



Program Demand Cost Model for Alaskan Schools

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The 15th Edition Update of the Program Demand Cost Model, developed by HMS Inc., is a complete demand cost model for both new construction (or major additions) and renovation.

Prices and unit rates are based on March/April 2016 costs for materials, equipment, freight, and Title 36 labor rates. It should be noted that this is a method to develop a budget only and actual costs will vary. The Program Demand Cost Model will not be applicable for specific projects with developed design beyond concept level.

Opinions or estimates of probable construction costs used in developing the Program Demand Cost Model and escalation rate are prepared on the basis of HMS Inc.'s experience and qualifications and represent HMS Inc.'s judgment as a professional generally familiar with the industry. However, since HMS Inc. has no control over the cost of labor, materials, equipment or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, HMS Inc. cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from HMS Inc.'s opinions or estimates of probable construction cost contained in this cost model study.

Escalation has been estimated and included based on a current understanding of the local construction industry and national effect on the price of commodities, such as oil, oil-based

products, steel, copper, and other basic materials. It also anticipates labor costs leveling over the next two years.

Acknowledgements (Continued)

Material and equipment prices have been gathered from a number of sources that include Spenard Builders Supply, Anchorage Sand and Gravel Company, Inc., and Ace Tanks Anchorage. The Guide, Means Cost Data, and other information was obtained through the practice of construction cost estimating.

Program Demand Cost Models: 1st Edition – May 1981; 2nd Edition – November 1983 (computerized in December 1984); 3rd Edition – August 1986; 4th Edition – August 1988; 5th Edition – June 1991; 6th Edition – July 1997; 7th Edition – November 1997; 8th Edition (7th Revised) - March 2000; 9th Edition – April 2001; 10th Edition – March 2005; 11th Edition – March 2007; 11th Edition Update – March 2008; and 11th Edition Revised – April 2009; 12th Edition – April 2010; 12th Edition Update – April 2011; 12th Edition Update Revised – April 2012; 13th Edition – April 2012; 14th Edition – April 2015.

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How to Use the Program Demand Cost Model

The Program Demand Cost Model for Alaskan Schools (Cost Model) was originally developed for the State of Alaska, Department of Education in 1981; and has been used over the years with much success. Through the 6th Edition, it was revised periodically to keep unit costs current. The 6th and 7th Editions underwent significant modification of the Renovation module by shifting to a building systems based model to provide users a more versatile estimating tool. The 8th Edition provided detailed renovation cost data. The 10th Edition further developed building systems and advanced low voltage electrical systems that better reflect those used in a modern school. The 11th Edition reflected major cost changes experienced in the 2005/2006 period. The 11th Edition Update continued to reflect major cost changes and added specific classroom technology. The 12th Edition was developed spring 2010 to provide an updated escalation analysis and reconsidered new and reconditioned space cost factors. The 12th Edition Updates reflected cost adjustments for 2011 and 2012, as did the 13th and 14th Editions, which also updated escalation rates. This, current, 15th Edition revision is to update changes in cost and labor rates that have occurred over the last twelve months.

The Cost Model is designed to address two types of construction projects: New Schools or Additions and Renovations. The renovation costs are itemized by building systems to allow the user to generate project-specific renovation costs. This provides the renovation module the ability to address a wide variety of project scopes, from window replacements to complete interior tear out and remodel.

The revisions to the renovation module can generate good quality cost estimates but require that the user has an understanding of the building systems affected by the project and a rough idea of the quantity of work required to each building system. It is not as quick as summing the square footage of space to be renovated and applying a light, medium, or high renovation cost. However, properly applied it will generate a good quality, project specific cost estimate.

The Cost Model is to be used to establish a complete budget for a specific school construction project. The project construction budget can be utilized as a basis for legislative funding requests, local bond issues, or other forms of appropriation. It can be used to generate a conceptual estimate without going to the expense of producing architectural drawings or engineering reports, or as a means of assessing a consultant's estimate for its reasonableness.

It should be noted that the Cost Model is a tool to develop a construction project budget for projects with limited information or in the early stages of definition. It is not intended for projects beyond the conceptual design level or for projects where detailed estimates or contractor quotes are available.

How to Use the Program Demand Cost Model

Getting Started

The Cost Model is available from the Department of Education & Early Development's web site at <http://education.alaska.gov/Facilities/FacilitiesCIP.html>:

- [Cost Model: a spreadsheet for costing a new school or addition and renovation](#) - MS Excel

To use the model, open the link, and save the file on your hard drive. The Cost Model workbook is composed of a series of worksheets that address different project costs. Worksheets 1.00 through 9.00 are for New Construction or Addition work and Worksheets 11.00 through 16.00 are for Renovation work.

All rates are based on prices derived from the costs associated with school construction in Anchorage. Lump sum costs may require further technical assistance to determine, and should be based on Anchorage pricing. The final sum of all costs will be regionally adjusted by using the geographic cost factors listed in *Table No. 1*.

Worksheet – Project Summary

The workbook should open to the *Project Summary* worksheet. This worksheet provides a single page summary of the project identification and the estimated project costs. Please refer to the Samples section for an example of the *Project Summary* worksheet. The cells with red text are to be used for entry of project specific information. The red text cells should be the only editable cells in the workbook. The tab key will move the cursor from editable cell to editable cell while skipping the locked cells. The cells containing estimated project costs are linked to other worksheets and no edits to these cells are required. Complete the project summary information, save the file, and proceed to the next worksheet. It is recommended that the file be saved at the completion of each worksheet.

New School or Addition Projects

Worksheet - 1.00 - Instructional Resource/Support Teaching Areas

This worksheet contains square foot of floor area unit costs for various types of instructional resource and support teaching areas. These space categories are similar to those in Appendix D of the CIP Application Instructions. Enter the square feet of floor area that is required in each of the space types. Categories 1.09 and 1.10 are available for other required instructional spaces that are not specifically listed. Enter a descriptive title for the other space on the worksheet by overwriting the red text cell entitled *Other*. Please provide additional information regarding the physical characteristics of the space and the basis for the estimated cost on the *Notes-Assumptions* worksheet.

Worksheet - 2.00 - General Support/Supplementary Areas

This worksheet contains square foot of floor area unit costs for various types of general support and supplementary areas. These space categories are similar to those in Appendix D of the CIP Application Instructions. Enter the square feet of floor area that is required in each of the space types. Categories 2.10 and 2.11 are available for other required general support spaces that are not listed. Enter a descriptive title for the other space on the worksheet by overwriting the red text cell entitled “Other”. Please provide additional information regarding the physical characteristics of the space and the basis for the estimated cost on the *Notes-Assumptions* worksheet.

Worksheet - 3.00 - Special Requirements

This worksheet contains unit costs for *special requirements* that are often included in the construction of a new school or addition. Please note that the unit costs are no longer based entirely on square feet of floor area so the units entered in the red text cells must coincide with units used in pricing a particular item. Below is a brief summary of the work items included on worksheet 3.00:

3.01 Emergency Generator (Day Tank Included) – enter the number of kilowatts (KW) required by the project.

3.02 Fuel Oil Storage for Generator (Usually Placed on Site) – enter the gallon capacity of fuel of the generator’s storage tank (this tank is in addition to the day tank).

3.03 Fire Protection (Pump) – enter the number of pumps required to provide adequate pressure for the fire sprinkler system. Most schools in urban areas will have water supplied at an adequate pressure for the fire sprinkler system. Many rural schools will need pumps to provide adequate pressure for the fire sprinkler system, especially schools that require water storage tanks for the fire sprinkler system.

3.04 Fire Protection (Water Storage) – enter the gallon capacity of water storage tanks required to provide sufficient water to supply the fire sprinkler system. Technical

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assistance may be required to accurately calculate the water storage tank size requirements.

3.05 Add for Crawlspace – enter the square foot area of the crawlspace. Costs include excavation, structural floor, sprinklers and lighting.

3.06 Add for Pile Foundation – enter the square foot area of the ground floor. Costs include piles, structural floor, soffit with interstitial space, sprinklers and lighting.

3.07 Add for Thermopile Foundation – enter the square foot area of the ground floor. Costs include thermopiles, structural floor, soffit with interstitial space, sprinklers and lighting.

3.08 Demolition of Existing Building – enter complete square foot area of the facility to be demolished. Costs include demolition and landfill costs, but exclude hazardous material abatement. Note, this item is for removal of the entire building.

3.09 Abatement of Existing Building – enter complete square foot area of the facility to be abated. Costs exclude demolition included in 3.08 Demolition of Existing Building.

3.10 Other Special Requirements – enter a lump sum amount for other special requirement costs. The lump sum cost should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 6.00 will convert the lump sum cost to an appropriate regional cost. Provide additional information regarding the other work on the *Notes-Assumptions* worksheet. Technical assistance may be required to accurately calculate these costs.

Worksheet - 4.00 - Site Work

This worksheet contains unit costs for site work; however, most of the categories on this worksheet are lump sum (LS) entries. This requires the input of a dollar amount rather than a quantity and will probably require technical assistance to complete accurately. Please note that all lump sum costs should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 6.00 will convert the lump sum costs to an appropriate regional cost. Below is a brief summary of the work items included on worksheet 4.00:

4.01 Site Preparation – enter the lump sum dollar amount required to prepare the site. Includes work such as soil remediation, building relocation, shoring, dewatering, and environmental protection.

4.02 Site Earthwork – enter the lump sum dollar amount required for site earthwork. Includes work such as clearing, excavation, grading, leveling, dewatering, and import/export of fill.

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4.03 Site Improvements – enter the lump sum dollar amount required for site improvements. Includes work such as site paving, walks, sports courts and fields, stairs, ramps, walls, decks, fences, landscaping and play equipment, etc., and installation of other site accessories.

4.04 Site Structures – enter the lump sum dollar amount required for site structures such as covered walkways, covered play areas and support buildings.

4.05 Site Utilities – enter the lump sum dollar amount required for the installation of gas service, utilidors, and storm drainage.

4.051 Water Main – enter the linear foot (LF) length of the proposed sewer pipe.

4.052 Sewer Main – enter the linear foot (LF) length of the proposed sewer main.

4.06 Bulk Fuel Storage – enter the gallon capacity of the new bulk fuel storage facility. This cost is for construction of a complete new above ground fuel storage and distribution system with a storage capacity exceeding 1,000 gallons. The Cost Model unit cost for this category varies automatically based on the storage capacity. Projects that require replacement of an existing above ground bulk fuel storage system should use category 12.10 *Replace Bulk Fuel System (Above Ground)* in lieu of category 4.06. Projects that require replacement of an existing below ground bulk fuel storage system should use category 12.09 *Replace Small Fuel Oil Tank (Below Ground)* in lieu of category 4.06. Category 12.11 Soil Remediation should be used in conjunction with categories 12.09 and 12.10 if contaminated soil exists at existing fuel storage areas.

4.07 Site Electrical – enter the lump sum dollar amount required for electrical site work. This includes headbolt heaters and connections to equipment, including the cost for running conduit and wire to the building. Costs associated with electrical supply and communications to the building, such as electrical service and transformer, should also be entered in this category.

4.08 Site Lighting – enter the lump sum dollar amount required for site lighting. Costs associated with electrical supply to the building, such as electrical service and transformer, should be entered in category 4.07 *Site Electrical*. Generally, category 4.08 *Site Lighting* is to include the cost of running conduit and wire from the facility's panels to various electrical fixtures on the site, and the cost of furnishing and installing those fixtures.

4.09 Other – enter here estimates of additional cost for site work, both on and off site. Provide additional information describing the required work and the basis for the estimated cost on the *Notes-Assumptions* worksheet.

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Worksheet - 5.00 - Construction General Requirements

This worksheet calculates the overhead and profit charges for a general contractor's services, insurances, and bond. This cost is set at a percentage of the direct construction cost. No entries are required on this worksheet.

Worksheet - 6.00 - Geographic Area Cost Factor

This worksheet calculates the additional cost for construction based on the project location. The unit costs in the Cost Model are all based on the cost of material and labor in Anchorage. Therefore, to accurately reflect construction costs in other regions of the state, a geographic factor is applied to the construction costs to adjust them to reflect the actual cost of construction in the project's locale. The geographic area cost factor includes costs related to logistics (shipping, subsistence, travel, etc.), and regional design criteria as applied to different locations.

The regional geographic factors can be found in *Table No. 1 Geographic Area Cost Factor*. *Table No. 1* lists school districts alphabetically, with some districts having multiple factors. There are two values to the right of the district name: the Index and the Percentage. Insert the listed percentage for the school district into the red text cell for category 6.01. The spreadsheet will automatically calculate the reduced or additional construction cost due to the geographic location of the project.

Worksheet - 7.00 - Size Factor

This worksheet calculates the premium that a project will cost based on the size of the project. It can be anticipated that projects smaller than 25,000 square feet will cost more per square foot because a portion of a contractor's general requirement costs are fixed. The additional cost required due to the size of the project is calculated automatically on this worksheet. No entries are required on this worksheet.

Worksheet - 8.00 - Contingencies

This worksheet calculates the necessary contingencies for the project. Two contingencies are addressed: a general design contingency and an escalation contingency.

The general design contingency is to accommodate unknowns due to the conceptual level of the design. The general design contingency is fixed at 10% of the subtotal of costs calculated on worksheets 1.00 through 7.00. No entries are required to determine the general design contingency.

The escalation contingency is to account for the increase in current construction costs to the year in which the project is anticipated to be constructed. The escalation rate is automatically

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calculated based on the anticipated construction date entry that is to be entered in the red text cell for category 8.03.

Worksheet - 9.00 - Project Overhead and Other Costs

This worksheet calculates project overhead and other costs that are associated with the construction of a new school or addition. This worksheet also provides the total project cost. Below is a brief summary of the costs included on worksheet 9.00:

9.01 Construction Management (By Consultant) – enter the percent of construction cost required for construction management. The Department of Education & Early Development’s suggested range for construction management is 2%, 3%, or 4% of the construction cost. If costs are expected to exceed the department’s recommended percentages, please provide a detailed justification of the overage. Also note that AS 14.11.020(c) places limits on the cost of construction management furnished by a private contractor:

AS 14.11.020

(c) The construction management costs of a project assumed under this section may not exceed four percent of the amount of appropriations for the facility if the amount of appropriations is \$500,000 or less. The construction management costs of a project assumed under this section may not exceed three percent of the amount of appropriations for the facility if the amount of appropriations is over \$500,000 but less than \$5,000,000. The construction management costs of a project assumed under this section may not exceed two percent of the amount of appropriations for the facility if the amount of appropriations is \$5,000,000 or more. For purposes of this subsection “construction management” means management of the project’s schedule, quality, and budget during any phase of the planning, design, and construction of the facility by a private contractor engaged by the municipality or regional educational attendance area.

9.02 Land Purchase Costs – enter the lump sum amount for land purchase costs. Even if the site has already been purchased it is wise to include the acquisition cost, especially if state reimbursement or funding is to be sought. Please note that 4 AAC 31.025 defines the requirements for reimbursement of site acquisition costs. Information regarding school site selection is available in the Department of Education publication, Site Selection Criteria and Evaluation Handbook, current edition.

9.03 Site Investigation – enter the lump sum amount for site investigation. Site investigation costs include costs associated with selecting a site, site surveys, and geotechnical investigation services.

9.04 Seismic Hazard – enter a cost provided by an Alaska seismic safety design professional to perform seismic surveys of existing facilities, make recommendations, and provide a plan or specification to implement seismic improvements.

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9.05 Design Services Costs – enter the percent of construction cost required for design services costs. Design costs include the costs associated with project planning (from educational specifications through design development), preparation of construction/bid documents, and overseeing the completion of the work. Typically, large projects require smaller design cost percentages. The Department of Education’s suggested range for the cost of project design is 6 – 10% of the construction cost. If costs are expected to exceed the department’s recommended percentages, please provide a detailed justification of the overage.

9.06 Construction – enter the total of a detailed construction cost estimate if new in-lieu of renovation (if not Cost Demand Model). This amount should include *all* costs required for completion of work not estimated using the Cost Demand Model.

9.07 Equipment and Technology Costs – enter the percent of construction cost required for equipment costs. Please refer to the Department of Education publication, [Guidelines for School Equipment Purchases](#), current edition, for information regarding the definition of equipment. Budget parameters for equipment costs on a per student basis are also established in the publication. The Department of Education’s suggested range for the cost of furnishings and equipment is 0 – 10% of the construction cost. Technology is included with equipment. If costs are expected to exceed the department’s recommended percentages, please provide a detailed justification of the overage.

9.08 District Administrative Overhead – enter the percent of construction cost required for district administrative overhead costs. Indirect costs include the school district’s cost of facilitating the entire project, accounting costs, and in-house construction management costs. Typically, large projects require smaller indirect cost percentages. The Department of Education & Early Development’s suggested range for the cost of project administration is 2 - 9% of the construction cost. If costs are expected to exceed the department’s recommended percentages, please provide a detailed justification of the overage.

9.09 Art– enter the percent of construction cost required for art. The department applies the provisions of AS 35.27.020 to establish the required percent for art in school projects. This requirement is being applied by the department to all School Construction projects and some Major Maintenance projects based on the scope of the project. The minimum requirement for rural school facilities is 0.5% of construction cost. The minimum requirement for all other school facilities is 1% of construction cost. The department’s suggested range for art procurement correlates to the appropriate minimum percentage required.

9.10 Project Contingency – calculates the project contingency for the entire project. The project contingency is fixed at 5% of the subtotal shown in category 8.04, so no entries are required to generate the cost. This contingency is to cover the possibility of above average design, management, or administration costs, as well as construction cost

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overruns. The project contingency is in addition to the 10% general design contingency that was applied in worksheet 8.00.

9.11 Project Total Cost – provides the estimated project total cost for new construction or addition work. This line also provides a total of the additional percent costs associated with the project. If these costs exceed 30% of the project construction cost, then a detailed justification of the additional costs will be required.

Worksheets 1.00 – 9.00 comprise the New School or Addition module of the Program Demand Cost Model for Alaskan Schools – 15th Edition. Please refer to the Samples section for examples of the *Project Summary*, *General Summary*, and *Notes – Assumptions* worksheets.

Renovations Projects

Worksheet - 11.00 - Renovation

This worksheet is the heart of the Renovation Cost Model. Unit costs are provided by work assembly. A work assembly can be thought of as a summary of a group of tasks required to complete that item. A building system is composed of a series of work assemblies. An example of a building system would be 11.20 Exterior Closure. An example of a work assembly is the replacement of an exterior door. Below are the tasks that contribute to the unit cost to replace an exterior door:

- Remove interior and exterior door trim;
- Remove door and door frame;
- Dispose of demolition debris;
- Install new door frame and hang door;
- Install new door hardware;
- Install new interior and exterior door trim;
- Install new caulking at door opening;
- Paint door, door frame, door trim.

The use of work assemblies provides users with the flexibility to customize a renovation estimate to the repairs required at a specific facility. Not every conceivable building system replacement is covered here, just the most common building systems found in existing Alaskan schools. If the proposed project incorporates a special building system that is not included in worksheet 11.00, a consultant knowledgeable in the special system will be required to prepare an accurate cost estimate. Note that hazardous material abatement is not included in worksheet 11.00 unit costs. Costs for removal of hazardous materials are covered on worksheet 12.00 and should be selected as necessary. Below is a brief summary of the unit costs included on worksheet 11.00:

FOUNDATION AND SUBSTRUCTURE

11.02 Foundation and Substructure Repairs – enter the lump sum amount required for foundation and substructure repairs. If the facility requires foundation or substructure repairs, technical assistance from a consultant with foundation repair experience will be required to accurately estimate the extent of repairs required and their cost. Please provide additional information describing the required repairs and the basis for the estimated cost on the *Notes-Assumptions* worksheet.

SUPERSTRUCTURE

11.11 Superstructure Repairs – enter the lump sum amount required for superstructure repairs. If the facility requires superstructure repairs, technical assistance from a consultant with structural repair experience will be required to accurately estimate the extent of repairs required and their cost. Please provide additional information describing the required repairs and the basis for the estimated cost on the *Notes-Assumptions* worksheet.

11.12 Seismic Repairs – enter the lump sum amount required for seismic repairs. This item will require technical assistance from a seismic safety design professional who has

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experience to accurately estimate the extent of repair, upgrades and improvements, and the associated cost. Provide additional information describing the required repairs and the basis for the estimated cost on the *Notes-Assumption* worksheet.

For all 11.2X, 11.3X and some other individual items, enter the square footage of the amount of the system to be replaced. Do NOT use the total square footage of the building.

EXTERIOR CLOSURE

11.21 Exterior Upgrades (Replace Existing Beveled Siding) – enter the square feet of beveled siding to be replaced. This unit cost includes: removal and disposal of existing siding, installation of new Tyvek and beveled cedar siding, installation of new exterior trim and flashing, new caulking at openings, new paint to siding and trim.

11.22 Exterior Upgrades (Repaint Existing) – enter the square feet of exterior siding to be repainted. This unit cost includes: removal of old caulking, installation of new caulking, preparation of surfaces, new paint to doors, trim and exterior siding.

11.23 Exterior Insulation Finish System to Existing – enter the square feet of EIFS to be installed over the existing siding. This unit cost includes: surface preparation of existing siding, installation of 1” EIFS, new sealant and flashing. Please note that the cost to remove existing siding is excluded from 11.23’s unit cost. If your project requires removal and disposal of existing siding, enter the lump sum cost in category 11.98 for the demolition work. Provide a description of extra work on the *Notes-Assumptions* worksheet and remember that all lump sum costs should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum costs to an appropriate regional cost.

11.24 Exterior Upgrades (Cement Board Painted) – enter the square feet of painted cement board to be installed over the existing siding. This unit cost includes: surface preparation of existing siding, installation of cement board, new exterior trim, painting of exterior, new sealant, new Tyvek, and new flashing. Please note that cost to remove existing siding is excluded from 11.24’s unit cost. If your project requires removal and disposal of existing siding, enter the lump sum cost in category 11.98 for the demolition work. Provide a description of extra work on the *Notes-Assumptions* worksheet and remember that all lump sum costs should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum costs to an appropriate regional cost.

11.25 Exterior Skin (Metal Siding) – enter the square feet of metal siding to be installed over the existing siding. This unit cost includes: furring and ½” CDX plywood, installation of kynar finish metal siding system, new sealant, new Tyvek, and new flashing. Please note that cost to remove existing siding is excluded from 11.25’s unit cost. If the project requires removal and disposal of existing siding, enter the lump sum cost in category 11.29 for the demolition work. Provide a description of extra work on the *Notes-Assumptions* worksheet and remember that all lump sum costs should be calculated

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as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum costs to an appropriate regional cost.

11.26 Insulation (Replace Insulation and Gypboard) – enter the square feet of insulation to be replaced in existing exterior wall. This unit cost includes: removal of GWB and insulation on exterior wall, disposal of debris, installation of new R-19 insulation, installation of new 10 mil vapor barrier, and installation of new GWB.

11.27 Exterior Closure (Replace Doors and Frames) – enter the number of door leaves to be replaced. This unit cost includes: removal of interior and exterior door trim, removal of door and frame, disposal of debris, installation of new door and frame, installation of new door hardware, new caulking, and painting of all new work.

11.28 Exterior Closure (Replace Windows) – enter the square feet of glazing to be replaced. This unit cost includes: removal of windows and blinds, disposal of windows and blinds, installation of new metal clad windows, installation of new interior and exterior trim, painting of trim, installation of new horizontal blinds.

11.29 Other Repairs – enter a lump sum amount for exterior repairs or alterations not accounted for elsewhere. Provide details regarding the additional cost on the *Notes-Assumptions* worksheet. All lump sum costs should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum costs to an appropriate regional cost.

ROOFING

11.31 Replace Metal Roofing – enter the square feet of metal roofing to be replaced. This unit cost includes: removal and disposal of existing roofing (excluding hazardous material abatement), minor repair of approximately 20% of roof deck, replacement of approximately 20% of insulation and vapor barrier, installation of new metal roofing, and allowance for mechanical and electrical work associated with roof replacements.

11.32 Replace Membrane Roof – enter the square feet of flat roof membrane to be replaced. This unit cost includes: removal and disposal of existing roofing, minor repair of approximately 20% of roof deck, installation of new vapor barrier, installation of new 6” rigid insulation, installation of new flashing, installation of new EPDM roofing, and allowance for mechanical and electrical work associated with roof replacements.

11.33 Replace Asphalt Shingle Roofing – enter the square feet of roof surfaces to be replaced—properly accounting for roof slopes as needed. This unit cost includes: removal and disposal of existing roofing, minor repair of approximately 20% of roof deck, installation of new roofing felt and roof shingles, installation of new flashing, and allowance for mechanical and electrical work associated with roof replacements.

INTERIOR CONSTRUCTION

11.41 Replace Partitions (Includes Finishes) – enter the square feet of new interior partitions. The quantity of new partitions is the sum of the square feet of framed wall,

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not the square feet of GWB. This unit cost includes: removal and disposal of existing partitions, framing of new 2x4 and 2x6 partitions, installation of new sound batt insulation, installation of new GWB, installation of new base, installation of new wall finishes, and painting. Please note that this cost, while including a variety of common wall finishes, does not include ceramic tile. Use category 11.47 for installation of ceramic wall tile.

11.42 Replace Door Leaf and Frames – enter the number of door leaves to be replaced (note, count 2 for double doors). This unit cost includes: removal of door and frame, disposal of debris, installation of new door and frame, installation of new door hardware, and painting of all new work.

11.43 Interior Painting – enter the square feet of walls and ceiling to be painted. This unit cost includes: removal and reinstallation of electrical device covers, painting of walls, painting of ceiling, and painting of doors.

11.44 Replace Carpeting – enter the square feet of new carpeting. This unit cost includes: removal and disposal of existing floor finish, installation of new carpet, and installation of new base.

11.45 Replace Resilient Flooring – enter the square feet of new resilient flooring (sheet vinyl and VCT). This unit cost includes: removal and disposal of existing floor finish, installation of new resilient flooring, and installation of new base.

11.46 Replace Gym Flooring – enter the square feet of new gym flooring. This unit cost includes: removal and disposal of existing floor finish, installation of new sports flooring, and installation of new base. Please note that the sports flooring is a membrane flooring and not a wood gym floor. If a wood gym floor is desired, enter the additional lump sum cost for a wood gym floor in category 11.98. Provide details regarding the additional cost on the *Notes-Assumptions* worksheet.

11.47 Replace Ceramic Tile – enter the square feet of new ceramic tile. This unit cost includes: removal and disposal of existing tile surfaces, installation of new mosaic floor tile, and installation of new wall tile with cementitious backer.

11.48 Replace Acoustical Tile Ceiling – enter the square feet of suspended acoustic ceiling tile to be replaced. This unit cost includes: removal and reinstallation of light fixtures, removal of existing suspended acoustical ceiling system, and installation of new suspended acoustical ceiling system.

11.49 Replace Gypboard Ceiling – enter the square feet of new gypsum board ceiling. This unit cost includes removal and reinstallation of light fixtures, removal of existing gypsum board ceiling, installation of new gypsum board ceiling, and painting of new ceiling.

Renovations Projects

SPECIALTIES, FURNISHINGS AND EQUIPMENT

11.51 Replace Toilet Partitions – enter the number of toilet partitions to be replaced. This unit cost includes: removal and disposal of existing toilet partitions, installation of new toilet partitions, and installation of new associated toilet accessories.

11.52 Replace Toilet Accessories – enter the number of toilet accessories (soap dispensers, waste receptacles, paper towel dispensers, etc.) to be replaced. This cost includes: removal and disposal of existing toilet accessories and installation of new toilet accessories.

11.53 Smart Boards – This assumes one smart board per classroom and the work associated with its installation.

11.54 Replace Sports Equipment and Lockers (Small Gym) – enter the number of lots of sports equipment and lockers to be replaced. Each lot includes the following work: removal and disposal of existing equipment, installation of 50 new lockers, installation of two new wall mount basketball goals, installation of four new floor inserts, installation of two new chinning bars, and installation of two new climbing peg boards. This is only useable for a small gym installation (for a full size gym, increase cost by x4).

11.55 Replace Tack/Chalk/Marker Boards – enter the square feet of new marker, chalk, and tack board. This unit cost includes: removal and disposal of existing boards, and installation of new boards.

11.56 Replace Base Cabinet Units – enter the linear feet of new base cabinets. This unit cost includes: removal and disposal of existing cabinets, installation of new base cabinets, and installation of new plastic laminate countertops.

11.57 Replace Wall Hung Units – enter the linear feet of new wall hung cabinets. This unit cost includes: removal and disposal of existing cabinets, and installation of new wall cabinets.

11.58 Other Repairs – enter a lump sum amount for furnishings and equipment repairs or alterations not accounted for elsewhere. Provide details regarding the additional cost on the *Notes-Assumptions* worksheet. All lump sum costs should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum costs to an appropriate regional cost.

CONVEYING

11.61 New Two Stop Elevator – enter number of elevators. This is installation of a two-stop hydraulic elevator for access in a two-story school, which would save space over the traditional ramp approach. Cost includes electrical connections, new walls and cutting and patching.

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11.62 Repairs/Replacement – enter a lump sum amount for repair, replacement, or addition of a conveying system. In most cases this category will address the cost of work related to elevators or lifts. Technical assistance from a consultant will be required to accurately estimate the cost of this work.

MECHANICAL

11.71 Replace Plumbing (Fixtures Only) – enter the number of plumbing fixtures to be replaced. This unit cost includes: removal and disposal of existing plumbing fixture, replacement of some associated piping, repair of adjacent finishes, and installation of new plumbing fixture. This category is for replacement of plumbing fixtures only. If the entire plumbing system is to be replaced, use category 11.72.

11.72 Replace Plumbing (Entire System) – enter the square feet of building area that is to receive a new plumbing system. Typically, the entire building square footage should be inserted unless portions of the building have plumbing systems that will not be replaced. The unit cost for this category assumes that this work will occur in conjunction with a major renovation of the space and includes: removal and disposal of existing plumbing system, installation of new sanitary waste and vent piping system, installation of new domestic water piping, installation of new plumbing fixtures, and installation of a new water heater. If this work is not to occur in conjunction with a major renovation project, additional costs to protect and repair existing finishes should be added. Enter the additional lump sum cost for this work in category 11.79. Provide details regarding the additional cost on the *Notes-Assumptions* worksheet.

11.73 Replace Heating Systems – enter the square feet of building area that is to receive a new heating system. Typically, the entire building square footage should be inserted unless portions of the building have heating systems that will not be replaced. The unit cost for this category assumes that this work will occur in conjunction with a major renovation of the space and includes: removal and disposal of existing heating system, installation of new oil fired boiler and accessories, installation of new distribution piping, installation of new radiators, and installation of a new electrical connections. If this work is not to occur in conjunction with a major renovation project, additional costs to protect and repair existing finishes should be added. Enter the additional lump sum cost for this work in category 11.79. Please provide details regarding the additional cost on the *Notes-Assumptions* worksheet.

11.74 Replace Ventilation Systems – enter the square feet of building area that is to receive a new ventilation system. Typically, the entire building square footage should be inserted unless portions of the building have ventilation systems that will not be replaced. The unit cost for this category assumes that this work will occur in conjunction with a major renovation of the space and includes: removal and disposal of existing ventilation system, installation of new air handling units and exhaust fans, installation of new ductwork, and installation of a new electrical connections. If this work is not to occur in conjunction with a major renovation project, additional costs to protect and repair existing finishes should be added. Enter the additional lump sum cost for this work in

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category 11.79. Please provide details regarding the additional cost on the *Notes-Assumptions* worksheet.

11.75 New Exhaust Fan – enter the number of new exhaust fans. This unit cost includes: demolition and disposal of finishes to provide access for new system, installation of new up to 1500 CFM (cubic foot per minute) exhaust fan, installation of new ductwork, installation of new exterior venting, repair of existing finishes, and installation of a new electrical connections. Alternative pricing by CFM.

11.76 New Cooling Systems – enter the square feet of building area that is to receive a new cooling system. Typically, the entire building square footage should be inserted unless portions of the building will not be served by the cooling system. This unit cost includes: removal and disposal of existing cooling system, installation of new air handling units and exhaust fans, installation of new ductwork, and installation of a new electrical connections. This unit cost assumes that an adequate ventilation system is available for the distribution of cool air throughout the building. If a ventilation system is not available, refer to category 11.74 *Replace Ventilation Systems*. Alternative pricing by the ton.

11.77 New Controls – enter the square feet of building area that is to receive new controls. This unit cost includes: removal and disposal of existing controls, installation of new thermostats, and installation of new DDC control system.

11.78 New Sprinkler System – enter the square feet of building area that is to be fire sprinkled. Please note that some building types may require sprinklers in attic spaces and large exterior canopy areas, so it is not uncommon for the square feet of sprinkled area to exceed the actual square feet of building area. This unit cost includes: installation of a new fire water service, demolition and replacement of ceiling finishes, and installation of a new wet pipe fire sprinkler system. Place additional lump sum costs associated with a dry pipe sprinkler system in category 11.79. A consultant may be required to determine the additive cost of a dry pipe over a wet pipe sprinkler system.

11.79 Other Repair/Replacement – enter a lump sum amount for other mechanical repair or replacement costs. The lump sum cost should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum cost to an appropriate regional cost. Provide additional information regarding the other work on the *Notes-Assumptions* worksheet.

ELECTRICAL

11.81 Replace Main Supply and Distribution – enter the number of lots of main electrical supply and distribution to be replaced. Each lot includes the following work: removal and disposal of seven existing electrical panels, installation of a new 1600 amp main distribution panel (MDP), installation of a new 1600 amp disconnect switch, installation of two 225 amp subpanels, installation of four new 100 amp subpanels, and installation new wiring between panels. Please note that categories 11.82 and 11.83 are subsets of

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category 11.81. Therefore, an entry in category 11.81 will typically preclude entries into the other categories.

11.82 Replace MDP – enter the number of main distribution panels (MDP) to be replaced. This unit cost includes: removal and disposal of existing MDPs, installation of a new 1600 amp MDP, installation of a new 1600 amp disconnect switch.

11.83 New Power Panel – enter the number of new power panels to be installed. This unit cost includes: installation of a new 225-amp power panel and connection to existing power supply.

11.84 Replace Lighting Fixtures and Wiring – enter the square feet of building area to receive new lighting. This unit cost includes: removal and disposal of existing lighting and wiring, installation of new wiring, installation of new devices, and installation of energy-saving light fixtures.

11.85 Replace Lighting Fixtures Only - enter the square feet of building area to receive new lighting. This unit cost includes: removal and disposal of existing lighting and installation of energy-saving light fixtures.

11.86 Replace Power Devices – enter the square feet of building area to receive new power wiring. This unit cost includes: removal and disposal of existing power devices (outlets, etc.) and wiring, installation of new wiring, and installation of new power devices.

11.87 New Standby Power and Fuel Oil – enter the number of kilowatts (KW) for new standby power required. This unit cost is based on new above ground fuel storage tank, new tank foundation, new fuel piping to the generator, a new 150 KW generator and day tank, and a new 600 amp automatic transfer switch.

11.91 New Addressable Fire Alarm System – enter the square feet of building area to receive a new fire alarm system. Typically, the entire building square footage should be inserted unless portions of the building already have a functional fire alarm system. This unit cost includes: all work required for a complete fire alarm system.

11.92 New Computer Outlets (Rough In) – enter the square feet of building area to receive new computer outlets. Typically, the entire building square footage should be inserted unless portions of the building already have functional computer outlets and will not be receiving new outlets. This cost is included in the cost for additions and new construction and should not be duplicated here. This unit cost includes: installation of new conduit, installation of new computer wire, an allowance for cutting and patching, and installation of new data outlets.

11.93 New Data/Telecommunication/Address/Clock Systems – enter the square feet of building area to receive a new telephone/intercom/public address system (a synchronized clock system is included with the public address system). Typically, the entire building

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square footage should be inserted unless portions of the building already have a functional telephone/intercom/ public address system and will not be receiving any new work. This unit cost includes: all work required for a complete data/telecommunication/public address system.

11.94 New Public Address (Gym and Stage) – enter the number of new gym and stage public address systems required. This unit cost includes: all work required for a complete gym and stage public address system.

11.95 New Master Antenna Television (MATV) System – enter the square feet of building area to receive a new MATV system. Typically, the entire building square footage should be inserted unless portions of the building already have a functional MATV system and will not be receiving any new work. This unit cost includes: all work required for a complete MATV system, excluding the video monitors.

11.96 New Hearing Impaired Audio System – enter the number of hearing-impaired audio systems required. This unit cost includes: all work required for a complete hearing-impaired audio system for eight listeners only.

11.97 New Security System/CCTV – enter the square feet of building area to receive a simple new security system. Typically, the entire building square footage should be inserted unless portions of the building already have a functional security system and will not be receiving any new work. This unit cost includes: all work required for a complete security system.

11.98 Sound Field System (Audio Enhancement System) – enter number of classrooms served. This is a new technology for the classroom, to serve as a teacher’s aide for communication.

OTHER REPAIRS/REPLACEMENT/DEMOLITION

11.99 Other Repairs/Replacement/Demolition – enter a lump sum amount for other repairs, replacement, and demolition costs. The lump sum cost should be calculated as if the work were to be performed in Anchorage. The geographic factor applied on worksheet 14.00 will convert the lump sum cost to an appropriate regional cost. Provide additional information regarding the other work on the *Notes-Assumptions* worksheet.

Worksheet - 12.00 - Additional Costs for Hazardous Material Removal

This worksheet addresses the costs associated with the removal of hazardous materials. The unit costs for categories 12.01 through 12.08 are only to be used in conjunction with the work assembly costs in category 11.00 when the demolition will require removal of hazardous materials. Categories 12.09 through 12.11 provide stand-alone unit costs for a complete work assembly. Below is a brief summary of the unit costs included on worksheet 12.00:

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12.01 Complete Renovation – enter the square feet of building area to be completely gutted of hazardous material. This unit cost includes: removal of asbestos-containing wall board, roofing, vinyl flooring, ceiling tiles, pipe insulation, and wall covering adhesives; removal of doors with lead paint; removal of PCBs from light fixture ballasts. Note that categories 12.02 through 12.08 are subsets of category 12.01. If a major renovation is planned and asbestos-containing materials are anticipated to be encountered during demolition, use category 12.01 and disregard categories 12.02 through 12.08.

12.02 Roof Replacement – enter the square feet of asbestos-containing roofing to be removed. This unit cost includes: removal of asbestos-containing roofing.

12.03 Exterior Upgrade – enter the number of exterior doors with lead paint to be removed. This unit cost includes: removal of exterior doors with lead paint.

12.04 Replace Interiors – enter the square feet of building area that is to receive new finishes. This unit cost includes: removal of asbestos-containing vinyl flooring, ceiling tiles, and wall covering adhesives.

12.05 Replace Plumbing Fixtures – enter the number of plumbing fixtures to be replaced. This unit cost includes: removal of asbestos-containing pipe insulation from domestic water piping. Note that it may be possible to replace plumbing fixtures without significantly disturbing existing piping.

12.06 Replace Heating and Ventilation Systems – enter the square feet of building area that is to receive heating and ventilation system upgrades. This unit cost includes: removal of asbestos-containing ceiling tiles and pipe insulation from radiant heat piping.

12.07 New Sprinkler System – enter the square feet of building area that is to receive a new fire sprinkler system. This unit cost includes: removal of asbestos-containing ceiling tiles.

12.08 Work in Connection with New Electrical Installations – enter the square feet of building area that is to receive new electrical work. Typically, the entire building square footage should be inserted unless distinct portions of the building (for example, a detached wing) will not be receiving any new work. This unit cost includes: removal of asbestos-containing wallboard and ceiling tiles.

12.09 Replace Small Fuel Oil Tank (Below Ground) – enter the gallon capacity of the new underground fuel tank that is to replace an existing underground fuel tank. This unit cost includes: draining of existing tank, excavation of existing tank, removal of existing piping, soils testing for contamination, disposal of existing tank, installation of new underground fuel tank and leak detection system in existing pit, installation of new piping, and backfill of existing pit. Note that remediation of contaminated soil is excluded from this cost. Use category 12.13 for costs associated with the remediation of contaminated soil.

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12.10 Replace Bulk Fuel Oil Tank (Above Ground) – enter the gallon capacity of the new aboveground fuel tank that is to replace an existing aboveground fuel tank. This unit cost includes: draining of existing tank, removal of existing piping, disposal of existing tank, installation of new aboveground fuel tank and containment system, and installation of new piping. Note that remediation of contaminated soil is excluded from this cost. Use category 12.13 for costs associated with the remediation of contaminated soil.

12.11 Remove Below Ground Tank and Install New Above Ground Tank – enter the gallon capacity of the new above ground fuel tank that is to replace an existing below ground fuel tank. This unit cost includes: draining of existing tank, excavation of existing tank, removal of existing piping, soils testing for contamination, disposal of existing tank, installation of new aboveground fuel tank and containment system, installation of new piping, and backfill of existing pit. Note that remediation of contaminated soil is excluded from this cost. Use category 12.13 for costs associated with the remediation of contaminated soil.

12.12 Remove Above Ground Tank and Install New Below Ground Tank – enter the gallon capacity of the new below ground fuel tank that is to replace an existing above ground fuel tank. This unit cost includes: draining of existing tank, removal of existing piping, disposal of existing tank, soil excavation for new tank pit, installation of new underground fuel tank and leak detection system, installation of new piping, and backfill of new pit. Note that remediation of contaminated soil is excluded from this cost. Use category 12.13 for costs associated with the remediation of contaminated soil.

12.13 Soil Remediation – enter the cubic yards of soil that requires remediation. This unit cost includes: soil testing, excavation of contaminated soils, treatment of contaminated soils, disposal of contaminated soils, and replacement of excavated soil with non-frost susceptible fill.

12.14 Other Specific Abatement – enter a lump sum for other abatement-related activities. Provide details regarding the additional costs in the *Note-Assumptions* worksheet.

Worksheet - 13.00 - Construction General Requirements

This worksheet calculates the overhead and profit charges for a general contractor's services, insurances, and bonds. This cost is set at a percentage of the direct construction cost. The extra percentage over new construction is to allow for additional coordination efforts typical of renovation projects. No entries are required on this worksheet.

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Worksheet - 14.00 - Geographic Area Cost Factor

This worksheet calculates the additional cost for construction based on the project location. The unit costs in the Cost Model are all based on the cost of material and labor in Anchorage. Therefore, to accurately reflect construction costs in other regions of the state, a geographic factor is applied to the construction costs to adjust them to reflect the actual cost of construction in the project's locale. The geographic area cost factor includes costs related to logistics (shipping, subsistence, travel, etc.), and regional design criteria as applied to different locations.

The regional geographic factors can be found in *Table No. 1 Geographic Area Cost Factor*. Table No. 1 lists school districts alphabetically, with some districts having multiple factors. There are two values to the right of the district name: the Index and the Percentage. Insert the listed percentage for the school district into the red text cell for category 14.01. The spreadsheet will automatically calculate the reduced or additional construction cost due to the geographic location of the project.

Worksheet - 15.00 - Adjustment Factor

This worksheet calculates the premium that a project will cost based on the dollar amount of the project. Projects smaller than \$4,000,000 can anticipate paying more per square foot because a portion of a contractor's general requirement costs are fixed. The additional cost required due to the dollar amount of the project is calculated automatically on this worksheet. No entries are required on this worksheet.

Worksheet - 16.00 - Contingencies

This worksheet calculates the contingencies for the project. Two contingencies are addressed: a general design contingency and an escalation contingency.

The general design contingency is to provide design flexibility and to account for construction unknowns. The general design contingency is fixed at 15% of the subtotal of costs calculated on worksheets 11.00 through 14.00. This is 5% more than the similar contingency on a new construction project. The extra 5% is to allow for additional unknowns typical of renovation projects. No entries are required to determine the general design contingency.

The escalation contingency is to account for the increase in construction costs for the year that the project is anticipated to start construction. The escalation rate is automatically calculated based on the anticipated construction date that is to be entered in the red text cell for category 16.03.

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Worksheet - 17.00 - Project Overhead and Other Costs

This worksheet calculates *Project Overhead and Other Costs* that are associated with the construction of a new school or addition. This worksheet also provides the total project cost. Below is a brief summary of the costs included on worksheet 17.00:

17.01 Construction Management (By Consultant) – enter the percent of construction cost required for construction management by non-district personnel. The Department of Education & Early Development’s suggested range for construction management is 2%, 3%, or 4% of the construction cost. If costs are expected to exceed the department’s recommended percentages, please provide a detailed justification of the overage. Also note that AS 14.11.020(c) places limits on the cost of construction management furnished by a private contractor:

AS 14.11.020

(c) The construction management costs of a project assumed under this section may not exceed four percent of the amount of appropriations for the facility if the amount of appropriations is \$500,000 or less. The construction management costs of a project assumed under this section may not exceed three percent of the amount of appropriations for the facility if the amount of appropriations is over \$500,000 but less than \$5,000,000. The construction management costs of a project assumed under this section may not exceed two percent of the amount of appropriations for the facility if the amount of appropriations is \$5,000,000 or more. For purposes of this subsection “construction management” means management of the project’s schedule, quality, and budget during any phase of the planning, design, and construction of the facility by a private contractor engaged by the municipality or regional educational attendance area.

17.02 Land Purchase Costs – enter the lump sum amount for land purchase costs. Even if the site has already been purchased it is wise to include the acquisition cost, especially if state reimbursement or funding is to be sought. Please note that 4 AAC 31.025 defines the requirements for reimbursement of site acquisition costs. Information regarding school site selection is available in the Department of Education publication, Site Selection Criteria and Evaluation Handbook, current edition.

17.03 Site Investigation – enter the lump sum amount estimated for site investigation activities. Site investigation include costs associated with selecting a site, site surveys, and geotechnical investigation services.

17.04 Seismic Hazard – enter a cost provided by an Alaska seismic safety design professional to perform seismic surveys of existing facilities, make recommendation and provide a plan or specification to implement seismic improvements.

17.05 Design Services Costs – enter the percent of construction cost required for design services costs. Design costs include the costs associated with project planning (from educational specifications through design development), preparation of construction/bid documents, and overseeing the completion of the work. Typically, large projects require

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smaller design cost percentages. The Department of Education's suggested range for the cost of project design is 6 – 10% of the construction cost. If costs are expected to exceed the department's recommended percentages, please provide a detailed justification of the overage.

17.06 Construction – enter the total of a detailed construction cost estimate if new in-lieu of renovation (if not Cost Demand Model). This amount should include *all* costs required for completion of work not estimated using the Cost Demand Model.

17.07 Equipment and Technology Costs – enter the percent of construction cost required for equipment and technology costs. Please refer to the Department of Education publication, Guidelines for School Equipment Purchases, current edition, for information regarding the definition of equipment. Budget parameters for equipment costs on a per student basis are also established in the publication. The Department of Education's suggested range for the cost of furnishings and equipment is up to 10% of the construction cost. Technology is included with equipment. If costs are expected to exceed the department's recommended percentages, please provide a detailed justification of the overage.

17.08 District Administrative Overhead – enter the percent of construction cost required for district's administrative overhead costs. Indirect costs include: the school district's cost of facilitating the entire project, accounting costs, and in-house construction management costs. Typically, large projects require smaller indirect cost percentages. The Department of Education's suggested range for the cost of project administration is up to 9% of the construction cost. If costs are expected to exceed the department's recommended percentages, provide a detailed justification of the overage.

17.09 Art – enter the percent of construction cost required for purchasing and installing art. The Department of Education applies the provisions of AS 35.27.020 to establish the required percent for art in school projects. This requirement is being applied by the department to all School Construction projects and some Major Maintenance projects based on the scope of the project. The minimum requirement for rural school facilities is 0.5% of construction cost. The minimum requirement for all other school facilities is 1% of construction cost. The department's suggested range for art procurement correlates to the appropriate minimum percentage required.

17.10 Project Contingency– calculates the project contingency for the entire project. The project contingency is fixed at 5% of the subtotal shown in category 16.04, so no entries are required to generate the cost. This contingency is to cover the possibility of above average design, management, or administration costs as well as construction cost overruns. The project contingency is in addition to the 15% general design contingency that was applied in worksheet 16.00.

17.11 Project Total Cost – provides the estimated project total cost for new construction or addition work. This line also provides a total of the additional percent costs associated

Renovations Projects

with the project. If these costs exceed 30% of the project construction cost, then a detailed justification of the additional costs will be required.

Worksheets 11.00 – 17.00 comprise the Renovation module of the Program Demand Cost Model for Alaskan Schools – 15th Edition. Please refer to the Samples section for an examples of the *Project Summary*, *General Summary*, and *Notes – Assumptions* worksheets.

Completion of the Cost Model Estimate

Worksheet - General Summary

The *General Summary* worksheet provides a consolidated summary of all the identified project costs. No entries are required on this worksheet because all the cost information is pulled from the previous worksheets. This worksheet serves as the project estimate while the other worksheets serve as project estimate back up. This worksheet provides an estimate structure and unit costs that enables the manual creation of a project estimate should a computer be unavailable. Refer to the Samples section for an example of the *General Summary* worksheet.

Worksheet - Notes – Notes and Assumptions

The *Notes – Assumptions* worksheet provides a location for detailed information regarding assumptions made while preparing the cost estimate. Each entry on the worksheet should include the line item (category number) and estimate summary page number defining the location in the estimate where the cost assumption has been placed. Each entry should also include a detailed description of the cost assumption including the dollar value associated with the assumption. Please refer to the Samples section for an example of the *Notes – Assumptions* worksheet.

Saving & Printing

As mentioned earlier, the file should be saved as an Excel Workbook with a descriptive title for easy reference. It is recommended that the file be saved periodically throughout the creation of the estimate. When the estimate is complete, all worksheets should be printed. The *Project Summary* and *General Summary* worksheets serve as broad and detailed estimate summaries, respectively. The *Notes – Assumptions* worksheet serves as a description of assumptions that were made during the creation of the estimate. The remainder of the worksheets serve as estimate back up.

Sample Estimate

The following pages from the Cost Model Workbook, contain samples of the *Project Summary*, the *General Summary*, and the *Notes – Assumptions* worksheets. Estimates prepared for the Department of Education that utilize the Cost Model for Alaskan Schools – 15th Edition Update shall provide the *Project Summary*, the *General Summary*, and the *Notes – Assumptions* worksheets.

Alaska Department of Education Early Development
 Program Demand Cost Model for Alaskan Schools
 15th Edition - 2016

New Construction and Renovation Work

School District: <i>(Name of School District)</i>	Date of Estimate: <i>(Date)</i>
Project: <i>(Name of School)</i>	Location: <i>(Location of School)</i>

PROJECT SUMMARY	NEW CONSTRUCTION	RENOVATION	TOTAL
PROJECT SIZE	0 SF	0 SF ¹	0 SF
CONSTRUCTION COST PER SQUARE FOOT	/SF	/SF	/SF
CONSTRUCTION COST	\$ 0	\$ 0	\$ 0
PROJECT OVERHEAD AND OTHER COSTS:			
Construction Management (By Consultant)	0	0	0
Land Purchase Costs	0	0	0
Site Investigation	0	0	0
Seismic Hazard	0	0	0
Design Services Costs	0	0	0
Construction	0	0	0
Equipment & Technology Costs	0	0	0
District Administrative Overhead	0	0	0
Art	0	0	0
Project Contingency	0	0	0
TOTAL PROJECT COST:	\$ 0	\$ 0	\$ 0

NOTES:

¹ The square foot area for renovation needs to be inserted.

HMS Inc.

Alaska Department of Education Early Development
Program Demand Cost Model for Alaskan Schools
15th Edition - 2016

New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

CONSTRUCTION SUMMARY	Gross Floor Area	Construction Costs	Project Total Costs
New School or Additions	0 SF	\$ 0	\$ 0
Renovation Work	0 SF	\$ 0	\$ 0
TOTAL NEW SCHOOL OR ADDITIONS AND RENOVATION WORK:		\$ 0	\$ 0

NEW SCHOOL OR ADDITIONS	Quantity	Cost Per Unit	Total
1.00 Instructional Resource/Support Teaching Areas			
1.01 Standard Classroom	0 SF	\$ 224.95	\$ 0
1.02 Kindergarten/Primary Classroom	0 SF	250.84	0
1.03 Damp Classroom/Laboratory	0 SF	248.68	0
1.04 Gymnasium	0 SF	326.06	0
1.05 Instructional Media Center (IMC)	0 SF	236.12	0
1.06 Music Room	0 SF	248.50	0
1.07 Home Economics	0 SF	259.68	0
1.08 Industrial Arts	0 SF	256.31	0
1.09 Other	0 SF	0.00	0
1.10 Other	0 SF	0.00	0
1.11 SUBTOTAL (Lines 1.01 thru 1.10):	0 SF		\$ 0
2.00 General Support/Supplementary Areas			
2.01 Multipurpose Room	0 SF	\$ 235.02	\$ 0
2.02 Auditorium	0 SF	272.94	0
2.03 Lockers and Showers	0 SF	343.26	0
2.04 Administration	0 SF	245.43	0
2.05 Cafeteria/Food Preparation	0 SF	529.60	0
2.06 Storage	0 SF	205.98	0
2.07 Toilets	0 SF	375.77	0
2.08 Circulation (Corridors, Etc.)	0 SF	231.45	0
2.09 Mechanical/Electrical	0 SF	205.98	0
2.10 Other	0 SF	0.00	0
2.11 Other	0 SF	0.00	0
2.12 SUBTOTAL (Lines 1.11 + 2.01 thru 2.11):	0 SF		\$ 0

HMS Inc.

Alaska Department of Education Early Development
 Program Demand Cost Model for Alaskan Schools
 15th Edition - 2016

New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

NEW SCHOOL OR ADDITIONS	Quantity	Cost Per Unit	Total
3.00 Special Requirements			
3.01 Emergency Generator (Standby Included)	0 KW	\$ 1,438.89	\$ 0
3.02 Fuel Oil 5,000 Gallon Storage for Generator	0 GAL	8.57	0
3.03 Fire Protection - Pump	0 EA	43,881.00	0
3.04 Fire Protection - Water Storage	0 GAL	3.96	0
3.05 Add for Crawlspace	0 SF	44.77	0
3.06 Add for Pile Foundation	0 SF	84.66	0
3.07 Add for Thermopile Foundation	0 SF	91.76	0
3.08 Demolition of Existing Building	0 SF	27.88	0
3.09 Abatement of Existing Building	0 SF	16.35	0
3.10 Other Special Requirements	1 LS	0.00	0
3.11 SUBTOTAL (Lines 2.12 + 3.01 thru 3.10):			\$ 0
4.00 Site Work (Technical Assistance Required)			
4.01 Site Preparation	1 LS	\$ 0.00	0
4.02 Site Earthwork	1 LS	0.00	0
4.03 Site Improvements	1 LS	0.00	0
4.04 Site Structures	1 LS	0.00	0
4.05 Site Utilities	1 LS	0.00	0
4.051 Water Main	0 LF	117.16	0
4.052 Site Utilities	0 LF	131.43	0
4.06 Bulk Fuel Storage	0 GAL	8.57	0
4.07 Site Electrical	1 LS	0.00	0
4.08 Site Lighting (Cost Per Fixture)	0 EA	10,857.00	0
4.09 Other	1 EA	0.00	0
4.10 TOTAL BUILDING COSTS (Lines 3.11 + 4.01 thru 4.09):			\$ 0
5.00 Construction General Requirements			
5.01 Mobilization, General Operating Costs and Office Overhead		13.30%	0
5.02 Contractor's Mark-Up, Risk and Profit		8.50%	0
5.03 Bonds and Insurances		2.45%	0
5.04 BASE TOTAL (Lines 4.10 + 5.01 thru 5.03):			\$ 0
6.00 Geographic Area Cost Factor			
6.01 Geographic Area Cost Factor		0.00%	0
6.02 SUBTOTAL (Lines 5.04 + 6.01):			\$ 0

HMS Inc.

Alaska Department of Education Early Development
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New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

NEW SCHOOL OR ADDITIONS		Total
7.00 Size Factor		
7.01 Size Adjustment Factor		0
7.02 SUBTOTAL (Lines 6.02 + 7.01):		\$ 0
8.00 Contingencies		
8.01 <u>GENERAL</u> : For Construction Unknowns and the Unanticipated, on Site and Design Criteria	10.00%	0
8.02 <u>ESCALATION</u> : Escalation Added for Future Cost Estimates. Project Escalated to the Year . . . 2016	0.00%	0
8.03 TOTAL ESTIMATED CONSTRUCTION VALUE (Lines 7.02 + 8.01 Thru 8.02):		\$ 0
9.00 Project Overhead and Other Costs		
9.01 Construction Management (by Consultant)	0.00%	0
9.02 Land Purchase Costs	--	0
9.03 Site Investigation	--	0
9.04 Seismic Hazard	--	0
9.05 Design Services Costs	0.00%	0
9.06 Construction	--	0
9.07 Equipment & Technology Costs	0.00%	0
9.08 District Administrative Overhead	0.00%	0
9.09 Art	0.00%	0
9.10 Project Contingency	5.00%	0
9.11 PROJECT TOTAL COST (Lines 8.03 + 9.01 Thru 9.10):		\$ 0

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Alaska Department of Education Early Development
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New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

RENOVATION WORK	Quantity	Cost Per Unit	Total
11.00 REMODEL			
11.01 FOUNDATION AND SUBSTRUCTURE			
11.02 Repairs (Estimate)	1 EA	\$ 0.00	\$ 0
11.10 SUPERSTRUCTURE			
11.11 Repairs (Estimate)	1 EA	0.00	0
11.12 Seismic Repairs (Estimate)	1 EA	0.00	0
11.20 EXTERIOR CLOSURE			
11.21 Exterior Upgrades (Replace Exterior Beveled Siding)	0 SF	12.13	0
11.22 Exterior Upgrades (Repaint Existing)	0 SF	3.03	0
11.23 Exterior Insulation Finish System to Existing	0 SF	18.94	0
11.24 Exterior Upgrades (Cement Board/Painted)	0 SF	9.66	0
11.25 Exterior Skin (Metal Siding)	0 SF	16.94	0
11.26 Insulation (Replace Insulation and Gypboard)	0 SF	6.57	0
11.27 Exterior Closure (Replace Doors and Frames)	0 EA	2,288.96	0
11.28 Exterior Closure (Replace Windows)	0 SF	97.53	0
11.29 Other Repairs (Estimate)	1 LS	0.00	0
11.30 ROOFING (Area of Roof)			
11.31 Replace Metal Roofing	0 SF	38.05	0
11.32 Replace Membrane Roofing	0 SF	29.60	0
11.33 Replace Asphalt Shingle Roofing	0 SF	17.24	0
11.40 INTERIOR CONSTRUCTION			
11.41 Replace Partitions (Includes Finishes)	0 SF	17.46	0
11.42 Replace Door Leafs and Frames	0 EA	1,727.06	0
11.43 Interior Painting (Walls and Ceilings)	0 SF	4.46	0
11.44 Replace Carpeting	0 SF	7.35	0
11.45 Replace Resilient Flooring	0 SF	8.72	0
11.46 Replace Gym Flooring	0 SF	32.57	0
11.47 Replace Ceramic Tile	0 SF	24.26	0
11.48 Replace Acoustical Tile Ceiling	0 SF	4.26	0
11.49 Replace Gypboard Ceiling	0 SF	8.78	0
11.50 SPECIALTIES/FURNISHINGS AND EQUIPMENT			
11.51 Replace Toilet Partitions	0 EA	1,768.78	0
11.52 Replace Toilet Accessories	0 EA	172.10	0
11.53 Smart Boards	0 EA	8,290.20	0

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New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

RENOVATION WORK	Quantity	Cost Per Unit	Total
11.00 REMODEL			
11.50 SPECIALTIES/FURNISHINGS AND EQUIPMENT			
11.54 Replace Sports Equipment and Lockers (Small Gym)	0 LS	29,671.00	0
11.55 Replace Tack/Chalk/Marker Boards	0 SF	21.42	0
11.56 Replace Base Cabinet Units	0 LF	266.10	0
11.57 Replace Wall Hung Units	0 LF	171.78	0
11.58 Other Repairs (Estimate)	1 LS	0.00	0
11.60 CONVEYING (Elevators, Etc.)			
11.61 New Two Stop Elevator	0 EA	135,897.00	0
11.62 Repairs/Replacement (Estimate)	1 LS	0.00	0
11.70 MECHANICAL			
11.71 Replace Plumbing - Fixtures Only	0 EA	2,101.41	0
11.72 Replace Plumbing - Entire System	0 SF	13.75	0
11.73 Replace Heating Systems	0 SF	12.38	0
11.74 Replace Ventilation Systems	0 SF	23.67	0
11.75 New Exhaust Fan	0 EA	11,451.00	0
11.76 New Cooling Systems	0 SF	3.21	0
11.77 New Controls	0 SF	9.61	0
11.78 New Sprinkler System (Excludes Replace Ceiling)	0 SF	8.95	0
11.79 Other Repairs/Replacement (Estimate)	1 LS	0.00	0
11.80 ELECTRICAL			
11.81 Replace Main Service and Distribution	0 EA	120,797.00	0
11.82 Replace MDP	0 EA	58,288.00	0
11.83 New Power Panel	0 EA	9,452.00	0
11.84 Replace Lighting - Fixtures & Wiring	0 SF	14.02	0
11.85 Replace Lighting - Fixtures Only	0 SF	8.14	0
11.86 Replace Power Devices	0 SF	3.31	0
11.87 New Standby Power and Fuel Oil	0 KW	1,438.89	0
11.90 COMMUNICATIONS			
11.91 New Addressable Fire Alarm System	0 SF	2.44	0
11.92 New Computer Outlets (Rough-In)	0 SF	1.44	0
11.93 New Data/Telecom/Address/Clock System	0 SF	5.93	0
11.94 New Public Address (Gym and Stage)	0 EA	40,995.00	0
11.95 New MATV System	0 SF	0.78	0

HMS Inc.

Alaska Department of Education Early Development
 Program Demand Cost Model for Alaskan Schools
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New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

RENOVATION WORK	Quantity	Cost Per Unit	Total
11.00 REMODEL			
11.90 COMMUNICATIONS			
11.96 New Hearing Impaired Audio System	0 EA	11,123.00	0
11.97 New Security System/CCTV	0 SF	2.69	0
11.98 Sound Field System (Audio Enhancement System)	#REF! ####	#REF!	#REF!
11.99 Other Repairs/Replacement/Demolition (Estimate)	1 LS	0.00	0
11.100 SUBTOTAL (Lines 11.01 thru 11.99):			#REF!
12.00 ADDITIONAL COSTS FOR HAZARDOUS MATERIALS REMOVAL (OPTIONS) (SUPPLEMENT TO SECTION 11.00)			
12.01 Complete Renovation (Interior) (Removal Only)	0 SF	17.99	0
12.02 Roof Replacement (Roof Area) (Removal Only)	0 SF	3.75	0
12.03 Exterior Upgrade (Number of Doors) (Removal Only)	0 EA	738.71	0
12.04 Replace Interiors (Removal Only)	0 SF	4.59	0
12.05 Replace Plumbing Fixtures (Removal Only)	0 EA	507.00	0
12.06 Replace Heating and Ventilation Systems (Removal Only)	0 SF	4.18	0
12.07 New Sprinkler System (Removal Only)	0 SF	3.59	0
12.08 Work in Connection with New Electrical Installation (Removal Only)	0 SF	0.88	0
12.09 Replace Small Fuel Oil Tank (Below Ground)	0 GAL	22.35	0
12.10 Replace Bulk Fuel Oil Tank (Above Ground)	0 GAL	9.44	0
12.11 Remove Below Ground Tank and Install New Above Ground Tank	0 GAL	14.86	0
12.12 Remove Above Ground Tank and Install New Below Ground Tank	0 GAL	13.47	0
12.13 Soil Remediation	0 CY	205.56	0
12.14 Other Specific Abatement	1 LS	0.00	0
12.15 SUBTOTAL (Lines 11.100 + 12.01 thru 12.14):			#REF!
13.00 Construction General Requirements			
13.01 Mobilization, General Operating Costs and Office Overhead		15.00%	0
13.02 Contractor's Mark-Up, Risk and Profit		10.00%	0
13.03 Bonds and Insurances		3.00%	0
13.04 BASE TOTAL (Lines 12.15 + 13.01 thru 13.03):			#REF!

HMS Inc.

Alaska Department of Education Early Development
 Program Demand Cost Model for Alaskan Schools
 15th Edition - 2016

New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

RENOVATION WORK	Total
14.00 Geographic Area Cost Factor	
14.01 Geographic Area Cost Factor	0.00% 0
14.02 SUBTOTAL (Lines 13.04 + 14.01):	#REF!
15.00 Adjustment Factor	
15.01 Dollar Adjustment Factor	0
15.02 SUBTOTAL (Lines 14.02 + 15.01):	#REF!
16.00 Contingencies	
16.01 <u>GENERAL</u> : For Construction Unknowns and the Unanticipated, on Site and Design Criteria	15.00% 0
16.02 <u>ESCALATION</u> : Escalation Added for Future Cost Estimates. Project Escalated to the Year . . . 2016	0.00% 0
16.03 TOTAL ESTIMATED CONSTRUCTION VALUE (Lines 15.02 + 16.01 Thru 16.02):	#REF!
17.00 Project Overhead and Other Costs	
17.01 Construction Management (by Consultant)	0.00% 0
17.02 Land Purchase Costs	-- 0
17.03 Site Investigation	-- 0
17.04 Seismic Hazard	-- 0
17.05 Design Services Costs	0.00% 0
17.06 Construction	-- 0
17.07 Equipment & Technology Costs	0.00% 0
17.08 District Administrative Overhead	0.00% 0
17.09 Art	0.00% 0
17.10 Project Contingency	5.00% 0
17.11 PROJECT TOTAL COST (Lines 16.03 + 17.01 Thru 17.10):	#REF!

HMS Inc.

Alaska Department of Education Early Development
 Program Demand Cost Model for Alaskan Schools
 15th Edition - 2016

New Construction and Renovation Work

School District: (Name of School District)	Date of Estimate: (Date)
Project: (Name of School)	Location: (Location of School)

NOTES AND ASSUMPTIONS

Page No.	Line Item	Description
0.	0.00	



TABLE NO. 1
GEOGRAPHIC AREA COST FACTOR
APRIL 2016

	INDEX	PERCENTAGE
Alaska Gateway	125.20	25.20%
Aleutian Region	154.50	54.50%
Aleutians East	128.70	28.70%
Anchorage (Base)	100.00	0.00%
Annette Island	124.40	24.40%
Bering Strait	181.20	81.20%
Bristol Bay Borough Schools	128.70	28.70%
Chatham	124.40	24.40%
Chugach	108.50	8.50%
Copper River	113.90	13.90%
Cordova	108.50	8.50%
Craig City Schools	112.40	12.40%
Delta/Greely	119.63	19.63%
Denali Borough	119.63	19.63%
Dillingham City Schools	133.54	33.54%
Fairbanks	105.00	5.00%
Galena	139.30	39.30%
Haines	112.40	12.40%
Hoonah City Schools	124.40	24.40%
Hydaburg City Schools	124.40	24.40%



TABLE NO. 1
GEOGRAPHIC AREA COST FACTOR
APRIL 2016

	INDEX	PERCENTAGE
Iditarod Area Schools		
Yukon River Village	143.05	43.05%
Kuskokwim River Village	154.50	54.50%
Landlocked Village	160.90	60.90%
Juneau City/Borough Schools	103.60	3.60%
Kake City Schools	122.90	22.90%
Kashunamuit	152.36	52.36%
Kenai Peninsula		
Kenai/Soldotna	98.60	-1.40%
Homer Area	105.50	5.50%
Ketchikan	110.80	10.80%
Klawock City Schools	124.40	24.40%
Kodiak Island		
Kodiak	112.40	12.40%
Village	124.40	24.40%
Kuspuk Schools	154.00	54.00%
Lake & Peninsula		
Gulf of Alaska Village	124.40	24.40%
Bristol Bay Village	136.04	36.04%
Landlocked Village	160.73	60.73%
Lower Kuskokwim		
Bethel	156.10	56.10%
Villages	167.10	67.10%
Lower Yukon	167.10	67.10%
Mat-Su Borough Schools		
Palmer - Wasilla	99.00	-1.00%
Other Areas	105.50	5.50%
Nenana City Schools	116.50	16.50%

Program Demand Cost Model - 15th Edition (April 2016)

State of Alaska - Department of Education & Early Development
 Program Demand Cost Model for Alaskan Schools - 15th Edition



TABLE NO. 1
GEOGRAPHIC AREA COST FACTOR
APRIL 2016

	INDEX	PERCENTAGE
Nome City Schools	156.10	56.10%
North Slope Borough		
Barrow	171.80	71.80%
Villages	182.20	82.20%
Atqasuk/Pt. Lay	199.90	99.90%
Northwest Arctic Schools		
Kotzebue	150.18	50.18%
Villages	181.50	81.50%
Pelican City Schools	124.40	24.40%
Petersburg City Schools	110.80	10.80%
Pribilof Island Schools	164.70	64.70%
Sitka City Borough	110.80	10.80%
Skagway City Schools	110.80	10.80%
Southeast Island Schools	123.19	23.19%
Southwest Region Schools	140.91	40.91%
St. Mary's School District	159.75	59.75%
Tanana City Schools	134.65	34.65%
Unalaska City Schools	140.00	40.00%
Valdez City Schools	109.30	9.30%
Wrangell City Schools	110.80	10.80%
Yakutat City Schools	115.40	15.40%
Yukon Flats		
Village on Road System	122.95	22.95%
Village on River	141.80	41.80%
Landlocked Village	159.73	59.73%

Program Demand Cost Model - 15th Edition (April 2016)



TABLE NO. 1
GEOGRAPHIC AREA COST FACTOR
APRIL 2016

	INDEX	PERCENTAGE
Yukon-Koyukuk		
Village on Road System	122.95	22.95%
Village on Yukon River	141.80	41.80%
Village on Koyukuk River	154.50	54.50%
Yupiit Schools	152.36	52.36%

NOTES:

This is an estimate of geographic area cost factors based on averages for materials, freight, equipment costs, and current Title 36 labor rates. The cost factors are based on an institutional building in Alaska using a standard AIA contract or similar contract. This is merely a guide, actual costs will vary.

This is only a guide and not necessarily correct for any specific need. It represents only a collection of costs normally found on some construction projects, rather than the custom requirements of a particular project.

This is not an index. This is a geographic area cost factor which includes not merely cost changes and logistical consideration, but also design criteria and how it is applied in different locations. Such design considerations would normally include standard concrete footings used mostly in Southcentral and Southeastern Alaska, to piling requirements in arctic and sub-Arctic, however, as this is a line item in the cost model, it has ***not*** been included in these calculations.

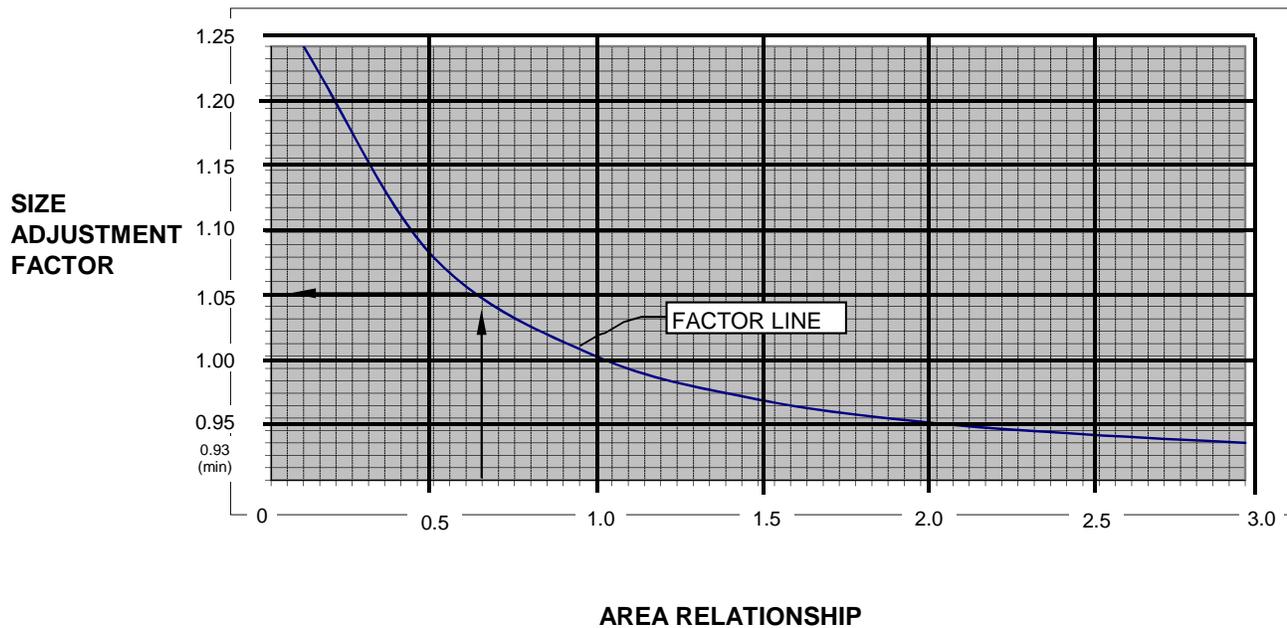
The calculation used in developing these cost factors are based on reasonable assumptions. For example, barge freight is mostly included rather than air freight for all materials and equipment. It is also assumed that local labor can be used to the fullest general availability, rather than all imported workers.

Village-to-village costs will vary plus or minus 5%. When using this geographic cost factor, consider how the location for which the estimate is being prepared is different from other surrounding places.

Regional cost factors are based on general and approximate calculations for anticipated conditions generally found in the area and logistic considerations. The more specific area factors are more subjective and based on opinion rather than any detailed analysis.



TABLE NO. 2a
SIZE ADJUSTMENT FACTOR



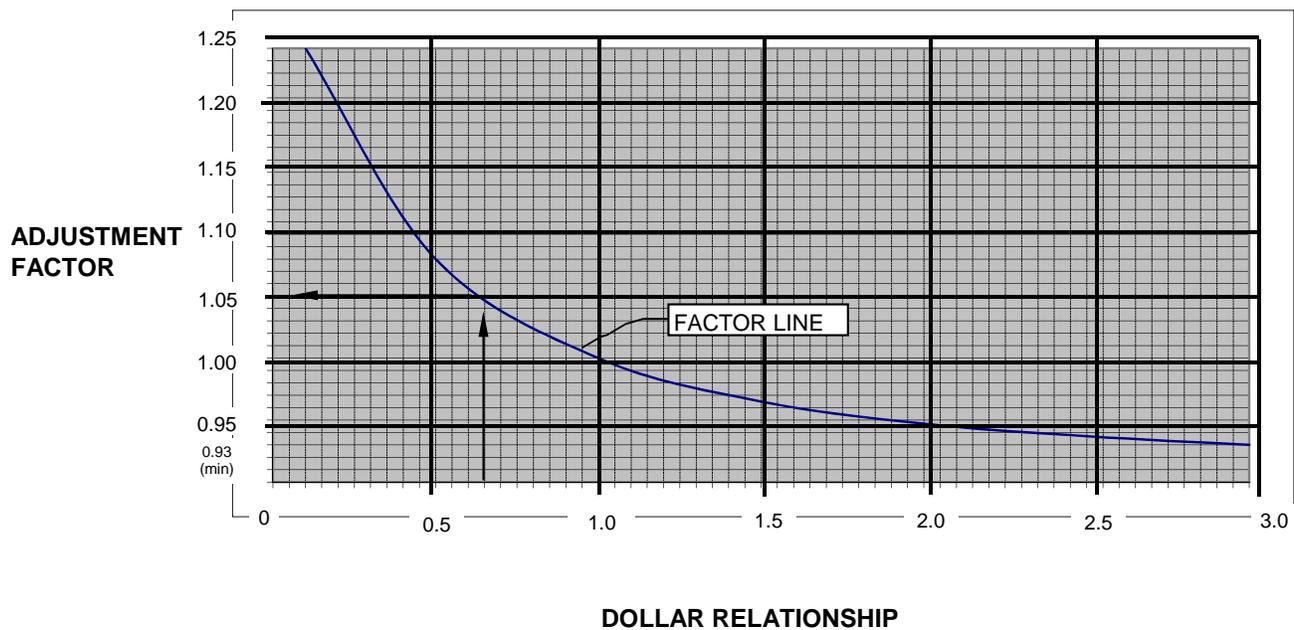
EXAMPLE: The Size Adjustment Factor is desired for a 16,000 SF Academic Facility.

AREA RELATIONSHIP:
$$\frac{\text{PROPOSED FACILITY SIZE}}{\text{TYPICAL FACILITY SIZE}} = \frac{16,000 \text{ SF}}{25,000 \text{ SF}} = 0.64$$

Find .64 on the horizontal axis. Trace a vertical line to the factor curve and then trace a horizontal line to the vertical axis' Size Adjustment Factor which is 1.05.



TABLE NO. 2b
DOLLAR ADJUSTMENT FACTOR



EXAMPLE: The Dollar Adjustment Factor is desired for a \$2,500,000 renovation project.

DOLLAR RELATIONSHIP:
$$\frac{\text{PROPOSED FACILITY}}{\text{TYPICAL FACILITY}} = \frac{\$2,500,000}{\$4,000,000} = 0.625$$

Find .625 on the horizontal axis. Trace a vertical line to the factor curve and then trace a horizontal line to the vertical axis' Adjustment Factor which is 1.05.



TABLE NO. 3
ALASKAN CONSTRUCTION ESCALATION INDEX
ANCHORAGE, ALASKA

APRIL 2016

Base Year 1980	Index 100.00	Increase From Previous Year	Base Year 1980	Index 100.00	Increase From Previous Year
1980	100.00	-	1999	150.96	1.84%
1981	104.40	4.40%	2000	152.60	1.64%
1982	107.70	3.30%	2001	154.53	1.93%
1983	115.60	7.90%	2002	162.54	8.01%
1984	118.60	3.00%	2003	166.34	3.80%
1985	117.70	-0.90%	2004	176.57	10.23%
1986	121.40	3.70%	2005	188.55	11.98%
1987	123.00	1.60%	2006	198.41	9.86%
1988	124.80	1.80%	2007	205.73	7.32%
1989	126.40	1.60%	2008	208.59	2.86%
1990	131.80	5.40%	2009	209.55	0.96%
1991	134.30	2.50%	2010	212.38	2.82%
1992	138.80	4.50%	2011	216.27	3.89%
1993	143.30	4.50%	2012	218.67	2.41%
1994	144.40	1.10%	2013	222.87	4.20%
1995	143.40	-1.00%	2014	223.78	0.91%
1996	146.20	2.80%	2015	228.32	4.54%
1997	146.70	0.50%	2016	227.49	-0.36%
1998	149.12	2.42%	2017	Estimated	1.25%

NOTES:

Back-up data for this analysis is held at HMS Inc., 4103 Minnesota Drive, Anchorage, Alaska.

These cost estimates are an index based on average costs for materials, freight and equipment, and also estimated Title 36 labor rates. The index is based on an institutional building in Anchorage using a standard AIA contract or similar contract.

Always remember that an index is only a useful guide and not necessarily correct for any specific need. It represents only a collection of costs normally found on some construction projects, rather than the custom requirements of a particular project.

Though the recent collapse in oil prices and resulting uncertainty in the state economy has held construction cost escalation to near zero, a continued gradual recovery in oil prices since the lows experienced in February 2016 would suggest a slight increase in construction cost escalation may be experienced in the upcoming year. It remains to be seen if the down turn in state funded projects resulting from the state budget reductions and uncertainly currently experienced as a result of legislative inability to come to a consensus on critical state budget issues as a result will create a competitive enough market to offset price escalation from the moderate recovery in oil prices anticipated.



TABLE NO. 3
ALASKAN CONSTRUCTION ESCALATION INDEX
ANCHORAGE, ALASKA

APRIL 2016

In addition, Alaska will see substantial increase in federal construction spending, particularly in central Alaska, beginning in Fiscal Year 2017 as a result of the construction of the F-35 Aircraft Support Infrastructure and continued spending in support of the missile defense system.

For planning purposes, HMS Inc. recommends a future rate of 1.25% escalation at this time with a possible increase up to 1.75% as the state budget reaches resolution, oil prices continues to recover, and federal spending continues to ramp up through 2020.



TABLE NO. 4

APPENDIX D - TYPE OF SPACE ADDED OR IMPROVED

Category A - Instructional or Resource

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

Category B - Support Teaching

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

Category C - General Support

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

Category D - Supplementary

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



TABLE NO. 5

ABBREVIATIONS

\$	=	Dollars
SF	=	Square Foot
LF	=	Linear Foot
LS	=	Lump Sum
EA	=	Each
GAL	=	Gallons
CY	=	Cubic Yards
CR	=	Classroom



TABLE NO. 6

STATEMENT OF SPECIFICATIONS

Consideration for pricing of unit costs in the Program Demand Cost Model for Alaskan Schools is based on superior level of specifications generally applied to new construction throughout the state. The reason being is that these schools are subject to hard usage, by day for educational use housing a significant number of students, faculty, and support staff, at other times schools are also used by the communities for a variety of functions.

To place the standard of specifications used on Alaskan schools in every day words, it will be reasonable to say that the quality of materials, workmanship and equipment specified is well above residential facilities, above a standard office building, likely similar to an airport and a little lower than a medical center.

Since the early 1970s, Alaska has tried to consider future operations and maintenance cost impacts in the funding of new school programs in the hope that a better funded project would allow for a more economic facility in terms of Life Cycle Cost. For this reason, schools have been designed to a superior level of specification.

In recent years some significance has been placed on ecological concerns that are both earth friendly and long term cost savings.

CONCRETE:

Strength of concrete often is specified to a minimum of 4,000 psi.

MASONRY:

Many areas in Alaska are Seismic Zone 4. Design of masonry work calls for significant reinforcing and support.

METALS:

Many areas in Alaska are Seismic Zone 4. Design of structural elements have enhanced strength connections and cross bracings.

WOODS AND PLASTICS:

Rough carpentry lumber at a minimum No. 2 grade, plywood (structural I) and finish work to a good quality with plastic laminate finish.

Wood framed buildings are also designed for Seismic Zone 4.



TABLE NO. 6

STATEMENT OF SPECIFICATIONS

THERMAL AND MOISTURE PROTECTION:

Thermal insulation in walls, R-19 and R-30, and roof R-50. Roofing material EPDM or Klip-Rib metal, the building sealed with Tyvek air barrier and joint sealants. Siding material pricing has been adjusted to provide for the use of cementitious siding.

OPENINGS:

Superior quality doors, frames and hardware. Windows Low E and insulated.

FINISHES:

Standard school finishes. Gypboard walls, acoustical tile ceilings, carpet and vinyl flooring with ceramic tile in bathroom toilets. Rigid vinyl wall coverings at janitor closets and kitchens.

SPECIALTIES:

Higher quality toilet partitions and toilet accessories, painted metal lockers and comprehensive signage.

EQUIPMENT:

Superior quality kitchen equipment, stainless steel worktops, good quality sports equipment.

FURNISHINGS:

Plastic laminate finish to casework. Solid surface countertops. Window coverings and entry mats. Smart boards.

MECHANICAL:

Copper water piping, insulated cast iron waste, American Standard fixtures.

Weil McLane boilers, hydronic heating, air handling with some cooling and exhaust system with digital controls.

Fully sprinklered fire suppression system throughout the school.

ELECTRICAL:

Good quality switchgear, panels and transformers, copper wiring all in conduit backed up with a standby generator. Lighting with energy saving lamps (LED) and good quality devices. Fire alarm system and all low voltage system currently used in modern Alaskan schools.



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Cost Estimate Program Demand Model - State of Alaska, Department of Education.

HMS Inc. 1st Edition - May 1981; 2nd Edition - November 1983 (computerized in December 1984); 3rd Edition - August 1986; 4th Edition - August 1988; 5th Edition - June 1991; 6th Edition - July 1997; 7th Edition - November 1997, 8th Edition (7th Revised) - March 2000; 9th Edition - April 2001; 10th Edition - March 2005; 11th Edition - April 2007, 11th Edition Update - March 2008; 11th Edition Revised - April 2009; 12th Edition - April 2010, 12th Edition Update - April 2011, 12th Edition Revised - April 2012; 13th Edition - April 2013; 14th Edition - 2015.

Cost Data Files and Records. HMS Inc., 1980 through early 2016.

Title 36, Public Contracts: Laborers' and Mechanics' Minimum Rates of Pay, State of Alaska, Department of Labor, dated April 2016 and review of changes to the Davis Bacon Act.

Department of Education, Appendix D: Type of Space Added or Improved by the Bond Reimbursement & Grant Review Committee, April 18, 1997.

Size Adjustment Factor

Based on a formula developed for the Department of Defense USA federal government projects.