design principles for site and building design, especially as they relate to safety, security, and sustainability. The subsection, *School Buildings*, provides guidance organized by types of functional spaces.

Part 3 – System Standards is organized by a DEED-specific elemental cost structure² with specific material or system selections, design criteria, and guidance.

[Within these main parts, the Standards information is further grouped or identified by the by the following:](#)

Levels of Implementation

In Part 2 and Part 3, the ~~s~~Standards are grouped into categories with the following definitions:

Baseline: These are design and construction elements that are accepted practice by DEED. Not all of these elements are intended to be incorporated into any one project. Applicability ~~and~~ will vary based on design intent, budget, region, climate, and school size/[program](#).

Provisional: These elements are improvements, upgrades, and educational program-~~r~~ related enhancements to Baseline elements. These are also accepted practice by DEED, [subject to applicability where noted](#).

² See DEED Standard Construction Cost Estimate Format. <https://education.alaska.gov/facilities/facilitiescostformat>

Premium: These elements are considered substantial upgrades to the Baseline and Provisional designations. They can be included in [a projects](#) but in most cases will not qualify for DEED funding. Inclusion of Premium elements [in a project](#) requires DEED review.

Best Practice/Lessons Learned

[In addition to the Levels of Implementation, a section is provided for considerations learned based on department and stakeholder involvement in projects in Alaska. Some items may be general in nature, while others may be more region-specific.](#)

Cost Factor and Life Cycle Cost Analysis Index

Selected [design features and](#) materials described in [Part 2 Design Principles and](#) Part 3 System Standard, have been designated with indicators of CF (Cost Factor) and LCCA (Life Cycle Cost Analysis). The indicators are followed by a numerical scale of 1 through 5 [which that conform to the following levels:-](#)

<u>Designation</u>	<u>Additional Cost</u>	<u>Notes</u>
CF-1	Less than 2%	
CF-2	3% to <5%	
CF-3	5% to <8%	
CF-4	8% to < 12%	
CF-5	12% to <15%	

<u>Designation</u>	<u>Cost Savings</u>	<u>Notes</u>
LCCA-1	Greater than 2%	
LCCA -2	3% to >5%	
LCCA -3	5% to >8%	
LCCA -4	8% to >12%	
LCCA -5	12% to >15%	

For CF, a factor of 1 is the least costly option, 5 is the most expensive. For LCCA, 1 has the least life cycle to cost benefit, 5 has the most benefit.

Prerequisites

[This placeholder section title is for possible DEED-specific content developed around “prerequisites” on how the state might implement this document.]

Flexibility and Innovation

~~The State~~ [DEED](#) recognizes that there will be ~~constant~~ [necessary](#) modifications to this document as new technologies and products enter the construction market. ~~District and Design~~ [Design](#) professionals [and school district personnel](#) are encouraged to discuss new approaches, technologies, and materials with DEED officials. Many design decisions should be based on a “life-cycle analysis” that considers energy use, first cost, operational cost, equipment life, and replacement cost. In

addition, consideration should be given to materials that can be recycled and are not hazardous to the environment.

~~The State~~ DEED recognizes that school facilities will differ with each school district's educational program and internal organization. The design of the building will also be influenced by the school site, region, climate, and other external factors. A one-design-fits-all approach is not advocated; however, these Standards do attempt to address cost-effectiveness, quality considerations, and design efficiency. To allow for appropriate flexibility and innovation, as discussed above, the Standards set out elements as Baseline, Provisional, or Premium. Recipients of state-aid that wish to incorporate elements that exceed these sStandards (indicated as Premium) shall do so with non-state funds unless a variance is obtained from DEED.

~~The State~~ DEED has a commitment to the development of quality educational spaces that will meet the educational needs of students in Alaska schools. Spaces and buildings should be flexible ~~in~~ orders that present and future programs can be housed appropriately to meet the needs of an ever-changing public -school curriculum. These sStandards ~~and guidelines~~ will be used by DEED when reviewing school capital projects approved for state-aid.

DEED encourages an integrated planning and design process that combines the Recipient's project requirements with these Standards to provide the design team with greater clarity as to the needs of both. The process of qualifying for state-aid for school capital projects as established in AS 14.11 provides all the necessary steps for close collaboration between the recipient district or city/borough regarding the scope of a project. From the initial application and evaluation process through the design iterations, the importance of maintaining collaboration and DEED oversight throughout is critical. A cooperative approach will ensure a smooth process.

Part 2. DESIGN PRINCIPLES

1. REGIONALLY BASED DESIGN

School construction in Alaska encompasses a wide range of climates and must respond to the challenging logistics of building in remote areas with limited construction seasons. Design principles must be adapted based on climate and geographic region. The climates zones illustrated below will be used as a baseline to identify and evaluate appropriate design strategies when the application of these Standards intersects with building operations. It remains the responsibility of design and facility professionals to understand any micro-climate or site-specific conditions that may impact the application of the Standards on a project-by-project basis.

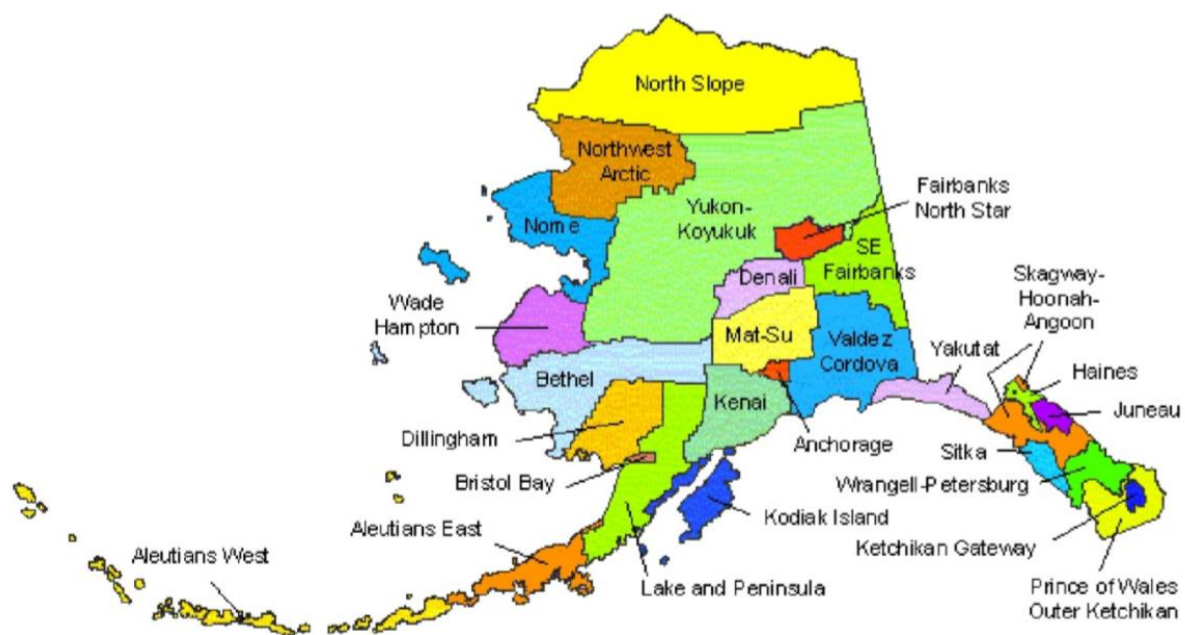


Table A301 Alaska Census Areas

Zone 6	Zone 7	Zone 8	Zone 9
Juneau	Aleutians East	Bethel	North Slope
Ketchikan Gateway	Aleutians West	Denali	
Prince of Wales	Anchorage	Fairbanks North Star	
Sitka	Bristol Bay	Nome	
Skagway-Hoonah-Angoon	Dillingham	Northwest Arctic	
Wrangell-Petersburg	Kenai Peninsula	Southeast Fairbanks	
Yakutat	Kodiak Island	Kusilvak (Wade Hampton)	
Haines	Lake & Peninsula	Yukon-Koyukuk	
	Matanuska-Susitna		
	Valdez-Cordova		

The four identified zones have been chosen to align with existing zones established by the Alaska Housing Finance Corporation’s Commercial and Residential Building Energy Efficiency Standards (BEES) in their Alaska-specific amendments to the International Energy Efficiency Code (IECC).

Consideration of geographic regions in the application of the Standards relate primarily to initial construction costs. The department has established an analytical model for the evaluation of geographic cost variations across Alaska, as it relates to school facilities, and publishes the results of that analysis as part of the *Program Demand Cost Model for Alaskan Schools*. The geographic cost factors identified in that DEED publication ~~will~~may be used as a baseline to identify and evaluate appropriate design strategies in the application of these Standards for construction costs-on both a first-cost and life-cycle basis. As with climate zones, it remains the responsibility of design and facility professionals to understand any local variations and site-specific conditions ~~which that~~related to construction that may impact the application of the Standards on each project.

2. SITE & INFRASTRUCTURE

A. Building Location and Orientation

The State must be involved in reviewing site selection, education specifications (i.e., programming), and design. Selected sites should be affordable, easily developed, and close to commercial-grade utilities wherever possible. Sites requiring extensive earthwork, long driveways, or environmental challenges should be avoided. In urban areas, schools should not be located directly on major roadways with high speeds or heavy traffic.

Baseline:

1. Select the building site to minimize environmental impact and encourage a simple, straightforward construction process.
2. Orient the main entrance to face primarily south. Avoid entrances facing north.
3. ~~Consider~~Evaluate prevailing wind and wind speeds with regard to doors. Provide measures such as wing walls or rails to prevent wind from catching doors and causing damage.
4. Orient the building design to maximize natural daylighting in classrooms and other occupied spaces.
5. Keep building ventilation intakes away from vehicle exhaust and other sources of air pollution. Consider the site’s prevailing winds when locating intake and exhaust equipment.

Provisional:

6. Consider building and entry orientations other than provided in Baseline when competing factors such as prevailing wind or length of entry drives govern in an LCCA.
7. Consider orienting the longer axis of the building ~~using a North-South for classrooms for maximum~~ East-West when in a location or site where solar impact from a southern exposure can be maximized.

Premium:

8. Building pads/sites with slopes in excess of 10 percent.

Best Practice/Lessons Learned

- A. Sites requiring extensive earthwork, long driveways, or environmental challenges should be avoided.
- B. It can be difficult to secure permits for school access drives located on major roadways with high speeds or heavy traffic. Mitigations such as turn lanes or signaling may be required that are not covered by department funding.

~~Recent tragedies at schools around the country have reinforced the need for designs to keep students and staff safe in our public schools. School safety experts and educational facility planners have been working together to develop recommendations that cover the outside and inside of school buildings. DEED encourages school districts to consider student safety as one of the most important criteria when designing or renovating schools.~~

B. Safety & Security Site Design

~~Recent~~ Tragedies at schools around the country have reinforced the need for designs to keep students and staff safe in our public schools. School safety experts and educational facility planners have been working together to develop recommendations that cover the outside and inside of school buildings. DEED encourages school districts to consider student safety as one of the most important criteria when designing or renovating schools.

Baseline:

- ~~1. Develop site plans that allow two separate points of access to the site.~~
- 2.1. _____ Make the main entrance easily identifiable from the street, primary parking area, or main access route.
- 3.2. _____ In settings where the school building is at or near grade, develop main entrances with discrete physical barriers such as concrete-filled steel bollards/staples, boulders, planters or other physical barriers, as applicable, to prevent vehicles from being driven into the school. Select final solution based on cost-effectiveness.
- 4.3. _____ Maintain clear and unobstructed sight lines for security and safety.
- 5.4. _____ Obtain preliminary approvals from the Department of Transportation & Public Facilities (driveways), the Army Corp of Engineers (wetlands), and other appropriate agencies before site approval.
- 6.5. _____ In school settings where emergency services are available, provide emergency vehicle access to all areas of the site, including playgrounds and fields.
- 7.6. _____ In school settings where bus service is available, separate bus loop and parent drop-off areas and install fencing or guardrails to limit pedestrian circulation to designated crosswalks and sidewalks.
- 8.7. _____ ~~At urban schools, p~~ Provide safe access for pedestrian and bicycle circulation from site entrances to the main building entrance and consider keeping pedestrian paths away from automobiles.
- 9.8. _____ Provide safe, clearly marked pedestrian pathways, sidewalks, and boardwalks through the site.
- 10.9. _____ Locate play areas away from vehicle circulation and parking areas. Provide accessible pedestrian pathways to playgrounds and athletic fields that avoid vehicular traffic.
- 11.10. _____ Provide chain link fencing at the perimeter of playgrounds as required for site control.

- ~~12.11.~~ Avoid sidewalks that link to high-speed roads and highways.
- ~~13.12.~~ Provide clear vehicular circulation patterns and signage. Provide stop signs and speed tables.
- ~~14.13.~~ Provide lighting at all travel ways, parking areas, and building perimeter.
- ~~15.14.~~ Keep flammable and combustible fuels away from buildings except as permitted by code. Store heating fuel in above-ground, double wall tanks protected ~~Oil, propane, and gasoline tanks are preferred to be located below ground. When above ground, protect the tank~~ with fencing, berms or bollards. Small heating fuel day tanks or propane tanks serving kitchen or science room equipment may be located above ground as permitted by code.
- ~~16.15.~~ Separate service vehicles from bus and parent drop-off areas.
- ~~17.16.~~ Keep perennial bushes and trees a minimum of 20 feet'-0 away from each side of major entrance/exit doors.
- ~~18.17.~~ Evaluate or bury ~~Keep~~ electric and telephone services to reduce susceptibility to secure from vandalism. ~~Use the preferred method of protection, underground service from a street telephone pole to the entering point of a building.~~
- ~~19.18.~~ Provide adequate lighting for the main entrance sidewalk and parking lot to discourage loitering and vandalism.
- ~~20.19.~~ Provide appropriate site security gates at fire lanes to prevent non-authorized vehicles from driving around the sides or back of the school.
- ~~21.20.~~ Provide exterior public address systems that can be heard in the parking lot, bus loop, and playgrounds.

Provisional:

21. Consider providing clear visual access to the main entry exterior from school administration spaces for passive observation.
22. Consider developing/designating emergency ~~off-site~~ staging areas on-site.
23. Consider providing a secondary access to the site for emergency vehicles.
24. Consider how an emergency evacuation will be conducted. Consider bus loading areas and/or staging areas.
- ~~24.25.~~ Consider using electric kitchen equipment and small burners with fuel canisters in science programs in lieu of piped propane or natural gas systems.

Premium:

- ~~25.26.~~ Locally required (i.e., municipality, borough, ~~etc.~~) off-site improvements including off site-staging and assembly areas.
27. Concrete sidewalks further than 50'-0"100 feet from the main entrance.
28. Perimeter fencing at site boundaries/property lines except as incorporated at playgrounds and sports fields.

Best Practice/Lessons Learned

- A. For increased security, consider using individual fuel canisters at science workstations in-lieu of external tanks and/or piped gas(es).

~~A. Building Location and Orientation~~

~~The State must be involved in reviewing site selection, education specifications (i.e., programming), and design. Selected sites should be affordable, easily developed, and close to commercial grade~~

~~utilities wherever possible. Sites requiring extensive earthwork, long driveways, or environmental challenges should be avoided. In urban areas, schools should not be located directly on major roadways with high speeds or heavy traffic.~~

Baseline:

- ~~1. Select the building site to minimize environmental impact and encourage a simple, straightforward construction process.~~
- ~~2. Orient the main entrance to face primarily south. Avoid entrances facing north.~~
- ~~3. Consider prevailing wind and wind speeds with regard to doors. Provide measures such as wing walls or rails to prevent wind from catching doors and causing damage.~~
- ~~4. Orient the building design to maximize natural daylighting in classrooms and other occupied spaces.~~
- ~~5. Keep building ventilation intakes away from vehicle exhaust and other sources of air pollution. Consider the site's prevailing winds when locating intake and exhaust equipment.~~

Provisional:

- ~~6. Consider orienting the longer axis of the building using a North-South for classrooms for maximum solar impact.~~

Premium:

- ~~7. Building pads/sites with slopes in excess of 10 percent.~~

B.C. _____ High-Performance Site Principles

Baseline:

1. Site buildings to maximize daylighting (~~a north-south orientation for classrooms~~locating the school on an East-West axis).
- ~~2. Orient buildings with a major entrance on the south side whenever possible.~~
- ~~3.2.~~ Choose native and adaptive plants that do not need permanent irrigation systems.
- ~~4.3.~~ Conduct a Phase I Environmental Assessment (and Phase II, if necessary, based on Phase I) to identify hazardous materials. Conduct required mediation on site.
- ~~5.4.~~ Control erosion and sedimentation during construction.

Provisional:

- ~~6.5.~~ Consider opportunities to reduce light trespass onto adjacent sites and improve nighttime visibility by reducing up-lighting, reducing maximum lumens of fixtures above horizontal, and locating luminaires well inside the project site boundary.
6. Consider opportunities to reduce impervious surfaces on site, reduce quantity and improve quality of stormwater runoff. Practice low-impact rainwater management strategies.
7. Consider alternatives to piped stormwater systems to include bioswales, pervious pavements, and retention basins.
8. Consider maximizing snow storage on site where possible; be aware of impacts on site drainage and security site lines and visual observation.
9. Consider installation of school vegetable gardens when in support of established educational curriculum.

Premium:

- ~~7. Stormwater management unless required by local ordinances: bioswales, pervious pavers.~~
- ~~8-10. Green roofs.~~
- ~~9. School vegetable gardens.~~

Best Practice/Lessons Learned

A. (Reserved)

C.D. Building EntrancesBaseline:

1. Provide a single point of entry for all visitors that is easily identifiable from the main approach to the school. When called for by school district policy, visitors shall enter through a secure vestibule at the main building entrance. This arrangement may not be practical to accommodate in a renovation or necessary in a very small school.
2. Design all exits and entrances so the building can be securely locked down after the start of school if desired.
3. Safety and Security at Main Office:
 - a. Locate the main office door adjacent to the security vestibule lobby so office personnel can maintain visual supervision while visitors come in to sign the visitor log.
 - b. Provide ~~a hidden~~ an accessible electronic security panic button in the office that can send a signal to police or emergency responders when a crisis is developing at the school.
 - c. Provide a minimum of two locations for interior intercom and exterior public address system. The second location should be designated as a “safe room.”
 - d. Design main offices with a second means of exit, either directly outdoors or into a more remote hallway.
 - e. Provide security cameras at the main entrance and other remote locations around the school. Video systems should be capable of being reviewed for live on-demand broadcasting as well as a minimum thirty-day archival library system.
 - f. Design the main office so it has easy supervision of the security vestibule, the main entrance lobby, and one or more main corridors leading into the “heart” of the school.
4. In a secure vestibule arrangement, the interior bank of doors of the vestibule should be equipped with an electronic strike (or equivalent electrical release) that allows the door to be unlocked electronically by main office personnel after visitors have been approved for entrance.
5. Provide ~~proximity card readers~~ electronic access control systems for staff at the main entrance, kitchen/service entrance, and at least one other staff entrance.
6. Provide video cameras in the ceiling of the security vestibule and directly inside of the vestibule doors so that visitors can be photographed on video loops for later review.
7. Design all major entrances and exits with vestibules if they are likely to be used during school hours.
8. Design entrance doors to be controllable from a remote location, preferably at the administrative office, with a direct view and oversight of the main entrance security vestibule.
9. Install exterior rain canopies at the main entrance and exterior doors that are expected to have high usage.

10. In buildings that are at ~~our~~ or near grade, protect all front entrances and other major doors used on a regular basis throughout the school day with concrete-filled steel bollards or other appropriate, rugged obstructions.

Provisional:

11. (Reserved)

Premium:

12. Pivot hinges, sliders, or revolving doors.
 13. Electric door openers other than [those at the minimum number of entries required to be accessible at the ADA main entrance](#).
~~14. Overly complex ceiling finishes and features.~~

Best Practice/Lessons Learned

- A. (Reserved)

3. SCHOOL BUILDINGS

Every school plan should be a reflection of the Space Allocation Guidelines found in Alaska Administrative Code (4 AAC 31.020), as well as the school district’s educational specifications and pedagogy. The opportunity to design new or redesign existing school buildings is often a once-in-a-lifetime experience for teachers, school boards, and the local community. Serious consideration should be given to a comprehensive educational visioning process ~~at local expense~~ that reviews current state-of-the-art thinking and considers which educational strategies are most appropriate for the school’s age group and local community values. Learning spaces should support traditional as well as expeditionary; and “virtual” learning experiences. The following general planning principles apply to all school facility design:

A. General Planning Principles

Baseline:

1. Design interior wall layouts to be simple and straightforward.
2. Zone the building ~~for~~ [to accommodate](#) public and after-hours use.
3. ~~Consider zoning~~ [Zone](#) the building for lockdowns that allow different sections of the building to be securely isolated.
4. Design the floor plan to carefully separate quiet, academic areas from noisy, high activity functions.
5. Design classrooms to conform to best practices for acoustic isolation and separation as defined by ANSI-S12.60 ~~(Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools Part I)~~.
6. Organize functional layouts to support small-group and large-group activities.
7. Designs ~~should~~ emphasize multi-functioning rooms to maximize daily use and minimize underutilized spaces.
8. Design the floor plan to optimize multi-functioning spaces such as cafeterias, commons, gymnasiums, and exploratory labs.

9. At the Concept Design or Schematic Design phase, school designs [for projects with greater than 30 percent new space](#) must demonstrate the ability to be expanded to accommodate a [15% percent](#) increase in student population.
10. Provide acoustical and smoke separation by designing classroom walls to extend to the underside of the structural deck whenever possible and when required by codes.

Provisional:

11. Consider single or double intercommunicating doors between classrooms.
- ~~12. Consider achievements for rewarding good behavior to include, but not be limited to:

 - I— Comfortable lounge-type furniture.
 - II— Gaming equipment with monitors, video access and controls.~~
- ~~13.~~ [12. Consider designing schools](#) ~~Schools should be designed~~ to be as flexible as possible to accommodate future learning styles and technology.
- ~~14.~~ [13. Group Consider flexible breakout and small-group](#) rooms ~~to have~~ [with](#) marker boards, tackable surfaces, a ~~conference work table and 8-10 chairs~~ [configurable FF&E](#).
- ~~15. Operable partitions or large sliding doors.~~

Premium:

- ~~16.~~ [14. Complex floor patterns involving curves, cuts, and intricate details \(\$\geq\$ CF-3\).](#)
- ~~17.~~ [15. Wood floors, except where allowed for gymnasiums, or natural stone floors.](#)
- ~~18.~~ [16. Elaborate, expensive, curved or complex walls, ceilings, windows, and arches.](#)
- ~~19.~~ [17. Building plans with more than one elevator.](#)
- ~~20.~~ [18. Stairways not required by code for egress.](#)
- ~~21.~~ [19. Elaborate, monumental stairs, regardless of location or code compliance.](#)
- ~~22.~~ [20. Interior channel glass wall systems or glass block walls.](#)
- ~~23.~~ [21. Complex ceilings with multiple levels and decorative soffits \(\$\geq\$ CF-3\).](#)
- ~~24. Wood or metal slat ceilings.~~
- ~~25. Plaster or fiberglass shaped ceiling planes.~~
- ~~Ceiling tiles larger than 24" x 48".~~
- [22. Operable partitions or large sliding doors.](#)

Best Practice/Lessons Learned

[A. \(Reserved\)](#)

B. Safety & Security Building Design**Baseline:**

- [1. Design the building so it can be locked down into separate security zones, preferably at internal firewalls requiring rated steel fire doors.](#)
- ~~1.~~ [2. Design the building to reduce nooks and areas where visibility is reduced or compromised.](#)
- ~~2.~~ [3. Provide a minimum of two means of exit out of any gymnasium, cafeteria, or library if the number of occupants is above 50.](#)
- ~~3.~~ [4. Provide a secure service door at the service entrance with ~~a proximity reader~~ access control and a means of identifying visitors without opening the door.](#)

- 4.5. Provide locked, secure chemical storage areas that are not accessible to students or visitors.
- 5.6. Provide laminated security glass at remote exterior doors or sidelights.
- 6.7. Reduce the number of exterior doors that need to be supervised or checked for security and safety purposes.
- 8. Provide exterior doors convenient to playgrounds and playfields that can be quickly unlocked by ~~proximity card readers~~ access control in cases requiring “reverse evacuation.”
- 9. Consider putting fire doors on electric hold opens and having them tied into the emergency security notification system that allows the main office to release fire doors for lockdown.
- 7.10. Consider providing steel frame doors with no glass vision panels at remote, unsupervised doors.

Provisional:

- ~~8. Consider providing steel frame doors with no glass vision panels at remote, unsupervised doors.~~
- 9.11. Consider putting fire doors on electric hold opens and having them tied into the emergency security notification system that allows the main office to release fire doors for lockdown.

Premium:

- 12. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

C. Safety & Security at Classrooms**Baseline:**

- 1. Provide commercial-grade hardware and locksets on all doors.
- 2. Provide hardware at classroom doors where the door can be quickly locked by the teacher from the inside.
- ~~3. Provide small vision panels with laminated security glass in classroom doors.~~
- 4.3. Provide a phone and /or two-way intercom system in every classroom.
- ~~5. Provide a minimum of one National Fire Protection Assoc. (NFPA)-approved escape window in every classroom, where necessary.~~

Provisional:

- 6.4. ~~(Reserved)~~ Consider Provide small vision panels with laminated security glass in classroom doors.

Premium:

- 7.5. ~~(Reserved)~~ Security cameras within classrooms.

Best Practice/Lessons Learned

- A. Provide a minimum of one National Fire Protection Assoc. (NFPA)-approved escape window in every classroom, where necessary.

Category A – Instructional or Resource

General Use Classrooms

Baseline:

1. Provide space and amenities for instruction and learning associated with grade levels in support of adopted curriculum and a variety of teaching/learning styles in all or some of the following areas: instructor-led learning, individual, team and project-based learning, small group activities, computer-based learning/research, instructional storage, and personal storage.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 800–900sf; minimum 550sf Elementary General Classrooms: 800 – 1,250; minimum 550sf Secondary General Classrooms: 650 – 1,000; minimum 550sf
Spatial Elements	Ceilings: 9ft +/-, traditional rectangular or ‘fat L’ configuration
Finishes	Floor: vinyl or rubber resilient sheet/tile at project and entry/exit areas (where used), carpet at teacher and student stations. Ceiling: acoustic tile, Walls: GWB with paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Sills at approx. 42in or lower for visual connection to exterior; one tilt/turn operable unit minimum
Specialties	36in base cabinets w/laminate counter (adjust where needed for accessibility), 42in wall cabinets, teacher wardrobe, 24lf whiteboard, 12lf tack board, window coverings (full, room darkening glare control)
Plumbing	None required; see <i>Provisional</i> below
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, banked controls plus dimming
Power	110v duplex for code compliance, 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock, interactive whiteboard display , projector wireless internet , duplex data ports (~1 per 4 students + teaching station)
Equipment/Furnishings	None required (FF&E not covered in these Standards)

Provisional:

3. Consider double leaf door openings between classrooms.
4. Consider classroom cubbies for coats, hats, and boots in grades Pre-K–2; [extend through grade 6 where space for corridor lockers is limited.](#)

5. Consider toilets in the classrooms for grades Pre-K, ~~and~~ Kindergarten, and K-1 combined classrooms. Add seamless resilient flooring with integral coved base or ceramic tile flooring/base and ~~ceramic tile to a~~ FRP wainscoting to a height of 48" in wet areas to *Finishes*.
6. Consider using soffit framing and GWB where needed at ceilings to conceal building services systems (ref. 0612 Soffits & Ceilings).
- ~~6.7.~~ Consider infrared touchless fixtures in classroom toilet rooms.
- ~~7.8.~~ Consider sinks in the classroom serving grades Pre-K–5; extend to grade 6 in schools serving grades K-6; ~~add~~ Add PT-paper towel and S soap dispenser to *Specialties*.
9. Consider solid-surface ~~acrylic and~~ polymer counter tops where sinks are installed.
- ~~8.10.~~ Consider providing one whiteboard with multiple sliding panels per classroom (8ft typical); especially at upper-level math/science.
- ~~9.11.~~ Consider paperless gypsum board or water-resistant materials for wet walls.
- ~~10.~~ Consider extending interior walls to the underside of the deck for smoke and acoustical performance.
12. Consider instructional voice amplification system.
- ~~11.13.~~ Consider specifying 'blackout' shades versus glare control where needed to support the instructional program.

Premium:

- ~~12.14.~~ Sinks in general use classrooms beyond grade ~~five~~6.
- ~~13.15.~~ Operable wall systems or large sliding doors.
- ~~14.16.~~ Curved walls.
- ~~15.17.~~ Architectural woodwork such as picture rails, wainscoting, crown moldings, or paneling.
- ~~16.18.~~ Decorative ceiling systems such as metal or wood slat ceilings.
19. Decorative lighting.
- ~~17.20.~~ Ceramic tile walls in a toilet room located inside a classroom.

Best Practice/Lessons Learned

- A. Design all classroom doors to be easily lockable from the inside by the teacher but to allow egress from the classroom at any time.
- B. Specify laminate countertops with postformed front edge for durability. Use field-installed backsplash for efficient transportation.
- ~~B.C.~~ Confirm carpet for classroom floors with building owner/maintenance staff, specifically in remote areas where paved pedestrian surfaces are not common thus increasing the amount of dirt on footwear.
- D. Consider 3mm PVC edge fare better long-term than post-formed edge and is less expensive and easier to install if you have L- or U-shaped counter arrangements.
- ~~C.E.~~ Specify extended rims for classroom sinks with bubblers.
- ~~D.F.~~ Provide waterproof finishes at 'in-classroom' coat and boot storage.
- ~~E.G.~~ Consider appropriate fixture location and light levels on vertical surfaces used for instruction (white boards, screens, televisions, etc.).

Dedicated Classrooms

Art

Baseline:

1. Provide space and amenities for dedicated visual arts instruction, [cultural education](#), and learning in all or some of the following areas: multi-media drawing/painting, multi-media sculpture/fabrication including wood, plastics, fabrics, digital 2D and 3D art including printing. Support includes instructional storage, devices, and equipment.
- ~~1.2.~~ [Provide from among the following features for this educational space:](#)

System	Features
Planning Factors	Dedicated space where K-6 student population exceeds 300, or 7-12 student population exceeds 200; typical 900 – 1500sf including support spaces; separate kiln room typical 80sf (see <i>Premium for ceramics</i>)
Spatial Elements	Ceilings – 10ft +/-, traditional rectangular configuration
Finishes	Floor: polished concrete or ‘seamless’ resilient Ceiling: acoustic tile Walls: GWB w/paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Optional
Specialties	36in base cabinets w/stainless steel counter, 52in-storage base cabinets to 52in , wall cabinets, teacher wardrobe, 24lf whiteboard, 24lf tackboard, window coverings (as needed glare control)
Plumbing	Utility sinks (3) w/hot and cold valves, cleanable solids drain traps and solids interceptor for ceramic programs; see <i>Premium below</i>
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; provide negative pressure where required by products used ; exhaust at kiln room (see <i>Premium for ceramics</i>)
Lighting	Pendant or drop-in indirect, three-bank controls plus dimming; utility track lighting at display walls
Power	110v duplex for code compliance, 110v quadplex at each data port; GFCI outlets; Floor or retractable ceiling at large project area
Special Systems	Phone/intercom, synchronized clock, projector, retractable screen, duplex data ports (1 per 6 students + teaching station)
Equipment/Furnishings	Display case(s)

Provisional:

3. Consider separate instructional storage area for large programs.
- ~~4. Consider separate kiln room with exhaust.~~

- ~~5.4.~~ Consider exposed structure at ceilings; provide suspension grid for display.
- ~~6.5.~~ Consider floor drains with cleanable solids traps and trap primers.
- ~~7.6.~~ Consider multiple station student cleanup sinks.
- ~~8.7.~~ Consider instructional voice amplification system.
- 9.8. Consider specifying ‘blackout’ shades versus glare control where needed to support the instructional program.

Premium:

- ~~10.9.~~ Ceramics/pottery equipment in schools serving students below grade 9, or grades 6-~~9~~8 with school capacity below ~~900~~500 students.
- ~~11.10.~~ Stone or epoxy countertops.
- ~~12.11.~~ Wood cabinetry or architectural millwork.
- ~~13.12.~~ Decorative or special track lighting.
- ~~14.13.~~ Decorative flooring, ceramic tile, or epoxy coatings.

Best Practice/Lessons Learned

- A. Provide acoustical absorption panels in exposed ceilings as needed.
- ~~A.~~B. Orienting display cases to corridors adjacent to Art rooms is beneficial to increase exposure.
- C. Consider appropriate fixture location and light levels on vertical surfaces used for instruction (white boards, screens, televisions, etc.).
- ~~B.~~D. Consider the use of marine edge and drain board, especially for ceramic programs.

Science

Baseline:

1. Provide space and amenities for dedicated science instruction and learning in all or some of the following areas: physical and life sciences. Support includes instructional storage, devices and equipment.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provide dedicated space where <u>grade</u> 7-12 student population exceeds 50; typical 900 – 1200sf including support spaces <u>such as prep rooms</u>
Spatial Elements	Ceilings: 9ft +/-, rectangular configuration
Finishes	Floor: <u>polished concrete or seamless resilient vinyl or rubber sheet,</u> Ceiling: acoustic tile; Walls: <u>GWB w/paint</u>
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Optional

System	Features
Specialties	Base cabinet lab stations w/resin work surface, wall cabinets (lockable), teacher demonstration center, teacher wardrobe, 24 f whiteboard, 12 f tackboard, W w window coverings (as needed)
Plumbing	Sinks integrated in lab stations w/cold water, deep clean-up sink w/hot and cold, portable eye wash, see Provisional below
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; exhaust air not recirculated ; direct exhaust at demonstration, negative pressure
Lighting	Pendant or drop-in indirect, three-bank controls plus dimming
Power	110v duplex for code compliance, 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock, interactive whiteboard display , projector, duplex data ports at lab stations.
Equipment/Furnishings	Chemical storage cabinets

Provisional:

3. Consider deluge showers with floor drains for programs serving grades 10-12.
4. Consider plumbed eye wash stations with floor drain.
5. Consider fume hoods, acid neutralization tanks, and acid-resistant plumbing in chemistry labs.
[Consider including gas piped to chemistry fume hoods.](#)
6. Consider instructional voice amplification system.
7. [Consider using bottled propane rather than plumbing gas to stations.](#)
8. [Consider providing movable lab tables in place of built-in stations.](#)
9. [Consider chemical resistant tops in chemistry labs.](#)
10. [Consider the use of movable counter height lab tables.](#)
- ~~6-11.~~ [Consider the use of hot plates for chemistry labs in place of gas.](#)

Premium:

- ~~7-12.~~ Compressed air systems.
- ~~8-13.~~ Gas at rooms other than chemistry.
- ~~9-14.~~ Fume hoods at rooms other than chemistry.

Best Practice/Lessons Learned

- A. Design to maximize shared amenities such as fume hoods, prep rooms, and storage.
- ~~A.B.~~ [Consider separate acid, flammables and general chemical storage cabinets, lockable, provides better inventory control and safety.](#)

Music/Drama**Baseline:**

1. Provide space and amenities for dedicated music instruction and learning in all or some of the following areas: choral/singing, instruments, music appreciation. Drama and dance instruction. Support includes instructional storage, devices and equipment.
- ~~1-2.~~ [Provide from among the following features for this educational space:](#)

System	Features
Planning Factors	Dedicated space where K-6 student population exceeds 300, or 7-12 student population exceeds 200; typical 800 – 1200sf including on-suite office/storage room; provide acoustical isolation
Spatial Elements	Ceilings: 9ft-12ft +/-, rectangular configuration
Finishes	Floor: vinyl or rubber sheet /tile for ambient noise control Ceiling: acoustic tile Walls: GWB w/paint; may incorporate sound absorptive materials.
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Optional at K-6 space; None typical at 7-12 space.
Specialties	Lockers/cabinets (lockable) for instrument storage, W wall cabinets for sheet music , T teacher wardrobe, 12ft whiteboard (2), W window coverings (full, room-darkening glare control)
Plumbing	None required; see <i>Provisional</i> below
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, three-bank controls plus dimming
Power	110v duplex for code compliance, 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock.
Equipment/Furnishings	None required

Provisional:

3. Consider separate office/instructional storage area for large programs. Fit this space with additional *Specialties* to include: open wall shelving, work counter for instrument repair, upper and lower cabinetry for storage of materials and resources, lockable wardrobe storage, and tackboard.
- ~~4.3. Consider adjacency to Gym, Auditorium (& Stage), and Multipurpose Room; access to stage and performance areas.~~
- ~~5.4.~~ Consider acoustical tuning in programs serving grades 9-12.
- ~~6.5.~~ Consider dedicated practice rooms in programs serving grades 9-12. Provide security glass in doors.
- ~~7.6.~~ Consider acoustic vestibules at doorways [where](#) sound isolation cannot be resolved by adjacency or construction features.
- ~~7.~~ Consider instructional voice amplification system.
- ~~8.~~ [Consider providing portable bandshells as FF&E.](#)
- ~~8-9.~~ [Consider specifying 'blackout' shades versus glare control where needed to support the instructional program.](#)

Premium:

- ~~9.10.~~ Sloped or tiered floors in programs below grade 6.
- ~~10.11.~~ Natural hardwood paneling or woodwork used as acoustical baffles and reverberation panels.

- ~~11.12.~~ Specialty flooring.
- ~~12.13.~~ Television or acoustical recording studios or services.
- ~~13.14.~~ Prefabricated practice rooms.

Best Practice/Lessons Learned

- A. Consider adjacency to Gym, Auditorium (& Stage), and Multipurpose Room; access to stage and performance areas.
- ~~A.B.~~ Design door configurations to allow for the easy movement of pianos, drums, and other large instruments.
- ~~B.C.~~ Design walls and floors to prevent noise through ceilings or structural elements.

Bi-Cultural/Bilingual & Consumer Education

Baseline:

1. Provide space and amenities for project-based learning associated with cultural and traditional language heritage when supported with intentional curriculum in all or some of the following areas: food processing and preparation, construction and use of traditional art/artifacts and apparel, oral and visual presentation both live and electronic.
2. Provide from among the following features for this educational space:

System	Features
Planning Factor	Provide dedicated space where 7-12 student population exceeds 30; typical 900 – 1200sf including support spaces
Spatial Elements	Ceilings: 9ft +/-, rectangular, typical 900 – 1200sf including support spaces.
Finishes	Floor: vinyl or rubber resilient sheet/ tile . Ceiling: acoustic tile. Walls: <u>GWB w/paint</u>
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i> ; see Provisional for exterior door
Windows	Sills at ≈ <u>approx.</u> 42in or lower for visual connection to exterior; one tilt/turn operable unit minimum
Specialties	36 4in base cabinets w/laminate counter, solid surface counter at sink, 42in wall cabinets, teacher wardrobe, 24 4 whiteboard, 12 4 tack board, window coverings (full, room-darkening <u>glare control</u>); P <u>paper towel</u> dispenser, soap dispenser
Plumbing	Stainless steel double sink w/lever mixing valve
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	Range hood at cooking surfaces
Lighting	Drop-in indirect, two-bank controls
Power	110v duplex for code compliance, 110v quadplex at each data port, as required for appliances.
Special Systems	Phone/intercom, synchronized clock, interactive whiteboard <u>display</u> , projector, duplex data ports (~1 per 4 students + teaching station)

System	Features
Equipment/Furnishings	Range, Refrigerator, Microwave/hood, Dishwasher (all residential)

Provisional:

3. Consider an exterior door for biologic products and/or for the purpose of afterhours/ community use ([control other interior access as needed](#)).
4. Consider solid-surface ~~acrylic and~~ polymer counter tops where sinks are installed.
5. Consider dedicated room exhaust for odor control.
6. Consider solids interceptor on waste pipe and accessible cleanout on waste riser.
7. Consider locking hardware on one or more cabinets if valuables will be stored.
8. Consider elements for display of 2D and 3D projects.
- ~~8.9.~~ [Consider task lighting, recessed or surface mount, in support of specific curricular and room use needs.](#)
- ~~9.10.~~ Consider extending interior walls to the underside of the deck for increased acoustical performance.
- ~~11.~~ Consider instructional voice amplification system.
- ~~10.12.~~ [Consider walk-off flooring for classrooms with exterior doors.](#)

Premium:

- ~~13.~~ Commercial appliances.
- ~~11.14.~~ [Laundry appliances.](#)
- ~~12.15.~~ Oversize or non-standard doors.

Best Practice/Lessons Learned

- A. Design door configurations to allow for the easy movement of ~~pianos, drums, and other~~ large ~~instruments~~ [instructional items](#).
- B. Design [room enclosure](#) (walls, ~~and~~ floors, [ceilings](#)) and [ductwork](#) to ~~prevent~~ [reduce sound transfer to adjacent spaces](#) ~~noise through ceilings or structural elements~~.

Special Education

Baseline:

1. Provide space and amenities for instruction and learning for students with special needs as identified in an individual education plan (IEP) for all grade levels in support of adopted curriculum and a variety of education delivery in all or some of the following areas: group activity, motor skills, center-based activities, project-based, etc. Include core curriculum life skills, occupational/physical therapy. Provide instructional storage, and personal storage, health/hygiene support.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provided dedicated space where student population exceeds 50; typical 700 – 1000sf; minimum 600sf + 200 – 400sf support space
Spatial Elements	Ceilings: 9ft +/-, traditional rectangular or ‘fat L’ configuration

System	Features
Finishes	Floor: vinyl or rubber resilient sheet/tile at project and entry/exit areas (where used), carpet at teacher and student stations, seamless resilient or ceramic tile at toilet room; Ceiling: acoustic tile; Walls: <u>GWB</u> paint, ceramic tile FRP at OT/PT to 48in; Add seamless or ceramic tile flooring and ceramic tile to a wainscoting height of 48in in wet areas to Finishes
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Sills at ≈ <u>approx.</u> 42in or lower for visual connection to exterior; one tilt/turn operable unit minimum
Specialties	36in base cabinets w/laminate counter, 42in wall cabinets, teacher wardrobe, 24 whiteboard, 12 tack board, window coverings (full, room darkening)
Plumbing	Stainless steel double sink w/lever mixing valve; toilet room with water closet and lavatory;
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; see also <i>Provisional</i>
Lighting	Pendant or drop-in indirect, banked controls plus dimming
Power	110v duplex for code compliance, 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock, interactive whiteboard display, projector, duplex data ports (~1 per 4 students + teaching station)
Equipment/Furnishings	Structure-mounted OT/PT items <u>such as swings and tables</u> ; undercounter refrigerator; wall-mounted equipment rack(s)

Provisional:

3. Consider instructional kitchen with range, refrigerator, microwave/hood, dishwasher (all residential) for life skills programs serving grades 6-12; add approx. 150sf to listed planning factors.
4. Consider solid-surface ~~acrylic and~~ polymer counter tops where sinks are installed.
5. Consider color temperature adjustable and dimmable lighting in special needs classrooms and behavioral settings.
6. Consider accessible restroom where program requires. Add to Finishes, seamless resilient or ceramic tile flooring and ceramic tile to a wainscoting height of 48 in in wet areas.
7. Consider accessible shower where program requires.
- ~~7.8.~~ Consider on-suite washer and dryer for larger programs; shared washer/dryer with other programs (e.g., Gym, Food Service, etc.) in smaller schools.
- ~~8.9.~~ Consider Provide quiet or timeout spaces that are hygienic, vandal proof, and code compliant.

Premium:

~~9-10.~~ Consider Instructional kitchens in schools serving only grades K-5.

Best Practice/Lessons Learned

- A. Integrate special needs spaces within the larger school population.
- B. For life skills programs in small student populations, consider multi-function use of kitchen/kitchenette provided in support of other programs.
- C. Consider OT/PT space adjacent to or inside of other multi-functioning spaces to maximize efficiency.
- D. Provide appropriate structural support for special swings or hanging equipment in OT/PT spaces.
- ~~D-E.~~ Locate on entry level; consider easy access from accessible parking spaces.

Wood/General/Small Machine Shop

Baseline:

1. Provide space and amenities for dedicated ~~visual arts instruction and learning in all or some of the following areas: multi-media drawing/painting, multi-media sculpture/fabrication including wood, plastics, fabrics, digital 2D and 3D art including printing.~~ Career and technical education in all or some of the following area: wood, metal and plastics fabrication, general construction, small engine repair. Space should also provide for lectures, demonstration, discussion with presentation capability. Support includes instructional storage, devices, and equipment.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provide dedicated space where 6-12 student population exceeds 30; typical 900 – 1200sf including support spaces
Spatial Elements	Ceilings: 10ft +/-, traditional rectangular configuration
Finishes	Floor: sealed concrete or steel diamond plate , <u>protected wood</u> ; Ceiling: acoustic tile; Walls: <u>GWB with</u> protective material (plywood, steel sheet, <u>FRP</u> , etc. to <u>48ft</u>), paint above
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Optional; sill height approx. 60in minimum to maximize wall storage
Specialties	72in locker cabinets, <u>lockable tool cabinet(s)</u> , teacher wardrobe, 24lf whiteboard, 12lf tackboard
Plumbing	Utility sink (1) w/hot and cold valves, cleanable solids drain traps; see <i>Premium</i> below
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; provide negative pressure; (welding exhaust see <i>Provisional</i>); (note: portable/local dust collection as FF&E)

System	Features
Lighting	Pendant or drop-in indirect, three-bank controls plus dimming; utility track lighting at display walls
Power	110v duplex for code compliance, 110v quadplex at each data port <u>220v power for equipment</u> ; GFCI outlets; <u>emergency shunts on tool circuits</u> . Floor or retractable ceiling at large project area
Special Systems	Phone/intercom, synchronized clock, projector, retractable screen, duplex data ports (1 per 6 students + teaching station)
Equipment/Furnishings	Floor mounted wood/plastic working, metal working tools by instructional program; dust and exhaust system (see <i>Provisional</i>)

Provisional:

3. Consider separate instructional storage area for large programs.
4. Consider separate, secure area for tool storage.
- ~~3.~~5. Consider floor or retractable ceiling power at large project areas.
6. Consider exposed structure at ceilings.
- ~~4.~~7. Consider plate steel protection with traction enhancement over plywood at floors (LCCA-54)
- ~~5.~~8. Consider insulated overhead door to exterior for large item entry/exit.
- ~~6.~~9. Consider covered, secure exterior storage for large materials not sensitive to exposure.
- ~~7.~~10. Consider multiple station student cleanup sink.
- ~~8.~~11. Consider centralized dust collection system to exterior tank for large programs.
- ~~9.~~12. Consider centralized welding exhaust system to exterior for large programs.

Premium:

13. Distributed compressed air systems.
- ~~10.~~14. Centralized welding exhaust systems for curriculum requiring less than three welding booths.

Best Practice/Lessons Learned

- A. Often designed as 'maker space' for grades 6-8 with powered hand tools only.
- B. -In some cases a double leaf door with removable center mullion has been used in lieu of an overhead door.
- C. Portable HEPA filter units purchased as FF&E have been effective for welding shops to support activities outside of hooded areas.
- ~~A.~~D. To enhance energy efficiency, specify a recirculating dust collection system to reduce make-up air requirements.

Assembly Spaces

Library /Media Center

Baseline:

1. Provide space and amenities which support the following uses: collections (i.e., stacks), computer workstations, individual and group seating, staff workspace, meeting/collaboration space, and presentation space.
2. Provide from among the following features for this educational space:

System	Features
Planning Factor	Provide dedicated space where student population exceeds 50; typical 750 – 3000sf (approx. 5sf/student at large populations) + 100 – 500sf of support space
Spatial Elements	Ceilings: 10ft +/-, vaulted accepted, non-rectilinear room configuration accepted
Finishes	Floor: carpet, vinyl or rubber resilient sheet/tile at workroom; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Sills at approx. 42in or lower for visual connection to exterior; maximize under allowable energy standards
Specialties	24ft w Whiteboard, 24ft tack board, window coverings (full, room darkening) (see Provisional for support spaces)
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; <u>minimize system noise in this space</u>
Lighting	Pendant or drop-in indirect, banked controls plus dimming
Power	110v duplex for code compliance, 110v quadplex at each data port, integral USB ports
Special Systems	Phone/intercom, synchronized clock, interactive whiteboard display, projector, duplex data ports (~1 per 4 students + teaching station), robust wireless
Equipment/Furnishings	Circulation desk

Provisional:

3. Consider planning and design guidance from the American Association of School Librarians (AASL).
4. Consider distributed versus centralized media for small student populations and adjust classroom sizes accordingly.

5. Consider library office/workroom within or adjacent to the library space. Provide 36in base cabinets w/laminate counter, lockable drawer cabinets and intermittent openings for knee space.
6. Consider a single bowl stainless steel sink in workroom. Add paper towel ~~&~~and soap dispensers to *Specialties*.
7. Consider library storage room to have upper & lower cabinetry, heavy duty shelving, lockable file cabinets, video monitors and other A/V equipment on rolling carts and laptop carts.
8. Consider providing an exterior swing door for connection to supporting exterior spaces or after-hours entrance to support extended use (control other interior access as needed).

Premium:

9. Space required for non-district, municipal/borough-owned library functions.
10. Architectural woodwork such as picture rails, wainscoting, crown moldings, or paneling.
11. Decorative lighting.
12. Custom ceilings, soffits, skylights, or other monumental architectural features.
13. More than one exterior door.

Best Practice/Lessons Learned

A. Design room enclosure (walls, floors, ceilings) and ductwork to reduce sound transfer to adjacent spaces

~~A.~~B. Design room and furniture layout for easy supervision, avoiding dead zones.

~~B.~~C. ~~Thought Best~~ practice is to place book shelving, full height, at perimeter only; as electronic media increases; ~~room space becomes multi-functional for group interaction and individual consumption~~ this will facilitate multi-function use of space.

~~C.~~D. Review structural design for heavy book loading when present.

E. Provide moveable furniture and equipment for maximum flexibility; use fixed built-in features sparingly.

~~D.~~F. The preceding standards are based on centralized library and media display/use. This Equipment may not be needed if books and media are distributed throughout a school.

Gym**Baseline:**

1. Provide space and amenities for physical education supported with intentional curriculum in all or some of the following areas: gross motor activity, group play and competition, skill and knowledge in individual, recreational, and team sports, fitness, dance, etc.

2. Provide from among the following features for this educational space:

System	Features																														
Planning Factor <i>Notes:</i> 1. Does not include spectator space; at lowest populations spectator space may be unavailable unless combined with Commons or Multipurpose.	3500sf (common basketball court size 60ft x 40ft) <table border="1"> <thead> <tr> <th>Grade Level(s)</th> <th>Student Population</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>K-12</td> <td>30 – 55</td> <td></td> </tr> <tr> <td>K-6</td> <td>30 – 400</td> <td></td> </tr> <tr> <td>7-12</td> <td>25-50</td> <td></td> </tr> <tr> <td>Mixed Grade</td> <td>30-55</td> <td></td> </tr> </tbody> </table> Note: For student populations below 30 (45 if K-6 only) see <i>Multipurpose Room</i> 5000sf (common basketball court size 74ft x 42 ft) <table border="1"> <thead> <tr> <th>Grade Level(s)</th> <th>Student Population</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>K-12</td> <td>55 – 170</td> <td></td> </tr> <tr> <td>K-6</td> <td>400 – 900</td> <td></td> </tr> <tr> <td>7-12</td> <td>50-160</td> <td></td> </tr> <tr> <td>Mixed Grade</td> <td>55-170</td> <td></td> </tr> </tbody> </table> Note: For K-6 student populations beyond this maximum, possible multiple gymnasium space is acknowledged.	Grade Level(s)	Student Population	Notes	K-12	30 – 55		K-6	30 – 400		7-12	25-50		Mixed Grade	30-55		Grade Level(s)	Student Population	Notes	K-12	55 – 170		K-6	400 – 900		7-12	50-160		Mixed Grade	55-170	
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K-12	170 – 330																														
K-6	N/A																														
7-12	160-400																														
Mixed Grade	170-330																														
Spatial Elements	Ceilings: minimum 20 24ft to structure, vaulted/exposed typical, rectangular configuration																														
Finishes	Floor: synthetic sports floor; Ceiling: open to structural deck or GWB w/adhered acoustic ; Walls: protective material (plywood/ OSB , steel sheet FRP , etc. to 10ft), paint above																														
Doors	Interior and exterior for code compliance; hardware, see <i>Safety & Security at Classrooms</i> and Safety & Security Building Design																														
Windows	Optional																														
Specialties	(see Provisional for support spaces)																														
Plumbing	Drinking fountain with water bottle fill station, 1 + ADA																														
Heating/Cooling	As calculated for code compliance																														
Ventilation/Exhaust	As calculated for code compliance																														
Lighting	High-bay fixed or pendant surface mount ; provide impact protection																														
Power	110v duplex for code compliance																														

System	Features
Special Systems	Phone/intercom, synchronized clock, LCD projector, retractable screen, robust wireless
Equipment/Furnishings	Basketball backboards/rims, climbing apparatus, bleachers

Provisional:

3. Consider available space within allowable maximum (4 AAC 31.020) for Gym support spaces to include: instructor office(s), spectator/classroom seating, and equipment storage. (See Locker Room for other dedicated support space.)
4. Consider multi-layer, cushioned hardwood floor systems for programs serving any grades 6-12.
5. Consider floor markings in support of any sport or activity in the curricular program.
6. Consider school names, mascots, or logos on floor, integrated with court markings.
7. Consider installing damage-resistant light fixtures where susceptible to damage.
- ~~7.8.~~ [Consider translucent panels or opaque window glass for glare control of optional windows are not north facing.](#)
- ~~8.9.~~ [Provide](#) Consider safety and security cages around fixtures, controls, thermostats, sensors, [sprinkler heads](#) etc. susceptible to damage.
- ~~9.10.~~ Consider strategies for maintaining appropriate humidity levels for wood flooring.
- ~~10.11.~~ Consider sports net dividers to maximize class use of gyms.
- ~~11.12.~~ Consider wall padding when walls are in close proximity to out-of-bounds court lines.
- ~~12.13.~~ Consider adjustable, retractable basketball backboards/hoops.
- ~~13.14.~~ Consider recessed floor ~~plates~~ [sleeves](#) for volleyball posts.
- ~~15.~~ Consider motorized bleachers at height-stacks greater than 8ft.
- ~~16.~~ [Consider destratification fans for efficiency and comfort.](#)

Premium:

- ~~14.17.~~ Indoor running tracks/mezzanine.
- ~~15.18.~~ Separate, specialized dehumidification systems for wood floors.
- ~~16.19.~~ Glass backboards or automatic electric winch backboards other than two for the main court.
- ~~17.20.~~ More than one electrically operated net/divider systems.
- ~~18.21.~~ College or professional grade floor systems.

Best Practice/Lessons Learned

- A. Consider gymnasiums as possible multi-functioning and multipurpose spaces. Provide enough sound absorbing material to allow for good voice recognition, and appropriate sound amplification for group presentations.
- B. Locate gymnasiums adjacent to or with easy access to exterior playfields and parking lots for public events.
- C. Provide public toilet areas near the gymnasium.
- D. Provide for wireless network computer access in the gymnasium and offices.
- E. Locate bleachers and gymnasium doors to protect floors from street shoe traffic.

- F. Locate door swings, equipment, and other enclosures so they do not become dangerous obstructions to running students playing within the space.
- G. Place climbing ropes appropriate distance from walls to account for swinging.
- H. Provide afterhours access to gym space (and public restrooms) while restricting access to remainder of the school.
- I. Avoid radiant floor systems. They may damage the floor system and cannot react quickly enough to dramatic occupancy changes.
- G.J. Zone heating and ventilation system so that gymnasium and after hour space activities can operate separately from the rest of the school.

Category B – Support Teaching

Shared Spaces

Teacher Workroom/Breakroom/Offices/Parent Resource

Baseline:

1. Provide space and amenities for teacher and staff access to centralized instructional resources and equipment. Provide space and amenities for teacher and staff break, food storage and prep. Provide restroom. If prep and/or teacher office/admin is distributed, provide smaller, centralized restroom amenities.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 600 – 1000sf; minimum 550sf
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: vinyl or rubber resilient sheet/tile at Workroom/Toilet, carpet at Breakroom. Ceiling: acoustic tile, Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	One tilt/turn operable unit minimum
Specialties	Laminate counter work surface over back-to-back base cabinets, 42in wall cabinets over base cabinets/counter, open shelving and/or cubbies, 84 whiteboard, 8 tack board, window coverings; P paper towel and soap dispenser
Plumbing	Stainless steel single bowl sink w/lever mixing valve; toilet room with water closet and lavatory
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, banked controls plus dimming
Power	110v duplex for code compliance, integrated USB ports, <u>dedicated power for appliances</u>

System	Features
Special Systems	Phone/intercom, synchronized clock
Equipment/Furnishings	Refrigerator, microwave (2) ; <u>coffee maker (if plumbed)</u> , networked copier

Provisional:

3. Consider range/hood and dishwasher if used in support of Special Needs life skills.
4. Consider seamless or ceramic tile flooring and ceramic tile to a wainscoting height of 48in in Toilet Room, add to *Finishes*.
5. Consider infrared touchless fixtures in toilet room.
6. Consider solid-surface ~~acrylic and~~ polymer counter tops where sinks are installed.

Premium:

7. Solid-surface counters at other than wet locations.
8. Commercial appliances.

Best Practice/Lessons Learned

- A. Specify laminate countertops with postformed front edge for durability. Use field-installed backsplash for efficient transportation.
- A.B. Zero threshold transitions art room entry is ideal for rolling carts in/out at Teacher Workroom.

Dedicated Spaces

Counseling/Testing

Baseline:

1. Provide space and amenities for student services to include counseling and testing. Services may be itinerant.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 100 – 500sf (upper levels <u>range can</u> provide for small group space); minimum office size 80sf
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: carpet; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i> ; <u>see Interior Openings for relites</u>
Windows	One tilt/turn operable unit per space preferred <u>Optional</u>
Specialties	Open wall shelving, 8lf whiteboard, 4lf tack board, window coverings
Plumbing	None required
Heating/Cooling	As calculated for code compliance

System	Features
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock; duplex data port (2)
Equipment/Furnishings	Refrigerator, microwave (2) Workstation, conference table

Provisional:

3. Consider acoustic separation; walls to achieve STC 50.

Premium:

4. (Reserved)

Best Practice/Lessons Learned

- [A.](#) Ideal if area is accessible to parents very near main entry.
- ~~A.~~[B.](#) Common to locate adjacent to but not with the Administration suite of spaces.

Educational Resource Storage

Baseline:

1. Provide space and amenities for resources to support seasonal curriculum and other multi-use supplies.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 100 – 500sf (upper levels range provide for distributed spaces)
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: carpet resilient sheet/tile ; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	None
Specialties	Open wall shelving; reinforced for heavy loads
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Surface mounted or drop-in direct with diffuser
Power	110v duplex for code compliance
Special Systems	None
Equipment/Furnishings	None

Provisional:

3. (Reserved)

Premium:

- 4. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ [Floor loads in this space may be greater than typical administrative space. Review with Structural.](#)
- ~~A.B.~~ [High density storage systems can reduce the amount of dedicated square footage.](#)

Time-out Room

Baseline:

1. Provide space and amenities for students to have some quiet time when distressed and/or acting inappropriately.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 40 – 80sf (minimum 40sf room size)
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: carpet resilient sheet/tile ; Ceiling: acoustic tile hard ceiling with vandal and impact resistant ; Walls: FRP or similar vandal and impact resistant material
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	None
Specialties	None
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Surface mounted or drop-in direct with diffuser, vandal resistant
Power	110v duplex for code compliance None (for safety)
Special Systems	None
Equipment/Furnishings	None

Provisional:

- [3.](#) Consider sound absorptive materials as needed.
- ~~3.~~[4.](#) [Consider video camera with concealed/hardened mounting for monitoring.](#)

Premium:

- ~~4.~~[5.](#) (Reserved)

Best Practice/Lessons Learned

- A. Locate away from public interaction but ~~near immediate~~[have direct](#) supervision.
- B. [Ensure opposite walls are at least 5ft apart to restrict ‘climbing’](#)
- ~~A.C.~~ [Many schools have moved away from isolated space and have students sit in a quiet area of the admin office or in a large school, a counseling area with assigned staff.](#)

Category C – General Support

Administration

Baseline:

1. Provide space and amenities for parent and visitor reception, workspace for administrative staff and volunteers including principals, vice principals, etc., and secure record storage. The administrative area should be located at the main entrance to the school and provide for necessary elements of security and building control. The administrative suite should have the ability to be secured at night from all other users of the building. ~~student services to include counseling and testing. Services may be itinerant.~~
2. Provide from among the following features for this ~~educational~~ general support space:

System	Features
Planning Factors	<u>Reception: 60-80sf typical;</u> <u>General Administration: 120 – 400sf typical, includes storage;</u> <u>Principal(s): 60-80sf typical;</u> <u>Secure Storage: 50sf typical</u> Typical 100 – 500sf (upper levels provide for small group space); minimum office size 80sf; open workstations may be less
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: carpet; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	One tilt/turn operable unit per space preferred <u>in each enclosed, occupied space</u>
Specialties	Open wall shelving, 84lf whiteboard, 4lf tack board, window coverings
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head end systems, synchronized clock; <u>electronic main entry access</u> ; duplex data port (2)
Equipment/Furnishings	Large capacity copy/print/scan machine

Provisional:

3. Consider built-in reception counter with ADA height section and lockable storage pedestals, waiting area with chair rail.
4. Consider including dedicated conference room.

Premium:

5. (Reserved)

Best Practice/Lessons Learned

- A. A. Personnel should be able to provide electronic access for approved visitors, who should be welcomed through a glass partition between the administrative office security vestibule. Provide and easily accessible area where visitors may wait, sign in, and obtain badges.
- A.B. [Consider separation from counseling and testing rooms.](#)

Shared Spaces

Student Commons

Baseline:

1. Provide space and amenities for student and visitor entry and welcome, ‘hub’ circulation, student informal and intentional congregation and interaction. [Can receive community use.](#)
[May accommodate student dining and large group instruction.](#)
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 600 to 1400sf; up to 3000sf
Spatial Elements	Ceilings: 12ft +/-; often double-height in two-story schools; irregular configuration
Finishes	Floor: resilient sheet or other hard surface; Ceiling: suspended or adhered acoustic tile, vaulted/exposed typical; Walls: protective material (FRP, etc.) 4ft to 8ft, paint above
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Fixed windows in frames, storefronts typical (see <i>0422 Storefronts</i>)
Specialties	Acoustic panels, window coverings
Plumbing	None required; drinking fountain common
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant direct/indirect, accent and cove lighting common, provide dimming based on programmed use
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom Intercom , synchronized clock; wireless data, projection screen
Equipment/Furnishings	Stackable chairs w/carts, 5ft tables on wheels; informal seating and instructional furnishings

Provisional:

3. Consider incorporating compatible ancillary features and spaces to include art/cultural installations, project learning, and presentation.

4. Consider adjacencies with performance spaces such as platforms/stages [and Student Store](#).

Premium:

5. (Reserved)

Best Practice/Lessons Learned

- A. Space may occur at any grade level and student population. Often must be multi-use at lower grades and populations versus functioning as dedicated space.

Auditorium (& Stage)

Baseline:

1. Provide space and amenities for performing arts curricular and extra-curricular activities in all or some of the following areas of group and individual performance, and performance production: drama, dance, choir, band, orchestra, etc.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Seating area: typical 7-10sf per seat total area Proscenium width: 1. 200 – 400 seats – +/-35ft 2. 400 – 600 seats – +/-40ft 3. 600 – 900 seats – +/-50ft Stage area: 1. Depth: 75% proscenium width 2. Width: 150% proscenium width
Spatial Elements	Ceilings: 12ft +/-; often double-height in two-story schools; irregular configuration
Finishes	Floor: resilient sheet or other hard surface; Ceiling: suspended or adhered acoustic tile, vaulted/exposed typical; Walls: gypsum wall board, painted with applied acoustical treatment/elements
Doors	Exterior as required for code compliance; interior for code compliance and function; exit hardware for code compliance, passage hardware for function and safety
Windows	None, typical
Specialties	Acoustic panels, window coverings
Plumbing	None required; consider counter mounted sink in dressing rooms
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; sound attenuators and low dba diffusers
Lighting	Recessed indirect, accent and cove lighting common, provide dimming based on programmed use
Power	110v duplex for code compliance;

System	Features
Special Systems	Stage lighting, sound system, synchronized clock; wireless data
Equipment/Furnishings	Fixed seating

Provisional:

- [3.](#) Consider carpet as floor finish in aisles for sound control.
- ~~3.4.~~ Consider dedicated, enclosed Control Room of approximately 150sf.
- ~~4.5.~~ Consider Dressing Room/Green Room space of approximately 600sf.
- ~~5-6.~~ Consider Fabrication/Storage Room space of approximately 800sf.

Premium:

- ~~6.7.~~ Dedicated space in school facilities serving grades other than 9-12 or in school facilities where one-third of the projected ADM is less than 200 students (see Multipurpose and/or Commons).
- ~~7.8.~~ Square footage that exceeds that required for seating one-third of the projected ADM or for stage areas greater than 35ft deep and 1.75 ~~x~~of the proscenium width.
- ~~8.9.~~ Proscenium arches wider than 60~~-0~~"ft.
- ~~9.10.~~ Fly galleries.
- ~~10.11.~~ Stage gridirons, pin rails, or catwalks over stages.
- ~~11.12.~~ Proscenium openings higher than 25~~-0~~"ft or stage ceilings higher than 30~~-0~~"ft.
- ~~12.13.~~ Trap room (~~U~~nder-stage storage).
- ~~13.14.~~ Orchestra pits.
- ~~14.15.~~ Professional theater lighting systems.
- ~~15.16.~~ Balconies or spectator boxes.
- ~~16.17.~~ Elevators dedicated to serving just the auditorium.
- ~~17.18.~~ Special curved plaster wall or ceiling assemblies designed for acoustic balancing.
- ~~18.19.~~ Decorative wood paneling, wallpaper, and murals.
- ~~19.~~ Spaces and systems for "black-box" theaters.

Best Practice/Lessons Learned

- A. (Reserved)

Multipurpose Room**Baseline:**

1. Provide space and amenities for curricular and extra-curricular activities in all or some of the following areas: performing arts, cafeteria/lunchroom, student and visitor entry and welcome, 'hub' circulation, student informal and intentional congregation and interaction, etc.-

2. Provide from among the following features for this educational space:

System	Features																														
Planning Factors	<p>Typical 600sf minimum typical; ≈<u>approx.</u> 15sf per student for table seating in support of dining at the following percentage factors:</p> <table border="1"> <thead> <tr> <th>Student Population</th> <th>Percent of Population</th> <th>Approx. Chair Seating</th> </tr> </thead> <tbody> <tr> <td>10-50</td> <td>100%</td> <td>60</td> </tr> <tr> <td>51-150</td> <td>75% to 65%</td> <td>165</td> </tr> <tr> <td>151 – 350</td> <td>65% to 45%</td> <td>340</td> </tr> <tr> <td>351 – 500</td> <td>45% to 35%</td> <td>440</td> </tr> <tr> <td>Over 500</td> <td>30%</td> <td></td> </tr> </tbody> </table> <p>Platform Stage:</p> <table border="1"> <thead> <tr> <th>Student Population</th> <th>Platform Area</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>150 – 350</td> <td>300 – 500sf</td> <td></td> </tr> <tr> <td>351 – 500</td> <td>500 – 900sf</td> <td></td> </tr> <tr> <td>Over 500</td> <td>900 – 1400sf</td> <td></td> </tr> </tbody> </table> <p>Note: For student populations below 150 portable stage/platforms are typical.</p>	Student Population	Percent of Population	Approx. Chair Seating	10-50	100%	60	51-150	75% to 65%	165	151 – 350	65% to 45%	340	351 – 500	45% to 35%	440	Over 500	30%		Student Population	Platform Area	Notes	150 – 350	300 – 500sf		351 – 500	500 – 900sf		Over 500	900 – 1400sf	
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150 – 350	300 – 500sf																														
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Spatial Elements	Ceilings: 12ft +/-; often double-height in two-story schools; rectangular configuration																														
Finishes	<p>Floor: resilient sheet or other hard surface;</p> <p>Ceiling: suspended or adhered acoustic tile, vaulted/exposed typical;</p> <p>Walls: protective material (e.g. FRP, etc.) 4ft to 8ft, paint above</p>																														
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>																														
Windows	Fixed windows in frames, storefronts typical (see <i>0422 Storefronts</i>)																														
Specialties	Acoustic panels, window coverings																														
Plumbing	None required; drinking fountain common																														
Heating/Cooling	As calculated for code compliance																														
Ventilation/Exhaust	As calculated for code compliance																														
Lighting	Pendant direct/indirect, accent and cove lighting common, provide dimming based on programmed use																														
Power	110v duplex for code compliance; 110v quadplex at each data port																														
Special Systems	Phone/intercom , synchronized clock; wireless data																														
Equipment/Furnishings	Stackable chairs w/carts, 5ft tables on wheels																														

Provisional:

3. Consider table and chair storage support space.
4. Consider kitchenette support space in educational programs supported by a central kitchen for food preparation.

Premium:

5. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ Provide afterhours access to Multi-purpose Room (and public restrooms) while restricting access to remainder of the school.
- B. Zone heating and ventilation system so multi-purpose afterhour space activities can operate separately from the rest of the school.

Dedicated Spaces

Lunch Room

Baseline:

1. Provide dedicated space and amenities for student dining.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical 4000sf minimum; ≈ <u>approx.</u> 15sf per student for table seating for one-third of the student population.
Spatial Elements	Ceilings: 12ft +/-; often double-height in two-story schools; rectangular configuration
Finishes	Floor: resilient sheet or other hard surface; Ceiling: suspended or adhered acoustic tile, vaulted/exposed typical; Walls: protective material (FRP, etc.) 4ft to 8ft, paint above
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	Fixed windows in frames, storefronts typical (see <i>0422 Storefronts</i>)
Specialties	Acoustic panels, window coverings
Plumbing	None required; drinking fountain common
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant direct/indirect, accent and cove lighting common, provide dimming based on programmed use
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom , synchronized clock; wireless data
Equipment/Furnishings	Tables with integral seating <u>typical</u> ; stackable chairs w/carts, 5ft tables on wheels

Provisional:

3. (Reserved)

Premium:

4. Dedicated space in school facilities serving grades other than 9-12 or in school facilities where one-third of the projected ADM is less than 200 students (see Multipurpose and/or Commons).

Best Practice/Lessons Learned

A. ~~(Reserved)~~ Wall-mounted pocket tables should be reserved for instances where maximum space efficiency is needed. Otherwise, provide wheeled tables and a table storage room.

Pool

Swimming pool sizes and amenities are described in the department publication, *Swimming Pool Guidelines for Educational Facilities*.

Weight Room

Baseline:

1. Provide space and amenities for physical education supported with intentional curriculum in the following fitness areas: strength, conditioning, cardio (may also incorporate aerobics/dance).
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provide dedicated space where 6-12 student population exceeds 60; typical 500sf minimum; up to 3000sf
Spatial Elements	Ceilings: 9ft +/-, rectangular configuration
Finishes	Floor: cushioned resilient; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	One tilt/turn operable unit per space preferred <u>Optional</u>
Specialties	8lf w <u>Whiteboard</u> , 8lf tack board, window coverings
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; <u>ducting treatment to reduce sound transfer out</u>
Lighting	Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance;
Special Systems	Phone/intercom, synchronized clock; duplex data port (2)
Equipment/Furnishings	Wall-mounted racks for elevated equipment storage; <u>weight lifting pads</u> .

Provisional:

3. ~~(Reserved)~~ Consider providing acoustical wall assemblies at this space if programmed for music and dance.
4. Consider dedicated room exhaust or negative pressure at ventilation systems.

Premium:

- 3-5. Dedicated space in school facilities where the projected student population in grades 6-12 is less than 60 students.

Best Practice/Lessons Learned

A. Consider locating adjacent to Gym.

A-B. Consider impact loads when floors are not slab on grade. ~~(Reserved)~~

Locker Room

Baseline:

1. Provide space and amenities for clothes changing in preparation for physical fitness activities and for showering and changing following activities. Often combined with ~~restroom~~ space from Category D – Supplementary Restroom/Toilet allocations.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provide dedicated space where 6-12 student population exceeds 20; typical 400sf minimum (2ea); up to 3000sf (2ea)
Spatial Elements	Ceilings: 9ft +/-, rectangular configuration
Finishes	Floor: ceramic tile <u>resilient with welded seams; ceramic tile at wet areas</u> ; ; Ceiling: gypsum board, paint; ; Walls: ceramic tile, full-height at showers; gypsum wall board at lockers/non-wet areas, paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	None
Specialties	Partitions/curtains at showers, lockers for 25% 6-12 student population
Plumbing	Stall showers (meet ADA), ; <u>Recessed, lockable</u> hose bib <u>(stainless)</u>
Heating/Cooling	As calculated for code compliance; dedicated zone control
Ventilation/Exhaust	As calculated for code compliance
Lighting	Surface mount LED, occupancy sensors controls, key over <u>ride</u>
Power	110v duplex for code compliance in changing area
Special Systems	Intercom, synchronized clock, <u>hair/hand dryers</u>
Equipment/Furnishings	Fixed benches in changing/locker area

Provisional:

- 3. ~~(Reserved)~~ Consider providing stall showers where program uses warrant. Reduced gap, privacy panels permitted.

Premium:

- 4. Dedicated space in school facilities where the projected student population in grades 6-12 is less than 20 students.

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ Non-metallic (i.e., plastic/resin) Specialties are preferred over metallic.

Nurse

Baseline:

1. ~~None required.~~ Provide space and amenities for the school nurse student health care to accommodate include examination, treatment, and medication. Program area will include administrative space and a dedicated restroom. ~~the health care needs of all students.~~
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Administration: 60-80sf typical; Infirmary/Treatment: 120 – 400sf typical, includes storage; Exam/Rest: 60-80sf typical; Isolation room: 50sf typical; Restroom: 50 – 100sf typical
Spatial Elements	Ceilings: 8ft +/-, rectangular configuration
Finishes	Floor: resilient <u>with integral cove base</u> ; Ceiling: acoustic tile; Walls: paint
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	None
Specialties	4 <u>4</u> f <u>f</u> <u>Whiteboard, 4</u> f <u>f</u> <u>tack board; exam curtain(s)</u>
Plumbing	Handwash sink; restroom fixtures
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock; duplex data port (2)
Equipment/Furnishings	<u>Cot(s)</u> TBD

Provisional:

- ~~3. Consider providing space and amenities for student health care such as examination, treatment, and medication when such services are available in the community and are part of the district’s services in support of education.~~
- ~~4.~~3. Consider isolation room(s) in support of sick/contagious students.
- ~~5.~~4. Consider providing space to administer the program and create/maintain records.
- ~~6.~~5. Consider providing an ~~en~~en-suite restroom.

Premium:

- ~~7.~~6. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ [Locate Nurse station adjacent to other administration areas.](#)

Kitchen/Food Service

Baseline:

1. Provide space and amenities for on-site food preparation, planning, and serving. Standard is hot lunch meal preparation and breakfast service eligible under federal and state programs.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Food Prep/Planning: 10sf per seated meal Food Service: 1sf per seated meal Food Storage – Seasonal Delivery: 7sf/student population Food Storage – Regular Delivery: 3sf/student population
Spatial Elements	Ceilings: 10ft +/-, rectangular configuration
Finishes	Floor: ceramic/quarry tile; Ceiling: gypsum board/paint; Walls: protective surfaces such as stainless steel, FRP full height in prep/cooking areas, washable paint
Doors	Exterior: insulated swing door up to 42" in or double door with removable astragal ; . Interior for code compliance; hardware to meet ADA and functional needs
Windows	None
Specialties	Staff lockers, 4ft tack board, 4ft white board, corner guards ;
Plumbing	Hot/cold water, waste and vent to support specific equipment; grease interceptor ; prep sink , handwash sink , three-compartment wash sink ; commercial dish machine
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance; commercial Type 1 or 2 hood(s)
Lighting	Pendant or drop-in indirect, provide dimming Surface mount or recessed
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock; duplex data port (2)
Equipment/Furnishings	All prep, cooking, and cleaning equipment with direct connection to building services ;

Provisional:

- [3. Consider enclosed office for kitchen supervisor when serving 200 or more meals per day.](#)
- ~~3.~~[4.](#) Consider central kitchens in large districts with warming kitchens distributed at the individual school level.
- [5.](#) Consider kitchens capable of pre-packaged food preparation in locations where kitchen staff is not available.

6. Consider welded seam resilient flooring with slip resistance in lieu of tile floors when installing over frame construction.

Premium:

~~4.7.~~ (Reserved)

Best Practice/Lessons Learned

A. Locating a custodial service closet near the Kitchen space can be very beneficial.

B. In larger schools, consider using transfer air from the school for exhaust hood make-up air in place of dedicated make-up air unit.

~~1.~~ (Reserved)

Student Store

Baseline:

1. Provide space and amenities for student-run food service operations in support of business and hospitality curriculum elements and extra-curricular and community use activities. Anticipated items include school supplies, promotional/branding hard and soft goods, and food items.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Provide dedicated space where 6-12 student population exceeds 60; typical 120sf minimum; up to 300sf
Spatial Elements	Ceilings: 9ft +/-, rectangular configuration
Finishes	Floor: resilient; Ceiling: acoustic tile; Walls: painted <u>GWB, FRP at wet areas</u>
Doors	Security door at counter, Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	None
Specialties	4ft tackboard, corner guards, <u>36in base cabinets w/laminate counter, 42in wall cabinets (some open shelving for display), soap and paper towel dispenser</u>
Plumbing	<u>Prep/clean-up sink; h</u> Hot/cold water, waste and vent to support specific equipment
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom, synchronized clock; duplex data port (2)
Equipment/Furnishings	<u>Any prep, cooking, and cleaning equipment with direct connection to building services, point of sale (POS) equipment, all other as FF&E TBD</u>

Provisional:

- 3. (Reserved)

Premium:

- 4. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ eCommonly arranged with display/sales space connected to support/storage space.

Category D – Supplementary

Circulation

Corridors/Vestibules/Entryways & Stairs/Elevators

Baseline:

1. Provide space and amenities for building entry and circulation between program areas. Maximize visual continuity for observation and supervision~~XXX~~.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	<u>Corridors:</u> <u>Grades K-6 – 15-20sf/student design capacity,</u> <u>Grades 7-12 –18-24sf/student design capacity</u> <u>Standard corridor width:</u> <u>Grades K-6 – 7ft-6in clear (add 6in for corridors with lockers)</u> <u>Grades 7-12 – 8ft-6in clear (add 12in for corridors with lockers);</u> <u>Entries/Vestibules – 2-5sf/student design capacity</u> <u>Stairs – see factors under 0331 Stair Structure</u> <u>Elevators – see factors under 0711 Passenger Elevators</u> Typical XXXsf; minimum XXXsf
Spatial Elements	Ceilings: <u>10Xft +/-, rectangular linear configuration, alcoves</u> <u>common, clerestory and light monitors common</u>
Finishes	Floor: <u>resilient at corridors, walk-off carpet tile at vestibules;</u> Ceiling: <u>acoustic tile;</u> <u>can be open to structure.</u> Walls: <u>paint ed</u> <u>GWB above 6ft, durable overlay below 6ft</u>
Doors	Interior for code compliance; hardware, see <i>Safety & Security at Classrooms</i>
Windows	<u>Fixed where used in clerestory or roof monitors</u> One tilt/turn operable unit per space preferred
Specialties	8lf whiteboard, 8lf tack board, window coverings <u>Lockers, full height, one per student</u>
Plumbing	None required <u>Drinking fountain</u>
Heating/Cooling	As calculated for code compliance

System	Features
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant <u>Wall sconce, uplight,</u> or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head end systems <u>speakers</u> , synchronized clock; duplex data port (2)
Equipment/Furnishings	TBD <u>None</u>

Provisional:

- See Section 0711 *Passenger Elevators* for use of ramps in-lieu-of elevators.

Premium:

- (Reserved)

Best Practice/Lessons Learned

- Manufactured sloped tops on lockers are preferred to full recess and soffiting. Much easier to change out when needed. ~~(Reserved)~~

Utilities/Maintenance

Mechanical/Electrical

Baseline:

- Provide space and amenities for heating, ventilation, electrical service/distribution equipment and all appurtenances supporting this equipment. These categories of equipment may be in combined space or separate spaces depending on building codes, building layout, and design parameters ~~for XXX.~~
- Provide from among the following features for this educational space:

System	Features																				
Planning Factors	<p><u>Net Floor Area = Footprint Area x Equipment Factor x Circulation Factor</u></p> <table border="1"> <thead> <tr> <th>Equipment Type</th> <th>Base Area</th> <th>Equip. Factor</th> <th>Circ. Factor</th> </tr> </thead> <tbody> <tr> <td><u>Heating Equip.</u></td> <td><u>equip. footprint</u></td> <td><u>2.5</u></td> <td><u>1.5</u></td> </tr> <tr> <td><u>Ventilation Equip.</u></td> <td><u>equip. footprint</u></td> <td><u>3.5</u></td> <td><u>1.3</u></td> </tr> <tr> <td><u>Electrical Equip.</u></td> <td><u>equip. footprint</u></td> <td><u>2.5</u></td> <td><u>1.5</u></td> </tr> <tr> <td><u>Electrical Panels</u></td> <td><u>panel width</u></td> <td><u>3.0</u></td> <td><u>1.3</u></td> </tr> </tbody> </table> <p>Typical XXXsf; minimum XXXsf</p>	Equipment Type	Base Area	Equip. Factor	Circ. Factor	<u>Heating Equip.</u>	<u>equip. footprint</u>	<u>2.5</u>	<u>1.5</u>	<u>Ventilation Equip.</u>	<u>equip. footprint</u>	<u>3.5</u>	<u>1.3</u>	<u>Electrical Equip.</u>	<u>equip. footprint</u>	<u>2.5</u>	<u>1.5</u>	<u>Electrical Panels</u>	<u>panel width</u>	<u>3.0</u>	<u>1.3</u>
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<u>Electrical Panels</u>	<u>panel width</u>	<u>3.0</u>	<u>1.3</u>																		
Spatial Elements	Ceilings: <u>height varies, often exposed to structure; clearance to structure >7ft is GSF</u> Xft +/- , rectangular <u>irregular</u> configuration																				
Finishes	<p>Floor: carpet <u>resilient</u>; <u>sealed concrete.</u></p> <p>Ceiling: acoustic tile; <u>GWB with paint or exposed</u> open to structure.</p> <p>Walls: <u>paint.</u></p>																				

System	Features
Doors	Interior for code compliance, <u>exterior door for mechanical rooms sized per mechanical equipment; keyed or card lever hardware, see Safety & Security at Classrooms</u>
Windows	One tilt/turn operable unit per space preferred <u>None</u>
Specialties	8lf whiteboard, 8lf tack board, window coverings <u>None</u>
Plumbing	None required <u>Floor drain with trap primer</u>
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant or drop-in indirect, provide dimming <u>Surface mounted</u>
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head-end systems, synchronized clock; d <u>Duplex data ports (2) (as needed for network connected equipment)</u>
Equipment/Furnishings	TBD

Provisional:

- 3. ~~(Reserved)~~ Consider installing acoustical separation (STC 34 minimum) around spaces with mechanical ventilation equipment.
- 3-4. Consider installing a whiteboard for diagramming, discussion, notes, etc.

Premium:

- 4.5. ~~(Reserved)~~

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ Locate boiler rooms at grade with exterior door access to an adjacent service vehicle parking space whenever possible.

Supply Storage & Receiving Areas

Baseline:

- 1. Provide space and amenities for bulk deliveries of all types for school operations (food service, custodial, instructional, FF&E; etc.) The space(s) also serve as the exit point for various types of solid waste. Provide space and amenities for the storage of supplies related to building operations, primarily custodial and dry-goods (Note: See Category B – Support Teaching for storage of instructional materials and for storage of food and food preparation items.)~~XXX~~.
- 2. Provide from among the following features for this educational space:

System	Features
Planning Factors	<u>Receiving: Typical XXX200 – 600sf (upper levels provide for on-site maintenance/custodial office, maintenance shop, and large custodial and maintenance equipment storage</u> <u>Supply Storage – Seasonal Delivery: 5sf per student population</u> <u>Supply Storage – Regular Delivery: 1sf per student population;</u> minimum XXXsf
Spatial Elements	Ceilings: X 10ft +/-, rectangular configuration
Finishes	Floor: carpet; <u>resilient, sealed concrete;</u>

System	Features
	Ceiling: acoustic tile, <u>open to structure</u> ; Walls: <u>GWB, wainscot to 4ft, paint above</u>
Doors	Interior for code compliance, <u>8ft x 8ft coiling or sectional door (motorized), exterior personnel door; keyed or card-controlled lever</u> ; hardware, see Safety & Security at Classrooms
Windows	One tilt/turn operable unit per space preferred <u>None required</u> ; <u>exterior personnel door should have half-lite</u>
Specialties	8lf whiteboard, 8lf tack board, window coverings <u>None required</u>
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant <u>Surface</u> or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head-end systems , synchronized clock; duplex data port (2)
Equipment/Furnishings	TBD <u>Adjustable shelving</u>

Provisional:

3. ~~(Reserved)~~ Consider installation of a floor drain in Receiving/Maintenance if supplies and equipment will chronically be snow covered.

Premium:

4. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

Custodial

Baseline:

1. Provide space and amenities for custodial activities. Space should accommodate short-term supply storage, and daily-use equipment (e.g., custodial cart, vacuums, etc.) ~~XXX~~.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typically <u>one 80sf room per 15,000sf to 25,000sf of space to be cleaned</u> XXXsf ; Minimum XXX <u>70sf</u>
Spatial Elements	Ceilings: <u>9Xft +/-</u> , rectangular configuration
Finishes	Floor: carpet <u>resilient with integral cove base, sealed concrete</u> ; Ceiling: acoustic tile, <u>open to structure</u> ; Walls: paint
Doors	Interior for code compliance; hardware, <u>keyed lever latch</u> see Safety & Security at Classrooms
Windows	One tilt/turn operable unit per space preferred <u>None required</u>

System	Features
Specialties	8lf whiteboard, 8lf tack board, window coverings <u>None required</u>
Plumbing	None required <u>Floor-mounted mop sink with hot and cold</u>
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance <u>Exhaust fan with controls</u>
Lighting	Pendant <u>Surface-mounted</u> or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head end systems, synchronized clock; duplex data port (2) <u>None</u>
Equipment/Furnishings	<u>Wall-mounted adjustable shelving, wall-mounted mop racks, chemical dispensing unit, chemical storage cabinet</u> TBD

Provisional:

- ~~3.~~ (Reserved) Consider soap and paper towel dispenser for personal cleanup.
- ~~3.4.~~ Consider locating a stacking washer/dryer unit in custodial space (if not at Gym storage).

Premium:

- ~~4.5.~~ (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

Other Building Support (Telecom)

Baseline:

1. Provide space, equipment, and ~~amenities~~ appurtenances for data and communication service, processing, and distribution. This includes the entry and termination of public communications utilities and WAN and LAN equipment. Space may also house headend equipment for other special electrical systems including intercom/paging, clock, security/CCTV, etc ~~XXX~~.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical <u>30sf/100 students</u> XXXsf ; minimum <u>15</u> XXXsf ; <u>maximum 360sf including two intermediate closets at 30sf/each</u> <u>Notes:</u> <u>1. space typically transitions from telecom closet to a telecom room above 30sf.</u> <u>2. often located in Administration, can be co-located with Utilities/Maintenance function.</u>
Spatial Elements	Ceilings: X <u>9</u> ft +/-, rectangular configuration
Finishes	Floor: carpet <u>resilient, sealed concrete, electrostatic resistant</u> ; Ceiling: acoustic tile, <u>open to structure</u> ; Walls: paint

System	Features
Doors	Interior for code compliance; keyed or card lever hardware, see Safety & Security at Classrooms
Windows	One tilt/turn operable unit per space preferred None required
Specialties	8lf whiteboard, 8lf tack board, window coverings None required
Plumbing	None required
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	Pendant Surface mounted or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port 110v typical, meet power requirements of equipment, provide UPS back up
Special Systems	Phone/intercom head end systems, synchronized clock; duplex data port (2)
Equipment/Furnishings	Equipment racks (two-post), cable tray or j-hooks TBD

Provisional:

3. ~~Provide~~ [Consider providing](#) dedicated space for telecom rooms [to isolate cooling system needs](#). Avoid co-locating racks in ~~electrical or~~ mechanical rooms.
4. ~~Use~~ [Consider providing](#) [24](#)-post racks ~~unless equipment needs call for a 4 post only where required by specific equipment~~.
5. ~~Provide~~ [Consider providing](#) cable ~~runway~~ [tray](#) versus [j-hooks](#) within telecom space to aid in [organization](#) ~~over racks for routing cabling~~.
- ~~6. Limit number of telecom rooms to minimum required per standards for size of the building.~~
- ~~7. Locate telecom room in central area of building where possible to average cable lengths.~~
- ~~8. Electrical panel serving the telecom room should have surge protection. Provide rack-mounted UPS for essential systems.~~
- ~~9. Coordinate with Mechanical for cooling needs.~~
- ~~10. Locate utility service entrance in Main Telecom Room where possible.~~
- ~~11. Size room large enough to allow for fire alarm, access control, intrusion detection, DDC, and other similar systems to be located in the room.~~
- ~~12. Provide one circuit per rack, with a larger circuit provided to the main rack with UPS.~~
- ~~13. Use multi-connection KVM units instead of fixed monitors/workstations.~~
6. ~~Install a paging speaker and telephone in the room.~~ [Consider at space needs below a dedicated room \(less than 30sf\), consider co-locating with compatible special electrical systems \(e.g., intercom/paging, security, etc.\) or administrative areas \(e.g., Administration Office, Teacher Workroom, etc.\)](#)
- 14.7. [Consider ventilation systems for temperature control in climates where this can provide sufficient cooling.](#)

Premium:

- ~~15.8.~~ [Central UPS systems.](#)
- ~~16.9.~~ [Air conditioning if temperatures are not excessive in rack cooling systems.](#)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ Locate telecom room in central area of building where possible to average cable lengths.
- A.B. Separate mechanical cooling system from other HVAC system(s) to independent operation during unoccupied times.

Restrooms/Toilets

Baseline:

1. Provide space and amenities for student and staff restrooms. Student restrooms for boys and girls, and one unisex staff restroom should be distributed in each classroom cluster~~XXX~~.
2. Provide from among the following features for this educational space:

System	Features
Planning Factors	Typical XXXsf; minimum XXXsf <u>K-6 Facilities – 2sf per student design capacity</u> <u>7-12 Facilities – 3sf per student design capacity</u> <u>K-12 Facilities – 5sf per student design capacity</u> <u>See also General Use Classroom for Pre-K and K, Special Education, Nurse and Teacher Workroom/Breakroom for other restrooms in addition to this category.</u>
Spatial Elements	Ceilings: X 9ft +/-, rectangular configuration
Finishes	Floor: carpet <u>ceramic tile or resilient with integral cove base;</u> Ceiling: <u>suspended GWB, paint (washable)</u> acoustic tile; Walls: <u>ceramic tile or FRP to 6ft paint (washable) above.</u>
Doors	Interior for code compliance; hardware, see Safety & Security at Classrooms
Windows	One tilt/turn operable unit per space preferred <u>None required</u>
Specialties	8lf whiteboard, 8lf tack board, window coverings <u>None required.</u> <u>Mirror, soap dispenser, paper towel dispenser, grab bars (smaller profile for Pre-K to 1st grade), toilet paper dispenser, sanitary napkin receptacle, sanitary napkin dispenser at grades 6-12</u>
Plumbing	None required <u>Toilets, urinals, sinks; as calculated for code compliance</u>
Heating/Cooling	As calculated for code compliance
Ventilation/Exhaust	As calculated for code compliance
Lighting	<u>Wall-mount at lavs/counters; recessed or surface-mount for ambient lighting</u> Pendant or drop-in indirect, provide dimming
Power	110v duplex for code compliance; 110v quadplex at each data port
Special Systems	Phone/intercom head end systems, synchronized clock; duplex data port (2) <u>None required</u>
Equipment/Furnishings	TBD

Provisional:

3. (Reserved)

Premium:

4. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ [Do not use baseboard or wall mounted cabinet unit heaters to heat these spaces.](#)

4. HIGH PERFORMANCE FACILITIES

~~The Alaska~~ DEED encourages high-performance schools for Alaska communities. A high-performance school is designed to conserve natural resources, save money [over time](#), and improve the overall health and well-being of students, staff, and community. Emphasis is placed on low-impact site design, reduced impact on local infrastructure, energy efficiency, water use reduction, non-toxic materials, waste management, indoor air quality, efficient operations, and community engagement.

High performance school design principles can be broken into three general areas of emphasis:

1. Integrative design process
2. Human health and comfort
3. Demand reduction

These principles are woven throughout this document as both ~~required~~ [Baseline](#) strategies and [accepted alternatives when considering Provisional suggestions for premium](#) strategies. Resources on high-performance school design are [available from many public and private organizations](#). ~~included at the end of this section to~~ [Review of these may](#) provide further ~~guidance~~ [assistance](#) to project teams.

A. Integrative Design Process

One of the key ingredients to creating a high-performance school is to conduct an integrative design process. The integrative design process is a collaborative approach that includes the full team in decision-making from project inception through design, construction, and commissioning. The process focuses on a whole-systems design approach: recognition that all the components of the building work interdependently and affect the performance of one another.

A few key steps to implementing an integrative design process include:

1. Set sustainability goals with the owner at project inception.
2. Conduct a full team meeting at the beginning of each project phase.
3. Include high-performance design principles as an agenda item at all project meetings.
4. Incorporate life cycle costs and operating costs into the project decision-making process.

Buildings are often budgeted on first costs alone. Life cycle costing takes a more integrated approach, factoring in energy savings over time, durability and reduced maintenance of systems and materials, and enhanced occupant health and productivity. High performance design principles place emphasis

on looking at the building as a whole over time to minimize energy use, maximize cost savings, and create comfortable and healthy spaces for the occupants.

[Consider developing a paragraph (similar to the above regarding life-cycle costing) on various iteration of project teams (i.e., ‘the full team’ in paragraph one.)]

[Consider developing Baseline, Provisional, and Premium regarding project delivery methods and commissioning.]

B. Human Health and Comfort

Learning environments have a huge impact on student performance, health, and overall well-being. High performance schools can provide high quality indoor air and thermal, visual, and acoustical comfort. Emphasis is placed on daylight in classrooms and views to the outdoors, HVAC and lighting controls, non-toxic materials, enhanced filtration, carbon dioxide sensors, cross-contamination prevention, natural ventilation, and increased outdoor airflow rates in mechanically ventilated spaces.

Benefits of high-performance schools can include improved student performance, increased student health, reduced student absentee rates, and greater staff satisfaction.

Baseline:

- ~~3. Low water consumption plumbing fixtures.~~
- ~~4. Provide third party commissioning starting at project concept design.~~
- ~~5. Design heating and cooling systems to meet the requirements of ASHRAE 55 Thermal Comfort in Buildings (latest edition).~~
- ~~6. “Right sizing” of HVAC equipment based on development of building massing and envelope. May require multiple iterations as building layout changes during design.~~
- ~~7. Avoid operating independent heating and cooling systems simultaneously. Utilize HVAC systems that will redistribute heat while also providing cooling, such as variable refrigerant flow (VRF) systems.~~
- ~~8. Design variable output HVAC systems to adapt to varying building heating and cooling demands.~~
- ~~9. Utilize low temperature heating and cooling systems, such as in-floor radiant.~~
- ~~10. Use high efficiency HVAC equipment.~~
- ~~11. Provide building occupants with individual access to building temperature controls.~~
- ~~12. Provide Minimum MERV 13 filtration on all ventilation systems.~~
- ~~13. Demand control ventilation, with carbon dioxide (CO₂) sensors installed in spaces with high occupant density.~~

Provisional:

- ~~14. Best practices include providing green spaces, open spaces, and shared community spaces in the building; reusing and recycling materials during construction and occupancy; and creating an environment that is a community teaching tool for high performance building and sustainable living.~~

- ~~15. Consider using energy modeling and iterative design to reduce building energy consumption by 5% percent over ASHRAE 90.1 (current version).~~
- ~~16. Consider providing more than ASHRAE 62.1 minimum outdoor air rates. This may not be appropriate for all locations in Alaska.~~
- ~~17. Consider using the building control system to monitor indoor air quality and adjust ventilation rates to mitigate contaminants such as CO₂ and VOCs.~~
- ~~18. Consider providing a building flushout post construction.~~

Premium:

- ~~19. Provide on-going commissioning of the facility every 5 years.~~
- ~~20. Consider utilizing grey water reclamation systems for use with flushing plumbing fixtures.~~
- ~~21. Consider on-site harvesting of renewable energy such as wind and solar.~~
- ~~22. Provide static and/or dynamic educational displays describing the sustainable features of the facility.~~
- ~~23. Provide a display showing instantaneous and aggregate building water and energy consumption.~~

C. Demand Reduction

High-performance schools are designed to reduce demand on energy and natural resources, to optimize the performance of building systems, and to reduce the overall operating costs of the school. Emphasis is placed on energy efficient mechanical systems, high-performance envelope design, low-flow water fixtures, renewable energy systems, lighting and daylight controls, and energy efficient equipment and appliances.

As part of an integrative design process, energy modeling and commissioning will confirm that all systems and components are integrated to achieve optimum results and are installed and operated as designed. One strategy may offset another. For instance, daylight sensors may cost more up front as an individual strategy, but once energy savings and associated reduced mechanical loads are considered, the team may realize that they can save money by selecting a smaller mechanical system.

Practices to optimize systems integration and increase efficiency include energy modeling and building commissioning. Design-phase energy modeling is a tool to use early and throughout the design process to test a variety of energy efficiency measures to determine the best way to align systems and components. Commissioning also offers an opportunity to make adjustments in the field and to train occupants on how to use the systems, improving efficiency even further.

Employing high-performance principles such as demand reduction, energy efficiency, and system optimization results in climate appropriate solutions, buildings that have low-to-no impact on local infrastructure, and an overall reduction in the project's carbon footprint.

Baseline

1. Utilize night-setback control systems for unoccupied times.
2. Zone the HVAC system and security doors such that the rest of the facility does not be operated or be occupied during after hour public use. Common after-hour public usage spaces include the gymnasium and library. A. Consider separate ventilation systems for the

gymnasium and public restrooms. B. Arrange school such that public restrooms are accessible to after hour spaces without gaining access to the rest of the school. (Reference 0831 for additional standards.)

Provisional

3. Consider displacement ventilation for classrooms and larger spaces. Displacement ventilation systems have lower energy requirements (reduction in cooling loads and higher Zone Air Distribution Effectiveness ratio) compared to traditional overhead ventilation systems. Systems are also typically quieter and have been shown to reduce transfer of germs between occupants.
4. Consider heat pump supplemented heat plants where geographically appropriate and where District has maintenance capabilities to support.
5. Consider extending Waste/Captured Heat Systems from nearby power plants.

Premium

6. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

D. High-Performance Certifications

High-performance building certification systems such as the United States Green Building Council (USGBC) LEED for Schools Rating System, Collaborative for High Performance Schools (CHPS), or International WELL Being Institute (WELL) can provide detailed guidance on implementing high performance school design strategies.

Although DEED recognizes the value of building certifications by a third-party organization, the State will not participate in costs associated with these certifications.

Baseline:

1. None.

Provisional:

2. Consider high performance building materials in any systems identified in this handbook that may be certified by recognized standards bodies to the extent these products are cost-effective for the region [CF-1; LCCA-5].

Premium:

3. Green Building Certification: Register the project with the USGBC LEED Rating System and obtain LEED for Schools certification.
4. Educational Display: Provide a permanent display, building signage, digital dashboard, or building tour that describe the high-performance features of the school.
5. Carbon Footprint Reporting: Calculate the school's carbon footprint. Include a greenhouse gas inventory and opportunities to reduce greenhouse gas emissions.

6. Climate Action Plan: Develop and implement a climate action plan to raise awareness of the school community’s carbon footprint and engage students, staff, and the community in reducing that carbon footprint.

~~Performance Benchmarking: Track the school’s energy use over time, using a tool such as the US EPA’s Energy Star Portfolio Manager.~~

E. DEED Standards for High Performance Buildings

[Introduction for section]

Baseline:

1. Commission facility using a certified commissioning agent in accordance with Alaska regulations 4 AAC 31.080(j), 31.900(31), 31.900(32), and 31.065.
2. Design heating and cooling systems to meet the requirements of ASHRAE 55 Thermal Comfort in Buildings (latest edition) except where humidification/dehumidification is not practical.
3. “Right size” HVAC equipment based on development of building massing and envelope. May require multiple iterations as building layout changes during design.
4. Avoid operating independent heating and cooling systems simultaneously. Utilize HVAC systems that will redistribute heat while also providing cooling, such as variable refrigerant flow (VRF) systems (where appropriate for local conditions and maintenance capabilities).
5. Design variable output HVAC systems to adapt to varying building heating and cooling demands.
6. Provide Minimum MERV-13 filtration on all ventilation systems.

Provisional:

7. Consider incorporating the commissioning agent early in the design, such as Concepts, 35%, or 65%.
8. Consider re-commissioning systems two months prior to one-year warranty date to help identify failed equipment or components and to correct control system programming errors.
9. Consider providing green spaces, open spaces, and shared community spaces in the building.
10. Consider reusing and recycling materials during construction and occupancy.
11. Consider creating an environment that is a community teaching tool for high performance building and sustainable living.
12. Consider providing access to daylight and views to outdoors from classrooms and other regularly occupied spaces.
13. Consider using energy modeling and iterative design to reduce building energy consumption by 5 percent over ASHRAE-90.1 (current version).
14. Consider using the building control system to monitor indoor air quality and adjust ventilation rates to mitigate contaminants such as VOCs.
15. Consider providing a building flush-out post construction per LEED or WELL or similar accepted procedures.

Premium:

16. Re-commissioning systems two years after the school opens to ensure the energy conservation features are operating as intended and to adjust to increase efficiency.

17. On-going commissioning of the facility every 5 years.
18. Grey water reclamation systems for use with flushing plumbing fixtures.
19. On-site harvesting of renewable energy such as wind and solar.
20. Static and/or dynamic educational displays describing the sustainable features of the facility.
21. Green Building Certification: Registration of the project with a recognized third-party high-performance building certification system to obtain relevant minimum certification or better.
22. Educational Display: A permanent display, building signage, digital dashboard, or building tour that describe the high-performance features of the school, such as instantaneous and aggregate building water and energy consumption
23. Carbon Footprint Reporting: Calculation of the school’s carbon footprint to include a greenhouse gas inventory and opportunities to reduce greenhouse gas emissions.
24. Climate Action Plan: Development and implementation of a climate action plan to raise awareness of the school community’s carbon footprint and engage students, staff, and the community in reducing that carbon footprint.
25. Ventilation systems providing more than ASHRAE 62.1 minimum outdoor air rates beyond acceptable cost increases [CF-2].

Best Practices/Lessons Learned

- A. (Reserved)

Part 3. SYSTEM STANDARDS

01. SITE AND INFRASTRUCTURE

A. Building System Summary

The **Site and Infrastructure** of school buildings consist of construction elements, systems and features external to the school facility. A common rule-of-thumb for the demarcation of building infrastructure from site infrastructure is “five feet outside the building line”. This is, of course, an imperfect approximation but it can serve as a useful reference when differentiating between similar systems. The department recognizes five sub-categories in this building system: **Site Improvements, Site Structures, Civil/Mechanical Utilities, Site Electrical, and Offsite Work**. While all these systems support the use and purpose of the school facility, many have no physical connection to the facility. The utility sub-systems are the exception; they both serve and are connected. [Utility systems will need to be integrated with standards in 081 Plumbing and 091 Services & Distribution.](#) Site issues not related to improvements and infrastructure are identified and categorized under **11 Special Conditions**. Examples would be site and utility demolition, site drainage, and remediation of hazards.

B. Design Philosophy

Historically, development of Site and Infrastructure systems for education facilities has been widely variable in projects with state-aid across Alaska. School planning and design goals should achieve statewide equity for capital investments in the various subsystems of this category while responding to the variety of geographic and climatic needs. Overbuilding must be avoided and sustainable solutions which respond to local conditions must govern.

Many determinants influence the ultimate cost of site and infrastructure development for a project. Some determinants are programmatic, for instance, site development costs for a high school will be higher than those of an elementary school due to factors such as the increased accommodation of vehicles, and the inclusion of competition sports fields typically provided with the construction of a high school. The location of the site and proximity to utilities also can greatly affect the site development costs. Rural sites can have much greater utility costs than urban sites due to the need to provide utility infrastructure, such as water storage and treatment, sewage treatment and disposal, and heating oil storage, that urban sites are not required to provide. Though sometimes necessary, constructing, and operating dedicated utility systems to serve the needs of school facilities places a heavy burden on a school district. This should be avoided wherever possible, instead making that the responsibility of the local community.

The physical characteristics of the site, such as soil conditions and topography, also have a great impact on the site development costs. Sites that require a good deal of excavation, grading, or imported fill to provide an adequate building pad will understandably have higher earthwork costs when compared to building sites not requiring such extensive alterations. The cost of earthwork is not limited to the building footprint; the construction cost of playfields, parking areas, roads, and even utility infrastructure will be impacted by the physical characteristics of the site.

The selection of a quality building site is the first step in ensuring cost-effective Site and Infrastructure costs. The department’s publication *Site Selection and Evaluation Criteria Handbook* is intended to be

a resource and tool for districts to use when evaluating potential school sites. For additional design parameters see the **Design Ratio** section of this system.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes site improvements typical for the less remote locations including paved parking and drives, appropriate catch basins and culverts for drainage, concrete walks, vegetative landscaping, playgrounds with equipment, and fencing. A variety of minor elements such as bike racks and flag poles round out the developed school site. Utility distribution piping from municipal connection points is provided for heating fuel, water, wastewater, electrical power, and data/communications. Exterior pole mounted lighting is also included. No Site Structures or Off-site Work is anticipated with the model school. Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

~~D.C.~~ Design Criteria & Ratios

Criteria

- A. Site earthwork should attempt to achieve no import or export of soil – this will clearly be difficult on sites with poor soils.
- B. Site utilities should be provided offsite by the public utility whenever possible – this includes water, sewer, [stormwater](#), electrical, and fuel storage utilities at rural sites and efforts should be made to work with the community to a developed shared utility infrastructure.
- C. Development of vehicular circulation and storage areas shall be minimized.
- D. Parking areas will be sized to provide the required parking spaces per the governing code and the parking spaces will be sized to accommodate the standard vehicle in the region.
- E. Construction of fire service roads around school buildings is not required in communities that do not have an organized fire fighting capacity and equipment. [It is recommended to consider designing fire service road for all communities to provide access for maintenance and future construction access.](#)
- F. Roads and parking areas shall be consolidated to minimize their footprint on the site.

Ratios

1. XX/AC (Reserved)
2. XX/GSF(Reserved)

011 Reserved

011X TBD

012 Reserved

012X TBD

013 Site Improvements

0131 Vehicular Surfaces

Baseline:

1. Parking areas, access drives, and vehicular circulation will have appropriate structural subbase, 4 inch basecourse, and 2 inch asphalt paving; increase cross-section at truck delivery and bus loops.
2. Provide parking spaces at a ratio of 1.7 per 20 K-6~~8~~ students and 1.7 per 15 9-12 students for the projected student population.
3. Provide dedicated bus lanes/bus loops and dedicated parent pick-up/drop-off areas. Design vehicle circulation and parking areas to maximize site safety.
4. Minimize islands and other obstructions in parking areas, except where needed for circulation control, to accommodate snow removal and storage.
5. Provide parking lot lighting to IES standards. (Ref. Section *0163 Lighting & Equipment* for additional provisions.)
6. Provide accessible parking spaces in accordance with applicable codes.

Provisional:

7. Consider a top course of uniform gravel, crushed rock, or recycled asphalt in any community without access to a batch or drum-mix plant within an approximate 45min delivery radius.
8. In roadless communities, consider vehicular surfaces of the best available local fill.
9. Consider designing mitigations in vehicular pavement to prevent stormwater and snowmelt from flowing across pedestrian surfaces.
10. Consider speed control measures a long straightaways and high-pedestrian areas.
11. Consider designating parking spaces near the main entrance for carpool and low-emitting vehicles.
12. Consider providing headbolt heaters at staff parking areas in climate zones 7, 8 and 9. (Ref. Section *0161 Electrical Services & Distribution* for additional provisions.)

Premium:

13. Paving plants as a project cost.
14. Additional parking and locally mandated parking over the above the standards.
15. Concrete pavement other than at loading dock aprons and dumpster approaches.
16. Asphalt concrete pavement more than 2in thick except at loading docks, bus loops, and dumpster approaches which may be 4in.
17. "Porous" drainage pavement.

18. Access controlled (e.g., magnetic cards, etc.) parking lots.
19. Colored pavement.
20. Radiant parking snow melt systems.
21. Headbolt heaters in climate zones 6 ~~and 7~~, or those in zones ~~8~~ ~~7~~ ~~and 9~~ beyond 50% percent of the anticipated number of school staff.

Best Practice/Lessons Learned

A. (Reserved)

0132 Pedestrian Surfaces

Baseline:

1. Provide pedestrian surfaces from building entries to all vehicular parking areas, bus and parent drop-offs.
2. Provide pedestrian surfaces from primary public access points to the school facility.
3. Pedestrian surfaces will have appropriate structural subbase, basecourse, and allowable surfacing.
4. Provide accessible pedestrian routes in accordance with applicable codes (~~i.e.~~ g., ADA, etc.).

Provisional:

5. Consider a top course of uniform gravel, crushed rock, or recycled asphalt in any community without access to a concrete or asphalt batch plant within an approximate 45min delivery radius.
- ~~6.~~ In roadless communities, consider pedestrian surfaces of the best available local fill.
- ~~6.~~ ~~Where cost-effective, consider constructing pedestrian surfaces using~~ Consider-pressure treated wood ~~boardwalks~~ (CF-2/LCCA-2, or grates (CF-5/LCCA-4).
7. Consider radiant snow melt systems at main entries (LCCA-5).

Premium:

8. Pedestrian surfaces over 6ft in width except at main entrances.
9. Concrete or asphalt pavers.
10. Concrete walks beyond 50ft from building entries unless demonstrated to be more cost-effective than asphalt paving. (LCCA-3)
11. Asphalt concrete pavement more than 1-1/2in thick.
12. Radiant snow melt systems beyond 30ft from main entries.

Best Practice/Lessons Learned

A. (Reserved)

0133 Elevated Decks & Ramps

Baseline:

1. None.

Provisional:

2. Consider elevated decks at buildings constructed above grade on piling or caissons; use substructure similar to the adjacent facility, adjusted for load conditions.

3. Consider decking/surfacing of pressure treated wood, galvanized metal (grip-strut) or fiberglass. (~~CF-25/-LCCA-4-4~~)
4. Provide handrails and guardrails for elevated decks when required by code.

Premium:

5. Elevated decks beyond 50ft from building entries unless demonstrated to be more cost-effective than at-grade decks.
6. Elevated decks or ramps sized to support vehicles greater than 1000lb.
7. Decorative or custom handrails and/or guardrails.

Best Practice/Lessons Learned

A. (Reserved)

0134 Site Walls**Baseline:**

1. None.

Provisional:

2. Consider retaining walls where required by transitions in grade.
3. Consider alternatives to concrete in any community without access to a batch plant within an approximate 45min delivery radius. Alternatives might include gabion baskets, driven posts/piles, or unit masonry. CF-2 LCCA-1
4. Retaining walls designs must have an engineer's seal where required by code.

Premium:

5. Site walls over 10ft in height.
6. Decorative or custom detailed site walls.

Best Practice/Lessons Learned

A. (Reserved)

0135 Landscaping & Irrigation**Baseline:**

- ~~10.13.~~ 13. Prioritize the location of plantings at the main entrance and as buffering for paved areas and walks, and along public building facades.
- ~~11.14.~~ 14. Avoid plantings that create a security or visibility issue near entrances.
- ~~12.15.~~ 15. Provide native, water conserving plants.
- ~~13.16.~~ 16. Plant trees of a reasonable size and caliper.
- ~~14.17.~~ 17. Locate trees away from the building to provide a minimum of 12'-0" clearance from the drip line of a fully grown tree.

Provisional:

~~15.18.~~ 18. (Reserved)

Premium:

- ~~16.19.~~ 19. Annuals plantings.

~~17.20.~~ Buffering plantings required by local authorities.

~~18.21.~~ Non-native plantings or trees.

~~19.22.~~ Site irrigation systems for athletic fields.

Best Practice/Lessons Learned

A. (Reserved)

0136 Fencing and Gates

Baseline:

1. Provide 6ft chain-link fencing around all playgrounds and athletic fields.
2. Provide 8ft chain-link fencing at elevated playdecks.
3. Provide personnel swing gates where needed for reasonable access and control.
4. Provide one 10ft vehicle access gate, swing hinged or slide roller.
5. ~~For~~ Provide fencing associated with site utility requirements (e.g., bulk fuel storage, generators, off-site utilities, etc.).

Provisional:

6. Where curbs are not provided, ~~recommend~~ consider safety bollards or ‘staples’ to segregate vehicular and pedestrian traffic at drop-off zones.
7. ~~Recommend~~ Consider staggered-fence access points in lieu of swing gates wherever possible.
8. Consider ground contact treated wood for fence posts where determined cost-effective.

Premium:

9. Custom fabricated or decorative fencing.
10. Wood fencing.
11. Chain link fence coatings and screen slats.
12. Site fencing at property boundaries.

Best Practice/Lessons Learned

A. (Reserved)

0137 Site Furnishings & Equipment

Baseline:

~~1. Provide a building sign meeting local signage ordinances, if any.~~

~~2.1.~~ Provide low maintenance, exterior trash receptacles near playgrounds and building entrances.

~~3.2.~~ Provide one 30ft aluminum flagpole with hinged base (may also be building mounted).

Provisional:

1. ~~Provide~~ Consider a free-standing school building sign when building-mounted signage is not visible from the main access drive. ~~Meeting~~ local signage ordinances, if any. (Ref. 0443 Other Exterior Accessories for building mounted signage.)

~~1.2.~~ Consider bike racks at the main entrance to the school.

~~2.3.~~ Recommend aluminum benches with backs at locations where outdoor seating is needed.

Premium:

- ~~3.4.~~ Building signs with a surface area greater than ~~35sf~~ 45sf per side.
- ~~4.5.~~ Decorative concrete or stone benches.

Best Practice/Lessons Learned**A. (Reserved)****0138 Playgrounds & Playfields****Baseline:**

23. Provide at-grade playgrounds with age-appropriate play equipment, and play surfaces for schools serving any grades K-6. Quantity and size of play equipment should conform to established standards and be calculated to meet the student population. Structured play surfaces should be approximately 60 percent hard surface (i.e., asphalt, concrete) and 40 percent soft surface (i.e., fall-protected).
24. Provide at-grade playfields for schools serving any grades 7-12 necessary for established physical education curriculum.
- ~~20.25.~~ Where playfields will function as sports fields, provide ~~Design~~ field size and orientation to conform with ~~National Associations~~ NFHS—Court and Field Diagrams.
- ~~21.26.~~ Design play areas to conform to ASTM ~~(American Society of Testing Materials)~~ standards and the publication by the National Principals Association.
- ~~22.27.~~ Specify play area equipment and surfaces to meet Consumer Product Safety Commission standards.
- ~~23.28.~~ Provide drainage for playgrounds and playfields ~~areas~~ to prevent ponding.
- ~~24.29.~~ Specify surfaces and play equipment for soft play areas that meet ADA and OSHA standards.
- ~~25.30.~~ Provide subsurface drainage systems under soft play areas.
- ~~26.31.~~ ~~Use linear shapes and simple forms at~~ Provide playgrounds and playfields designed ~~areas~~ to accommodate snow removal and maintenance.
- ~~27.32.~~ Specify playground equipment constructed of durable, weather-resistant, low maintenance materials.

Provisional:

33. Consider installing empty conduit for future power to the athletic fields.
34. Consider additional unstructured play areas with sand or gravel surfaces.
35. Consider on-grade play decks constructed of pressure treated wood where access to asphalt and concrete are limited (see also Provisional elements at 0131 Vehicular Surfaces and 0132 Pedestrian Surfaces). Size play decks at approximately 15sf per K-6 student population.
- ~~28.36.~~ Consider elevated playgrounds on helical pile where fill for construction of at-grade playgrounds is not available. Provide perimeter fencing as needed. Size elevated playground/playdecks at 10sf per K-6 student population.

Premium:

37. Sports fields in support of extracurricular sports with less than three consecutive years of school-sponsored activity.

38. Artificial turf surfaces for any sports field.

39. Surfaced running tracks (e.g, urethane, etc.).

~~29.~~40. Athletic and play areas that ~~exceed the DEED's minimum standards~~ Provisional limitations by more than 15 percent.

~~30.~~41. Bike trails or exercise trails.

~~31.~~42. Bleachers, lighting, concession stands, irrigation systems, press boxes, scoreboards, and exterior drinking fountains.

Best Practice/Lessons Learned

A. (Reserved)

0139 Other Site Improvements

Baseline:

1. None.

Provisional:

1. Consider sledding hills where project excavation would otherwise be required to be removed from site. ~~None.~~

~~1.~~2. School gardens (see C. High Performance Site Principles).

Premium:

~~2.~~3. Sledding hills with imported fill.

~~3.~~4. Ice rinks.

~~4.~~5. Water features.

Best Practice/Lessons Learned

A. (Reserved)

014 Site Structures

0141 Freestanding Shelters

Baseline:

1. None.

Provisional:

2. ~~Recommend~~ Consider covered play areas with sidewall eave heights up to 16ft in climates with high precipitation.

3. ~~Recommend~~ Consider outdoor classroom structures/pavilions to support a specific educational program.

4. ~~Recommend~~ Consider energy efficient lighting inside shelters.

5. See *0138 Playgrounds & Playfields* for Baseline, Provisional equipment and surfaces.

Premium:

6. Perimeter wall enclosures greater than 75% percent of enclosed perimeter.

7. Heating of any type.

8. Footprint areas in excess of allowable covered area (4 AAC 31.0~~1~~20).

Best Practice/Lessons Learned

A. (Reserved)

0142 Attached Shelters**Baseline:**

1. None.

Provisional:

2. See *0141 Freestanding Shelters* for applicable recommendations.

Premium:

3. See *0141 Freestanding Shelters* for applicable premiums.

Best Practice/Lessons Learned

A. (Reserved)

0143 Support Buildings**Baseline:**

1. None.

Provisional:

2. See *111 Special Construction* for specific support building types.
3. Consider walk-in freezers for food storage in remote locations.
4. Consider storage for approved school equipment needed to protect such from premature deterioration.
5. Consider storage for instructional and/or education support items.
- ~~5-6.~~ Consider “bus barn” where student transportation is provided by school district, will count as school GSF.

Premium:

- ~~6-7.~~ Support buildings classified as temporary (4 AAC 31.900).

Best Practice/Lessons Learned

A. (Reserved)

015 Civil/Mechanical Utilities**0151 Water Systems****Baseline:**

1. Select sites with public water available to the site.
2. Locate water utility connections away from main building entrance.
3. Coordinate water connections with wastewater, stormwater, and fuel utility connections to enter building at mechanical utility spaces.
4. Where water piping is installed above ground outside of buildings, locate piping away from the main building entrance.

5. Locate water piping to allow access for pipe maintenance and building maintenance; locate piping away from pedestrian walkways and vehicle traffic to the greatest extent practicable.

Provisional:

6. Consider recirculating and/or heat trace on water supply mains as required by site climate conditions.
7. Request/Perform hydrant flow test and provide static pressure, residual pressure, and residual flow data to mechanical engineer at beginning of project for fire suppression design and assessment of if a fire pump will be required for the facility.
- ~~6.8.~~ Consider provisions for water treatment systems. This may be a designated location noted on the drawings for a water treatment system if the extent of the treatment system is not known at the time of design (well water quality is unknown).

Premium:

- ~~9.~~ Avoid depressed loading docks. (Reserved)

Best Practice/Lessons Learned

- A. Perform a system flow test and provide static pressure, residual pressure, and residual flow data to mechanical engineer at beginning of project for fire suppression design—including a fire pump assessment.
- B. If source water quality is not known at the point of bidding (e.g., a well is installed under the project), include appropriate allowances for treatment systems and designate a location/space for equipment.

0152 Sanitary Sewer**Baseline:**

1. Select sites with public wastewater available to the site.
2. Locate wastewater utility connections away from main building entrance.
3. Coordinate wastewater connections with water, and fuel utility connections to enter building at mechanical utility spaces.
4. Where wastewater piping is installed above ground outside of buildings, locate piping away from the main building entrance.
5. Locate wastewater piping to allow access for pipe maintenance and building maintenance; locate piping away from pedestrian walkways and vehicle traffic to the greatest extent practicable. Reference 0813 Waste & Vent Piping.
- ~~6. Locate kitchen delivery areas, school maintenance, delivery, and dumpsters away from the main building entrance or student activity areas.~~
- ~~7. Locate the dumpster to encourage and maximize recycling of waste materials. Show storage areas for recycled materials in and outside the building on site and building plans.~~
- ~~8. Enclose the dumpster with an 8'-0" high chain link fence and set it on a bituminous concrete slab with steel bollard bumpers. Provide a 12'-0" long reinforced concrete pad on the loading side of the dumpster.~~

Provisional:

- ~~9.6.~~ Consider wastewater pretreatment systems at sites with septic systems.

- ~~10.7.~~ Consider coordinating with the vacuum waste utility to have vacuum collection sumps installed within the school building, for sites served by utility level vacuum waste systems.

Premium:

- ~~11.8.~~ (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0153 Storm Water**Baseline:**

1. Select sites with public stormwater available to the site, where available.
- ~~1.2.~~ Design an on-site drainage system to keep stormwater run-off away from the building and to keep grounds, paved areas, and playfields free of standing water.
- ~~2.3.~~ Design “open pond” stormwater storage systems, where possible. Avoid buried storage systems.
- ~~3.4.~~ Enclose stormwater ponds and holding areas with 4'-0"-high galvanized chain link fencing. Provide gates for maintenance.
5. Provide drip edges at sloped roof areas with positive means of collecting roof runoff and a pipe to convey the flow to the drainage system. Do not use perimeter foundation drains to intercept roof runoff.
- ~~4.6.~~ Coordinate stormwater system overflow spouts locations away from public walkways, but locate such that they will be noticed if the standard stormwater system backs up.

Provisional:

7. Consider providing heat trace on stormwater discharge piping if system daylights. (Reserved)
- ~~5.8.~~ Consider providing electric heat trace on stormwater overflow spouts.

Premium:

- ~~6.9.~~ Chain link fence coatings and screen slats.

Best Practice/Lessons Learned

- A. (Reserved)

0154 Fuel Systems**Coordinate with 0851 Fuel Supply (Gas & Oil)****Baseline:**

1. Select sites with natural gas utility connection is available to the site, where available.
- ~~1.2.~~ Locate fuel oil and propane storage away from the building front entrance and is readily accessible for year-round filling by fuel trucks.
- ~~2.3.~~ Enclose bulk fuel oil and propane storage areas with 8'-0"ft-high galvanized chain link fencing. Provide gates for maintenance.
4. Install UL-142 above grade double wall intermediate fuel oil storage tank as close as practicable to fuel-fired mechanical equipment. Enclose with 8'-0"ft-high galvanized chain link fencing. Provide gates for maintenance.

- ~~3. Provide containment for fuel oil piping installed below ground including double wall fuel-rated piping, corrugated carrier pipe, pipe transition and containment sumps.~~

Provisional:

- ~~4. (Reserved) Consider installing a fuel leak detection system with alarms to monitor integrity of fuel storage tank and distribution piping.~~

Premium:

- ~~5. Do not bury ferrous fuel oil piping.~~
- ~~6.5. (Reserved) Fuel level monitoring system with digital outputs for remote viewing and connection to building energy management system/control system.~~

Best Practice/Lessons Learned

- A. (Reserved)

0155 Heating/Cooling Piping & UtilidorsBaseline:

1. None.

Provisional:

2. Consider site distribution of heating supply/return when an existing ‘central plant’ has excess capacity, and when piping and system equipment (e.g., heat exchanger, etc.) is cost effective on a life-cycle cost basis.

Premium:

3. Cooling piping of any type, size or length; any cooling piping should be provided within each building.
4. Site heating piping runs from any central plant to a supported building in excess of 500 feet.

Best Practice/Lessons Learned

- A. (Reserved)

016 Site Electrical**0161 Electrical Service & Distribution**Baseline:

1. Utilize 3-phase power if available.
2. Coordinate with the local utility for connection point, distribution voltage, and power plant capacity early in the design.
3. Locate service entry near electrical room and generator.
4. Locate generator near service entry and fuel source. Provide year-round access to module.
- ~~2.~~

Provisional:

- ~~3.5.~~ If designing the line extension, consider locating the transformers as close as practical to service entrance.
- ~~4.6.~~ Consider time or occupancy-based control of these circuits feeding headbolt heaters.

~~5.7.~~ Consider use of transformers to combat line loss in feeding headbolt heaters.

Premium:

~~6.8.~~ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0162 Data/Comm Service & Distribution

Coordinate with 0162 Data/Comm Service & Distribution and 0942 Data and Communications

Baseline:

1. Utilize public fiber optic services if available.

Provisional:

2. Where practical, use the same routing as power to reach site/building.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0163 Lighting & Equipment

Coordinate with 0162 Data/Comm Service & Distribution and 092 Lighting

Baseline:

1. This lighting is for general use. Specific applications such as athletic fields, hockey rinks, and similar would be included in design of those site elements.
2. Building-mounted lighting may be used for site lighting if practical, or as a supplement to pole-mounted lighting.
3. Pole-mounted lighting should be designed for roadway, driveway, and parking areas per IES standards. Additional lighting should be considered for hardscape, playground equipment, sledding hills, and similar areas where use may require artificial lighting.
4. Poles should be located on the perimeter of parking areas to stay out of the way of snow removal paths as much as possible.
5. Lighting parameters including minimum lighting levels, glare, uniformity, and similar should meet IES standards where no local code is in effect.

Provisional:

- ~~5.6.~~ Consider providing conduit to new poles for signal wiring to cameras, wireless access points, etc., as design budget and need allows.

Premium:

~~6.7.~~ Lighting for trails. (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0164 Security Systems

Coordinate with 0162 Data/Comm Service & Distribution and 092 Lighting

Baseline:

1. Provide video surveillance of the building perimeter and access points using wide dynamic range cameras.
2. Provide hard-wired devices with power over ethernet capability.
3. Interconnect site security components to security headend and monitoring equipment providing a similar function within the school facility.

Provisional:

4. Consider video surveillance of parking areas not easily observed by routine law enforcement patrol protocols.
5. Consider video surveillance of sensitive site improvements such as bulk fuel storage and playgrounds.
6. Consider public address systems.

Premium:

7. Intrusion detection or video surveillance expressly positioned and providing coverage of the perimeter boundary of the school parcel.
8. Dedicated mounting poles or other apparatus serving only the security system.
9. Security system coverage of [trails and](#) off-site improvements.
10. Electrically operated access control gates at vehicular or pedestrian entry points.

Best Practice/Lessons Learned

A. (Reserved)

017 Offsite Work

0171 Offsite Improvements

Baseline:

1. None.

Provisional:

2. Consider offsite (beyond the school parcel boundary) improvements when required to provide a functioning, accessible school site and school facility.

Premium:

3. Elements of offsite improvements that are not a direct and sole benefit to the school for the lifespan of the improvement.
4. Costs of offsite improvements not appropriately shared with the land owner when such improvements benefit entities in addition to the school.

Best Practice/Lessons Learned

A. (Reserved)

0172 Offsite UtilitiesBaseline:

1. None.

Provisional:

2. Consider offsite utilities when required to provide a functioning school infrastructure and school facility.

Premium:

3. Elements of offsite utilities that are not a direct and sole benefit to the school for the lifespan of the utility.
4. Costs of offsite utilities not appropriately shared with the landowner when such utilities benefit entities in addition to the school.

Best Practice/Lessons Learned

- A. (Reserved)

0173 Other Offsite WorkBaseline:

1. None.

Provisional:

2. Consider other offsite work when required to provide a functioning school site and school facility.

Premium:

3. Elements of other offsite work that are not a direct and sole benefit to the school for the lifespan of the work.
4. Cost of other offsite work not appropriately shared with the landowner when such other work benefits entities in addition to the school.

Best Practice/Lessons Learned

- A. (Reserved)

~~Design Criteria & Ratios~~**Criteria**

~~G. Site earthwork should attempt to achieve no import or export of soil — this will clearly be difficult on sites with poor soils.~~

~~H. Site utilities should be provided offsite by the public utility whenever possible — this includes water, sewer, electrical, and fuel storage utilities at rural sites and efforts should be made to work with the community to a developed shared utility infrastructure.~~

~~I. Development of vehicular circulation and storage areas shall be minimized.~~

~~J. Parking areas will be sized to provide the required parking spaces per the governing code and the parking spaces will be sized to accommodate the standard vehicle in the region.~~

~~K. Construction of fire service roads around school buildings is not required in communities that do not have an organized fire fighting capacity and equipment.~~

~~L. Roads and parking areas shall be consolidated to minimize their footprint on the site.~~

Ratios

~~3. XX/AC (Reserved)~~

~~4. XX/GSF (Reserved)~~

02. SUBSTRUCTURE

A. Building System Summary

The **Substructure** of school buildings consist of all types of building foundations and supporting elements such as insulation, waterproofing and drainage systems. At-grade concrete floor slabs, both structural and non-structural are also included in this system including special features in those slabs such as trenches and pits. The department recognizes three sub-categories in this building system: **Standard Foundations & Basements, Slab on Grade, and Special Foundations**. Basements, which are not common in Alaskan schools, are included within the standard foundation element. They often only differ from standard foundations in the height of the foundation stem wall. Five types of special foundations are identified. A common special foundation would be a pile foundation. As a sub-system, Slab on Grade overlaps with the function of the Floor Structure sub-system within **Superstructure**. Similarly, **Substructure** performance is often very dependent on proper control of site drainage and grading, areas which overlap with the Special Site Conditions sub-system within **Special Conditions**.

B. Design Philosophy

Substructure systems, foundations in particular, are typically far more expensive in Alaska than in other parts of the country. Usually, foundation system options are heavily influenced by the soil conditions of a particular site. Similar to its effect on 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. [Access to readily available raw materials or the cost of importing raw materials \(i.e. gravel for concrete\) should be taken into account in the selection of foundation systems.](#) Building sites whose soil conditions allow the use of standard concrete foundations are preferable to sites that require piling foundations.

The selection of a quality building site is the first step in ensuring cost-effective Site and Infrastructure costs. The department's publication ***Site Selection and Evaluation Criteria Handbook***

is intended to be a resource and tool for districts to use when evaluating potential school sites. For additional design parameters see the **Design Ratio** section of this system.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes Substructure elements typical of sites with high quality soils which are suitable for building construction. These elements include a standard concrete foundation, and a concrete slab on grade—both with typical steel reinforcing. Insulation, vapor retarder, and dampproofing are the only minor elements needed to support these sub-systems. No **Special Foundations** elements are anticipated with the model school. Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

D.C. Design Criteria & Ratios

Criteria

1. Multi-story construction shall be considered and presented as a schematic design option for all school structures over 40,000 GSF.
2. Where appropriate for soil conditions, standard concrete foundations are almost always the preferred substructure system.
3. If any other substructure system is to be considered, a cost analysis will be performed. Cost analysis shall include cost of energy and maintenance.
4. Where soils are of low moisture content, all weather wood foundations should be considered for facilities smaller than 20,000 GSF.
5. Where appropriate for soil conditions, substructure systems utilizing a heated crawlspace with perimeter closure are preferable to substructure systems that utilize an elevated building with an air space between the underside of the building and grade.

Ratios

- A. Total building deadload/GSF
- B. Cubic feet of concrete/GSF
- C. Pounds of rebar/CY concrete
- D. Total building deadload/GSF
- E. Pile weight (LB)/Footprint area (FPA).

021 Standard Foundations & Basements

0211 Continuous & Column Footings

Baseline:

1. 4000psi concrete is the basis of design. Mixes for other strengths are subject to evaluation by life-cycle cost analysis.
2. Carbon steel reinforcing bar is the basis of design with ratios in the 30-80lbs range per cubic yard of concrete.
3. Design footings sized in accordance with building codes, soils and superimposed loads.

4. Soil bearing pressures below 2000psi require site selection justification and DEED approval.

Provisional:

5. Consider Aall 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 life-cycle cost analysis.

Premium:

1. Coated reinforcing bar, including galvanized and epoxy, and stainless steel.
2. Reinforcing bar above 80lbs per cubic yard of concrete.

Best Practice/Lessons LearnedA. (Reserved)**0212 Foundation Walls & Treatment**Baseline:

1. Extend foundation walls to frost depths per local conditions/codes.
2. 4000psi concrete is the basis of design. Mixes for other strengths are subject to evaluation by life-cycle cost analysis.
3. Carbon steel reinforcing bar is the basis of design with ratios in the 50-100lbs per cubic yard of concrete.
4. Design foundation walls sized in accordance with building codes, soils and superimposed loads.
5. Insulate foundations as required by DEED-adopted energy codes to eliminate or minimize heat loss.
6. Provide dampproofing treatment as required by local conditions/codes.
7. Provide durable (e.g. 10mil poly) vapor barrier on all exposed earth contained within foundation walls.

Provisional:

8. Consider Cconcrete masonry units (CMU) foundation walls, with reinforcing, are acceptable.
9. Consider Aall weather wood (AWW) foundation walls consisting of framing and sheathing are acceptable where soils are appropriate (i.e., low moisture, non-permafrost). AWW foundations must be supported by appropriate life-cycle cost analysis.
10. Consider Ffrost protected shallow foundations (FPSF) including perimeter insulation are acceptable when supported by appropriate life-cycle cost analysis.
11. Consider A~~void-avoiding~~ below grade functional space enclosed by foundation walls whenever possible.
12. Consider Eexterior sheet waterproofing on foundation walls that enclose space below the finish grade level; includes below-grade mechanical and service spaces.

Premium:

13. Coated reinforcing bar, including galvanized and epoxy, and stainless steel.
14. Reinforcing bar above 100lbs per cubic yard of concrete.
15. Foundation walls enclosing below grade space classified under adopted codes as occupied space.

Best Practice/Lessons Learned**A. (Reserved)****0213 Foundation Drainage****Baseline:**

- A. Install perimeter foundation drainage only where required by codes adopted by the state or a local jurisdiction with delegated authority.

Provisional:

- B. **Consider W**hen required by local conditions/code, perforated pipe footing drains bedded in drain rock with filter fabric are acceptable.
- C. **Consider R**un foundation drain systems to daylight where possible and appropriate (see *0153 Storm Water* for standards on site drainage collection).
- D. **Consider D**rainage mats and other water/moisture control measures are acceptable when required by site conditions and supported by appropriate life-cycle cost analysis.

Premium:

- E. Sites requiring underslab drainage.

022 Slab on Grade**0221 Structural & Non-structural Slab****Baseline:**

1. 4000psi concrete is the basis of design for interior slabs. 5000psi concrete is the basis of design for exterior, exposed slabs. Mixes for other strengths are subject to evaluation by life-cycle cost analysis.
2. Carbon steel reinforcing bar is the basis of design with ratios in the 20-50lbs range per cubic yard of concrete.
3. Structural slabs are not anticipated except at isolated point loads for installed equipment.
4. Non-structural slabs shall be 4" nominal thickness.
5. Provide standard compacted sub-base, welded wire fabric reinforcement, moisture control, and trowel finish.
6. Insulate slabs as required by DEED-adopted energy codes to eliminate or minimize heat loss.
7. See *0311 Lower and Main Floors* for wood and steel superstructures.

Provisional:

8. Consider reinforcing bar in non-structural slabs where required for slab openings, incidental loads, and perimeter durability.
9. Consider shrinkage and crack control using glass fiber reinforcing in-lieu of or in addition to welded wire fabric.
10. Integrate footings and slabs where part of an approved design assembly such as at FPSF.
11. Consider polished concrete finish where appropriate to be used in-lieu of applied floor coverings.

12. Consider providing full frost-depth wall foundations under entry slabs where necessary to prevent frost heaving.
13. [Consider perimeter insulation when required by site conditions and supported by appropriate life-cycle cost analysis.](#) ~~including perimeter insulation are acceptable when supported by appropriate life-cycle cost analysis required by site conditions and supported by appropriate life-cycle cost analysis.~~

Premium:

14. Coated reinforcing bar, including galvanized and epoxy, and stainless steel.
15. Reinforcing bar above 50lbs per cubic yard of concrete.
16. Colored or decorative concrete slabs exceeding 40 percent of exposed concrete.

Best Practice/Lessons Learned

[A. \(Reserved\)](#)

0222 Trench, Pit and PadBaseline:

1. 4000psi concrete is the basis of design for pits and pads. Mixes for other strengths are subject to evaluation by life-cycle cost analysis.
2. Carbon steel reinforcing bar is the basis of design with ratios in the 50-100lbs range per cubic yard of concrete.
3. Elevator pits shall be provided in the dimensions and depths required.
4. Pads to provide adequate securing of equipment will be provided where required for anchoring or other safety measures were required by codes adopted by the state or a local jurisdiction with delegated authority.

Provisional:

5. Consider non-seismic housekeeping pads for major HVAC and electrical equipment at nominal heights not to exceed 4in above the surrounding floor level.

Premium:

6. Trenches formed of concrete; slab block-outs and reinforcing for nominal trench drains in support of CTE are acceptable.

Best Practice/Lessons Learned

[A. \(Reserved\)](#)

0223 Underslab ElementsBaseline:

1. [Provide underslab insulation, minimum R-10, where slab-on-grade radiant floor is provided.](#)
~~None.~~

Provisional:

2. Consider underslab rigid insulation in support of FPSF and where otherwise supported by an energy life-cycle cost analysis of the proposed heating system.

Premium:

3. Sites requiring underslab drainage.
- ~~3-4.~~ Sites requiring underslab radon mitigation.

Best Practice/Lessons Learned

A. (Reserved)

024 Special Foundations***0241 Piling & Pile Cap***Baseline:

1. Provide a steel H-pile foundation including steel or lumber pile caps and required lateral bracing 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.
2. Install thermistor tubes integral with pile.

Provisional:

3. Consider a treated wood piling foundation including timber or engineered lumber pile caps, and required lateral bracing for smaller education related facilities up to 5000gsf.
4. Consider steel pipe piles where supported over H-piles based on a life-cycle cost analysis.

Premium:

5. Sites where pile stick-up exceeds a total average of 6ft for all piles, or any pile stick-up exceeds 12ft.
6. Pile foundations exceeding 40#pounds per footprint area /FPA-(does not include lateral bracing or pile caps).

Best Practice/Lessons Learned

A. (Reserved)

0242 CaissonsBaseline:

- B. None; caisson foundations not anticipated.

Provisional:

- C. Consider caisson foundations where bedrock (+/- 15,000psi) occurs at shallow depths of up to 8ft below grade. If this foundation is proposed, it must be supported with an appropriate cost analysis of the full substructure.

Premium:

- D. Caisson foundations where total estimated **02 Substructure** cost exceeds other alternatives.

Best Practice/Lessons Learned

A. (Reserved)

0243 Grade Beams

Baseline:

1. None; grade beam foundations not anticipated.

Provisional:

2. Consider grade beam foundations where adequate support for continuous footings is not available, subgrade point loads are available or can be created (i.e., ~~piling~~[piling](#), etc.), and concrete is readily available and cost effective. If this foundation is proposed, it must be supported with an appropriate cost analysis of the full substructure.

Premium:

3. Grade beam foundations where total estimated **02 Substructure** cost exceeds other alternatives.

Best Practice/Lessons Learned

A. (Reserved)

0244 Arctic Foundation Systems

Baseline:

1. Provide an arctic foundation system consisting of thermopile (with or without helical ribs, pile extensions, steel or lumber pile caps and required lateral bracing where soils consist of continuous or discontinuous permafrost.
2. Install thermistor tubes adjacent to each pile.
3. Thermopile and thermosyphons will be included in a project's commissioning plan unless approved otherwise by DEED.

Provisional:

4. Consider passive thermosyphons in-lieu-of thermopile where suitable fill is available to support installation of standard foundations.
5. Consider underslab rigid insulation in support of FPSF and where otherwise supported by an energy life-cycle cost analysis of the proposed heating system.

Premium:

6. Arctic foundations with active refrigeration.
7. Gravel pads in conjunction with thermopile arctic foundations.

Best Practice/Lessons Learned

A. (Reserved)

0245 Other Special Foundations

Baseline:

1. None; other special foundations such as sheet pile, raft, multi-point frame, etc. are not anticipated.

Provisional:

2. Consider other special foundations when building loads and soil conditions may exclude other substructure solutions. If a special foundation is proposed, it must be supported with an appropriate cost analysis of the full substructure.

Premium:

3. Other special foundations where total estimated **02 Substructure** cost exceeds other alternatives.

Best Practice/Lessons Learned

- A. (Reserved)

E. Design Criteria & Ratios**Criteria**

- ~~6. Multi-story construction shall be considered and presented as a schematic design option for all school structures over 40,000 GSF.~~
- ~~7. Where appropriate for soil conditions, standard concrete foundations are almost always the preferred substructure system.~~
- ~~8. If any other substructure system is to be considered, a cost analysis will be performed. Cost analysis shall include cost of energy and maintenance.~~
- ~~9. Where soils are of low moisture content, all weather wood foundations should be considered for facilities smaller than 20,000 GSF.~~
- ~~10. Where appropriate for soil conditions, substructure systems utilizing a heated crawlspace with perimeter closure are preferable to substructure systems that utilize an elevated building with an air space between the underside of the building and grade.~~

Ratios

- ~~F. Total building deadload/GSF~~
- ~~G. Cubic feet of concrete/GSF~~
- ~~H. Pounds of rebar/CY concrete~~
- ~~I. Total building deadload/GSF~~
- ~~J. Pile weight (LB)/Footprint area (FPA).~~

03. SUPERSTRUCTURE**A. Building System Summary**

The **Superstructure** of a building consists of all gravity and lateral force resisting members above the substructure to and including the roof deck. The department recognizes three sub-categories in this building system: **Floor Structure**, **Roof Structure**, and **Stairs**. Floor, roof, and stair structures normally include vertical members (columns, walls), horizontal members (beams, joists/rafters, trusses), decking (wood sheathing, concrete, etc.), and a variety of bracing elements. In some superstructure systems with bearing walls (e.g., masonry units, light-gauge steel, nominal wood framing, etc.) the

superstructure blends with the Exterior Closure and Interiors systems. In **Floor Structure** using slab-on-grade, the system overlaps with **Substructure**.

B. Design Philosophy

Alaskan schools must be provided with an adequate superstructure which responds efficiently, and effectively to building loads as prescribed in adopted building codes and to the conditions of the local environment and building's use. Structural efficiency measures include minimizing the deadload of the building, selecting high strength-to-weight and strength-to-cost materials, building simplicity, and structural member uniformity. A uniformly loaded floor system is typically the most cost-effective elevated floor system; concentrated point loads must be accommodated but should be minimized. It should be noted that concrete slab on grade floor systems is the least expensive floor system in areas where concrete is readily available. For additional design parameters see the **Design Ratio** section of this system.

The same can be said for roof assemblies that are typically comprised of roof sheathing, roof rafters or trusses, beams, and columns carrying concentrated vertical loads to the foundation or a lower floor assembly. Structural roof assemblies that utilize load-bearing partitions are typically more cost-effective than assemblies that use post and beam systems to bear vertical loads. With the inclusion of the structural insulated panels in the roof assembly and its use to replace both the roof sheathing and roof rafters or trusses due to its large span and loading limits, roof assemblies have become more reliant on a post and beam assembly. While the use of structural insulated roof panels may reduce the time required to fully construct the structural roof assembly, its inherent inclusion of heavily loaded beams and columns adds to the overall cost of the superstructure.

The previous paragraphs deal with how the structural systems are designed to accommodate gravity loads. Consideration must also be given to how the structural system performs under lateral, seismic, and wind loading conditions. The best way to design a cost-effective structural system to handle wind loads is to limit them. The building's form and massing play a significant role in limiting the structure's exposure to wind loads and should be considered by the architect at the outset of design. Buildings that expose large areas of high bay space to lateral wind loads will not be conducive to cost-effective structural design.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes a main floor structure of reinforced concrete slab on grade and includes a small portion of elevated floor with steel columns, beams, joists, metal decking and concrete. The roof structure uses a combination of wood frame bearing wall, steel columns, beams, joists, and metal decking. Steel angle bracing and light gauge steel shear walls provide lateral support. Acceptable alternatives are detailed in the construction standards that follow.~~

~~D.C.~~ Design Criteria & Ratios

Criteria

- All single-story structures and smaller (60,000 GSF or less) two story structures should utilize uniform loading structural systems (i.e. load bearing walls) wherever feasible.

- Building massing should limit exterior wall area and exterior exposure of large high bay spaces to wind loads.

Ratios

1. (Reserved)

031 Floor Structure

0311 Lower & Main Floors

Baseline:

1. Structural frame floor assemblies of wood or metal consisting of posts, beams/frame walls, joists, and decking are required when slab on grade is not cost effective. Support frame floor assemblies with appropriate cost analysis (e.g., in geographic regions where the cost of concrete is high, or soils will not permit this standard).
2. Design frame floor assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
3. HHS shapes for columns/posts, W-shapes for beams/girders, open web trusses for joists and fluted sheet metal for decking form the basis of design.
4. Wood members functioning in the capacity of metal deck and concrete must be minimum 1-1/8" wood structural panel or wood decking.
5. Insulate frame floors as required by DEED-adopted energy codes to eliminate or minimize heat loss.
6. Provide protective coating on structural members as required by local conditions/codes.

Provisional:

7. Consider light-gauge steel, engineered wood, or lumber for any component listed in the basis of design. Support light-gauge steel and wood members and assemblies with appropriate cost analysis and justification (e.g., building dimensions and configurations with small spans).
8. Consider, where pile foundations (0241, 0244) are accepted, a structural insulated panel (SIP), with or without embedded floor joists, as required to meet code-specified loading. If panels will not span between pile caps, consider intermediary engineered wood beams or steel wide flange beams. Support SIP assemblies with an appropriate cost analysis of the full substructure and 0311 Floor Structure.

Premium:

9. Framed floor assemblies where total estimated 02 Substructure + 0311 Lower and Main Floors cost exceeds other alternatives.

Best Practice/Lessons Learned

- A. (Reserved)

0312 Upper Floors

Baseline:

1. Provide structural frame floor assemblies of wood or metal consisting of columns, beams/frame walls, joists, and decking.

2. Design upper floor assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
3. HHS shapes for columns/posts, W-shapes for beams/girders, open web trusses for joists and fluted sheet metal for decking form the basis of design.
4. Wood members functioning in the capacity of metal deck and concrete must be minimum 1-1/8" wood structural panel or wood decking.
5. Insulate upper floor perimeters as required by DEED-adopted energy codes to eliminate or minimize heat loss.
6. Provide protective coating on structural members as required by local conditions/codes.

Provisional:

7. Consider light-gauge steel, engineered wood, or lumber for any component listed in the basis of design. Support light-gauge steel and wood members and assemblies with appropriate cost analysis and justification (e.g., building dimensions and configurations with small spans).
8. Consider framed bearing walls in-lieu-of columns and beams/girders where cost effectiveness can be increased when considering the combination of systems in *0312* and *0411 Exterior Walls* or *0312* and *0611 Fixed Partitions*.
9. Consider, where pile foundations (*0241*, *0244*) are accepted, a structural insulated panel (SIP), with or without embedded lumber, as required to meet code-specified loading. If panels will not span between pile caps, consider intermediary engineered wood beams or steel wide flange beams. Support SIP assemblies with an appropriate cost analysis of the full substructure and *0311 Floor Structure* analysis.

Premium:

10. Framed floor assemblies where total estimated **02 Substructure** + *0311 Lower and Main Floors* cost exceeds other alternatives ([i.e., slab-on-grade as the cost baseline](#)).
11. Exterior balconies and construction.

Best Practice/Lessons LearnedA. (Reserved)**0313 Ramps**Baseline:

1. Ramps accepted with framing equal to *0311 Lower and Main Floors* and alternative systems as required by building function and with approved cost analysis.

Provisional:

2. Consider light-gauge steel, engineered wood, or lumber for any component listed in the basis of design. Support light-gauge steel and wood members and assemblies with appropriate cost analysis and justification (e.g., ramp dimensions and configurations).
3. See Section *0711 Passenger Elevators* for use of ramps in-lieu-of elevators.

Premium:

4. Framed ramp assemblies where total estimated **02 Substructure** + *0311 Lower and Main Floors* cost exceeds other alternatives ([i.e., slab-on-grade as the cost baseline](#)).
5. Ramps wider than 10% ~~percent~~ [percent](#) of the minimum permitted under applicable codes.

Best Practice/Lessons Learned**A. (Reserved)****032 Roof Structure*****0321 Pitched Roofs*****Baseline:**

1. Provide structural frame roof assemblies of wood or metal consisting of columns, beams/frame walls, rafters, and decking.
2. Provide trusses where clear spans are required or possible (gymnasiums, multipurpose, library, etc.).
3. Design roof assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
4. HSS shapes for columns/posts, W or HSS steel for beams/girders, open web trusses or engineered wood for rafters, and fluted sheet metal for decking form the basis of design.
5. Wood members functioning in the capacity of metal deck may wood structural panel or wood decking with appropriate span ratings as required by applicable building codes.
6. Provide protective coating on structural members as required by local conditions/codes.

Provisional:

7. Consider light-gauge steel, engineered wood (including GLB) or lumber for any component listed in the basis of design. Support light-gauge steel and wood members and assemblies with appropriate cost analysis and justification (e.g., building dimensions and configurations with small spans).
8. Consider framed bearing walls in-lieu-of columns and beams/girders where cost effectiveness can be increased when considering the combination of systems in *0321 and 0411 Exterior Walls* or *0321 and 0611 Fixed Partitions*.
9. Consider a structural insulated panel (SIP), with or without embedded lumber, as required to meet code-specified loading. Support SIP assemblies with an appropriate cost analysis of the full substructure and *0321 Pitched Roof* analysis.

Premium:

10. ~~Framed roof assemblies where total estimated 02 Substructure + 0321 Pitched Roofs cost exceeds other alternatives~~(Reserved).

Best Practice/Lessons Learned

- A. Combustible framing materials and cold/vented attic construction may require dry-system sprinkler heads in fully sprinkled schools. This will impact initial and life-cycle costs.

0322 Flat Roofs**Baseline:**

1. Provide structural frame roof assemblies of wood or metal consisting of columns, beams/frame walls, rafters, and decking.
2. Provide trusses where clear spans are required or possible (gymnasiums, multipurpose, library, etc.).

3. Design roof assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
4. HHS shapes for columns/posts, W or HSS steel for beams/girders, open web trusses or engineered wood for rafters, and fluted sheet metal for decking form the basis of design.
5. Wood members functioning in the capacity of metal deck may wood structural panel or wood decking with appropriate span ratings as required by applicable building codes.
6. Provide protective coating on structural members as required by local conditions/codes.

Provisional:

7. Consider light-gauge steel, engineered wood (including GLB) or lumber for any component listed in the basis of design. Support light-gauge steel and wood members and assemblies with appropriate cost analysis and justification (e.g., building dimensions and configurations with small spans).
8. Consider framed bearing walls in-lieu-of columns and beams/girders where cost effectiveness can be increased when considering the combination of systems in *0322* and *0411 Exterior Walls* or *0322* and *0611 Fixed Partitions*.

Premium:

9. Exposed structural members where cost analysis demonstrates a cost increase above 2% percent for the *0321* and *0322* systems.
10. ~~Framed roof assemblies where total estimated **02 Substructure** + *0322 Flat Roofs* cost exceeds other alternatives~~(Reserved).

Best Practice/Lessons Learned

A. (Reserved)

0323 Special RoofsBaseline:

- A. None; other special roof such as (occupied) roof decks, canopies, etc. are not anticipated.

Provisional:

- B. Consider other special roofs when building loads, logistics, materials and construction may exclude other roof solutions. If a special roof is proposed, it must be supported with an appropriate cost analysis of the full superstructure.

Premium:

- C. Other special roofs where total estimated **03 Superstructure** cost exceeds other alternatives.

Best Practice/Lessons Learned

A. (Reserved)

033 Stairs

0331 Stair Structure

Baseline:

1. Provide stair structure assemblies for stairs and landings, of wood or metal consisting of stringers, treads, risers, connectors, beams/joists. Treads and landings may include concrete decking.
2. Design stair assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads (example: plate steel stringers with stiffening provided by treads and risers).
3. Provide stairs in the quantity prescribed by code and with dimensions not greater than 10% of code minimums.
4. Provide protective coating on structural members as required by local conditions/codes.

Provisional:

5. Consider up to one stair associated with a primary common area or public space that has ‘architectural features’ such as: no stair enclosure, concealed structure, concealed connections, open risers, cantilevered treads, integrated enhanced finishes, etc.
6. Consider alternative stair types where permitted by code for limited access such as alternating tread stairs.

Premium:

7. Stairs with any dimension greater than 10% percent of the minimum permitted under applicable codes.
8. More than one stair with ‘architectural features’.

Best Practice/Lessons Learned

A. (Reserved)

0332 Stair Railings

Baseline:

1. Provide stair railing assemblies for stairs and landings, of wood or metal consisting of posts, rails, spindles/panels, shoes, and connectors.
2. Design railing assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
3. Provide railings in the quantity prescribed by code and with dimensions not greater than 10% percent of code minimums.
4. Provide protective coating on railing members as required by local conditions/codes.

Provisional:

5. Consider up to one stair railing associated with a primary common area or public space that has ‘architectural features’ such as: decorative posts, tempered glass panels, ⁷ concealed structure, concealed connections, open risers, cantilevered treads, integrated enhanced finishes, etc.

6. For stairs railings in high-visibility areas, consider stainless steel for all high-wear elements such as handrails and shoes to reduce long-term maintenance costs.
7. Where functionally and visually appropriate, consider stair railings with top rails at guardrail heights and separate handrails.

Premium:

8. Railings with any dimension greater than 10% percent of the minimum permitted under applicable codes except as noted.
9. More than one stair railing with ‘architectural features’.

Best Practice/Lessons Learned**A. (Reserved)*****0333 Ladders & Steps*****Baseline:**

1. Provide ladder assemblies of wood or metal consisting of rails, rungs, cages, and connectors.
2. Provide structural step assemblies in conformance with applicable provisions of *0331 Stair Structure*.
3. Design ladder assemblies (materials, size, spacing, etc.) for maximum efficiency in accordance with building codes and superimposed loads.
4. Provide ladders in the quantity prescribed by code and with dimensions not greater than 10% percent of code minimums.
5. Provide protective coating on ladder members as required by local conditions/codes.

Provisional:

6. Consider alternating tread stairs and other alternatives to ladders to improve access.

Premium:

7. Ladder and step materials not commonly accepted as ‘utilitarian’.

Best Practice/Lessons Learned**A. (Reserved)****~~E. Design Criteria & Ratios~~****Criteria**

- ~~• All single-story structures and smaller (60,000 GSF or less) two-story structures should utilize uniform loading structural systems (i.e. load bearing walls) wherever feasible.~~
- ~~• Building massing should limit exterior wall area and exterior exposure of large high bay spaces to wind loads.~~

Ratios

- ~~2. (Reserved)~~

04. EXTERIOR CLOSURE

A. Building System Summary

The **Exterior Closure** of a building consists of an assembly of components which isolate the interior spaces of a building from the exterior environment or modulate the interaction between those elements. In addition to its technical function, the sub-systems in this category are often the most visible elements of a building and work together to provide an aesthetic function. The department recognizes four sub-categories in this building system: **Exterior Walls & Soffits**, **Exterior Glazing**, **Exterior Doors**, and **Exterior Accessories**. Wall and soffit systems normally include framing, exterior and interior substrates and finishes, insulation, and various types of membrane barriers. Windows and doors integrate with the wall/soffit assembly. Where wall framing provides structural capacity, some exterior closure elements overlap with **Superstructure**. In addition, while roof systems provide a technical function that is nearly identical to **Exterior Closure**, the department recognizes **Roof Systems** as a separate major building system due to its unique complexities.

B. Design Philosophy

Exterior closure systems bear the brunt of Alaska's harsh climate. They must be able to endure large variations in seasonal temperatures. While fraught with differing elements and junctions of such elements, the assembly must remain weather tight, even in Alaska's extreme wind and rain. To achieve optimal performance, the exterior assembly should be constructed of quality materials and craftsmanship. Exterior closures should be designed holistically to control transfer of heat, air, moisture, vapor drive, daylight and noise. The construction of a high-performance exterior assembly is expensive, so the design of a school facility should strive to reduce the amount of exterior wall area that is to be constructed. This is not only cost-effective in terms of initial cost, but is also cost-effective in terms of operations, maintenance, and replacement costs. By reducing the area of the exterior closure system, the area for heat loss is reduced, the area to be painted or regularly maintained is reduced, and when the exterior finish has reached the end of its useful life, the area to be replaced is reduced. All of these factors contribute to reduce the life cycle cost of the school facility.

Oftentimes, a facility's exterior closure system will also serve as part of the facility's structural system by transferring roof and floor loads to the foundation system. The use of an assembly that serves dual purposes is a helpful step toward the cost-effective design of a facility. Wall assemblies constructed from dimensional lumber, structural insulated panels, metal studs, and concrete masonry units are all capable of serving this dual-purpose role as exterior closure and structural system. Each material assembly has its own strengths and weaknesses that require the designer to determine the systems appropriateness for a given project. However, as noted earlier, load bearing exterior wall systems deserve serious consideration on most projects.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes exterior load bearing walls with light-gauge steel members and structural wood panel sheathing. Insulation is a combination of fiberglass in the wall cavity and 2in of continuous board at the exterior. Air and vapor barriers complete the assembly. Siding is a primarily metal panel with some phenolic panel in a rain-screen assembly as an accent. Vents, flashings, and sealants complete the exterior. Gypsum wall board is used on the interior side of the assembly.~~

~~Soffits are framed with nominal lumber, treated plywood and siding finishes were visible. Windows are metal-clad dual-pane insulating units with operable sections. Doors are hollow metal with insulated frames and high-quality hardware including motor-operated doors where required. Acceptable alternatives are detailed in the construction standards that follow.~~

A. Design Criteria & Ratios

Criteria

- All single-story structures and smaller (60,000 GSF or less) two story structures should utilize a load bearing exterior wall assembly wherever feasible.
- Building massing should limit exterior exposure of large high bay spaces to wind loads.
- The footprint, configuration, and structural grid should be simple and straightforward, without complex geometries.
- Exterior walls should be straight, with few, if any, curves. Avoid complex configurations with unnecessary corners and changes of materials.
- DEED-adopted energy codes will have a significant influence on envelope design and must be complied with in the most cost-effective way possible.

Ratios

1. School facilities less than 20,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of 0.8 and a maximum number of one exterior door leaf per 2000 GSF.
 2. School facilities between 20,000 and 40,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of 0.7 and a maximum number of one exterior door leaf per 2500 GSF.
 3. School facilities greater than 40,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of 0.6 and a maximum number of one exterior door leaf per 3000 GSF.
- ~~Exterior glazing area shall not exceed 10% percent of the exterior closure area.~~

041 Exterior Walls and Soffits

0411 Exterior Walls

Baseline:

1. Wall and soffit assemblies should be designed to consider life-cycle analysis, energy efficiency, durability, low or no required maintenance and overall costs of assemblies.
2. Materials used for exterior enclosures shall be of commercial grade, durable with an intended 20-year or longer usable life.
3. Consider use of a load-bearing exterior wall assembly where feasible. Wall assemblies constructed from dimensional lumber, structural insulated panels, metal studs, and concrete masonry units are all capable of serving this dual-purpose role as exterior closure and structural system.

- a. Wood studs – CF-3, LCCA-3, Labor intensive.
 - b. Structural insulated panels CF-3 to 4 (better in remote locations), LCCA-3.
 - c. Metal Studs – CF-4, Thermal Bridging leads to more complex total wall assembly. LCCA-3.
 - d. Concrete masonry units CF-3 (rural location 1). LCCA-1. CMU become very expensive in rural location due to freight. CMU has addition LCCA cost for future renovation as it is difficult to remove/modify.
4. Exterior Cladding and Siding: Exterior material choices are numerous and diverse. When choosing cladding, careful consideration should be given to design guidelines listed above and coordinated with District design preferences. Products that require sealants and repeated paint and stain maintenance are discouraged. Products include:
- a. Structural Insulated Panels (SIP): Overall thickness, surface thickness, and R-value appropriate to region and structural design intent. CF-3, LCCA-3
 - b. Metal Wall Panels: 24-gauge minimum thickness zinc-coated (galvanized) or aluminum-zinc alloy-coated sheet steel. fluoropolymer exterior finish with minimum 20-year finish warranty. CF-2, LCCA-2, (in rural locations overall wall system maybe more expensive as more layers of material are used in total system.
 - c. Insulated Metal Wall Panels (IMP): 24-gauge minimum thickness zinc-coated (galvanized) or aluminum-zinc alloy-coated sheet steel. fluoropolymer exterior finish with minimum 20-year finish warranty. R-value as appropriate to the climate and region. CF-2, LCCA-2
 - d. Phenolic Resin Panels: install per manufacturer’s instructions on recommended mounting and fastening systems. Specify colors and patterns proven to not fade over time due to ultraviolet radiation exposure. CF-4, LCCA-2
 - e. Fiber Cement Panels: install per manufacturer’s instructions on recommended mounting and fastening systems. CF-4, LCCA-2
 - f. Exterior Insulation Finish System (EIFS). Specify impact resistant mesh that will resist damage from projectiles. Provide flashing to prevent water intrusion into the system. Provide drainage layer behind insulation layer to allow moisture to escape if needed. CF-4, LCCA-2 to 4, (expensive to repair in rural locations).
 - g. Exterior Masonry: Can also serve as the structural system. Consider also as an exterior 4’ to 8’ high protective “wainscot” with different materials above. Avoid use in remote areas due to transportation costs. Schedule installation to avoid the need for temporary heat. Masonry or concrete walls should contain weep holes at the base of walls 8"-12" above finish grade, unobstructed, with insect screen. CF-3, LCCA-1 to 2
5. Wall Insulation: Types and R-values; the following values or those values tested from manufacturers may be used in determining R-values of wall assemblies.
- a. Expanded Polystyrene (EPS) Board R-Value = 4.17 per inch CF-2, LCCA-2
 - b. Extruded Polystyrene (XPS) Board R-Value = 4.17 per inch CF-3, LCCA-3
 - c. Polyisocyanurate (Polyiso) Board R-Value = 5.6 per inch CF-2, LCCA-2
 - d. Glass-Fiber Batt Insulation R-Value = 3.16 per inch CF-1, LCCA-2
 - e. Glass-Fiber Batt Insulation (High Density) R-Value = 4.28 per inch CF-1, LCCA-2
 - f. Glass-Fiber Blown-In Insulation R Value = 3.7 - 4.28 per inch CF-1, LCCA-2

- g. Mineral Wool Batt Insulation R-Value = 4.0 per inch CF-4, LCCA-2
 - h. Open Cell Spray Foam Insulation R-Value = 3.6 per inch CF-3, LCCA-3
 - i. Closed Cell Spray Foam Insulation R-Value = 6.0 - 6.5 per inch CF-3, LCCA-3
6. Continuous Exterior Insulation (CI): provide a continuous layer of insulation at the exterior side of the wall assembly. Protect CI with air/weather barrier and siding material in a rain screen assembly. Minimum R-Value of continuous insulation layer of R-7. Use CI to mitigate thermal conductance through wall structure. CF-1, LCCA-1 low first cost and significant LCCA advantage due to energy savings.
 7. Vapor Retarders at Exterior Walls: Provide vapor retarder at the warm side of wall insulation with permeance rating not to exceed 0.13 perms, polyethylene, 6-10 mils thick. Where vapor retarder is not in direct contact with a cover material such as gypsum wallboard, vapor retarder shall have a flame-spread rating not to exceed 25 and a smoke density not to exceed 450. Ensure vapor retarder is continuous at wall to roof transitions. Minimize penetrations of vapor retarder.
 8. Vapor Retarders at Concrete Floor Slabs: Floor slabs on grade with non-permeable floor finishes should have a vapor retarder of 0.05 perms or less, polyethylene, 10-15 mils thick. Non-permeable floor finishes include (but are not limited to) epoxy, polyurethane, vinyl, linoleum, and rubber. Under slab vapor retarders must be durable enough to withstand construction activity. Penetrations should be detailed according to the manufacturer's instructions. Specifications should require measurement of slab relative humidity in accordance to meet the requirements of the floor finish manufacturer.
 9. Thermal Resistance: Insulation and minimum R-values of wall assemblies shall accommodate regional climate. Minimum wall assembly value in all Climate Regions is R-19.
 10. Exterior Air/Weather Barrier Systems: Self-adhering sheets, fluid applied membrane, or mechanically attached building wrap. Detail wall/roof intersection to provide continuous air/weather barrier system. CF-2 to 4, LCCA-2 to 3 (product vary in cost and performance)
 11. Impact Resistance at Exteriors: Provide impact resistant material up to a minimum of four feet above ground height. CF-3, LCCA-3
 12. Corrosion Resistance: Consider local risks of corrosion from environmental or industrial sources.
 13. Graffiti Resistance: Enable the removal of graffiti without damage to the appearance, finish, and durability of the substrate.
 14. Acoustics: Consider local conditions for requirements.
 15. Building massing should limit exterior exposure of large high bay spaces to wind loads.
 16. Design flashing details as per SMACNA flashing recommendations to prevent water infiltration into the wall.
 17. Design simple, cost-effective steel, concrete, or masonry lintels. Specify galvanized at exterior steel lintels.
 18. Do not use paper or organic products that support mold growth when wet in any exterior wall assembly.

Provisional:

19. Avoid materials that require paint or sealers to prevent water intrusion.

20. Impact Resistance: Provide impact resistant material up to a minimum of eight feet above ground height. CF-1, LCCA-1
21. Avoid masonry veneer. CF-3, LCCA-2
22. Consider power and data raceways at exterior walls to reduce the number of penetrations in the vapor retarder.
23. Insulated Metal Wall Panels (IMP) with addition of air/weather barrier directly behind the IMP for additional protection. Air/Weather Barrier CF-1, LCCA-1

Premium:

24. Glazed bricks, cast stone, “architectural” finish cast-in-place concrete. Cost prohibitive in most rural applications CF-4, LCCA-3
25. Precast concrete Cost prohibitive in rural application due to freight and need of large equipment to handle. CF-3 to 4 LCCA-2.
26. Granite, slate, or other stone that is more expensive than common masonry. CF-5, LCCA-2
27. Lead-coated copper, stainless steel, zinc, or other metal shingles and siding products. CF-4, LCCA-1, may have application in saltwater environments.
28. Ceramic, porcelain, or other tile products that are more expensive than common brick. CF-3 to 4, LCCA-2
29. Enamel panels or other manufactured curtain wall products. CF-4, LCCA-3
30. Exterior porcelain tile, glass tile, or glass cladding systems. CF-4, LCCA-3
31. Composite stone veneer cladding CF-4, LCCA-3 weight of material is problematic in rural locations.
32. Channel glass facades. CF-5, LCCA-4

Best Practice/Lessons Learned**A. (Reserved)****0412 Facias & Soffits****Baseline:**

1. Soffits ~~such as at~~ at upper floor and roof overhangs: ~~will include~~ Provide the following:
 - a. ~~Siding-Exterior~~ materials as described in ~~Siding and Cladding, item 4 above~~ 0411 Exterior Walls.
 - b. ~~Vapor retarders, insulation, and e~~ Exterior Air ~~air/Weather-weather Barrier-barrier System as described in item 12 below~~ as required for conformance with energy standards.
2. Soffitted areas that ~~separate exterior space from~~ include both heated space and unheated space: ~~This construction~~ should be avoided or minimized. Where ~~used~~ this condition occurs in fire sprinklered buildings, and the size of the soffit requires sprinkler coverage, sprinkler piping must be in a heated space or a dry sprinkler system provided.
3. ~~Buildings located in some regions are recommended to be~~ Full or partial underfloor soffits are allowed when building floors are elevated based on local geotechnical and climatic condition (ref. 024 Special Foundations) and will include the following:
 - a. An economical exterior finish.

- ~~a.b. Vapor retarders, insulation, and exterior air/weather barrier as required for conformance with energy standards. In such a structure, where the space underneath the building is exposed to the elements, consider enclosure with sheathing or another weather-resistant covering.~~
- ~~3. Consider structural insulated panels (SIPs), which are all capable of serving a dual-purpose role as exterior closure and structural system. CF-3, LCCA-3~~
- ~~4. Exposed underside of SIPs.:~~
- ~~5. Plywood bottom surface.~~
- ~~6. Provide coverage of any exposed foam insulation with intumescent paint.~~
- ~~7. Moisture Resistance: Provide vapor retarder to inside of insulation.~~
- ~~8. Thermal Resistance: Insulation and minimum R-values to accommodate regional climate.~~
- 9.4. Provide ~~barrier skirting~~ system (~~skirting chain link fencing~~) to prevent public access to underside of building for fire-safety prevention. CF-1, LCCA-1
- ~~10. Chain link fence.~~

Provisional:

- ~~5. In such a structure, where the space underneath the building is exposed to the elements, consider enclosure skirting with sheathing or another weather-resistant covering in climates where under-building air flow is not required. (Reserved)~~
- ~~11.6. Consider structural insulated panels (SIPs) for underfloor soffits, which are all capable of serving a dual-purpose role as exterior closure and structural system. CF-3, LCCA-3~~

Premium:

- ~~12.7. Building skirting:~~
- ~~Perforated metal panel. or CF-4 LCCA-2~~
 - ~~Welded wire fabric. CF-4 LCCA-2~~
- ~~13.8. Metal panel siding on underside of SIPs. CF-2 LCCA-1~~

Best Practice/Lessons Learned

- A. Keep roof and upper floor soffits to less than 4ft to minimize the need for providing sprinkler coverage.

0413 Curtainwalls & Non-bearing Walls**Baseline:**

- Provide exterior curtainwall assemblies where cost effective in schools exceeding two stories.

Provisional:

- Consider glazing options other than structural silicone such as mechanically keyed gaskets.

Premium:

- Curtainwall systems in one- and two- story schools (see 0422 Storefronts as an acceptable alternative).

Best Practice/Lessons Learned

- A. (Reserved)

042 Exterior Glazing

0421 Windows

Baseline:

1. Provide glass thickness and safety glass materials appropriate to safety risk, energy performance requirements and local conditions, including wind loads and internal air pressures, deflections, safety and code compliance.
2. Conduct life cycle analysis and collect detailed warranty information on vinyl, vinyl-clad, and fiberglass windows for DEED review and approval prior to incorporation into the design. CF-3
3. Exterior windows must have insulated glazing system (outer glazing low E coating with an air space and interior glazing that meets latest adopted edition of IBC for wind pressures). Consider building energy efficiency, interior glare, daylighting, acoustic performance, and security when selecting exterior window and glazing systems. Consider high performance glazing units with high visible light transmittance for better daylighting and a low solar heat gain coefficient (~~SHGC~~) in accordance the National Fenestration Rating Council.
4. ~~Exterior Square feet of exterior glazing: area recommended not to exceed 10% percent of the entire exterior closure area.~~ openings to square feet of total exterior wall will meet Design Ration provisions. Size and placement should provide ~~Consider~~ a balance of natural lighting, view, solar gain and heat loss.
5. Glazing in windows in high-traffic areas and vandal-prone areas should provide an appropriate level of impact resistance.
6. To simplify replacement of broken units, avoid individual glass pieces larger than 4 feet in width or 6' in height.
7. Exterior windows constructed with thermally broken frames to reduce heat loss and prevent thermal conduction.
8. Provide commercial-grade windows. Provide prefinished exterior surfaces as opposed to field finished or painted options.
9. Provide casement and awning windows with screens at operable vents. Casement and awning windows must not be oversized and must be easily opened by crank mechanisms. Do not locate operable windows at locations where persons can accidentally strike the frame of an open window. Provide adequate number of locking points to provide positive closure
10. Specify windows with sub-frame construction for efficiency and to resist water penetration.

Provisional:

11. Consider single or double hung windows with window screens in appropriate climates (primarily zones 6 and 7) as a character defining feature of an existing building or as an historic treatment. CF-3, LCCA-3
12. Consider specifying high-performance glazing as determined by orientation and energy modeling. CF-4, LCCA-TBD Depending on glazing price of windows can double, LCCA analysis of the systems vary.
13. Consider polycarbonate covers at windows susceptible to vandalism and in remote areas where window replacement is not readily available.

Premium:

- ~~14.~~ 14. Stainless steel, mahogany, teak, or exotic hardwood ~~windows~~ window frames or sashes.
- ~~14.15.~~ 15. ~~Skylights, or doors.~~
- ~~15.16.~~ 16. Triple-glazed windows in climate zones 6 and 7 ~~without an LCCA~~ [LCCA 3].
- ~~16.17.~~ 17. Bullet-resistant glass. Consider providing UL 752 Ballistic Rating of Levels 3 through 7. Degree of ballistic protection level should be determined by school district or community policy and design parameters for each school.
- ~~17. Any manufacturer's non-standard window sizes.~~
18. Any windows of special sizes requiring manufacturer's premium costs.
19. Silicone glazing systems, butt glazing systems, or double wall glazing systems.
20. Non-standard colors or finishes on windows that require manufacturer's premium costs.
21. Glazed channel glass wall systems.
22. Arched or complex windows and frames.

Best Practice/Lessons Learned

- ~~— (Reserved)~~ When considering window sizing and placement to achieve O:EW ratios, it is often more energy efficient to use less but larger windows versus multiple smaller windows or windows with mullions.

0422 StorefrontsBaseline:

1. Provide thermally broken aluminum frames or aluminum clad wood frames in storefront systems for larger window installations. CF-4, LCCA-3
2. Provide engineered systems from the manufacturer.

Provisional:

3. (Reserved)

Premium:

4. Storefront systems with glazing extending less than 15in above floor level.

Best Practice/Lessons Learned

- A. (Reserved)

0423 Structural Window WallsBaseline:

1. None.

Provisional:

2. None.

Premium:

3. Structural glazing systems of any size.

Best Practice/Lessons Learned

- A. (Reserved)

0424 Translucent PanelsBaseline:

1. ~~(Reserved)~~X.
2. ~~X.~~

Provisional:

- 3.2. ~~(Reserved)~~Consider insulated translucent sandwich panels where light transmittance is desired but visual transmittance is not required. X.

Premium:

- 4.3. ~~(Reserved)~~X.

Best Practice/Lessons Learned

- A. ~~(Reserved)~~Translucent sandwich panels are particularly suited to high bay and clerestory windows where clear glass would produce uncontrolled glare.↓

043 Exterior Doors**0431 Personnel Doors**Baseline:

1. Exterior doors shall be water-tight, weather-tight, and protected from climatic influences, including rain and strong winds.
2. Exterior doors subject to continual heavy use must be constructed both for strength and resilience against wear, and against accidental and deliberate damage. Sufficiently robust to provide appropriate building security and to withstand high traffic conditions without stress or damage to the door, glazing or hinges. Specify exterior doors with fully welded metal frames. Avoid “knock-down” frames at exterior doors.
3. Door materials include:
 - a. Insulated, fully galvanized steel, primed and painted. CF-2, LCCA-1
 - b. Fiberglass, especially suitable for coastal, salt environments, climate zones 6 and 7.
 - c. Aluminum, factory finish CF-2, LCCA-1
4. Avoid the use of fully glazed door systems
5. Specify Grade 5 exterior door hardware with stainless steel components and no plastic components in hinges, locks, panic hardware, or lever handles. CF-4, LCCA-1
6. Specify exterior doors with fully welded metal frames. Avoid “knock-down” frames at exterior doors. CF-3, LCCA-1
7. Provide electronic locks and controls at exterior doors where required for security.

Provisional:

8. Specify 42" wide doors only at limited locations when functionally necessary such as at service doors. CF-2, LCCA-1
9. When selecting exterior materials for remote communities consider the site-specific local complexities of construction logistics.

Premium:

10. Non-standard colors or finishes on doors that require manufacturer’s premium costs. CF-4, LCCA-2
11. Stainless steel doors or frames. CF-4, LCCA-1

Best Practice/Lessons Learned

A. (Reserved)

0432 Special DoorsBaseline:

1. ~~X~~. (Reserved)

~~X~~

Provisional:

2. ~~X~~. (Reserved)

Premium:

3. Non-standard doors that are higher than 84" or wider than 36" – other than service doors. CF-4, LCCA-1
4. Any doors of special sizes requiring manufacturer’s premium costs. CF-4, LCCA-1
5. Overhead doors except at service/delivery. CF-3, LCCA-3
6. Bullet-resistant doors. Consider providing UL 752 Ballistic Rating of Levels 3 through 7. Degree of ballistic protection level should be determined by school district or community policy and design parameters for each school.

Best Practice/Lessons Learned

A. (Reserved)

044 Exterior Accessories**0441 Louvers, Screens & Shading Devices**Baseline:

1. Louvers: specify internally draining style. In ~~all climate zones, in~~ high wind environments of all climate zones, provide protective exterior wall mounted hoods to prevent accumulation of rain, snow and ice within louvers or screened openings.
2. Hoods shall be galvanized and painted metal or stainless steel with sloped tops.
- ~~2.3.~~ Coordinate location of ventilation intakes with prevailing wind direction(s) and location of combustion flues, plumbing vents, and other sources of objectionable odors.

Provisional:

- ~~3.4.~~ Consider Sscreening enclosures at services areas and dumpsters: cedar fencing, front of the enclosure may have a gate, however, may also be left open for ease of access.
- ~~4.5.~~ Consider Exterior ~~L~~ight Shelves~~:~~ at large window areas to reduce interior glare and solar heat gain, primarily at south and west facing facades. Light shelves may be pre-manufactured as part of the window system or “stick built”.

Premium:

- 5.6. Light shelf/shelves on the interior side of windows ~~can deflect solar gain and also reflect light upward to augment or reduce artificial light needs~~ [LCCA-4].

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ In school with elevated main floors, consider utilizing the space below the school for exhaust and relief air discharge but only where skirting is such that heat can be easily dissipated. Take care with air intakes; organics below the structure may create objectionable odors for outside air intakes. Provide security screening across face of termination points.

0442 Balcony ElementsBaseline:

- Guardrails and handrails: Provide at locations and construction as required by IBC. Materials include galvanized, galvanized and painted or high-performance coated steel; aluminum (bare or coated); treated wood or combinations of the above.

Provisional:

- (Reserved)

Premium:

- (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0443 Other Exterior AccessoriesBaseline:

- A. ~~✖~~ (Reserved)
✖

Provisional:

- B. (Reserved) ~~✖~~

Premium:

- C. (Reserved) ~~✖~~

Best Practice/Lessons Learned

- A. (Reserved)

~~A. Design Criteria & Ratios~~**Criteria**

- ~~All single-story structures and smaller (60,000 GSF or less) two-story structures should utilize a load-bearing exterior wall assembly wherever feasible.~~
- ~~Building massing should limit exterior exposure of large high bay spaces to wind loads.~~

- ~~The footprint, configuration, and structural grid should be simple and straightforward, without complex geometries.~~
- ~~Exterior walls should be straight, with few, if any, curves. Avoid complex configurations with unnecessary corners and changes of materials.~~
- ~~DEED adopted energy codes will have a significant influence on envelope design and must be complied with in the most cost effective way possible.~~

Ratios

1. ~~School facilities less than 20,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of .8 and a maximum number of one exterior door leaf per 2000 GSF.~~
2. ~~School facilities between 20,000 and 40,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of .7 and a maximum number of one exterior door leaf per 2500 GSF.~~
3. ~~School facilities greater than 40,000 GSF shall have a maximum exterior closure area (excluding roof soffits) to GSF ratio of .6 and a maximum number of one exterior door leaf per 3000 GSF.~~
4. ~~Exterior glazing area shall not exceed 10% of the exterior closure area.~~

05. ROOF SYSTEMS

A. Building System Summary

The **Roof Systems** of a building consists of an assembly of components which protect the building's structure and interior spaces from precipitation of all types and work together to control and remove that precipitation. It also isolates the interior spaces of a building from other exterior environmental factors such as temperature. The department recognizes three sub-categories in this building system: **Pitched Roof**, **Flat Roof**, and **Roof Accessories**. The sub-systems under these categories include the components associated with each roofing system including the roofing material, and collection and drainage features. Roof accessory components such as hatches and skylights, and curbs for mechanical equipment are also in this section. Roofs which also serve as walkable/usable decks and components associated with vegetative roofs would be assessed in this section. **Roof Systems** interface with **Exterior Closure** and **Roof Structure** but have little to no component overlap. Unlike **Exterior Walls & Soffits** where an interior wall substrate is part of the wall assembly, all interior ceilings are assigned to **Ceiling Finishes**.

B. Design Philosophy

One of the most challenging building systems on Alaskan school facilities is the roof system. Achieving high-performing roofs with long lifespans can be difficult. Failed roofs, especially those which **are** allow water to penetrate interior spaces are a distraction to students and educators. In addition, they degrade building structural systems and finishes, oftentimes creating damages whose repair costs dwarf the repair cost of the leak itself. Many school districts' maintenance staffs spend an inordinate amount of time chasing roof leaks and repairing the damage they have created. But roof issues aren't just limited to leaks. The insulating property of a facility's roofing system is also an important design consideration. As the primary point of heat loss, the design and construction of the roof system must be designed in response to Alaska's climate zones.

The easiest way to reduce the potential roofing problems and initial construction cost of a high-performance roofing system is to reduce the area of roof to be constructed. By decreasing the roof area of a facility, the annual roof maintenance effort is reduced, thus reducing the system's maintenance cost. Often these types of reductions can only occur when considering multi-story versus single-story buildings. Following size, reducing roof complexity is the next most important factor when designing for cost effectiveness. The footprint, configuration, and structural grid should be simple and straightforward, without complex geometries. Water-shedding pitched roofs offer the best performance in areas of high rainfall but can reach performance limitations on schools with large roof areas. Successful, cost-effective use of low-slope roof systems has been proven in most Alaska climate zones; however, these roofs are the most dependent on high quality materials and excellent installation.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes a pitched roof system consisting of concealed fastener metal roofing over fire treated plywood sheathing and 8 inch of rigid insulation. Vapor barriers, ice and water shield, and flashing complete the assembly. Acceptable alternatives are detailed in the construction standards that follow.~~

C. Design Criteria & Ratios

Criteria

- ~~— Multi-story construction shall be considered and presented as a schematic design option for all school structures over 40,000 GSF.~~
- Hot roof design is preferable to a vented cold roof especially in facilities possessing a wood structural system.
- Roof penetrations will be minimized by consolidation of plumbing vents and other systems where possible.
- Roof penetrations will be located near the ridge or top of the roof slope to reduce potential snow damage and roof leaks.
- Roof design shall be simple and not broken into planes or cut-up by unnecessary dormers.
- Water shedding roof systems shall be constructed at a minimum of a 3:12 slope.
- Metal roof with exposed fasteners are not to be utilized on new construction or replacement roof projects.

Ratios

1. (Reserved)

051 Pitched Roofs

Baseline:

1. Recommended pitch for major portion of roofs is 3-in:-12 to 6-in:-12. Where the size of the structure in a pitched roof design causes an excessive volume of unused attic space consider changing to a low slope roof design.

2. Snow shedding: ~~On~~ For roof materials prone to snow shedding carefully consider the discharge areas to provide occupant safety and to avoid damaging nearby surfaces. Snow shedding shall not occur at any door, including service and maintenance doors.
3. Gutters and downspouts: Where needed to control run off provide commercial grade gutter and downspouts. Ensure downspout discharge is in a controlled drainage system. Do not discharge run-off over sidewalks or other pedestrian circulation.
4. Roof penetrations: minimize the number of roof penetrations. Where possible, sidewall penetrations such as mechanical intake and exhaust are preferred. On metal roof surfaces locate necessary penetrations near to the ridge to minimize risk of sliding snow damage. Provide heavy gage snow diverters above penetrations where shedding may damage penetrations.
5. Installation detailing shall consider and accommodate thermal expansion and contraction.
6. Roof Materials: When choosing roofing systems, careful consideration should be given to design guidelines listed above and coordinated with District design preferences.
 - a. ~~Standing Seam~~-Metal Roofs: Sheet material, 26-gauge ~~minimum~~ in portable roll formed or factory formed profiles. Base metal aluminum-zinc alloy coated hot-dipped process and pre-painted. ~~Preferred 2~~Two-coat fluoropolymer finish system, 20-year warranty on the finish. Avoid large roofs where metal lengths exceed practical lengths due to shipping, handling and machine roll forming considerations. Avoid field splices. CF-3, LCCA-3
 - b. Insulated Metal Roof Panels (IMP): Overall thickness, surface thickness, and R-value appropriate to region and structural design intent. CF-3, LCCA-3
 - c. Asphalt Shingles: asphalt coated glass felt, maximum 225lb per square (100sf), mineral granule surface with algae resistance, Class A fire resistance. Installation must be rated for site wind conditions. 30-year warranty. Do not specify residential grade shingles. CF-1, LCCA-3
 - ~~d. Structural Insulated Panels (SIP) covered with an approved roofing option: Overall thickness, surface thickness, and R-value appropriate to region and structural design intent. Provide ventilation space above SIP. C-2, LCCA-2~~
 - e.d. Underlayment: self-adhering polymer-modified asphalt sheet, 40 mil total thickness, polyethylene sheet top surface, specify slip resistant top surface when needed for safe installation. CF-2, LCCA-1
7. Roof Insulation: Types and R-values; the following values, or tested values from manufacturers may be used in determining R-values of roof assemblies.
 - a. Expanded Polystyrene (EPS) Board R-Value = 4.17 per inch CF-2, LCCA-1
 - b. Extruded Polystyrene (XPS) Board R-Value = 4.17 per inch CF-3, LCCA-1
 - c. Polyisocyanurate (Polyiso) Board R-Value = 5.6 per inch CF-2 to 3, LCCA-1
 - d. Glass-Fiber Batt Insulation R-Value = 3.16 per inch CF-1, LCCA-1
 - e. Glass-Fiber Batt Insulation (High Density) R-Value = 4.28 per inch CF-1, LCCA-1
 - f. Glass-Fiber Blown-In Insulation R Value = 3.7 - 4.28 per inch CF-1, LCCA-1
 - g. Mineral Wool Batt Insulation R-Value = 4.0 per inch CF-3, LCCA-1
 - h. Open Cell Spray Foam Insulation R-Value = 3.6 per inch CF-3, LCCA-1
 - i. Closed Cell Spray Foam Insulation R-Value = 6.0 - 6.5 per inch CF-4, LCCA-1

8. Ventilation: provide ventilation openings equal to or exceeding building code requirements for the roof area to be ventilated. Ensure the structure and associated blocking does not impede air movement. In high wind areas provide design to mitigate infiltration of wind driven rain, snow or ice crystals through use of filters and/or baffle design at ventilation openings. Provide weep holes, or similar, to allow escapement of moisture accumulation such as at ridge vents.

Provisional:

9. Consider 24-gauge metal roof panels [for flat-pan standing seam, or](#) where design wind speeds exceed 100 miles per hour.
- ~~9.10.~~ Consider 22-gauge metal roof panels where on purlins or other interval-spaced structural support [CF-2, LCCA-2].
- ~~10.11.~~ Consider Attachment: Fasten sheet metal roofing to supports with concealed clips at each standing-seam joint, avoid exposed fastener systems.
- ~~11.12.~~ Consider providing (2) layers of underlayment at slopes of 2 in 12 or less. CF-1, LCCA-1
- ~~12.13.~~ Consider asphalt shingle installations, ~~minimum of one daub of roofing cement~~ provide hand-tabbing at each shingle, ~~one inch in diameter to manufacture's recommendation,~~ to prevent wind uplift.
- ~~13.14.~~ Asphalt Shingles: consider asphalt coated glass felt, mineral granule surfaced, Class A fire resistance. Installation must be rated for site wind conditions. 50-year warranty.

Premium:

- ~~14.15.~~ Polyurethane Foam (PUF) roof assemblies.
- ~~15.16.~~ Metal roof panels 22-gauge or greater except where providing structural support over purlins or battens and part of an assembly approved under an LCCA.
- ~~16.17.~~ Metal shingles and tiles – require DEED review and approval.
- ~~17.18.~~ Clay or ceramic roof tiles – require DEED review and approval.
- ~~18.19.~~ On large roof areas served by gutters: Gutter system large enough to walk in and with safety rail along the side of gutter and tie offs for cleaning.

Best Practice/Lessons Learned**A. (Reserved)****052 Flat Roof (Low Slope)****Baseline:**

1. Low slope roofs to be exposed membrane over coverboard, insulation, vapor retarder and thermal barrier board over structural deck. Specify roofs with extended warranties with 20-year minimum life. CF-3, LCCA-3
2. Assemblies should be fully adhered systems. Mechanically attached systems may be used when conditions do not allow for fully adhered. In a mechanically attached system provide self-healing vapor retarder to reduce impact of attachment penetrations through the system.
3. Slope of the surface membrane to drain is 3/8 inch per foot preferred, 1/4 inch per foot minimum. Calculate slope of valleys at tapered crickets to maintain positive drainage.

4. Membranes:

Note, membranes requiring heated asphaltic products may not be practical in remote locations due to transportation costs and logistics.

- a. Ethylene propylene diene monomer (EPDM) single ply membrane, 60 mil, internally reinforced. CF-2, LCCA-2
 - b. Ethylene propylene diene monomer (EPDM) single ply membrane, 90 mil, non-reinforced. CF-2, LCCA-2
 - c. Asphaltic built-up, 5-ply (BUR) consisting of base sheet, 3 ply sheets plus cap sheet. CF-4, LCCA-3
 - d. Asphaltic mineral cap built-up, 5-ply (MCBUR) consisting of base sheet, 3 ply sheets plus mineral cap top sheet. CF-4, LCCA-3
 - e. Weldable Thermoplastic Polyolefin (TPO) single ply membrane CF-3, LCCA-2
 - f. Weldable Thermoplastic Polyvinyl Chloride (PVC) single ply membrane CF-3, LCCA-2
 - g. Modified Bitumen, multi-ply membranes CF-4, LCCA-2
5. Insulation: See *051 Pitched Roofs* Item 7 above for insulation types and R-values.
6. Roof drains: Provide code required secondary overflow drains.
- a. Connect to internal rain leaders leading to storm drain system where available and code allows.
 - b. Provide insulation sump at roof drains. Rain leaders may lead to dry wells or to daylight where storm drains are not available.
 - c. Avoid the use of scuppers except for secondary overflow drains. Provide rock/debris screening at any discharge pipes where accessible from ground level.
 - ~~a.~~d. Provide measures to prevent freezing around roof drains such as reduced R-value around drains, minimum R-value around drains is R-12. Use heat trace as a last option.
 - ~~b.~~e. Use cast iron dome strainers on roof drains. Do not use plastic.
 - ~~c.~~f. Specify insulated roof drain sumps to prevent condensation from forming inside the building.
 - g. Do not discharge water, snow, and ice along the face of the walls. Design systems to prevent water from sheeting down across the face of exterior walls or splashing against exterior walls at grade.
 - h. Locate overflow spouts where visible to staff but not draining onto pedestrian areas.
 - ~~d.~~i. Where heat trace is provided, locate clearly labeled switches / controls in readily accessible locations.
7. Parapets: Top of parapet to be minimum 12" above the roof surface. Roof membrane to lap up and over the parapet and be protected by a cap flashing. Cap flashing to be held by a continuous wind cleat, fastened at an on-center distance capable of resisting site-specific wind conditions.
8. Minimize roof penetrations through the roof membrane. All roof penetrations to be made by certified installers with approved roofing manufacturer's details. Avoid "shelves" on the exterior faces of parapet that might hold ice to prevent potential of falling and personal injury and to avoid melting and staining down the face of the wall.

9. Mechanical equipment curbs should have diversion crickets to maintain rainwater flow and avoid damming. Elevate mechanical equipment a minimum of 18” above the roof surface. Locate mechanical air intakes a minimum of 24” above the roof surface.

10. [Minimize complex and multiple roof levels in the building design.](#)

11. [Provide access to the roof from an interior location.](#)

Provisional:

~~9.~~ ~~Consider EPDM, 90 mil, single ply membrane. CF-3, LCCA-3~~

~~10.~~12. [Consider for](#) ~~At~~ BURs – Built-up bituminous roofing: asphalt saturated glass fiber felts, four ply plus base sheet. CF-4, LCCA-4

~~11.~~13. [Consider installing electric heat trace and insulation on roof plumbing vents.](#)

14. Where possible, achieve roof slope by sloping the building structure to reduce the quantity of tapered insulation.

15. [Consider heat trace in roof and overflow drains based on regional applicability.](#)

~~12.~~16. [Provide overflow spout on primary stormwater piping at exit point from building, so that blockages in site storm drain do not cause backup into interior rain leader piping.](#)

~~13.~~ ~~Minimize complex and multiple roof levels in the building design.~~

Premium:

~~14.~~17. [Roof warranties exceeding 30 years](#)

~~15.~~18. [Liquid Applied Membranes \(LAM\) CF-3](#)

~~16.~~19. [Any colored roofing system other than manufacturer’s standard colors CF-4, LCCA-1](#)

20. [Green/vegetative roofs. CF-5, LCCA-5](#)

Best Practice/Lessons Learned

A. [\(Reserved\)](#)

053 Roof Accessories

Baseline:

1. Provide OSHA compliant rooftop safety railings where rooftop equipment requires access within 10 feet of a roof edge.
2. Design roof hatches for maintenance large enough to accommodate individuals equipped with full emergency gear or service personnel with supplies and toolboxes.
3. ~~Design~~ [Combine](#) roof access with regular stairways [access to upper-level building elements. If not possible, provide](#) ~~or~~ alternating tread stairs, ~~not by~~ [in lieu of](#) ship’s ladders or exterior roof ladders whenever possible.
4. Provide snow guards to prevent large accumulations of snow and ice from shedding. CF-1, LCCA-1

Provisional:

5. Skylights are discouraged with preference given to vertical glazed clerestories. Locate base of glazing minimum 24” about roof surface
6. Permanently mounted safety harness tie offs CF-1, LCCA-4

Premium:

7. Roof deck plazas with pavers and protective railings, walls and supports.

Best Practice/Lessons Learned

- A. (Reserved)

~~D. Design Criteria & Ratios~~~~Criteria~~

- ~~• Multi-story construction shall be considered and presented as a schematic design option for all school structures over 40,000 GSF~~
- ~~• Hot roof design is preferable to a vented cold roof especially in facilities possessing a wood structural system~~
- ~~• Roof penetrations will be minimized by consolidation of plumbing vents and other systems where possible~~
- ~~• Roof penetrations will be located near the ridge or top of the roof slope to reduce potential snow damage and roof leaks~~
- ~~• Roof design shall be simple and not broken into planes or cut up by unnecessary dormers~~
- ~~• Water shedding roof systems shall be constructed at a minimum of a 3:12 slope~~
- ~~• Metal roof with exposed fasteners are not to be utilized on new construction or replacement roof projects.~~

~~Ratios~~

- ~~1. (Reserved)~~

06. INTERIORSA. Building System Summary

The **Interiors** of a building consists of elements that divide buildings into different rooms and spaces and the fittings and finishes in those rooms and spaces which contribute to their special function. It does not include mechanical and electrical systems. The department recognizes six sub-categories in this building system: **Partitions/Soffits, Special Partitions, Interior Openings, Special Floors, Interior Finishes, and Specialties**. The sub-systems under these categories include the components needed to construct walls, provide openings in those walls such as doors and windows, and provide appropriated finishes to all the surfaces including ceilings, walls, and floors. **Interiors** systems interface primarily with **Mechanical** and **Electrical** systems which are often embedded in or attached to **Interiors** elements.

B. Design Philosophy

Interior partitions, soffits, openings, finishes, and specialties typically account for -approximately 10-12 percent of a project's total construction cost. In a traditional school design, the cost of partitions and doors are fairly consistent. However, the use and quantity of special partitions such as glazing and movable partitions varies between school designs and can significantly impact the cost of the

interiors. The use and quantity of casework also varies between school designs, thus affecting the project cost. The material choice and specification of interior floor, wall, and ceiling also plays a large part in determining the cost of a project's interiors. [Interiors are the work and learning environment and they directly impact the health and wellness of occupants, affect absenteeism and teacher retention, and influence learning.](#)

~~C. Model Alaskan School~~

~~The Model Alaskan School includes light gauge steel framing members enclosed with gypsum wall board, or other substrates suitable to the finish applied. Solid core wood doors in hollow metal frames are standard, complete with hardware. Vertical coiling grills are used in select locations. Glazing consists of relites in hollow metal frames, and specialties include partitions in toilet rooms, lockers, white boards, tack boards and signage. Fire extinguishers and cabinets are provided when required. Finishes include carpet, tile and rubber flooring, paint, tile, and FRP walls, and suspended and glue-on acoustic ceilings. Acceptable alternatives are detailed in the construction standards that follow.~~

C. Design Criteria & Ratios

Criteria

- [Interior glazing and operable partitions should be used prudently.](#)
- [Alternative storage solutions, such as closets with shelving in lieu of casework, should be considered.](#)
- [Entries and circulation corridors should utilize a durable, non-staining, non-slip floor material.](#)
- [In areas without paved walk and road surfaces, gym floors should utilize a sheet athletic flooring or a poured urethane floor in lieu of a wood floor to minimize damage to floor from tracked in soils.](#)
- [Interior spaces and floor finishes should be laid out in a manner that reduces seams and material waste.](#)

Ratios

- [A. Interior doors should be limited to one per every 400 GSF](#)

061 Partitions/Soffits

0611 Fixed Partitions

Baseline:

1. Specify interior construction materials of high durability, low maintenance, and an expected life span of 30 years.
2. All walls to be durable and provide the appropriate STC ratings for school spaces (per ANSI/ASA S12.60 on Classroom Acoustics).

3. Standard partition construction will be 20-gauge metal framing sized for needed wall cavity widths, 5/8" gypsum wall board each side, taped, mudded and finished to Level 4. [CF-3 LCCA-3](#)
Add the following: ~~CF-3 LCCA-3~~
 - a. plywood sheathing where required for shear. CF-2 LCCA-1
 - b. wood blocking as permitted by code where required for wall-mounted accessories. CF-2 LCCA-1
 - c. 18-20 ga metal backing if wood is not permitted. CF-3 LCCA-1
 - d. cementitious backer board where installing wall tile. CF-3 LCCA-1
 - e. acoustical insulation, resilient channel, and sealant where required for STC ratings. CF-3 LCCA-1
 - f. impact resistant GWB or surface applied impact resistance at high-traffic areas.
4. Partitions to be easy to maintain and easily cleanable
5. High traffic areas to be impact resistant [GWB](#). CF-4 LCCA-1
6. Provide expansion/control joints as ~~required~~ [recommended in the latest edition of the Gypsum Construction Handbook – USG](#).
7. Gymnasium wall finishes to have ~~hard surfaces~~ [additional wall protection](#) below ~~8~~10' to allow for ~~rebound of balls~~ [general durability, and impact resistance](#). ~~Cost and LCCA vary on types of surfaces~~ (ref. [Category A, Assembly Spaces, Gym](#)).
8. Non-porous, easily cleanable surfaces for food services areas. [FRP, c](#) Ceramic or porcelain tile wainscot to 4'-0" A.F.F. at a minimum for wet areas. Provide full height [FRP, ceramic or porcelain tile, or stainless steel](#) at grease-prone areas. CF-3 LCCA-3

Provisional:

9. [Consider c](#) concrete masonry walls where cost effective and deemed essential by design team (may need LCCA). CF-3 to 5 in rural locations LCCA-1
10. [Consider W](#) wood framed walls where more cost effective. CF-3 LCCA-3
11. [Consider A](#) at glazed porcelain and/or ceramic tile, consider use of manufactured metal trim pieces at base, corners, and terminations. CF-1 LCCA-1
12. [Consider A](#) acoustical panels: fabric wrapped panels or paint-grade wood fiber strand board. CF-1 LCCA-2

Premium:

- [13. Full-height ceramic or porcelain tile, or stainless steel sheet at Food Service vs Food Prep areas.](#)
- ~~13.~~14. [Radiused and curved walls beyond \[CF-1\].](#)
- ~~14.~~15. [Walls that exceed the minimum STC rating for school spaces.](#)
- ~~15.~~16. [Walls that use both impact resistant GWB and an impact resistant applied wall finish.](#)

Best Practice/Lessons Learned

- [A. \(Reserved\)](#)

0612 Soffits & Ceilings**Baseline:**

1. Standard soffit construction will be 20-gauge metal framing, cold rolled channel, or fabricated metal suspended-ceiling systems sized for anticipated loads and spans, 5/8" gypsum wall board, taped, mudded and finished to Level 4. Add the following:
 - a. additional gypsum wall board where required for fire resistance. CF-3 LCCA-3
 - b. wood blocking as permitted by code where required for wall-mounted accessories. CF-2 LCCA-1
 - c. 18-20 ga metal backing if wood is not permitted. CF-3 LCCA-1
 - d. acoustical insulation, resilient channel, and sealant where required for STC ratings.
2. Soffits to be easy to maintain and easily cleanable.
3. [Soffits below 10ft in high](#) ~~High~~ traffic areas to be impact resistant [GWB](#). CF-4 LCCA-1
4. Provide expansion/control joints as ~~required~~ [recommended in the latest edition of the Gypsum Construction Handbook – USG](#).
- 4.5. _____.

Provisional:

- 5.6. _____ ~~(Reserved)~~ [Consider using acoustic lay-in tile for horizontal elements of soffits where appropriate.](#)

Premium:

7. ~~(Reserved)~~ [Soffits of wood or metal panel systems \[CF-1\].](#)
- 6.8. _____ [Soffits of suspended 'cloud' and other decorative treatments \[CF-1\].](#)

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

062 Special Partitions**0621 Operable Partitions****Baseline:**

1. None.

Provisional:

2. ~~None~~ [\(ref. Category A – Instructional/General Use Classroom for Provisional elements related to hinged double doors up to 4ft/leaf for connection between classrooms.\)](#)

Premium:

3. Operable partitions or large sliding doors.

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

0622 Demountable PartitionsBaseline:

1. (Reserved)

Provisional:

2. (Reserved)

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0623 Glazed PartitionsBaseline:

1. (Reserved)

Provisional:

2. Consider use of glazed partition walls in aluminum or steel frames with appropriate safety glazing in areas where transparency is important in delivery of the educational program.
- ~~2. Consider 2-way mirrors in observation areas; safety glazing.~~

Premium:

3. Glazing modules exceeding 60in.(Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0624 Railing & ScreensBaseline:

1. (Reserved)

Provisional:

2. (Reserved)

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

063 Interior Openings**0631 Personnel Doors**Baseline:

1. Interior doors systems shall be readily available and have a wide variety of offerings including acoustical, fire rated, hollow metal and flush wood veneer. CF-varies LCCA-varies

2. All doors within public use areas to be ADA compliant.
3. All swing doors throughout to have ADA compliant, lever-style, commercial grade hardware.
4. Overhead doors at food service pass-throughs, shop areas, or for separating zones; lockable.
5. Specify interior doors with welded metal frames in all new construction. “Knock-down” frames are discouraged. CF-3 LCCA-3
6. Standard door assemblies to be solid core, factory-finished wood doors and painted hollow metal frames, with fire resistive ratings as required by code. 1 ¾” 16-gauge insulated hollow metal doors may be used in lieu of wood; metal doors should be used in PE, shops, gym, labs and locker rooms.
 - a. Provide glass vision lite kits and/or louvre openings as indicated by educational specification and/or program.
 - b. In un-rated assemblies, provide ¼” clear tempered glass door inserts and relites.
 - c. Vision Lite kits within doors to have 18-gauge cold rolled steel frames with mitered and welded corners and should utilize standard sizes: 6”x27”, 12”x12”, 24”x24”, 24”x36”, 24”x60”.
7. Door hardware in a variety of configurations including, but not limited to:
 - a. Office sets: full-perimeter gaskets and door bottom with neoprene element, office lockset, wall or floor stop.
 - b. Storage sets: full-perimeter gaskets and door bottom with neoprene element, storage lockset, wall or floor stop, closer, kickplate.
 - c. Classrooms: full-perimeter gaskets and door bottom with neoprene element, closer, wall or floor stop, lockdown locking mechanism.
 - d. Gymnasium doors or sets of double doors used to close down portions of the school: panic hardware, closers, kickplates, locking doors (manual or card reader), floor or wall stops where possible, overhead stops where floor/wall stops are not possible and full-perimeter gaskets and door bottom with neoprene element. Double doors should not have astragals. CF-3 LCCA-3
 - e. ADA/Unisex single-toilet room doors: full-perimeter gaskets and door bottom with neoprene element, lockset with occupied indicator, and a wall or floor stop.
 - f. Teacher work and support spaces: silencers, proximity card readers, closer, and a wall or floor stop.

Provisional:

8. All classroom doors to have closers, with closing mechanism to be mounted on the classroom side to allow for locking devices to be applied in the event of lockdown situations.
9. Door glazing insert kits in a variety of sizes, safety glazing. CF-3 LCCA-3
10. Consider single or double intercommunicating doors between classrooms. CF-3 LCCA-2

Premium:

11. Non-standard doors that are higher than 84" or wider than 36". CF-4 LCCA-2
12. Any doors or windows of special sizes requiring manufacturer’s premium costs. CF-4 LCCA-2
13. Non-standard colors or finishes on doors that require manufacturer’s premium costs. CF-4 LCCA-1

Best Practice/Lessons LearnedA. (Reserved)**0632 Special Doors****Baseline:**

1. (Reserved)

Provisional:

2. (Reserved)

Premium:

3. Motorized overhead doors with glazing used as space dividers walls between classrooms. CF-4 LCCA-4.
4. Bullet resistant doors & glazing; UL Listed Level 1- Level 3 is acceptable. CF-5 LCCA varies.
 - a. UL 752 - Level 1 - protects against 9mm full metal copper jacketed with lead core. No spall, no penetration.
 - b. UL 752 – Level 2 – protects against .357 Magnum jacketed lead soft point. No spall, no penetration.
 - c. UL 752 – Level 3 – protects against .44 Magnum lead semi-wadcutter gas checked. No spall, no penetration.

Best Practice/Lessons LearnedA. (Reserved)**0633 Windows & Sidelites****Baseline:**

1. Limit the size of windowpanes and relites to standard sizes: 18, 24, 36, 48, 60 inches wide by 18, 24, 36, 48 or 60 inches high. Limit overall size of windowpanes; use multiple smaller windows in lieu of one large window. Glazing/relites adjacent to doors can go up to 84 inches high.
2. Relite and frames to be painted hollow metal, with fire resistive ratings as required by code.
3. Window & relite frames and sills to be paint grade. CF-3 LCCA-3

Provisional:

4. ~~X-(Reserved)~~ Consider 2-way mirrors in observation areas; safety glazing.
 4.5. _____

Premium:

- ~~5-6.~~ _____ Silicone glazing systems, butt glazing systems or double wall glazing systems.
~~6-7.~~ _____ Arched or complex windows and frames.
~~7-8.~~ _____ Non-standard relites and vision lite kits.
~~8-9.~~ _____ Ballistic and blast mitigation coatings or films.

Best Practice/Lessons LearnedA. (Reserved)

064 Special Floors

0641 Access Floors

Baseline:

1. (Reserved)

Provisional:

2. (Reserved)

Premium:

3. Raised floor raceway systems. CF-3 LCCA-3.

Best Practice/Lessons Learned

- A. (Reserved)

0642 Platforms & Stages

Baseline:

1. (Reserved)

Provisional:

2. Consider ~~Provide~~ floors in stage/platform areas appropriate for a variety of performances: dance performances, vocal/music performances, etc. Floors, where required by the program, shall be a cost-effective, self-install sprung floor, resilient finish panel system designed for permanent installation. CF-4 to 5 LCCA-3

Premium:

3. Auditorium spring floor panel system with hardwood surfaces.

Best Practice/Lessons Learned

- A. (Reserved)

065 Interior Finishes

0651 Floor Finishes

Baseline:

1. Selected finishes to be sustainable and contribute to a healthy, productive learning environment. Evaluate products for recycled content, recyclability, waste reduction, energy efficient maintenance, low VOC content and post-installation product emissions.
2. Specified applied finishes shall be easy to clean and resistant to moisture and mold/bacterial growth.
3. Resilient flooring such as linoleum, sheet vinyl, rubber flooring or VCT is preferred for hallways/corridors, art classrooms, storage rooms, and other locations where carpet is not ideal.
 - I Resilient floor materials to be low-VOC, use low-VOC adhesives and be compatible with low-VOC, water-based solvents/cleaning agents.
 - II All resilient materials shall be commercially rated for heavy-duty wear.

- III Resilient sports flooring to have striping for common indoor sports played within the district.
 - IV Science labs to have chemical resistant flooring.
 - V Provide static dissipative flooring where required by the program.
4. Carpet tiles are preferred for office and classroom spaces throughout (exception: labs and art rooms)
 - a. Carpet tile should have a high wear / TARR rating, stain resistance and cleanability; carpet to have moisture impervious backing
 - b. Carpet tiles should have a minimum of 25% percent recycled content and a minimum of 17-ounce face weight.
 - c. Carpets to be low-VOC, use low-VOC adhesives and be compatible with low-VOC, water-based solvents/cleaning agents.
 5. Adhesives and sealants used in the building interior (inside the exterior moisture barrier) must be low VOC.
 6. Provide a walk-off mat system at every main entrance.
 7. Standard resilient wall base should be use throughout office, classroom, and hallway areas with slight modifications based on the rooms.
 - a. Tile base where walls are receiving tile applications.
 - b. Resilient sheet with integral cove base with top trim in toilet rooms or food service areas.
 8. Wood sports flooring, where required by the program, to be second and better grade maple strip flooring with striping for common indoor sports played within the district. CF-4 to 5 LCCA-3

Provisional:

9. Consider Porcelain tile and mosaic tile floor and wall finishes in toilet/shower rooms where required by the program. All tile and grouts should be installed based on the installation conditions and as recommended by the Tile Council of America. CF-3 LCCA-1
 - a. Use epoxy-modified grout mixture for high moisture areas.
 - ~~b. Wall padding in gymnasiums to be limited to competition court basketball backstops.~~

Premium:

- ~~10. Flooring materials other than rubber, vinyl composition tile, linoleum, or floor carpet.~~
- ~~11.10.~~ Wood sports flooring for elementary schools.
- ~~12.11.~~ Cork, bamboo, ~~recycled rubber, or other expensive~~ flooring material.
- ~~13.12.~~ Wood, Plywood wrapped or stainless-steel wall base.
- ~~14.13.~~ Wax-free resilient floor systems.
- ~~15.14.~~ Recessed walk-off grate entry system. CF-4 LCCA-1
- ~~16.15.~~ Integral c Cove base in areas other than toilet rooms, lockers, kitchens, and custodial closets.

Best Practice/Lessons Learned**A. (Reserved)**

0652 Wall Finishes**Baseline:**

1. Paint / sealers used throughout should be durable and scrubbable, with low- to no-VOC content.
 - a. Use acrylic ~~latex, water-based~~ for non-metal surface.
 - b. Use water-based acrylic alkyd enamel paints on metal surfaces.
 - c. Use water-based epoxy paints in interior spaces with high humidity or areas subject to surface moisture
 - d. Use concrete sealer and/or concrete paint where required by the program
 - e. Wall paint to have one primer and a minimum of three (3) applied finish coats.
 - f. Door/relite frames to have a minimum of two (2) applied coats over a factor prime coat.
2. Gymnasium wall finishes to have hard surfaces below 8' to allow for rebound of balls. Surfaces above 8' to have acoustical wall panels.
3. Non-porous, easily cleanable surfaces for food services areas. Ceramic or porcelain tile wainscot to ~~4'-0" A.F.~~ 4ft above floor level; at a minimum for wet areas. Provide full height ceramic tile at grease-prone areas.

Provisional:

4. Consider FRP panels as needed for service and as required CF-2 LCCA-1.

Premium:

- ~~5. High performance building certifications (e.g. CHPS, LEED, and/or WELL) Certified building CF-3 LCCA-1.~~
- ~~6.5.~~ 5. Wall paneling or wallpaper CF-4 LCCA-2.
- ~~7.6.~~ 6. Full height wall tile except at grease-prone areas in Kitchens CF-4 LCCA-1.
- ~~8.7.~~ 7. Architectural resin panels.

Best Practice/Lessons Learned

- A. (Reserved)

0653 Ceiling Finishes**Baseline:**

1. Acoustical ceilings and panels to contain recycled content where possible.
 - a. Sound absorptive with a minimum NRC of .55 and a CAC rating of 35.
 - b. Ceilings to be installed with a standard 15/16" grid system and seismically braced. Ceiling suspension system to be hot dipped galvanized steel to inhibit rust.
 - c. Ceilings within food service and lab areas to be washable & scrubbable.
 - d. Acoustic ceilings shall meet ASTM C 1264 for Class A materials.

Provisional:

2. Consider ceiling grids to support hanging displays in all classrooms and hallways.

Premium:

3. Decorative or expensive non-standard ceiling tiles or ceiling systems such as metal or wood slat ceilings. CF-5 LCCA-2.
4. ~~ACT~~ Suspended acoustic ceiling trims other than 15/16" grid profiles.

Best Practice/Lessons Learned

A. (Reserved)

0654 Other FinishesBaseline:

1. ~~Acoustical wall treatments to be rigid fiberglass board and fine-grain cork core faced with fabric approved for wall panel use~~ Provide resilient preformed stair tread and riser units; landings to match typical floor finishes.
2. ~~Acoustical wall panels above 8'-0" in gymnasiums, pool areas or other echo-producing locations. Design team to include an acoustical engineer to determine the number/type of acoustical panels needed for each specific environment.~~

Provisional:

- 3.2. ~~(Reserved~~ Consider exposed concrete treads in metal pan where compatible with aesthetic and regional cost factors; provide non-slip metal nosings.)

Premium:

- 4.3. ~~Acoustical felt wall panels~~ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

066 Specialties**0661 Interior Specialties**Baseline:

1. Interior signage to be provided at all areas required by code to receive signage. All signs to have grade 2 Braille, tactile characters and pictograms as required by code.
2. Student lockers shall be provided as required by the programming documents and should be steel construction with sloped top and closed base; locks requirements to be selected by the school. Lockers within locker rooms and changing areas to be ventilated steel construction.
3. ~~Built-in~~ Toilet room items accessories to include, but not limited to commercial-grade, readily available:
 - a. Soap dispensers.
 - b. Mirrors.
 - c. Toilet paper dispenser.
 - d. Seat cover dispensers.
 - e. Sanitary napkin receptacles.
 - f. Grab bars.
 - g. Paper towel dispensers.

- h. Baby changing stations and/or adult-sized changing stations for special needs classrooms as indicated by the program documents.
 - i. Waste receptacles.
 - j. Toilet partitions; to be durable and graffiti resistant. Partition hardware or door type to be selected to provide maximum privacy and minimum gaps between stall components.
 - k. ADA shower with shower seat.
4. Corner guards to be minimum of 2mm thick, have a 1 ½” wing on either side and be a minimum of 4’-0” A.F.F. Material to be textured rigid material and available in 90 degree and 135-degree corner styles. CF-2 to 4 LCCA-1
 5. Fire extinguishers to be provided per code. All fire extinguisher cabinets to be recessed or semi-recessed. Provide signage and stickers on cabinet for fire extinguisher visibility.
 - ~~6.1. Install sliding double whiteboards with an integrated map/poster rail at top and tackboards, typical within all classrooms where markerboards are called out. Music rooms to have whiteboards with and without staff lines.~~
 6. Provide standard porcelain enamel steel whiteboards with integral trays and tack/map/poster rail as required by educational program; music rooms to have whiteboards with and without staff lines.
 7. ~~Cork~~ Provide tackbulletin boards with aluminum frame in manufacturer standard sizes.
 8. ~~Install retractable, recessed~~ Provide retractable projection screens.

Provisional:

9. ~~X-(Reserved)~~ Consider PET felt, and fabric covered rigid fiberglass board or fine-grain cork core acoustic wall and ceiling panels where needed for acoustical control.
10. Consider ventilated plastic lockers for high-humidity locker room conditions.
11. Consider stainless steel corner guards in high-traffic areas; ease all sharp edges for safety.
12. ~~Consider Install sliding double whiteboards with an integrated map/poster rail at top and tackboards, typical within all one per classrooms where markerboards are called out. Music rooms to have whiteboards with and without staff lines.~~
13. ~~Signage: Consider wayfinding signage with changeable inserts, ADA signage on acrylic with standoffs or vinyl graphic signage.~~
14. Dry-erase wallcovering surfaces that double as projection screen.
15. Consider electric automatic hand dryers at locker rooms.

Premium:

- ~~9.1. Signage: signage with changeable inserts, ADA signage on acrylic with standoffs or vinyl graphic signage.~~
- ~~10.~~ 16. Toilet room premiums: motion-sensored soap dispensers, automatic hand dryers.
CF-4 LCCA-3.
- ~~11.~~ 17. Antimicrobial lockers to help protect against bacteria, mold, yeast and mildew or hardwood or hardwood veneer lockers. CF-4 LCCA-3.
- ~~12.~~ 18. Wood or metal framed mirrors of custom size, backlit.
- ~~13.~~ 19. Stainless steel corner guards.

~~14.20.~~ Magnetic glass whiteboards, ~~electronic smartboards or other technology-based display boards.~~

~~15. Dry-erase wallcovering surfaces that double as projection screen.~~

~~16.21.~~ Motor operated projection screen in any location other than auditoriums, gymnasiums or other large presentation/lecture areas.

22. Linear, panel grille and perforated wood wall panels for acoustical control.

~~17.23.~~ Suspended acoustical felt baffles & wall panels.

Best Practice/Lessons Learned

- A. ~~(Reserved~~ Match toilet room (and classroom) accessories to the district's supply contracts for consumable hygiene products.)
- B. Semi-recessed fire extinguisher cabinets often allow for continuity of acoustic or smoke/fire barriers.
- C. The need for a retractable projection screen in every teaching space may have been overcome with the advent of a readily available projection surface provided by a whiteboard.
- D. Be aware that use of 'maximum' privacy partitions (i.e., bottoms less than 9in AFF may require larger stalls for accessibility compliance.

0662 Casework & Millwork

Baseline:

1. Specify durable and easily cleaned casework. Base requirement is high pressure laminates over stable substrate with ~~4mil~~ 3mm PVC edge banding. Counters are high pressure laminate with postformed backsplash and front edge profile. ~~Standard c~~ Casework to ~~be provided~~ meet AWI Custom/Duty Level 3 throughout with the following special conditions: CF-3 LCCA-1.
 - a. Resin counters in science labs space. CF-4 LCCA-1
 - b. ~~High school science labs to have lockable, ventilated acid storage cabinets, lockable and labeled alkali metals & halogens storage cabinet, lockable casework for with minimum 15" inside useable depth, and trays to fit cabinets/shelves under bottles to prevent liquid spills.~~
 - c. Polycarbonate ~~or wired~~ glazing to be used for casework within science lab space. CF-3 LCCA-1
 - d. Coat cubby areas with coat hooks, storage above and benches for changing shoes/outdoor gear. Provide dividers and spacing between hooks to prevent the spread of head lice.
 - e. Boot racks with space below to allow for cleaning.
 - f. Perimeter counter with sab sinks/stations, and art drying racks in art classrooms.
 - g. Library Circulation desk with ~~6' minimum~~ counter space including ADA height counter, book drop (ref. 1015 Equipment), ~~supply drawers, files, and technology including computer, printer & storage.~~
2. Hallway areas to have lockable display cases for 2-d and 3-D displays, benches near toilet rooms and tackboards. CF-3 LCCA-1

Provisional:

3. (Reserved)

Premium:

- ~~4. Hardware pulls greater than 6" in length.~~
- 5.4. Specialty solid surface counters to include, composite quartz, recycled glass, cast terrazzo, or polycarbonate counters ~~Solid surface countertops and backsplash.~~
- ~~6. Solid surface counters and backsplashes, solid vinyl, recycled glass, or polycarbonate counters.~~
- 7.5. Stainless steel lab storage & cabinetry.
- 8.6. Solid wood cabinets or wood veneer cabinets.
- 9.7. Casework or architectural woodwork such as picture rails, wainscoting, crown moldings, or paneling.

Best Practice/Lessons Learned

A. (Reserved)

0663 SeatingBaseline:

1. Building entry vestibules to have perimeter benches in the parent pick-up / drop-off zones and lost & found bin. CF-3 LCCA-1.

Provisional:

2. (Reserved)

Premium:

3. ~~Built-in bleachers or built-in, retractable bleachers~~ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0664 Window CoveringsBaseline:

1. Window treatments to be roller shades ~~or miniblinds~~. Provide fascia on coverings to hide mounting brackets and mechanisms.
- ~~2. Window coverings on all windows within occupied spaces; roller shade style.~~

Provisional:

- ~~3.2.~~ (Reserved) Consider blackout shades where required by the instructional program.

Premium:

3. Motorized roller shades.

Best Practice/Lessons Learned

A. (Reserved)

~~D. Design Criteria & Ratios~~**Criteria**

- ~~• Interior glazing and operable partitions should be used prudently.~~

- ~~Alternative storage solutions, such as closets with shelving in lieu of casework, should be considered.~~
- ~~Entries and circulation corridors should utilize a durable, non-staining, non-slip floor material.~~
- ~~In areas without paved walk and road surfaces, gym floors should utilize a sheet athletic flooring or a poured urethane floor in lieu of a wood floor to minimize damage to floor from tracked in soils.~~
- ~~Interior spaces and floor finishes should be laid out in a manner that reduces seams and material waste.~~

Ratios

- A. ~~Interior doors should be limited to one per every 400 GSF~~
- B. ~~(Reserved)~~

07. CONVEYING SYSTEMS

A. Building System Summary

The **Conveying Systems** of a building are dedicated systems designed to move persons or materials up, down, around, and through a facility. The department recognizes two sub-categories in this building system: **Passenger Conveyors**, and **Material Handling Systems**. The sub-systems under these categories include elevators and personnel lifts as well as material lifts, hoists/cranes and other kinetic systems such as dense files storage. The functions and loads induced by Conveying Systems often require broad integration with other building systems such as **Substructure**, **Superstructure**, **Mechanical** and **Electrical** systems. **Interiors** elements including Partitions & Soffits and Interior Finishes are often represented in Conveying System components.

B. Design Philosophy

Conveying systems were developed to increase efficiency and capacity. Where they are able to achieve this in Alaskan schools, they should be implemented—with discretion. The efficiencies gained with two story school construction are often offset by the need for passenger conveyors. In addition, most of these systems rely on tight tolerances that are impacted by building movement. Such movement can occur in all Substructure and Superstructure types and is primarily influenced by the stability of subsurface conditions. Some sites and building configurations can appropriately trade the space efficiency of elevators and vertical lifts with the equally accessible solution of ramps. Cost-effective use of Conveying Systems in schools should be supported by solid life-cycle cost analysis.

C. ~~Model Alaskan School~~

~~The Model Alaskan School, a single story structure, does not include any Conveying Systems elements. Acceptable alternatives are detailed in the construction standards that follow.~~

C. Design Criteria & Ratios

Criteria

- Select the type of elevator mechanism based on subsurface soil conditions and building stability.
- Two-story school solutions should incorporate a design layout that requires only one elevator.
- Vehicle lifts and hoist systems will be limited to a defined educational program need.

Ratios

1. (Reserved)

071 Passenger Conveyors

0711 Passenger Elevators

Baseline:

1. Install elevators only where required by codes adopted by the state or a local jurisdiction with delegated authority. (For multi-story schools meeting accessibility requirements with ramps in-lieu-of elevators, see 4 AAC 31.020 for a space variance.)
2. Install electric traction elevators when permitted for maximum energy efficiency.
3. Installations not within 100 road miles of an establish elevator service center at the time of construction are limited to hydraulic elevators excluding roped-hydraulic mechanisms.
4. In-ground hydraulic elevators must be supported by a geotechnical report showing suitable subsurface conditions.
5. Single piston hydraulic systems may not be eccentrically loaded.
6. Elevators will be supplied with backup power for lowering only.
7. Elevators will be included in a project's commissioning plan unless approved otherwise by DEED.

Provisional:

8. Consider Elevators with machine rooms are preferred for maintenance simplicity. (For space variances associated with machine rooms, see 4 AAC 31.020).
9. Consider Where a sump is required for an elevator pit, locate the sump pump outside the elevator shaft.
10. Education related facilities with three or more stories should consider in-ground hydraulic pistons where subsurface geotechnical consideration allow.
11. Consider Cab flooring should match adjacent lobby/corridor flooring; doors and frames should be stainless steel.
12. Consider Robust, durable controls, one per car (including both card access if a building standard and keyed controls), sensors, and connection to building automation.

Premium:

13. Educations-related facilities with more than one passenger elevator. {CF-2, LCCA-2}
14. Elevators with rated speeds above 200fpm and load capacities above 2500lbs.

15. Cab construction, features (lighting, etc.), and finishes above the manufacturer’s standard base or that require manufacturer’s premium costs except as noted above.

Best Practice/Lessons Learned

A. (Reserved)

0712 Lifts & Other Conveyors

Baseline:

1. Passenger lifts or wheelchair lifts may be used where permitted by codes adopted by the state or a local jurisdiction with delegated authority. Primarily this will be at floor level changes that are less than a story height.
2. Inclined stair lifts are not permitted.

Provisional:

3. Consider Aa lift’s audio-visual alarm shall be operational at all times and shall activate when the lift is in operation except that a lift installed at a stage shall be free of a warning light or alarm.
4. Lifts shall have shielding devices to protect users from the machinery or other hazards and obstructions.
5. Consider Ec cab flooring should match adjacent lobby/corridor flooring.

Premium:

6. Escalators or any type of moving walkway.

Best Practice/Lessons Learned

A. (Reserved)

072 Material Handling Systems

0721 Elevators & Lifts

Baseline:

1. Dedicated freight elevators (or lifts where permitted by code) in education related facilities may be installed where the upper level(s) served by the conveyance total in excess of 100,000gsf.
2. If layouts permit, and as allowed by code, a required passenger elevator may be increased in size and capacity to function as a freight conveyance.
3. Vehicle lifts in the following quantities may be installed at any education related facility serving grades 9-12 whose approved educational specification includes an automotive Career Technology Education pathway:

Number of Students in grades 9-12	Allowable Vehicle Lifts
< 500 students grades 9-12	1
501 – 2000 students grades 9-12	2
> 2000 students grades 9-12	3

Provisional:

4. Consider ~~U~~ lifts shall have shielding devices to protect users from the machinery or other hazards and obstructions.
5. Consider ~~T~~ the maximum lifting height for vehicle lifts shall be 68 inches.
6. Consider ~~T~~ two post lifts are limited to slab-on-grade construction; use four post lifts for elevated floors.
7. Consider ~~W~~ where portable automotive lifts can meet curriculum requirements, such lifts shall be purchased and provided under School Equipment.

Premium:

8. Eligible educational facilities with more than one freight elevator or lift.
9. Freight elevator dimensions exceeding 5ft x 8ft and load capacities above 5500lbs.
10. Vehicle lifts in excess of allowable quantities.
11. Vehicle lifts with load capacities above 3000lbs or with ancillary accessories or features such as alignment calibration.

Best Practice/Lessons Learned

A. (Reserved)

0722 Hoists & CranesBaseline:

1. None.

Provisional:

2. ~~None~~ Consider modular hoist and rail systems where needed to support the specific educational program.

Premium:

3. Overhead hoists with a capacity greater than 2000lb.
- ~~3.4.~~ Site ~~constructed~~ fabricated, permanent, overhead hoist or crane assemblies.

0723 Other SystemsBaseline:

1. None.

Provisional:

2. Consider ~~D~~ dumbwaiters of any size permitted by code may be used when transfer of materials between floors is needed and freight elevators are not permitted. (Note: dimensions and capacity of dumbwaiters are restricted by code and are very modest.)

Premium:

3. Belt conveyors, pneumatic tube systems, linen/trash/mail chutes, or operable scaffolding.

Best Practice/Lessons Learned

A. (Reserved)

~~D. Design Criteria & Ratios~~

~~Criteria~~

- ~~• Select the type of elevator mechanism based on subsurface soil conditions and building stability.~~
- ~~• Two-story school solutions should incorporate a design layout that requires only one elevator.~~
- ~~• Vehicle lifts and hoist systems will be limited to a defined educational program need.~~

~~Ratios~~

- ~~1. (Reserved)~~

08. MECHANICAL

A. Building System Summary

The **Mechanical** systems of a building create the internal environment necessary for comfort, hygiene, and safety within the school facility. The systems are highly integrated and are often highly automated. The department recognizes five sub-categories in this building system: **Plumbing, HVAC, Integrated Automation, Fire Protection, and Special Mechanical Systems**. The sub-systems under these categories include a large variety of fixtures, equipment combined with several types of distribution components including piping, valves, ducting, and controls. The **Mechanical** functions within a facility require broad integration with other building systems such as [Civil/Mechanical Utilities, Superstructure, Exterior Closure, Interiors, and Electrical](#) systems.

B. Design Philosophy

Mechanical systems shall be designed to conserve energy and water to reduce operating costs and demand on community resources. The systems shall be integrated with the design of the building plan and envelope to optimize performance and provide occupant comfort. The systems shall be durable, expandable, and easily maintained. Mechanical systems shall comply with DEED-adopted energy codes.

Mechanical joins Interiors as one of the higher cost building systems and typically account for approximately 10-12 percent of a project's total construction cost. 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.

Plumbing systems can be greatly influenced by standards for cost-effective design because their use is not required in every functional area, 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. Ventilation requirements for indoor air quality are a primary driver of energy use. By right sizing the ventilation system to a proper occupancy count, establishing a higher acceptable maximum temperature, and incorporating operable windows into the design

calculations, ventilation rates can be reduced, thus reducing air handler capacity and the space required for equipment and distribution. 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.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes cast iron waste piping, hot and cold domestic water distributed in insulated copper piping, bathroom fixtures, stall showers, classroom sinks, exterior hose bibs, commercial food prep and clean up sinks and hot water generating equipment. Heating systems are oil/gas fired boilers and hydronic heat distribution to terminal devices. Cooling is a 10T DX air conditioner supplying fan coils. Ventilation is a single AHU with distributed ducting and VAV boxes; both central and localized exhausting is provided via fans and ducting. Controls include a DDC system and thermostats. Fire protection is wet pipe system with appropriate risers and valves. Heating fuel is stored in an exterior tank and interior day tank and is distributed via steel piping. Acceptable alternatives are detailed in the construction standards that follow.~~

C. Design Criteria & Ratios

Criteria

- Boilers should be designed to burn natural gas where available or #2 diesel fuel where not.
- Sinks or other plumbing shall not be provided in standard classrooms that serve other than elementary grades ~~4 and greater.~~
- Ventilation systems shall be sized per the ~~estimated~~ intended room occupancy provided by the district (rather than the fire egress code occupancy).
- Maximum interior design temperature for ventilation system design shall be 75°F ~~degrees Fahrenheit~~ or greater.
- Where operable windows are furnished, design of the ventilation system shall ~~incorporate~~ consider the cooling and ventilation capacity of the windows.
- Install mechanical and building automation systems capable of being operated by school district personnel.
- Integrate monthly utility consumption records into integrated automation systems where possible.

Ratios

1. (Reserved)

D. General

Baseline:

1. Design in accordance with the version of ASHRAE 90.1 currently required by DEED, including amendments by DEED.
2. Incorporate redundancy and resiliency into critical mechanical systems ~~at remote sites.~~
3. Consolidate equipment into mechanical spaces where possible. Provide sufficient floor space to provide minimum equipment clearances, and to allow maintenance activities and

maintenance equipment. Locate equipment where it can be readily accessed for maintenance. Where feasible, keep equipment within 6 feet of finished floor.

4. Design potable water systems to conserve water to the greatest extent practicable, without compromising system performance.
5. Group spaces with high fixture counts together – i.e. public restrooms, commercial kitchens, custodial.
6. Design piping systems to provide ease of maintenance - valves and equipment that are readily accessible, clearly indicated access locations, and clearly labeled piping, valves and equipment.
- ~~7. Utilize rainwater and/or snowmelt capture systems for facilities with limited access to potable water.~~
- ~~8.7.~~ For remodel/addition projects, Do not abandon equipment or systems in building place for remodel/addition projects. Demolish piping, ducts and wiring back to active portions of the systems.
- ~~9.8.~~ Install low-VOC containing materials in accordance with 40 CFR 59, the National Volatile Organic Compound Emission Standards For Consumer and Commercial Products.
- ~~10.9.~~ Design building systems to allow for future expansion. Provide clearly designated space for future equipment when appropriate.
10. Specify plenum-rated piping and materials in open return-air plenums and fan rooms.

Provisional:

11. Consider accommodating future removal and replacement of all mechanical equipment, with appropriate coordination between disciplines to provide for this occurrence.
12. ~~Provide~~ Consider a flow meter on the domestic water service for monitoring by the building control system. ~~CF-2 LCCA-2~~
13. ~~Consider~~ Utilize rainwater and/or snowmelt capture systems for facilities with limited access to potable water. Design gray water and rainwater capture, treatment and distribution systems for urinal and water closet flushing. ~~CF-varies LCCA-varies.~~
14. Consider using energy modeling during the design phase for system selection and building configuration.
15. Consider compiling comprehensive life cycle analyses throughout the design phase that addresses the initial cost of the systems, annual operating cost, maintenance costs, and replacement costs.
16. Consider designing building systems to allow for 15% percent capacity for future expansion when population rates indicate future growth.

Premium:

17. ~~Considering~~ Renewable energy sources such as geothermal, biomass, and thermal electric storage from turbines.

Best Practice/Lessons Learned

- A. (Reserved)

081 Plumbing

0811 Plumbing Fixtures

Baseline:

1. Provide water conserving fixtures that meet the Energy Policy Act (EPA) 1992, with Amendments.
2. Provide commercial fixtures that are durable and easily maintained.
3. Specify floor mounted wall carriers for [wall-mounted water-closets](#), urinals, lavatories and drinking fountains.
4. Provide plumbing walls large enough for wall-mounted water closet carriers – [typically 11-inches minimum for single-wall carriers, and 16-inches for back-to-back carriers. Confirm dimensions with selected manufacturer.](#)
5. Provide toilet [rooms](#) ~~in~~ [accessible from](#) Pre-K–1st grade classrooms.
6. Provide sinks [with ASSE 1017 tempering valves](#) in classrooms for elementary grades ~~through grade 5.~~
7. Specify floor drains with trap primers.
8. Pitch all slabs to floor drains.
9. Avoid locating floor and roof drains over electrical and data system equipment.
10. Install floor drains next to air handlers.
11. Install floor drains next to all equipment that produces condensate.
12. Install floor drains next to fire sprinkler pumps if ~~practicable~~ [applicable and feasible](#).
13. Provide emergency eyewash, shower units, floor drains, and sloped slabs as required by Occupational Safety and Health Administration (OSHA) in science rooms, art rooms, shop and maintenance spaces, [kitchens \(when using chemical sanitizing\)](#), and any classroom where chemicals are used.
14. Provide tamper-proof hose bibs adequately spaced around the perimeter of the building, except in locations where water supply is limited.
15. [Install hose bibbs with backflow protection in mechanical equipment rooms for equipment cleaning.](#)

Provisional:

- ~~15-16.~~ Recommend installing plumbing fixtures on interior walls only.
- ~~16-17.~~ Consider reducing potable water use by choosing low-flow water fixtures that meet these maximum flow rates:
- | | |
|---|-----------------|
| • Lavatories | 0.5 gpm metered |
| • Sinks | 0.5 gpm |
| • Water closet | 1.28 gpf |
| • Urinal | 0.125 gpf |
| • Showerhead | 1.5 gpm |
| • Kitchen sink (commercial kitchen sink excluded) | 1.5 gpm |

~~18.~~ Avoid using ultra-low flow or waterless water closets and urinals.

~~19.~~ [Consider providing floor drains in all restrooms regardless of number of fixtures.](#)

~~17.20.~~ [Consider providing floor drains near janitor sinks and clothes washers.](#)

~~18.21.~~ Consider providing automatic controls at lavatories, water closets and urinals.

~~19.22.~~ Consider specifying institutional/penal grade shower heads.

~~20.23.~~ Consider providing bottle fill stations. [Avoid refrigeration on drinking fountains.](#)

~~21.24.~~ Consider providing multi-station wash fountains with automatic operation for elementary ganged restrooms. ~~Install hose bibbs with backflow protection in mechanical equipment rooms for equipment cleaning.~~

~~22.25.~~ Consider installing bubblers on elementary classroom sinks.

~~23.26.~~ Consider providing large sinks – minimum 30" wide x 18" front-to-back – with solids interceptors in Alaska Native cultural studies classrooms.

Premium:

~~24.27.~~ Garbage disposals are not an accepted fixture [outside of commercial kitchens.](#)

Best Practice/Lessons Learned

[A. \(Reserved\)](#)

0812 Plumbing Piping (ref. 0151 Water Systems for site work)

Baseline:

1. Meet the requirements of NSF-61 for materials in contact with drinking water.
2. Provide furred out walls for plumbing fixtures installed on exterior walls. Do not install plumbing piping in the building thermal envelope.
3. Install isolation valves on piping serving rooms with ganged fixtures – such as restrooms, science rooms, kitchens.

~~4. Provide solids interceptors (plaster traps) at art rooms.~~

~~5.4.~~ Provide recirculation loop for domestic hot water systems out to the furthest hot water fixture. Only operate during occupied hours.

Provisional:

~~6.5.~~ (Reserved)

Premium:

~~7.6.~~ (Reserved)

Best Practice/Lessons Learned

[A. \(Reserved\)](#)

0813 Plumbing Equipment

Baseline:

1. Provide grease interceptors in commercial kitchens. [Coordinate additional grease trap or sampling ports outside of the facility with the Civil Designer and AHJ.](#)
2. Store domestic hot water at minimum 140°F to prevent Legionella growth. [Provide ASSE 1017 tempering valves to protect points of use for handwashing or.](#)

3. Provide hot water in accordance with Alaska Food Code 18 AAC 31 for facilities with commercial kitchens. Provide separate hot water recirculation systems for each different temperature distribution system.

Provisional:

4. Consider providing above-floor grease traps with automatic grease skimming technology in commercial kitchens.
5. Consider install ceiling anchor points above lift stations, for mounting equipment to aid in removing pumps.
6. Consider choosing equipment and appliances with an Energy Star label.
7. Consider providing redundant sources of hot water where community sources are not available.
8. Consider providing supply temperature monitoring and alarm on hot water main.
- ~~6-9.~~ Where domestic water pressure boosting systems are needed, consider specifying variable speed, redundant pumps.

Premium:

- ~~7-10.~~ (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0814 Waste & Vent PipingBaseline:

1. For sites that use sewage lift stations, design waste and vent piping systems to use as few lift stations as practicable.
2. Locate plumbing vents away from air intakes, operable windows, roof edges, and snow drift locations; place near the ridge of sloping roofs.
- ~~3. Install roof plumbing vents in visually discrete locations to the greatest extent practicable.~~
- ~~4-3.~~ Install Locate cleanouts in locations readily accessible to maintenance personnel. Where practical, extend cleanouts into walls of areas with washable surfaces.
4. Provide solids interceptors (plaster traps) at art rooms.

Provisional:

5. Consider locating roof plumbing vents in visually discreet locations to the greatest extent practicable.
6. Consider specifying cast-iron waste piping for noise reduction and resistance to snaking damage.
7. Consider yard cleanout on waste piping at building exit.
- ~~7. (Reserved)~~

Premium:

- ~~5-8.~~ (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0815 Special Systems**Baseline:**

1. None.

Provisional:

2. (Reserved)

Premium:

3. [Grey water reclamation systems.](#)

Best Practice/Lessons Learned

- A. (Reserved)

082 HVAC**0821 Heating Equipment****Baseline:**

1. Locate heating equipment away from educational spaces to avoid the transfer of noise and vibrations. [Provide noise mitigation in walls of mechanical spaces.](#)
2. Avoid placement of [combustion air intakes, ventilation air intakes, mechanical room doors heating equipment and building openings and similar openings](#) on leeward side of building where subject to snow drifting.
3. Use high efficiency 3-pass cast iron boilers for locations heating with fuel oil.
- ~~4. Consider providing glycol fill and storage tanks with integral pump, check valve, isolation valves, pressure switch, and alarm panel.~~
- ~~5. Consider using utility waste heat where available. Size plate and frame heat exchangers for future expansion.~~

Provisional:

- [5. Consider providing a separate glycol system for just the ventilation heating and preheat coils and using water for the remainder of the heating system.](#)
- [6. Consider providing glycol fill and storage tanks with integral pump, check valve, isolation valves, pressure switch, and alarm panel.](#)
- [7. Consider using utility waste heat where available. Size plate-and-frame heat exchangers for future expansion.](#)
- ~~4.8.~~ Consider requiring extended warranties on major heating equipment items (e.g., boilers, hot water generators, etc.).
- ~~5.9.~~ Consider locating heating equipment in mechanical rooms or penthouses, not on roofs, in most regions of Alaska.
- ~~6.10.~~ Consider installing floor mounted equipment on 4" concrete housekeeping pads.
- ~~7.11.~~ Consider using condensing boilers and low temperature (140-°F and lower heating supply) hydronic heating systems when using natural gas or propane as heating fuel.
- ~~8.12.~~ Consider installing BTU metering of hydronic heating.
- ~~9.13.~~ Consider using utility load-shed electric heat where available. Provide sufficient storage/buffer capacity for electrothermal systems.

~~10.14.~~ Consider installing bypass filtration on new hydronic heating systems connected to existing piping and equipment.

Premium:

15. Electrostatic precipitators for wood chip systems.

~~11.~~16. Provisions for future addition of alternative energy systems.

Best Practice/Lessons Learned

A. (Reserved)

0822 Terminal Heating and Distribution Systems

Baseline:

1. Locate isolation valves, control valves, and balancing valves to allow easy access for testing and balancing. ~~None.~~

~~1.2.~~ Provide isolation valves at key locations throughout building to be able to isolate portions of the building for maintenance (leaks) without having to drain entire system.

Provisional:

3. Consider installing radiant ceiling panels or radiant floors in restrooms and locker rooms, rather than fin tube.

4. Consider low temperature heating systems such as radiant floor.

5. Consider providing ceiling identification tags on ceiling grids where equipment, isolation valves and control valves are located.

~~2.6.~~ Consider installing strainers upstream of all modulating control valves to reduce clogging from system debris.

Premium:

~~3.7.~~ (Reserved) Snowmelt systems.

Best Practice/Lessons Learned

A. (Reserved)

0823 Ventilation Equipment

Baseline:

1. Coordinate with local electric utility for equipment motor sizes requiring variable frequency drives (VFD).
2. Control indoor air quality during construction, meeting SMACNA IAQ Guideline for Occupied Buildings under Construction 2007, Chapter 3.
3. Provide radon testing for buildings with slab-on-grade construction, below grade crawlspaces, and basements, particularly in locations known to have radon. Design radon mitigation systems as needed.
4. Locate equipment like make-up air units (MAU) for kitchens on the roof, where practicable due to climate.
5. Locate equipment in mechanical rooms or penthouses, not exposed on roofs, in most regions of Alaska.

- ~~5.6.~~ Implement demand control ventilation where appropriate.
- ~~6.7.~~ Utilize economizer cooling and natural ventilation to the greatest extent practicable.
- ~~7.8.~~ Locate building air intakes away from sources of air pollution such as buses, exhaust vents, kitchens, and shop spaces.
- ~~8.9.~~ Exceed minimum distances as needed between outside air intakes and pollution sources (such as plumbing vents and boiler flues) if subject to entrainment and carryover from wind. Consider effects of weather effects such as cold air inversions when evaluating pollution sources.
- ~~9.10.~~ Locate louvers at least 8'-0" above grade and keep plantings away from louvers.
- ~~11.~~ Avoid using louvers on outside air intakes in locations with frequent wind driven snow and rain, and subject to heavy frosting. Use arctic-tee hoods or other proven means to address excess moisture intake instead.
- ~~10.12.~~ For sites prone to wind driven snow and/or drifting, identify predominant wind directions and locate outside air intakes away from the upwind or downwind sides of the building. Identify this early in the design so that the mechanical rooms can be appropriately located. Avoid putting air intakes in corners that may be prone to wind eddies.
- ~~11.13.~~ Maintain outside air intake duct velocities ~~at or~~ below 500 feet per minute to ~~avoid~~ reduce entraining rain and snow.
- ~~12.14.~~ Provide deck-to-deck partitions, dedicated exhaust to the outdoors, and negative air pressure for spaces with hazardous materials (janitors' closets, chemical mixing areas, darkrooms, and high-volume copy rooms, etc.).
- ~~13.15.~~ Operate exhaust fans with lighting controls in small restrooms.
- ~~14.16.~~ Operate exhaust fans with dedicated wall switches in janitor closets to allow continuous operation.
- ~~15.17.~~ Provide exhaust fans sized for ~~5-6~~ air changes per hour in spaces that allow access to below-floor sewage lift stations. Exhaust fans to have dedicated switches to allow continuous operation.
- ~~18.~~ ~~Consider using factory fabricated, listed grease duct for Type 1 kitchen hoods.~~ Avoid belt-driven equipment to reduce parts and maintenance.
- ~~16.19.~~ Provide filter pressure gauges across each individual filter bank

Provisional:

- ~~20.~~ Consider preheat coils on outside air ducts in locations with winter design temperatures lower than 40°F to avoid condensation when mixing with return air. Provide preheat coils with summer filters.
- ~~17.21.~~ Consider providing variable frequency drives (VFD) or electrically commutated motors (ECM) on all equipment for energy reduction, load matching, and system balancing.
- ~~18.22.~~ Consider providing VFDs with integral disconnects.
- ~~19.23.~~ Consider providing passive radon venting that can be converted to active ventilation when site soil test confirm radon mitigation is needed.

Premium:

- ~~20.24.~~ Humidification or dehumidification systems.

Best Practice/Lessons Learned

- A. For sites prone to wind driven snow, identify predominant wind directions for the entire year and locate outside air intakes away from that side of the building. Identify this at the time of massing and concept design so that the mechanical rooms can be appropriately located. Avoid putting air intakes in corners that may be prone to wind eddies. (Reserved)

0824 Ventilation Distribution Systems**Baseline:**

1. Locate balancing ~~valves and~~ dampers to allow easy access for testing and balancing.
2. Cover and seal ventilation equipment and ductwork during construction to prevent dust and debris in ductwork and equipment.
- ~~3. Install preheat coils on outside air ducts in locations with winter design temperatures lower than 40°F to avoid condensation when mixing with return air. Provide preheat coils with summer filters.~~
- 4.3. Use sound attenuation for air handlers and ductwork serving classrooms, media centers, theaters, and administrative spaces.
- ~~5.4. Use minimum 3/4" birdscreen on outside air intakes to avoid frost build up.~~
- ~~6.5. Install duct access doors at inlet and outlet side of all indoor duct-mounted equipment.~~
- ~~7.6. Consider providing~~Provide Minimum Efficiency Reporting Value (MERV) 13 filters at central equipment., ~~MERV 11 minimum if higher rated filters are not provided by the unit manufacturer.~~
7. Consider providing ceiling identification tags on ceiling grids where equipment, isolation valves and control valves are located.

Provisional:

- ~~— Consider including MERV 8 summer or pre filters to prolong life of MERV 13 bank.~~
8. Consider using factory-fabricated, listed grease duct for Type 1 kitchen hoods.
 9. Consider displacement ventilation for classrooms and larger spaces.
 - 8.10. Consider destratification fans for gymnasiums (use units rated for high-impact conditions)

Premium:

- 9.11. Building flush-out following LEED requirements. CF-varies LCCA-low

Best Practice/Lessons Learned

- A. (Reserved)

0825 Cooling Equipment**Baseline:**

1. Provide appropriate air conditioning or heat removal system in computer rooms, computer labs, and data hub rooms. Utilize economizer cooling for server and data rooms and reject heat to return path of building ventilation system, to the greatest extent practicable.
2. Limit air conditioning to spaces used year-round: administrative offices, auditoriums, data and equipment rooms with equipment that generates heat, and spaces needed for summer school programs.

Provisional:

3. [Consider providing DX cooling coils in air handling units to reduce total airflow in the school during swing seasons under economizer mode.](#) ~~None.~~
- ~~3.4.~~ [Consider locating refrigerator and freezer condensing units in mechanical rooms as long as ventilation fans are sized appropriately to remove the heat from the space.](#)

Premium:

- 4.5. [Install variable refrigerant flow \(VRF\) or variable refrigerant volume \(VRV\) for interior spaces that need cooling, and reject heat in other portions of the building.](#)

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

0826 Cooling Distribution SystemsBaseline:

1. None.

Provisional:

2. None.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

0827 Heat Recovery SystemsBaseline:

1. ~~Use~~ [Provide](#) energy recovery on ventilation systems according to size, based on DEED requirements [for compliance with ASHRAE 90.1. For 2016 version of 90.1, refer to section 6.5.6.1 Exhaust Air Energy Recovery, and associated tables for Zone 7/8.](#)

Provisional:

2. Consider ~~using~~ [providing](#) energy recovery on all ventilation systems.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

083 Integrated Automation**0831 Control Systems**Baseline:

1. Provide all electronic control devices by the same manufacturer to the greatest extent practicable.

2. Provide individual room temperature controls.
3. Provide programmable temperature controls in occupied spaces.
4. Provide On-Off heating temperature controls for unoccupied and utility spaces (e.g. storage rooms, mechanical rooms, electrical rooms, generator rooms, vestibules, cargo receiving areas, refuse storage, heated attics, crawlspaces, utilidors, etc.)
5. Provide On-Off cooling temperature controls for unoccupied spaces with cooling applications (i.e. mechanical rooms, electrical rooms, generator rooms, refrigerator/freezer condensing unit spaces, telecommunications rooms, server rooms, etc.)
6. Provide locking enclosures on temperature controls in common areas and public spaces (e.g. gymnasiums, restrooms, locker rooms, corridors, vestibules, auditoriums, multipurpose rooms, etc.), or use plate-type temperature sensors.
7. Temperature controls shall not contain mercury.
8. Programmable logic controller (PLC)-based digital controllers operating equipment should be capable of providing 7-day, 24-hour scheduling, digital and analog inputs and outputs (including alarms), user interface on the controller for manual control and programming.
9. Boiler control panels are preferred over aquastats for operating boiler plants and heating circulation pumps.
10. Provide standard controls components not custom designed specifically for the project.
11. Provide local-readout gages at each control system sensor location (at minimum).
12. Wired networks are preferred over wireless.
13. Locate controls components in dry, stable environments to reduce need for specialty enclosures.
14. Provide engraved identification tags on controls components.
15. When direct digital control (DDC) systems are provided:
 - a. Include remote (web) access, alarms, graphics of all monitored and controlled equipment and systems, and programming tools for maintenance personnel;
 - b. Provide for future expandability;
 - c. Connect directly to equipment having integral (on-board) controls to provide a communication interface for remote monitoring and control;
 - ~~a.d.~~ Specify trending of critical points to facilitate troubleshooting and system performance evaluation.

Provisional:

16. Consider methods of putting after-hour spaces (gymnasiums, libraries, etc.) into temporary occupied mode. Also activate support spaces such as public restrooms if not on local control. Consider putting spring-wound timers with indicator lights in Administration area with labels noting what area will be in occupied mode to provide easy access to staff.
- ~~14. Consider hiring a 3rd party agent to perform commissioning in accordance with DEED requirements based on facility size construction scope. Systems to consider for commissioning include: heating ventilation and cooling (HVAC), controls, lighting and power loads, and air barrier systems.~~

- ~~15. Consider direct digital control (DDC) system with remote (web) access, alarms, graphics of all monitored and controlled equipment and systems, and programming tools for maintenance personnel.~~
- ~~16. Provide for future expandability in the DDC system.~~
- ~~17. Connect DDC system directly to equipment having integral controls with a communication interface for remote monitoring and control.~~
- ~~18.~~17. Consider requiring control contractor to inspect control system performance, confirm occupant comfort, and provide training 1 month prior to 1-year warranty date.
18. Consider a permanent metering system in the building management system to track water and energy consumption, manage use, and identify opportunities for additional savings.

Premium:

19. Integrating maintenance management software with building automation software.
- ~~20. Providing ongoing building commissioning.~~
- ~~21. Connecting a permanent metering system to the building management system to track water and energy consumption, manage use, and identify opportunities for additional savings.~~
- ~~22.~~20. Establishing service contracts with control contractor with clearly stipulated and measurable performance requirements.
- ~~23. Re-commissioning systems two years after the school opens to ensure the energy conservation features are operating as intended and to adjust to increase efficiency.~~

Best Practice/Lessons Learned

A. (Reserved)

0832 Other Automation**Baseline:**

1. On Support buildings less than 5000sf, provide temperature controls (thermostats, etc.) using stand-alone, low voltage systems.

Provisional:

2. Consider wireless versions where non-local control is needed.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

084 Fire Protection**0841 Riser & Equipment****Baseline:**

1. Provide complete National Fire Protection Assoc (NFPA) 13 systems.
2. Do not recirculate fire sprinkler pump discharge to a potable water supply.

3. Provide a dedicated fire pump room with fire-rated construction, and door directly accessible to the outdoors or through a fire-resistant-rated corridor, per NFPA 20, for facilities with fire pumps.
4. Provide direct access from the fire sprinkler pump room.
5. Check with the AHJ for special requirements related to fire panel types/locations and fire department connections (FDC).
6. Design sprinkler systems in conformance with local sprinkler ordinances.
7. Use cross contamination protection (i.e. backflow prevention) when connecting fire sprinkler system to potable water supply, including fire pumps.
8. ~~Do not~~ Avoid combin~~ing~~ ing potable water and fire sprinkler water storage ~~if practicable~~.

Provisional:

9. Consider using electric fire pumps if electric utility has sufficient capacity.
10. Consider installing diesel fire sprinkler pumps near other fuel-fired equipment for efficient fuel storage and distribution.
11. Consider fabricating all exterior building overhangs, walkways, balconies, porches, etc., of dimensions and/or materials to avoid fire sprinkler protection.
12. Consider nitrogen-generator for dry sprinkler systems, rather than air compressor only.

Premium:

13. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0842 Sprinklers & PipingBaseline:

1. Use Schedule 40 ~~black~~ steel pipe for threaded fittings.
2. Use galvanized Schedule 40 ~~black~~ steel pipe for dry pipe systems.
3. Avoid dry sprinkler systems as much as practicable. Use other NFPA 13 methods such as dry heads or detached entry canopies to eliminate the need for the systems.
4. Use dry heads at entry/exit vestibules, loading docks, and similar applications on wet fire sprinkler systems.
5. Conceal fire sprinkler piping to the greatest extent practicable in occupied spaces.
6. Do not install exposed sprinkler piping below 10 feet above finished floor to the greatest extent practicable. Provide sidewall heads in stairwell where possible.
7. Standardize on sprinkler heads throughout building.
- ~~7.8.~~ Provide sprinkler head guards in areas subject to damage such as gymnasiums, mechanical spaces, utilitarian areas, or when located less than eight feet above floor.

Provisional:

- ~~8.9.~~ Consider institutional/tamper-resistant heads in time-out rooms and similar locations. (Reserved)

Premium:

~~9.10.~~ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0843 Special Suppression SystemsBaseline:

1. ~~(Reserved) Provide water mist fire sprinkler protection system designed to NFPA 750, where water mist is used in lieu of an NFPA 13 sprinkler system.~~

Provisional:

2. ~~(Reserved) Provide~~ Consider water mist fire sprinkler protection system designed to NFPA 750, where water mist is used in lieu of an NFPA 13 sprinkler system.

Premium:

3. Clean agent suppression systems. ~~(Reserved)~~

Best Practice/Lessons Learned

A. (Reserved)

085 Special Mechanical Systems**0851 Fuel Supply (Gas & Oil)**

Also refer to 0154 (Site) Fuel Systems for additional requirements.

Baseline:

1. ~~Utilize public fiber optic services if available.~~ Provide containment for fuel oil piping installed below ground including double-wall fuel-rated piping, corrugated carrier pipe, pipe transition and containment sumps.
2. Protect fuel oil storage tanks from vandalism and theft.
3. Provide minimum of Schedule 40 steel with welded, threaded, or mechanically pressed fittings for natural gas, propane, and fuel oil piping.
4. Avoid copper materials in fuel oil systems serving electric power generators.
5. Avoid routing gas piping up exterior of building where it could enable unwanted roof access.

Provisional:

6. ~~(Reserved)~~ Consider providing day tanks on fuel oil systems.
7. Consider installing a fuel leak detection system with alarms to monitor integrity of fuel storage tank and distribution piping.
8. Fuel level monitoring system with digital outputs for remote viewing and connection to building energy management system/control system.

Premium:

9. (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0852 ~~Dust Collection~~ Specialty Exhaust SystemsBaseline:

6. For facilities with equipment producing hazardous or combustible fumes or dust (vocational education, maintenance shop, etc.), provide dust collection / fume exhaust systems designed to applicable Codes and NFPA Standards ~~68, 69 and 654, as applicable~~, in facilities with ~~equipment producing combustible dust – vocational education, maintenance shop, etc.~~ Provide separate general room exhaust in addition to specialty exhaust system.

Provisional:

7. Consider using point-of-use HEPA filters for welding exhaust. ~~(Reserved)~~
~~6.8.~~ Consider using recycled air system to reduce need for makeup air.

Premium:

- ~~7.9.~~ ~~(Reserved)~~ Vehicle exhaust systems.

Best Practice/Lessons Learned

- A. ~~(Reserved)~~

0853 Compressed Air & Vacuum SystemsBaseline:

1. Compressed air and vacuum systems to have dedicated equipment rooms with limited access, constructed per the building code ~~based on the type of gases stored~~.

Provisional:

2. ~~(Reserved)~~

Premium:

3. ~~(Reserved)~~

Best Practice/Lessons Learned

- A. ~~(Reserved)~~

0854 Other Special Mechanical SystemsBaseline:

1. Provide lab exhaust hoods for labs and science rooms, with lighting, fan switch, retractable sash. Install other accessories as required by school district.
 2. Install HVAC systems for swimming pools to maintain space temperature and humidity levels between 82°F to 86°F, and 50% percent to 60% percent relative humidity.

Provisional:

3. Use outside air only for pool room dehumidification, if possible, based on site climate conditions.

Premium:

4. ~~(Reserved)~~

Best Practice/Lessons Learned

- A. ~~(Reserved)~~

~~E. Design Criteria & Ratios~~

~~Criteria~~

- ~~• Boilers should be designed to burn natural gas where available or #2 diesel fuel where not.~~
- ~~• 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.~~
- ~~• 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.~~
- ~~• Install building automation systems capable of being operated by school district personnel.~~
- ~~• Integrate monthly utility consumption records into integrated automation systems where possible.~~

~~Ratios~~

- ~~1. (Reserved)~~

09. ELECTRICAL

A. Building System Summary

Electrical systems are required to support nearly every function and purpose of the school facility and support and provide key safety functions with the school. The systems are highly integrated and are often highly automated. The department recognizes five sub-categories in this building system: **Service & Distribution, Lighting, Power, Special Systems, and Other Electrical Systems**. The sub-systems under these categories include a large variety of fixtures, devices, and equipment combined with several types of distribution components including low-voltage and normal-voltage wiring, conduit, raceway, and control components. The Electrical functions within a facility require broad integration with other building systems such as **Site Electrical, Exterior Closure, Interiors, and Mechanical** systems.

B. Design Philosophy

Electrical systems shall be cost effective and will reduce initial construction costs as well as long-term energy consumption and operating costs. The systems shall be integrated with the design of the building plan and envelope to optimize performance and provide occupant comfort. The systems shall be durable, expandable, and easily maintained. Electrical systems shall comply with DEED-adopted energy codes.

Of all the building systems, a school facility's Electrical Systems have probably experienced the greatest increase in scope and cost over the last 20 years. With the integration of computers in education, first into the school and now into the classroom, the scope of network data systems has increased dramatically. A byproduct of the increased number of computers is a corresponding

increase in the power systems required to operate the computers. An increase in the scope and complexity of other special electrical systems, in particular fire alarm and detection, and security systems, has also increased the overall cost of electrical systems.

Since many of the electrical systems are required by code (power, lighting, and fire alarms), a baseline cost for Electrical is part of all school facility projects. However, cost savings opportunities still exist in the scope of these systems beyond the minimums established by codes and in the materials specified. It is important for the cost effectiveness of electrical systems to be evaluated on a life cycle basis where the operating and maintenance cost of the system is considered. Often, a more expensive lighting fixture will more than pay for itself over time by a reduction in power consumption.

Other optional electrical systems (security systems, phone/data systems, intercom systems) should be evaluated in the same manner as code-required systems. In addition to a life cycle analysis of the systems and their components, the optional systems should also pass a commonsense test. For instance, is it necessary for a four-classroom school to have an intercom system? Does it make sense for a school designed to house 50 students to have 75 data outlets?

~~C. Model Alaskan School~~

~~The Model Alaskan School includes a service disconnect, a main distribution panel, and subpanels all fed via various size conductor and both rigid, IMC, and flexible conduit. Lighting systems include pendant and surface mounted area lighting, task lighting, and emergency lighting. Lighting is controlled via occupancy sensors, manual, and automated controls. Power is distributed through sub-panels to feed receptacles of varying amperages, motors, and equipment. Special Systems include addressable fire alarm, data/telecom, public address intercom and at gym/stage, security to include intrusion detection and video surveillance, and hearing impaired classroom audio assist. Emergency backup power is provided via diesel generator complete with fuel storage and system interties. Acceptable alternatives are detailed in the construction standards that follow.~~

C. Design Criteria & Ratios

Criteria

- LED light fixtures should be utilized whenever possible in lieu of incandescent, fluorescent, or other lamp types
- Lighting control options should be evaluated on a life cycle basis
- Computer data ports and related outlets shall be laid out as they are to be used, not as they might be used in the future
- Power wiring and service shall be size per the present electrical demand of the facility rather than to meet perceived future demands.

Ratios

1. (Reserved)

D. General

Baseline:

Electrical systems shall comply with the version of ASHRAE Standard 90.1 currently required by DEED, including amendments by DEED.

1. The building electrical systems encompass lighting, power, telecommunications, and electronic safety and security systems. These systems are for the purposes of life safety, user convenience, building and user security, occupant comfort, and educational delivery.
2. Electrical systems shall be designed in accordance with applicable codes and standards and shall conserve energy while also meeting the needs of the building and users.
3. The systems shall be integrated with the building programming, floor plan, and local District requirements to enhance and support the building's usefulness and longevity.
4. The systems shall be robust, expandable where feasible, and easily maintained.
5. Design shall meet present needs, with consideration given to future. Spare capacity or the ability to expand in the future should be evaluated within budgetary constraints.
6. Electrical systems should be considered for replacement based on age, condition, availability of parts, availability of support, and obsolescence.
7. For Special Systems, in the absence of code requirements, design should follow BICSI or similar standards to the extent possible.

Provisional

8. (Reserved)

Premium

~~7.9.~~ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

091 Service and Distribution

0911 Main Distribution Panels & Switchgear

Baseline:

1. Size equipment for all building and site systems.
2. Locate equipment as close to the service entrance as practical to minimize the length of large feeders.
3. Use secondary distribution panels to consolidate panels and reduce the number of feeders running throughout the building.

Provisional:

4. Consider limiting spare capacity to around 25% percent of physical breaker capacity or overall electrical capacity.
5. Consider providing surge protection and phase loss protection at the main distribution panel, particularly on grids with lower reliability.

6. ~~Consider p~~Provide~~ing~~e metering with a network connection at the main distribution panel and any large distribution panels for accurate energy monitoring.
7. ~~Allow~~Consider listed series-rated systems to lower rating and cost of downstream panels and breakers.
8. ~~Allow~~Consider aluminum conductors on large feeders to lower project costs, if local District maintenance personnel are in agreement.

Premium:

9. [Note to Committee – this is a temporary edit pending agreement on change] Consider making provisions within the electrical equipment for the inclusion of renewable energy systems or combined heat and power systems. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0912 Panels & Motor Control CentersBaseline:

10. Locate panels away from student-occupied areas unless unavoidable. Try to consolidate in electrical rooms, storage rooms, or similar spaces. Coordinate locations during design and monitor during construction to maintain working clearance. Provide an equipment grounding conductor in all conduits containing line voltage conductors.
11. Provide a dedicated neutral conductor for all circuits requiring a neutral.

Provisional:

12. Consider ~~F~~feeding lighting circuits from a single panel that can be monitored.
13. Limit spare capacity to around 25% percent of physical breaker capacity or overall electrical capacity.
14. Consider ~~P~~provide~~ing~~e surge protection for panels primarily serving classroom and office receptacles, or telecom equipment.
15. Consider ~~L~~locating~~e a panel in areas with high numbers of circuits required, such as the kitchen and mechanical rooms, to minimize the length of branch circuits and number of disconnects.~~

Premium:

16. Building-wide monitoring of all panels.

Best Practice/Lessons Learned

- A. (Reserved)

0913 TransformersBaseline:

1. Size transformers for required load.
2. Avoid excessive transformer capacity and losses.
3. Coordinate with the electrical utility early in the project to identify delineation of work, particularly with respect to utility/medium-voltage transformers and circuit.
4. Vibration isolators are required where transformers may affect nearby spaces.

Provisional:

5. Consider using 120/208V where practical to avoid step-down transformers.
6. ~~Utilize~~ Consider utilizing wall-mount or suspended configurations to maximize floor space.
7. Consider time or occupancy-based control of these circuits feeding headbolt heaters.

Premium:

~~6-8.~~ _____ (Reserved)

Best Practice/Lessons Learned

A. (Reserved)

0914 Conduit & FeedersBaseline:

1. Size conduit and feeders for the actual load designed.
2. Limit spare capacity to 25 ~~percent~~ % on conduit and feeders.
3. Provide conduit at inaccessible portions of low-voltage systems.
4. Provide conduit sleeves for risers between telecom rooms if stacked. If not stacked, provide open cabling systems as much as possible between rooms.

Provisional:

5. Consider transitioning to cable tray or j-hooks wherever possible for low-voltage cabling.
6. Consider providing spare conduit stubs from recessed panels for future use; limit of two per 100A of panel capacity.
7. Consider EMT, MC Cable, and Flexible Metal Conduit where practical and code-compliant for savings over RMC or IMC systems.

Premium:

8. Duct bank systems.

Best Practice/Lessons Learned

A. (Reserved)

092 LightingBaseline:

1. Fixture types should be commodity level, commonly available, and cost effective to the extent possible. The use of custom/architectural fixtures, whether for general or decorative/accent lighting, should be limited to small areas of architectural interest and fit within budgetary constraints of the project.
2. Fixture source should be LED for efficiency and life expectancy unless design criteria justifies use of alternate sources.
3. Maintenance should be considered in fixture placement and selection. Fixtures should have field replaceable components, readily available replacement parts, and be installed in a manner that allows for access by local maintenance staff to clean, test, or repair.
4. Minimize the types of lamps to reduce inventory and replacement costs.
5. Provide fixtures that are easily ~~re-lamped and~~ cleaned and maintained.

6. Lighting levels shall be in accordance with Illuminating Engineering Society standards and Alaska Administrative Code (AAC). Lighting levels shall meet or exceed minimum recommended levels of the latest published version of the IES Handbook (25-65 age group) unless AAC requires higher light levels.
7. Emergency lighting/exit signs shall be provided in all code-required areas. Additional emergency lighting should be provided in areas with either increased risk of injury during an outage, or likelihood of persons unfamiliar with the space. These would include support spaces (electrical/mechanical/telecom rooms), large restrooms, conference/meeting rooms, kitchen, and similar.
8. Coordinate ceiling plan and lights with projectors and IT equipment.
9. Provide light emitting diode (LED) site lighting with ~~full~~zero cut-off fixtures where light trespass is unwelcome.
10. Provide lighting controls for dimming or multi-level light switching in educational spaces.
11. Install task lighting at instructional area wall surfaces where necessary.
12. Install LED fixtures or extended life lamps in areas with high ceilings where relamping is difficult.
13. Lighting control shall meet current codes at a minimum. Additional energy savings may be achievable with a more complex system but should be balanced with local maintenance capabilities and project budget constraints.
14. Minimum lighting control elements should include exterior photocell control, interior occupancy sensor control of applicable spaces, dimming of fixtures either through manual interface, daylight sensor input, or occupancy sensors, and multi-zone layouts for more functional use of spaces. Examples would be a separate teaching wall zone in classrooms, or multiple zones in a gym or multi-purpose room to allow for most lighting to be off while maintaining some visibility.
15. [See 0163 \(Site\) Lighting & Equipment for applicable requirements.](#)
16. [Coordinate fixtures and lamps with district and look to standardize within multiple facilities when possible and practical.](#)

Provisional:

- ~~14.~~17. Consider control for site and corridor lighting systems with the direct digital control system or a lighting control system.
- ~~15.~~18. Consider direct/indirect fixtures in classrooms with 10'-0" ceilings or greater.
- ~~16.~~19. Consider ~~Track-track~~ energy use through a building automation system (~~BAS~~) or local metering of the lighting panel.
- ~~17.~~20. Consider ~~Use of~~ dimmable site lighting with integral photocell/occupancy sensors to reduce energy use.
- ~~18.~~21. Consider ~~Use of~~ fixtures with integral controls where practical to reduce device count and cabling.

Premium:

- ~~19.~~22. Building-wide lighting controls with extensive individual control of fixtures or connection with other systems. CF-3 LCCA-2
- ~~20.~~23. Architectural fixtures outside of limited use noted above. CF-4 to 5 LCCA-3

Best Practice/Lessons Learned**A. (Reserved)****093 Power****Baseline:**

1. Provide adequate electrical capacity for future building expansion.
2. Specify variable speed/frequency drives [or ECM motors](#) on electrical motors [applications](#). Coordinate requirements with Mechanical.
3. Specify a minimum of two (2) double duplex outlets (2 outlets per circuit) per classroom wall unless covered with cubbies/casework that makes them inaccessible.
4. Provide receptacle load control ~~in private offices, computer labs, and open office areas~~ per energy code requirements. Switch receptacles with lighting occupancy sensor, [by DDC, or by other code-compliant means](#).
5. Provide tamper resistant and GFCI receptacles where required by code.
6. Provide dedicated circuits for 120V equipment and appliances equal to or greater than 10 amps of draw.
7. [Provide power and data for electronic whiteboards or digital TVs in classrooms.](#)
8. [Provide GFCI receptacles for rooftop equipment where required by code.](#)
- ~~7.9.~~ [Coordinate power requirements and locations for control panels and control transformers with mechanical.](#)

Provisional:

- ~~8.10.~~ [Consider using GFCI circuit breakers where maintaining ready access to GFCI receptacles may be difficult.](#)
- ~~9.11.~~ [Consider ~~limit~~ limit general purpose circuits to 6 duplex outlets.](#)
- ~~10.12.~~ [Consider ~~limit~~ limit high-draw areas \(kitchen, break room/lounge, workroom, etc.\) to 2 duplex outlets per circuit in areas with high concentrations of equipment.](#)
- ~~11.13.~~ [Consider ~~Use of~~ use of floor boxes and power poles in areas where they serve a specific purpose, instead of general power distribution.](#)
- ~~12.14.~~ [Consider ~~providing~~ Provide locations with dedicated circuits for laptop charging stations if programmed.](#)

Premium:

- ~~13.15.~~ [Excessive receptacle counts, including surface raceway with high quantities outside of labs or workbenches where required.](#)

Best Practice/Lessons Learned**A. (Reserved)****094 Special Systems****0941 Fire Alarms****Baseline:**

1. Code-minimum coverage for initiating and notification devices.

2. Code-required monitoring of mechanical equipment, generator, suppression systems, fire pump, [duct smoke detectors if not part of fire alarm system](#).
3. 24-hour monitoring service in areas served with a fire department.
4. Automatic dialer with local contacts in areas without a fire department.

Provisional:

5. [Consider](#) ~~A~~ additional detection in areas with elevated risk of fire, such as storage rooms, kitchen, mechanical/electrical spaces, public restrooms.
6. [Consider](#) ~~E~~ exterior notification on at least two sides of the building.
7. [Consider](#) ~~L~~ low-frequency sounder/horn and high-candela strobe in areas that may be used for sleeping, even if occupancy is not called out for itinerant housing.

Premium:

8. Pre-action systems.
9. Full coverage detection.

Best Practice/Lessons Learned**A. (Reserved)*****0942 Data and Communications*****Baseline:**

1. Provide classroom ceilings with an outlet with voice/data capability and power for technology (if required, verify if PoE first)
2. Provide for wireless connectivity. Coordinate with IT for number and location of needed devices.
3. Provide minimum CAT 6 cabling—all horizontal cabling to be less than 295' in length.
4. Provide one (1) voice/data jack at each classroom wall unless inaccessible due to cubbies/casework.
5. During design development, provide layouts and cut sheets for all equipment requiring active electrical equipment to be built-in or purchased as part of movable equipment budget.
6. Provide cable pathways between all points.
- [7.](#) Use plenum-rated cabling where distributed in open-air environments.
- [8.](#) [Coordinate data and communication requirements and locations with building controls system.](#)
- ~~7-9.~~ [Coordinate with Section 0162.](#)

Provisional:

- ~~8-10.~~ [Consider](#) ~~Provide~~ fiber optic backbone between telecom rooms [even if close enough for copper.](#)
- ~~9-11.~~ [Consider](#) ~~Provide~~ Category 6A cabling to wireless access points.
- ~~10-12.~~ Use [of](#) J-hooks for smaller cable counts, consolidate into cable tray for larger counts.
- ~~11-13.~~ Coordinate with Architect to minimize number of inaccessible conduit sleeves in cable pathway to telecom rooms.

Premium:

- ~~12.14.~~ Raised floor raceway systems
- ~~13.15.~~ Oversize cable tray systems.
- ~~14.16.~~ Passive Optical Network or similar fiber distribution systems.

Best Practice/Lessons Learned

A. (Reserved)

0943 Security SystemsBaseline:

1. Access Control: If a system is used, limit number of doors to main entry points, including front, playground, staff entry, and loading dock/kitchen. Office area may be controlled.
2. Intrusion Detection: Verify need/want with School District.
3. Video Surveillance System: Verify need/want with School District.
4. Secure Entry/Lockdown: Verify need/want with School District.

Provisional:

5. Use card Access readers or combination card reader/keypad.
6. Minimize use of keypad only, and if so, assign unique codes to individuals. Do not assign a common code to a given door.
7. ~~Use~~ Consider use of a reader or button to initiate lockdown in the office should be provided. Lockdown should re-lock all doors, and release any magnetic door holders to seal off corridors/MPR/Gym, etc.
8. System should function independently if network connection is lost.
9. System should use standard readers, locks, and hardware to the extent possible to allow for migration to a different software.
10. ~~Utilize~~ Consider utilization of a combination of door contacts, glassbreak sensors, motion sensors for intrusion detection.
11. Consider ~~Locating~~ an intrusion detection keypad at main entry and staff or kitchen entry.
12. ~~Provide~~ Consider providing either a 24-hour monitoring service or automatic dialer with local contacts (particularly if no local law enforcement agency exists).
13. Connect to lighting controls if used to switch on corridor/site lighting upon alarm.
14. System can monitor industrial alarms, but avoid redundancy with building control system.
15. Consider ~~Providing~~ surveillance cameras ~~at least~~ at all major entry points and corridor intersections, with traffic in and out of the office covered.
16. ~~Provide~~ Consider providing a workstation in the Principal's office for review/download of video, and a monitor in the main office.
17. In schools with a security officer, Assistant Principal, or other similar party, consider providing additional workstations ~~should be provided~~ for effective monitoring.
18. IK10 impact resistance is recommended, but IK08 impact resistance should be ~~is~~ the minimum allowed for cameras that can be touched, or objects thrown at them from less than 10' away.
19. ~~Playgrounds should be monitored~~ Consider monitoring playgrounds via video surveillance to ensure adequate coverage of all play structures and areas.

20. Consider use of multi-sensor or wide-angle cameras wherever possible to replace multiple cameras with a single camera.

~~21. IK10 impact resistance is recommended.~~

~~22.~~21. Video system can integrate with access control/intrusion detection to assist those systems.

~~23.~~22. Provide a lockdown button at the main office and security office. Lockdown should re-lock all doors, and release any magnetic door holders to seal off corridors/MPR/Gym, etc.

~~24.~~23. If lockdown is only used for duress (as opposed to abundance of caution such as non-custodial parent), button should call local law enforcement and/or alert District.

~~25.~~24. If lockdown and duress functions differ, provide two buttons.

~~26.~~25. Consider broadcasting a coded message to classroom paging zone upon activation of button to alert teachers to lock doors.

~~27.~~26. Consider providing a controlled point at main entry to screen visitors, including intercom/camera.

Premium:

~~28.~~27. Card readers on interior doors except for the office area, particularly when used widely to eliminate keys.

~~29.~~28. Cabinet locks and similar where keys would normally be used.

~~30.~~29. Proprietary hardware (such as wireless locksets, hubs, etc.) that cannot migrate in case of software replacement.

~~31.~~30. Badging printers at every school in a District instead of centralized credentials.

~~32.~~31. Surveillance cameras at locations other than exterior doors, office, playgrounds, or corridors.

~~33.~~32. Interior cameras that exceed the ratio of 1 camera per 5,000 sf

~~34.~~33. Security camera systems that exceed 20 cameras for schools under 50,000 sf. For schools over 50,000 sf, add 2 cameras (one inside, one outside) per 5,000 sf.

~~35.~~34. Pan-tilt-zoom cameras, particularly without an active security officer.

~~36.~~35. Video walls, analytics packages if not justified, thermal or other specialty cameras.

Best Practice/Lessons Learned

A. (Reserved)

0944 Clock Systems

Baseline:

1. Provide clocks in all educational and administrative spaces. Coordinate with District standards for battery vs. central clock system. If battery, no work required.
2. Provide intertie between clock system and intercom system for communication where needed for bell schedules.

Provisional:

3. Consider synchronized central clock system.
4. Consider wireless clock systems to minimize cabling needs.

Premium:

5. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0945 Intercom SystemsBaseline:

1. Provide general paging throughout the building, with ability to page via phone system or master station.

Provisional:

2. **Consider providing** multiple paging zones, including classrooms, corridors, exterior, support spaces. Consider a network-based solution with individual zones for each classroom.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

0946 Other Special SystemsBaseline:

1. Provide power and data for electronic whiteboards or digital TVs in classrooms.
2. Provide HDMI connection at teacher's desk for electronic media.
3. Provide sound system in Gym/MPR/Commons with speakers, microphones, media input (CD optional/Aux input), amplifier and digital signal processor/mixer.
4. Provide small sound system in Band/Orchestra/Choir for support of program.
5. Coordinate location of motorized screen controls with sound input, basketball hoops, stage controls, lighting, etc.

Provisional:

6. (Reserved)

Premium:

7. Augmented/Virtual Reality systems
8. Multiple fixed projectors in large spaces.
9. TV Walls instead of projector screens.
10. Digital signage, graphic walls for decorative/accent purposes.

Best Practice/Lessons Learned

- A. (Reserved)

095 Other Electrical Systems

0951 Power Generation & Distribution

Baseline:

1. None.

Provisional:

2. [Consider Use of](#) battery backup instead of an emergency generator. If a generator is included, design it for standby functions.
3. Consider a standby generator to support safety, security, and core building systems [including heating systems and building controls](#).
4. [Consider Locating](#) the generator inside of the building; alternatively, to preserve square footage, consider installing an equipment enclosure instead of a walk-in module.

Premium:

5. Photovoltaic arrays or systems.
6. Electrical wind generators.
7. Standby generator beyond critical systems.
8. Walk-in generator modules or buildings [unless square footage allows](#).
9. Excessive capacity, either electrically or physical.
10. Redundant generators or bypass isolation automatic transfer switches.
- ~~10.~~ 11. [Combined heat and power systems](#).

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

0952 Electrical Heating Systems

Baseline:

1. Provide electrical heating systems only where necessary; coordinate with Mechanical for system needs and justification.
2. Size conduits, feeders, and branch circuits to load served, not future spare capacity.

Provisional:

3. Consider other heating methods and use if more cost-effective or efficient.

Premium:

4. Electrical heated floor systems.

Best Practice/Lessons Learned

- A. [\(Reserved\)](#)

0953 Grounding Systems

Baseline:

1. Provide grounding system for each electrical service per NEC requirements.
2. Provide bonding of all systems and metallic parts per NEC requirements.

3. Provide grounding and bonding of telecom/data systems to meet industry standards and connect to building ground system.
4. Use code required or standards-based conductor sizes.
5. Use ground rods, with minimum quantity needed to meet NEC requirements.

Provisional:

6. Consider routing telecom/data bonding backbone in cable pathways instead of conduit where possible.
7. Consider ground rings instead of ground rods if site soils allow.

Premium:

8. Redundant grounding systems.
9. Oversized grounding and bonding with no specific need.

Best Practice/Lessons LearnedA. (Reserved)~~E. Design Criteria & Ratios~~~~Criteria~~

- ~~• LED light fixtures should be utilized whenever possible in lieu of incandescent, fluorescent, or other lamp types~~
- ~~• Lighting control options should be evaluated on a life cycle basis~~
- ~~• Computer data ports and related outlets shall be laid out as they are to be used, not as they might be used in the future~~
- ~~• Power wiring and service shall be size per the present electrical demand of the facility rather than to meet perceived future demands.~~

~~Ratios~~~~1. (Reserved)~~9.10. EQUIPMENT & FURNISHINGSA. Building System Summary

The **Equipment & Furnishings** of school buildings consist of the educational program and support equipment physically connected to the facility or its support systems. It also includes furnishings that are fixed or integral to the building. The department recognizes two sub-categories in this building system: **Equipment** and **Furnishings**. Equipment in this category is normally incorporated into load calculations by engineering disciplines and installed by a contractor using one or more trades. Furnishings in this category are of traditional types (chairs, bookcases, tables, etc.) but that are built-in or affixed to the facility. The **Furnishings** category fits in a niche between **Specialties** in **06. Interiors** and moveable fixtures, furnishings and equipment (FF&E). Lockers, casework, display cases, bleachers and window coverings are all examples or items covered in **Specialties**. For

additional information and standards on FF&E, see the department’s publication *Guidelines for School Equipment Purchases*.

B. Design Philosophy

Cost-effective school construction requires detailed design coordination between the school’s building systems and the **Equipment** and **Furnishings** needed to deliver and support education. Items in this section include those that have proven to need a moderate to high level of integration to meet their intended function, and to avoid changes during construction. The building technology and educational technology elements deserve a special note as components related to these areas are changing rapidly from year to year with new technology resulting in faster, lightweight, affordable, and portable “plug-in” equipment. The State expects schools to take advantage of the latest technology that can simplify building systems and lower installed technology costs. For additional design parameters see the **Design Ratio** section of this system.

C. ~~Model Alaskan School~~

~~The Model Alaskan School includes a selection of athletic equipment (main and secondary basketball goals, volleyball floor inserts, chinning bar, pegboard), food preparation (refrigerator, freezer, convection oven, range and hood, under counter fridge), laundry equipment (stacked washer and dryer), classroom equipment (projection screens, window blinds), and entry mats. Associated with special electrical systems, the model also provides for classroom and gym/stage audio visual systems. Associated with plumbing systems, the model provides for three compartment sink, handwash sink, and grease interceptor. Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

101 Equipment

1011 Food Service & Kitchen Equipment

Baseline:

1. Provide equipment for basic food preparation and cleanup for student lunch preparation of up to 40 meals/day in all school facilities to include appropriately sized items from the following categories:
 - Reach-in refrigerator
 - Reach-in freezer
 - Combi steam/convection oven
 - Commercial range
 - Wall-mounted shelving
 - Dishwashing machine
 - Mop sink cabinet
 - Type 1 ~~vent~~ exhaust hood

(Ref. Section 0811 Plumbing Fixtures for code required handwash, prep and cleanup sinks.)
2. Provide equipment for full-service food preparation and cleanup for student lunch preparation of over 40 meals/day. Size and select equipment based on DEED-reviewed kitchen design from the basic equipment list and the following categories:
 - Walk-in refrigerator
 - Walk-in freezer
 - Steam kettle
 - Braising pan
 - Production steamer
 - Fryer
 - Ice maker
 - Type 2 exhaust ~~vent~~ hood(s)

(Ref. Section *0811 Plumbing Fixtures* for code required [handwash](#), prep and cleanup sinks.)

3. Provide other support equipment that is mobile/moveable and plugs into standard receptacles as FF&E. Items below are considered FF&E; see Building System Summary preceding:

- Prep appliances (mixer, slicer, etc.)
- Cooking appliances (microwave, toaster)
- Mobile hot/cold serving tables
- Mobile heating cabinets
- Multi-tier shelving units
- Mobile prep/work tables
- Mobile transport carts
- Pots/pans/utensils

Provisional:

4. Consider [only](#) providing equipment for a warming/cooking kitchen ~~only~~ (when the district provides a central kitchen) to include:

- Reach-in refrigerator
- Reach-in freezer
- Convection oven
- Wall-mounted shelving
- Mop sink cabinet
- Type 1 [exhaust vent](#) hood

(Ref. Section *0811 Plumbing Fixtures* for code required [handwash](#), prep and cleanup sinks.)

Premium:

5. Equipment for full-service food preparation in districts that operate a central kitchen.

Best Practice/Lessons Learned

A. (Reserved)

1012 Athletic Equipment

Baseline:

1. Provide ceiling or wall-mounted basketball backboard/hoops at competition court; motor-operated raise/lower.
2. Provide floor inserts for volleyball standards/nets.
3. Provide a multi-sport wall-mounted score board opposite each set of bleachers.

Provisional:

4. Consider secondary, wall-mounted basketball backboards/hoops at recreational courts; motor-operated raise/lower.
5. Consider mat hoists where wrestling programs are established.
6. Consider ceiling mounted gym curtains to support multiple concurrent programs; motor-operated raise/lower.
7. Consider ceiling-mounted climbing ropes.
8. Consider chinning bar(s), peg climbing board, and other wall-mounted fitness equipment requiring structural support.
9. Consider a motor-operated projection screen.
10. Consider a high-capacity washer and dryer.

Premium:

11. Whirlpools or ice-bath equipment.

12. Saunas

Best Practice/Lessons LearnedA. (Reserved)**1013 Career & Technology Equipment****Baseline:**

1. Provide the following woodworking equipment in floor-standing models: 10in table saw with ‘saw stop’ technology, 12in band saw, 1hp drill press. (Other benchtop and plug-in equipment will be provided as FF&E)
2. Provide the following metal working equipment: welding station/booth, 1hp milling machine/lathe.

Provisional:

3. Consider additional woodworking equipment to include: lathes, router/joiner, and belt/disc sanders.
4. Consider additional metal working equipment to include: sheet metal brake, and grinders.
5. Consider moving all equipment to portable, tabletop, 110v for small programs and additional flexibility. All such equipment would be provided as FF&E.
6. Consider [“fabrication lab”/ “maker space” equipment including 3D printer\(s\), small to medium format 4ftx8ft Computer Numerical Control CNC-routing and laser/plasma cutting machines.](#)
7. See Section [0721 Elevators and Lifts](#) for provisions associated with vehicle lifts.
- ~~7. Consider Fabrication Lab/Maker Space equipment such as small Computer Numerical Control machines, 3D printer(s), and laser/plasma cutters.~~

Premium:

8. See Section [0733 Hoists and Cranes](#) for premium limitations.
- ~~8.9.~~ [Paint booths.](#)

Best Practice/Lessons LearnedA. (Reserved)**1014 Science Equipment****Baseline:**

1. See Section [0652 Casework/Millwork](#) for fixed lab tables.
2. Provide one 36in fume hood, [if required for educational program.](#)

Provisional:

3. Consider a 48in fume hood for larger programs; demonstration type or double sided.
4. Consider a commercial undercounter dishwasher at Science Storage/Prep.

Premium:

5. Fume hoods larger than 48in.

Best Practice/Lessons Learned

- A. Many standard size hazardous/flammable storage cabinets are not designed to fit under standard-height counter tops or with standard base cabinet depths. Select this FF&E item early and in coordination with Designers.~~(Reserved)~~

1015 Library Equipment**Baseline:**

1. Provide a book drop with catch bin; free standing or built-in to casework.
2. Provide book stacks in a combination of wall perimeter (5-6 shelf) and freestanding (2-3 shelf) for approximately 50 volumes/student capacity. Laminate finish. [Note: Other book display shelving to be FF&E; all seating, tables and other loose furnishings to be FF&E.]
3. Provide a motor-operated projection screen.

Provisional:

4. Consider wood veneer on book stacks in libraries serving any secondary grades.

Premium:

5. (Reserved)

Best Practice/Lessons Learned

- A. ~~(Reserved)~~ The preceding standards are based on centralized library and media display/use. This Equipment may not be needed if books and media are distributed throughout a school.

1016 Theater Equipment**Baseline:**

1. Provide motor-operated projection screen.
2. Provide motor-operated stage curtain.

Provisional:

3. Consider fixed overhead rigging for stage curtains, sets, and lighting.
4. Consider stage lighting system including fixtures and control board.
5. Consider auditorium audio/visual system including building-mounted elements such as speakers, projectors, etc. (Note: all rack-mounted components and hand-helds will be FF&E.)

Premium:

6. Orchestra pit equipment

Best Practice/Lessons Learned

- A. (Reserved)

1017 Art Equipment**Baseline:**

1. None.

Provisional:

2. Consider up to two gas-fired kilns.

3. Consider heavy-duty clay mixer.
4. Consider electric pottery wheels; quantity for anticipated class size.

Premium:

5. Darkrooms for chemical film/print processing.

~~5-6.~~ Paint booths.

Best Practice/Lessons Learned

A. (Reserved)

1018 Loading Dock Equipment

Baseline:

1. None.

Provisional:

2. Consider bin-size recyclable baler and multi-waste compactor.
3. Consider providing fixed commercial compactor chute (to align with vendor provided compactor and waste service).
4. Consider dock bumpers where elevated truck loading/unloading occurs.

Premium:

5. Dock leveler systems.

Best Practice/Lessons Learned

A. (Reserved)

1019 Other Equipment

Baseline:

1. None.

Provisional:

2. Consider kitchenette at Special Needs Life Skills areas with residential type refrigerator, range, over range microwave, and dishwasher.
3. Consider high-capacity washer and dryer at Intensive Needs program area.
4. Consider ceiling mounted plates/eye bolts at OT/PT program area.

Premium:

5. Plumbed and hardwired commercial equipment at 'student store' unless specifically supported by curriculum in an approved educational specification.

Best Practice/Lessons Learned

A. (Reserved)

102 Furnishings

1021 Fixed Furnishings

Baseline:

1. Provide benches at building entry vestibules/lobby in the parent pick-up/drop-off zones; secure to floor.

Provisional:

2. Consider built-in benches/seating at Library and Elementary Classroom.

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

1022 Mats

Baseline:

1. Provide walk-off grates/mats at entry vestibules.

Provisional:

2. (Reserved)

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

1023 Other Furnishings

Baseline:

1. (Reserved)

Provisional:

2. (Reserved)

Premium:

3. (Reserved)

Best Practice/Lessons Learned

- A. (Reserved)

~~10.11.~~ SPECIAL CONDITIONS

A. Building System Summary

The **Special Conditions** related to school buildings consist of both special purpose facilities and project conditions that bridge across, rather than fitting within, several of the core building systems.

The ‘system’ deals with the installation, removal, or relocation of integrated or self-contained support buildings, and with site conditions that, while altering the site, do not install utility or improvement features. Generally, all elements related to hazardous materials and conditions are included within this system. The department recognizes three sub-categories in this building system: **Special Construction**, **Special Demolition**, and **Special Site Conditions**. Special Construction includes three specific use-types. Special Demolition includes all demolition work from entire buildings to selective building elements and utilities. It also captures hazmat associated with that demolition. **Special Site Conditions** deals with management of site conditions for both effective construction execution and long-term building operations. Remediation work for sites is also captured. **Special Construction** will overlap nearly all building system sections **02** through **09** depending on complexity, as will **Special Demolition**. The **Special Site Conditions** category abuts **01. Site & Infrastructure** categories but should not have much, if any, overlap.

B. Design Philosophy

Cost-effective school construction can sometimes be enhanced by isolating special facility uses such as greenhouses or various types and combinations of utility modules and providing them as separate facilities. These solutions, while more common in remote school locations, are not automatic for any project and should be based on solid value analysis. Similarly, selective, and whole building demolition work occurs across a range of scope and possibility. Final project solutions should be driven by options analysis supported by accurate life-cycle costing. Site conditions can have a significant impact on cost-effective school construction. Factors such as topography, erosion, proximity to natural hazards, wetlands, site drainage, and flooding must be properly evaluated in the project planning phase. The department’s publication *Site Selection Criteria and Evaluation Handbook*, provides guidance and tools in these areas. [The State DEED](#) expects school districts to thoroughly evaluate **Special Conditions** that can simplify building systems and lower construction costs. For additional design parameters see the **Design Ratio** section of this system.

~~C. Model Alaskan School~~

~~The Model Alaskan School includes site preparation work that aligns with Special Site Conditions of this section to include clearing and grubbing, survey and layout, SWPPP, excavation, geotextiles, fill, and compaction work. While the full Program Demand Cost Model for Alaskan Schools does include estimating elements for demolition and hazardous materials conditions, its Model School Escalation file does not. Primarily this is due to these elements being dependent on specific project environments and conditions. Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

111 Special Construction

1111 Packaged Utility Modules

Baseline:

1. Provide packaged utility module supporting any of the following functions in locations where site-constructed solutions are less cost effective: fire suppression, heating plants (i.e.g., oil and wood-fired boilers, etc.), power generation, walk-in refrigerator/freezers. ~~(CF-3 LCCA-1).~~

- ~~1.2.~~ Packaged modules that provide water and/or wastewater treatment systems in locations where no community utility support is available to the school site and where utility extension solutions are less cost effective. (CF-4 LCCA 3)

Provisional:

- ~~2.3.~~ Consider including electrical services in conjunction with utility modules providing heating plants. ~~(CF-3 LCCA-1)~~

Premium:

- ~~3.4.~~ Packaged utility modules with utility runs to the supported facility that exceed 40ft.

Best Practice/Lessons Learned

A. (Reserved)

1112 Swimming Pool

Baseline:

- Swimming pools are supported as school space under AS 14.11 under certain conditions. Refer to the most current department publication *Swimming Pool Guidelines for Educational Programs*.

Provisional:

- Consider construction of swimming pools in support of the educational program where the capacity exists to meet the above average operations and maintenance costs of such facilities over time.
- Consider partnering with related municipal and borough entities in sharing the cost of initial capital, O&M, and capital renewal costs through a joint use agreement (ref. 4 AAC 31.020(g)).

Premium:

- Swimming pool tank sizes, amenities, and resulting facilities not supported under statute and regulation.

Best Practice/Lessons Learned

A. (Reserved)

1113 Greenhouse

Baseline:

- None required. [Note: Greenhouses are considered school space under 4 AAC 31.020.]

Provisional:

- Consider building-attached greenhouse spaces when such spaces can meet the educational program being provided (ref. *0142 Attached Shelters*).
- Consider freestanding greenhouses in support of the educational program where the capacity exists to meet the above average operations and maintenance costs of such facilities.
- ~~3.4.~~ Consider providing hydroponic systems in place of greenhouses to provide year-round production and educational benefits.

Premium:

- 4.5. Greenhouse space which is beyond the allowable gross square footage in the attendance area (ref. 4 AAC 31.016 and 4 AAC 31.020).

Best Practice/Lessons Learned

A. (Reserved)

112 Special Demolition***1121 Structure Demolition***Baseline:

1. Provide demolition of existing schools which are no longer cost effective to repair ~~and~~ or transfer to another entity when approved for replacement as part of an application for state-aid under AS 14.11. ~~{CF-3 LCCA-1}~~
2. Provide structure demolition at state-owned abandoned school sites as part of the development of new schools, replacement schools, or additions/renovations to existing schools.
3. Secure permits for local disposal (i.e., one-time monofill on state-owned or district-owned property), on property owned by others by agreement, or in approved local landfills.

Provisional:

4. Consider the demolition of education support facilities that have exceeded their useful life and cannot be renovated for additional use(s).
5. Consider removal of demolition waste to a landfill in Alaska or outside of Alaska when local disposal options have been exhausted. ~~{CF-3 LCCA-1}~~

Premium:

6. Demolition of any structure not accepted as an *education related facility* and approved by the department.

Best Practice/Lessons Learned

A. (Reserved)

1122 Building Selective DemolitionBaseline:

1. Provide selective demolition in support of approved new work or rehabilitation.
2. Secure permits for local disposal in approved local landfills.

Provisional:

3. Consider removal of demolition waste to a landfill in Alaska or outside of Alaska when local disposal options have been exhausted. ~~{CF-3 LCCA-1}~~

Premium:

4. Any selective demolition not accepted as part of an *education related facility* and approved by the department.

Best Practice/Lessons Learned**A. (Reserved)****1123 Site and Utility Demolition****Baseline:**

1. Provide demolition of site improvements associated with education related facilities approved for replacement or those in conflict with approved new work or rehabilitation (ref. *013 Site Improvements* for acceptable site features).
2. Provide for demolition of utilities supporting education related facilities approved for replacement or those in conflict with approved new work or rehabilitation (ref. *015 Civil/Mechanical Utilities* and *016 Electrical Utilities* for acceptable utility elements).

Provisional:

3. Consider opportunities to transfer site improvements or utilities to another entity when approved for replacement under AS 14.11.
4. Consider vacating and capping underground utilities in-place when the cost to excavate and remove due to obstructions or geotechnical considerations substantially exceed normal removal (CF-3 LCCA-1).

Premium:

5. Any site and utility demolition not accepted as supporting an education related facility and approved by the department.
6. Underground utility demolition where the cost exceeds normal removal by more than 100% percent.

Best Practice/Lessons Learned**A. (Reserved)****1124 Hazardous Material Removal****Baseline:**

1. Provide for removal of hazardous materials in work under *1121 Structure Demolition* associated with education related facilities approved for replacement.
2. Provide for removal of hazardous materials in work under *1122 Building Selective Demolition* when hazardous materials will be disturbed during approved rehabilitations.
3. Secure permits for local disposal, if possible, on state-owned or district-owned property, on property owned by others by agreement, or in approved local landfills.

Provisional:

4. Consider fully documenting hazardous materials present in existing facilities in preparation for opportunities to transfer education related facilities to another entity when approved for replacement under AS 14.11. [Note: standards for some hazardous materials, such as asbestos, diminishes with changes in building occupancy and use.]

Premium:

5. Any hazardous material removal not accepted as supporting an education related facility and approved by the department.
6. Removal of hazardous materials for which a potentially responsible party (PRP) or responsible party has been identified other than the Department of Education & Early development.

Best Practice/Lessons Learned**A. (Reserved)****1125 Building Relocation****Baseline:**

1. Relocate *education related facilities* to other locations on the school parcel when required by expansion projects approved by the department.
2. Relocate *education related facilities* to parcels off the school site under control of the state or a political subdivision of the state when required as part of excess building disposition approved by the department.
3. Relocate non-education related facilities owned by the school district to other locations on the school parcel when required by expansion projects approved by the department (this will primarily consist of teacher housing units).

Provisional:

4. Consider relocating an *education related facility* when an alternate location will improve the efficiency of school operations. ~~(CF-3 LCCA-1)~~

Premium:

5. Building relocation to parcels not under the site control of a state or a political subdivision of the state.

Best Practice/Lessons Learned**A. (Reserved)****113 Special Site Conditions****1131 Site Shoring & Dewatering****Baseline:**

1. Provide site shoring required to support construction operations on school sites.
2. Provide dewatering required to support construction operations on school sites.
3. Provide site shoring and dewatering that might be generally required to support all site improvement and utility work and not associated with any particular one of these subsystems.

Provisional:

4. Consider selecting school sites where site shoring and dewatering are not required.

Premium:

5. Site shoring and dewatering that exceeds 0.3% percent of the total estimated construction cost.

Best Practice/Lessons Learned

A. (Reserved)

1132 Site EarthworkBaseline:

1. Provide excavation, fill, geotextiles, and other similar elements required to support construction operations on school sites.
2. Provide site earthwork that might be generally required to support all site improvement and utility work and not associated with any particular one of these subsystems.

Provisional:

3. None. All other earthwork should be in support of approved work in *013 Site Improvements*, *015 Civil/Mechanical Utilities*, or *016 Site Electrical*.

Premium:

4. Site earthwork that exceeds 0.5% percent of the total estimated construction cost.

Best Practice/Lessons Learned

A. (Reserved)

1133 Site RemediationBaseline:

1. Provide for remediation of contaminated site materials for work not covered in *1121 Structure Demolition* that is associated with education related facilities approved for replacement.
2. Secure permits for local remediation (soil farming, etc.), if possible, on state-owned or district-owned property, on property owned by others by agreement, or in approved local landfills.
3. Provide and place clean backfill from local sources as necessary to return site to a safe and functional condition.

Provisional:

4. Consider working with the Alaska Department of Environmental Conservation on options for contaminated site materials to remain under Institutional Controls (ICs).
5. Consider imported backfill when local sources are not available or can be demonstrated to be not cost-effective. ~~(CF-3 LCCA-1)~~
6. Consider removing and disposing of contaminated site materials to approved landfills in Alaska or outside of Alaska on a cost-benefit basis. ~~(CF-3 LCCA-1)~~

Premium:

7. Any contaminated site material removal not accepted as supporting an education related facility and approved by the department.

8. Removal of contaminated site materials for which a potentially responsible party (PRP) or responsible party has been identified other than the Department of Education & Early development.

Best Practice/Lessons Learned

- A. (Reserved)

Appendix A: Cost Model's Escalation Model Alaska

The following describes the “State of Alaska Escalation Cost Study - Model School Building”. This cost study model is used by the contracted cost estimator that updates the DEED *Program Demand Cost Model for Alaskan Schools* to develop concept-level gross square footage construction costs based on educational program and to index historical construction cost escalation.

The model school conforms to the Standards in this publication. It is not a prototype design or basis of design for schools in Alaska.

01 Site and Infrastructure

The Model Alaskan School includes site improvements typical for the less remote locations including paved parking and drives, appropriate catch basins and culverts for drainage, concrete walks, vegetative landscaping, playgrounds with equipment, and fencing. A variety of minor elements such as bike racks and flag poles round out the developed school site. Utility distribution piping from municipal connection points is provided for heating fuel, water, wastewater, electrical power, and data/communications. Exterior pole-mounted lighting is also included. No **Site Structures** or **Off-site Work** is anticipated with the model school. ~~Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

02 Substructure

The Model Alaskan School includes Substructure elements typical of sites with high-quality soils which are suitable for building construction. These elements include a standard concrete foundation, and a concrete slab on grade—both with typical steel reinforcing. Insulation, vapor retarder, and dampproofing are the only minor elements needed to support these sub-systems. No **Special Foundations** elements are anticipated with the model school. ~~Acceptable additional items and alternatives are detailed in the construction standards that follow.~~

03 Superstructure

The Model Alaskan School includes a main floor structure of reinforced concrete slab on grade and includes a small portion of elevated floor with steel columns, beams, joists, metal decking and concrete. The roof structure uses a combination of wood frame bearing wall, steel columns, beams, joists, and metal decking. Steel angle bracing and light-gauge steel shear walls provide lateral support. ~~Acceptable alternatives are detailed in the construction standards that follow.~~

04 Exterior Closure

The Model Alaskan School includes exterior load-bearing walls with light-gauge steel members and structural wood panel sheathing. Insulation is a combination of fiberglass in the wall cavity and 2in of continuous board at the exterior. Air and vapor barriers complete the assembly. Siding is a primarily metal panel with some phenolic panel in a rain-screen assembly as an accent. Vents, flashings, and sealants complete the exterior. Gypsum wall board is used on the interior side of the assembly. Soffits are framed with nominal lumber, treated plywood and siding finishes were visible. Windows are metal-clad dual-pane insulating units with operable sections. Doors are hollow metal with

insulated frames and high-quality hardware including motor operated doors where required.

~~Acceptable alternatives are detailed in the construction standards that follow.~~

05 Roof Systems

The Model Alaskan School includes a pitched roof system consisting of concealed fastener metal roofing over fire-treated plywood sheathing and 8 inch of rigid insulation. Vapor barriers, ice and water shield, and flashing complete the assembly. ~~Acceptable alternatives are detailed in the construction standards that follow.~~

06 Interiors

The Model Alaskan School includes light-gauge steel framing members enclosed with gypsum wall board, or other substrates suitable to the finish applied. Solid core wood doors in hollow metal frames are standard, complete with hardware. Vertical coiling grilles are used in select locations. Glazing consists of relites in hollow metal frames, and specialties include partitions in toilet rooms, lockers, white boards, tack boards and signage. Fire extinguishers and cabinets are provided when required. Finishes include carpet, tile and rubber flooring, paint, tile, and FRP walls, and suspended and glue-on acoustic ceilings. ~~Acceptable alternatives are detailed in the construction standards that follow.~~

07 Conveying Systems

The Model Alaskan School, a single-story structure, does not include any Conveying Systems elements. ~~Acceptable alternatives are detailed in the construction standards that follow.~~

08 Mechanical

The Model Alaskan School includes cast-iron waste piping, hot and cold domestic water distributed in insulated copper piping, bathroom fixtures, stall showers, classroom sinks, exterior hose bibs, commercial food prep and clean up sinks and hot water generating equipment. Heating systems are oil/gas fired boilers and hydronic heat distribution to terminal devices. Cooling is a 10T DX air conditioner supplying fan coils. Ventilation is a single AHU with distributed ducting and VAV boxes for classroom and administration areas, and a variable speed AHU for gymnasiums and/or multipurpose rooms; both central and localized exhausting is provided via fans and ducting. Heat and /or energy recovery for ventilation systems. Controls include a DDC system and thermostats. Fire protection is wet pipe system with appropriate risers and valves. Heating fuel is stored in an exterior tank and interior day tank and is distributed via steel piping. ~~Acceptable alternatives are detailed in the construction standards that follow. Acceptable alternatives are detailed in the construction standards that follow.~~

09 Electrical

The Model Alaskan School includes a service disconnect, a main distribution panel, and subpanels all fed via various size conductor and both rigid, IMC, and flexible conduit. Lighting systems include pendant and surface mounted area lighting, task lighting, and emergency lighting. Lighting is controlled via occupancy sensors, manual, and automated controls. Power is distributed through sub-panels to feed receptacles of varying amperages, motors, and equipment. Special Systems include addressable fire alarm, data/telecom, public address intercom and at gym/stage, security to

include intrusion detection and video surveillance, and hearing-impaired classroom audio assist. Emergency backup power is provided via diesel generator complete with fuel storage and system inerties. ~~Acceptable alternatives are detailed in the construction standards that follow.~~

10 Equipment & Furnishings

The Model Alaskan School includes a selection of athletic equipment (main and secondary basketball goals, volleyball floor inserts, chinning bar, pegboard), food preparation (refrigerator, freezer, convection oven, range and hood, under-counter fridge), laundry equipment (stacked washer and dryer), classroom equipment (projection screens, window blinds), and entry mats. Associated with special electrical systems, the model also provides for classroom and gym/stage audio visual systems. Associated with plumbing systems, the model provides for three-compartment sink, handwash sink, and grease interceptor. Acceptable additional items and alternatives are detailed in the construction standards that follow.

11 Special Conditions

The Model Alaskan School includes site preparation work that aligns with Special Site Conditions of this section to include clearing and grubbing, survey and layout, SWPPP, excavation, geotextiles, fill, and compaction work. While the full *Program Demand Cost Model for Alaskan Schools* does include estimating elements for demolition and hazardous materials conditions, its Model School Escalation file does not. Primarily this is due to these elements being dependent on specific project environments and conditions. ~~Acceptable additional items and alternatives are detailed in the construction standards that follow.~~