

Review of Proposed Capital Construction Projects



for

Wyoming State Legislature
Joint Appropriations
Committee



By:



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**1.0 INTRODUCTION AND
EXECUTIVE SUMMARY**

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Introduction

This report presents the results of a four-part review and planning process conducted for the Wyoming State Legislature's Joint Appropriations Committee by MGT of America, Inc. of seven capital construction grant applications. The applications were submitted by the following districts for the listed projects:

- A. Johnson County School District #1
 - 1. Kaycee 6-12 School
 - 2. Buffalo 9-12 School
- B. Natrona County School District #1
 - 1. New President's Elementary School
 - 2. Eastside Intermediate School
 - 3. Verda James Elementary School
- C. Washakie County School District #1
 - 1. Worland Middle School
- D. Fremont County School District #38
 - 1. Arapahoe School

The review and planning process consisted of four elements, which included an analysis of how the projects aligned with the new Rules for Site Selection and School Construction for Wyoming Public School Buildings and the Wyoming Public Schools Facilities Guidelines, a value engineering analysis, an energy efficiency analysis, and a safety and security review. The reviews were completed using schematic design documents prepared by the district's architect. The review team was made up of design professionals and consultants from MGT of America, Inc. and J-U-B Engineers, Inc.

The review team met with the district's representatives, and the district's architectural team, including engineers, for a one or two-day workshop. The workshop included a presentation of the projects by the architectural team, a review of the findings and observations of the review team, discussions of design options, discussions of the district's responses to the options, and finally a summary of the findings and recommendations the review team would make in its report.

1.2 Executive Summary

The following paragraphs outline the major observations and recommendations for each project.

1.2.1 Kaycee 6-12 School

Design Guidelines and Rules Review

This project is an example of a small school which has a higher ratio of gross square feet per student than the guidelines address. The District has undergone its own value engineering process in addition to this review, has reduced the original size of the school, and has improved the efficiency of the design. However, the design still provides 558 GSF per student.

In order to reduce this ratio, the educational program would have to be examined for opportunities to increase class size and reduce the number of classrooms. This examination would have to be done in consultation with educational curriculum specialists who clearly understood the requirements of the educational "basket of goods".

Value Analysis

Kaycee 6-12 School for Johnson County School District #1 as submitted, is 72,259 square feet including the auditorium, gym and industrial arts building. The estimated cost for the building is \$10.7 million excluding architecture and engineering fees (\$148

per square foot). The District VE study and this VE study identified opportunities exceeding \$2.2 million that could be removed from the project (\$30 per square foot).

Energy Efficiency

The energy conservation evaluation identified opportunities that could reduce the annual energy use by \$8,600.

Safety and Security

The District has responded to almost all of the review teams comments regarding safety and security and there are no substantial concerns with this design.

1.2.2 Buffalo High School

Design Guidelines and Rules Review

The guidelines state that a school of this size, 424 students, should have a maximum of 180 GSF per student. As designed, Buffalo High School, has 278 GSF per student when the auditorium and auxiliary gym are excluded. In order to bring the design into alignment with the guidelines, the area of some program spaces would need to be reduced, such as the weight room, and class sizes would need to be increased so that the number of classrooms could be reduced. These decisions would have to be done in consultation with educational curriculum specialists who clearly understood the requirements of the educational “basket of goods”.

Value Analysis

Buffalo High School for Johnson County School District #1 as submitted, is 135,700 square feet including the auditorium, auxiliary gym and industrial arts building. The estimated cost for the building is \$19.7 million excluding architecture and engineering fees (\$145 per square foot). The District VE study and the review team VE study identified opportunities exceeding \$1.4 million that could be removed from the project (\$10 per square foot).

Energy Efficiency

The energy conservation evaluation identified opportunities that could reduce the annual energy use by \$9,300.

Safety and Security

The District has responded to almost all of the review teams comments regarding safety and security and there are no substantial concerns with this design.

1.2.3 New Presidents Elementary

Design Guidelines and Rules Review

This project generally complies with the rules and guidelines.

Value Analysis

The New Presidents Grade School for Natrona County School District #1 as submitted is 61,233 gross square feet including the commons and gym. The estimated cost for the building is \$10.93 million excluding architecture and engineering fees and technology equipment (\$178 per square foot). This VE study identified opportunities of approximately \$1.2 million that could be removed from the project (\$19.60 per square foot).

Energy Efficiency

The energy conservation evaluation identified opportunities that could reduce the annual energy use by \$10,300.

Safety and Security

The main safety and security concerns with this project are the conflicts in pedestrian/bicycle traffic and vehicular traffic, and the main vehicular entrance to the school site. The district should work to resolve these issues.

1.2.4 Verda James Elementary

Design Guidelines and Rules Review

This project substantially complies with the guidelines and rules. The design capacity is not based on enrollment projections, but rather on the maximum allowed under the guidelines. The district should prepare enrollment projections.

Value Analysis

The Verda James Elementary School project for Natrona County School District #1 is an addition and remodel. The existing school that will be renovated and remodeled is 41,572 square feet. The addition is 17,154 square feet. The estimated cost for the remodel and renovation is \$1.38 million (\$33 per square foot). The estimated cost for the addition is \$2.6 million excluding architecture and engineering fees and technology equipment (\$152 per square foot). This VE study identified opportunities of approximately \$475,000 that could be removed from the project (\$27.70 per square foot).

Energy Efficiency

The energy conservation evaluation identified opportunities that could reduce the annual energy use by \$5,900.

Safety and Security

The fact that this project is an addition to an existing building limits some measures which could be taken for safety and security. The District should strongly consider having an alarm system in all high-risk areas.

1.2.5 Eastside Intermediate School

At the time of the review, the District had prepared a conceptual design for the school but had not selected a site for the project. One potential site would have had a significant impact on the design of the school. The review team discussed some issues with the District about the conceptual design but could not conduct an in depth review

until the schematic design is completed. At the time of this report, the District had not submitted a schematic design for an actual site.

1.2.6 Worland Middle School

Design Guidelines and Rules Review

The overall design is efficient and generally complies with the guidelines. Some reductions in the program space could be made to bring the design into compliance with the 120 to 150 GSF per student guideline.

Value Analysis

Worland Middle School for Washakie County School District No. 1 as submitted is 100,225 square feet including the auditorium, ERC and gym. The estimated cost for the building is \$11.54 million excluding architecture and engineering fees (\$115 per square foot). This VE study identified opportunities of approximately \$600,000 that could be removed from the project (\$6.25 per square foot). Most of this opportunity is in the roof and roof structure.

Energy Efficiency

The energy conservation evaluation identified opportunities that could reduce the annual energy use by \$6,100.

Safety and Security

The building generally complies with the safety and security checklist. The major safety and security concerns are unwritten building security policies, bus traffic, and the lack of a remotely monitored alarm system.

1.2.7 Arapahoe School

Design Guidelines and Rules Review

Since this project involves the remodeling of an existing space for a special education program, there are very few guidelines that apply. The project does comply with the applicable guidelines.

Value Analysis

The Arapahoe classroom project was submitted as a remodel of a thirty-year old metal building that encloses a swimming pool. During the VE process it was suggested that the life cycle cost of remodeling this building be compared with the lifecycle cost of a new building. The district's design professionals prepared some cost estimates for various alternatives indicate a new building will cost \$1.6 million and the remodeled building would cost \$1.563 million. Based on these cost estimates, extended life of a new building and potentially more efficient space, the district has determined that they will redesign the project as a new building. The Value analysis completed on the remodel project as submitted is not relevant to the revised project.

Energy Efficiency

Since this project is being redesigned, an Energy Efficiency Analysis was not completed.

Safety and Security

The limited scope of this project causes most of the safety and security elements to be not applicable because they generally apply to the design of a complete school facility. The project does comply with those elements that are applicable.

2.0 KAYCEE 6-12 SCHOOL

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2.1 Project Description

The district has proposed building a new 6-12 school to replace the existing 7-12 high school and include the 6th grade from the existing Kaycee K-6 Elementary School. The existing high school was originally built in 1963 and had additions in 1970 and 1978. The building has a condition assessment score of 31.49 and a suitability score of 56.00.

The proposed new school would be built on property owned by the district just south of the existing high school. The design capacity is for 105 students in 58,582 GSF, with the ability to add space to house grades K-5. The addition will increase the capacity to 200 students in 65,752 GSF.

Since the workshop with Johnson County School District, the architectural team has made revisions to the proposed project in response to the review teams comments/recommendations. To the extent possible, those revisions will be reflected in this report.

2.2 Design Guidelines and Rules Review

Rules and guidelines with which the project design did not align are detailed below with the district's response and the review team's comment or recommendation. To review the results of the complete review, see Appendix A.

Guideline

All grade levels should have paved activity areas.

Analysis

All grade levels do not have paved activity areas. The outside basketball courts were eliminated in order to reduce construction costs.

District's Response

"This is acceptable to the District. Some site features will be added after the building project is complete. The first priority has been to provide the needed features of the building."

Comments/Recommendations

The paved activity areas should be added.

Guideline

Schools less than 350 students: graduated adjustment for the amount of GSF per student.

Analysis

58,582 GSF / 105 students = 558 GSF per student
There are no guidelines for schools with less than 350 students.

District's Response

"The current sf shown on the revised space program is 58,582 sf. Please remember that this facility is master-planned for a K-5 addition, transforming it into a K-12 facility. At that time, 100 additional students and 7,7170 sf will be added. At that time, the sf ratio will drop to 65,752/200 students = 328 sf per students."

Comments/Recommendations

The original submission for this project contained 64,555 GSF, so the district has reduced the plan by approximately 9%.

The current plan contains 17 teaching stations, including 1 special education room, 1 distance learning room, and the gym. This results in an average class size of 6 students.

It would probably not be possible to reduce the size of the school without reducing classrooms and increasing class sizes. The common spaces are efficiently designed.

Guideline

Section 7 (f) For new construction, the projected design capacity, as used for gross square footage computations, may not exceed the enrollment of the previous school year by more than 10 percent (10%).

Analysis

The May 5, 2000 enrollment for Kaycee High School and the 6th grade of Kaycee Elementary was 96 students. $96 \times 110\% = 105.6$

District's Response

The District has submitted demographic data showing that the county is growing, but did not submit enrollment projects for Kaycee High School.

Comments/Recommendations

The district has sized the school based on the maximum the guideline will allow instead of basing the size on enrollment projections. However, given the small size of the school, reducing the capacity by 9 or 10 students would not affect the overall school size significantly.

Guideline

The guideline for the media center is 4-6 GSF per ADM, with a minimum of 1,250 GSF and a capacity of 40 students or 10% of the ADM, whichever is greater. An additional maximum of 2,000 GSF is allowed for support space.

Analysis

The main media center room is 1,744 SF, which is sized for an ADM of 290 students. ($1744 / 6 = 290$)

The proposed design has 140 SF in support space, for a total of 1,884 SF.

District's Response

During the design development stage, the media center will be further articulated, and more of the space in the main room will be used for support space, bringing it into line with the guidelines.

Comments/Recommendations

The main room of the media center should be reduced to 1,250 SF. Appropriate support space should be identified.

Guideline

The gymnasium guideline calls for one competition court with two practice cross-courts. The exact GSF may vary depending on seating. The play area of the court should be 50'x84'. Seating should be 400-500 SF per 100 seats.

Analysis

The proposed design has a gym with 10,199 GSF. Given the allowable court size of 7,200 SF, this allows approximately 3,000 SF for seating, or a seating capacity of 600. This is the minimum size required to accommodate two cross courts.

District's Response

This community has lived with an undersize gym for a long period of time. It has proved to be a great hindrance to them, as they are unable to host tournaments, have regulation games, etc. A full size gym is a very important part of this building program. The inside clear dimensions of the gym are 91'-6" x 111'-0" for a total of 10,157 sf, this includes space for approximately 500 seats. There are several reasons for the need of this gym space.

First, this size allows a divider curtain to be dropped in the middle, and the school to have the capability of two practice courts when the bleachers are retracted. Due to Title 9 requirements, they need to be able to provide equal gym spaces for both boys and girls at the same time.

Secondly, due to the fact that this is both a middle school and a high school, they often have more than 1 PE class at a time, thus again the need for the two practice courts.

Thirdly, please remember that this building is master-planned for a future K-5 addition. When this becomes a K-12 school, gym space will be at a premium. The gym is not an area that can be easily added onto in the future.

Comments/Recommendations

The District's desire to have a substantial seating capacity and to have two practice courts is not unusual in small towns like Kaycee. The guidelines do not specify the appropriate seating capacity of a gym for a 100-student high school. If the seating capacity was reduced to 300, the gym could be reduced by approximately 1,500 SF, but then the two cross courts would not fit.

Given today's sports programs for both boys and girls, the review team concurs with the District desire to have two practice courts.

Summary

This project is an example of a small school which has a higher ratio of gross square feet per student than the guidelines address. The District has undergone it's own value engineering process in addition to this review, has reduced the original size of the

school, and has improved the efficiency of the design. However, the design still provides 558 GSF per student.

In order to reduce this ratio, the educational program would have to be examined for opportunities to increase class size and reduce the number of classrooms. This examination would have to be done in consultation with educational curriculum specialists who clearly understood the requirements of the educational “basket of goods”.

2.3 Value Analysis

Johnson County School District #1, the design team, and the construction manager completed a value analysis (Value Engineering) program for Kaycee School on a parallel track with this Value Analysis study. The results of the District’s VE study were provided to the VE team just prior to our meeting with the District and design team on October 2 through the 4, 2001. Many alternatives and items were included in both VE studies. It should be noted that the District’s VE process resulted in an estimated \$1,507,000 cost savings.

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance and other critical factors (determine by the Owner) meeting the customer’s expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.
2. **Function Phase:** This phase identifies functions and a cost versus worth model was prepared. Worth was defined as the lowest cost that is required to perform a function. Areas where there was a

large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the design team and District.

3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking, brainstorming and even speculation. This phase was done independent of the District and the District's design team
4. **Analysis Phase:** After the alternatives were developed they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we provide the actions proposed by the District.

2.3.1 Information.

The following information was used within this VE study:

1. Schematic design package as prepared by Plan One / Architects including District information, design narratives, site geotechnical data, schematic design plans, and draft system specifications.
2. Cost Data. Groathouse Construction provided estimated cost for construction and general conditions in a detail estimate. Cost data for the cost/worth model was obtained from Means Cost Works data and other school construction cost data adjusted for the local conditions.

3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and construction procedures and functions. From the information the following basic items were determined:

New Building

Site currently owned by Johnson County School District

Building size: 72,259 square feet
(including the gym and industrial arts)

Total Estimated Cost: \$10,716,000 excluding A/E fees

Building cost:	\$7,851,000
Industrial Arts Shop:	\$558,000
Site Improvements:	\$1,228,000
General Conditions:	\$1,079,000

2.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. The cost/worth model indicated there were these areas where there might be some reduction in costs. These were the areas where the VE team concentrated on for defining function and determining options.

1. Earthwork
2. Site Improvements – Landscaping and Irrigation
3. Foundation

4. Superstructure
5. Roofing
6. Interior Construction
7. HVAC and Special Mechanical Systems
8. Lighting and Power

In these areas there was a difference of cost versus worth per our model of approximately \$2.65 million. This is not to say that the building can be constructed for \$2.65 million less and still meet the requirements of the State or the School District. These areas were identified as the most likely to find value improvements based on the cost versus worth model.

2.3.3 Creative Phase.

The VE Team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
C-1	Reduce site earthwork	Eliminates or reduces barrow and export	Requires additional design work	\$ 15,000	Yes	
C-2	Eliminate or reduce trails and walkways.	Reduced costs and maintenance	Eliminates site amenities	\$56,000	Yes	This was identified in the District's VE study with a cost savings of \$68,400
C-3	Revise routing of site water and sewer	Reduced cost and lower line maintenance		\$45,000	Yes	This was identified in the District's VE study with a cost savings of \$38,400
C-4	Reduce landscaping and irrigation system	Reduces amount of construction and long term maintenance	Less visually appealing	\$86,000	Yes	Identified in District's VE study – eliminating sod and landscaping – reducing costs \$142,000
C-5	Eliminate kiosks on site.	Reduces construction cost and maintenance	Less visually appealing	\$40,000	Yes	
C-6	Provide storm drainage around building	Protects building from storm water runoff	Increased costs	(\$38,000)	Yes	District added this storm drainage for an estimated cost of \$34,000
C-7	Provide or review foundation for roads and sidewalk paving	Longer life and less movement of structure	Increased costs	(\$21,000)	Yes	District will review with geotechnical engineers as the proposed road structure is not consistent with the building foundation recommendations
S-1	Eliminate or reduce the use of drilled pier foundations	Reduced cost	Not as conservative	\$265,000	No	District did modify the foundation with other building modifications and used a driven steel pile foundation with an estimated cost reduction of \$245,000.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
S-2	Minimum pitch membrane roofs on building	Reduced cost – better snow control	Increased maintenance and less aesthetic appeal	\$470,000	Yes/No	District identifies this is their VE study and changed to a minimum pitched roof on the gym, and common areas with asphalt shingles on the remaining building resulting in a savings of \$384,000
S-3	Use wood joists instead of steel joists	Reduced structural costs	Increased fire protection required	\$46,000	Yes	District VE estimate was \$51,500.
A-1	Simplify building configuration eliminating the bump-outs	Reduced foundation and structural costs	Reduced aesthetics	\$340,000	Yes	District identified this in their VE process and estimated a reduction of costs of \$378,000.
A-2	Simplify roof structure to correspond to item A-2 above and eliminate cupolas.	Reduced costs	Less aesthetically pleasing	\$186,000	Yes	District identified this in their VE process and estimated a reduction of costs of \$204,000.
A-3	Reduce corridor height	Reduced volume	Reduces gathering space and natural lighting	\$46,000	Yes	District included this in item A-2.
A-4	Eliminate high windows in band room and gym	Reduced cost and maintenance	Less natural light	\$30,000	Yes	District identified this in their VE study and is included in A-2.
A-6	Reduce operating windows in building	Reduced cost and better HVAC control	Less outside air from windows	\$24,000	Yes	District will reduce number of operating windows in classrooms to those needed for egress.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
A-7	Move fan room or other mechanical to mezzanine area.	Reduced floor space	Construction of mezzanine, increased maintenance.	\$83,000	Yes	Mechanical room is reduced in size and a mezzanine was added.
A-8	Reduce Corridor Width	Reduced floor space and costs	Less gathering space	\$61,000	Yes	District agreed to reduce corridor width to 11 feet clear between lockers.
A-9	Review configuration and design of the stage to commons and gym area for fire rating	May require reconfiguration or fire rated wall	Increase costs or reconfiguration of this area	Undetermined	Yes	District reviewed with Fire Marshall and classified the gym, commons and stage area as a separate A2.1 area eliminating fire rated doors
A-10	Exchange mechanical room and music room to protect media center from noise.	Reduces sound proofing requirements		\$5,000	Yes	
A-11	Add roof protection at classroom entrances	Protects students and door openings from weather	Increased costs	(\$18,000)	Yes	District is adding roof protection over the classroom entrances.
A-12	Eliminate clerestory from corridors	Reduced building volume and increased building energy efficiency	Architectural impacts	\$113,000	Yes/No	Reduced the amount of clerestory to just the area in the enlarged hallways.
A-13	Review the location of the shop building so it does not impact the allowable areas per the fire code	Moving the building further away may result in less construction cost due to special construction	Increased site use and less convenient access	Undetermined	Yes	District has moved the shop building resulting in a more favorable fire rating and allowable areas.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
M-1	Use alternative HVAC system such as closed-loop heat pump	Reduced capital cost and reduced energy	Increased maintenance	\$320,000	No	Electrical costs increased and maintenance costs show no savings on a life cycle cost basis.
M-2	Use auto flush valves in urinals and toilets	More sanitary	Increased maintenance	(\$8,000)	Yes	
E-1	Add occupancy sensors to classrooms, offices and restrooms	Reduced energy costs	Increased costs	(\$4,000)	Yes	
E-2	Use T-5 indirect lighting in classrooms instead of T-8	Reduces ceiling height and reduced energy	District may have to stock two type of bulbs	\$36,000	No	District has determined that they would only like to stock one type of light

The Districts VE program reduced the overall cost of the project by an estimated \$1,507,000. We believe the District can achieve additional savings of \$300,000 to \$700,000, if some, or all of the alternatives are accepted and implemented.

The Johnson County School District and their design and construction professional did a very good job of designing the building and implementing the VE process. Many of the alternatives suggested by this VE team were suggested and implemented by the District's VE process. This process both validated and improved on the VE process completed by both teams.

2.4 Energy Efficiency Review

Introduction

The review team reviewed the schematic documents for energy efficiency strategies. Options to increase energy efficiency were discussed with the district during the workshop. The options are listed below. In each case the proposed options will save energy. The design team must complete the life cycle cost analysis to determine if the options and alternatives are cost effective.

2.4.1 HVAC, Mechanical and Electrical

HVAC

The heating, ventilation and air conditioning (HVAC) system, as proposed, is a state-of-the-art system with flexibility to increase functions as necessary. The system is a hot water system with multiple boilers. Cool water will be used for cooling as well as air-side economizers. The ventilation system will use air-to-air heat exchangers to capture heat. A more detailed description of the proposed system is included in the schematic design proposal.

The design team reviewed other alternatives including a closed loop water-to-water heat pump system and completed a life cycle cost analysis on the two systems. It was determined that the life cycle cost of the proposed Variable Air Volume (VAV) system was less than the heat pump system based on a 50 year analysis. It is recommended to continue to review options and alternatives to decrease initial and life cycle costs.

Electrical

The electrical system as proposed again is state-of-the-art. The lighting systems proposed is high efficiency T-8 fluorescent lights for classrooms, compact florescent for low height ceiling areas and metal halide in the gymnasium and commons areas. We would recommend use of T-5 fluorescent lighting fixtures instead of the T8 fixtures for better efficiency and better lighting levels and color. We would recommend the use of multiple compact florescent lights (sports lights) in the gymnasium and commons area for instant on capability, higher efficiency and the ability to supply different light levels for different events.

The parking lot lighting and exterior security lighting proposed is metal halide or high-pressure sodium. We would discourage the use of HPS lighting due to the poor color rendering associated with this type of light. We would also recommend the use of compact florescent lighting in these areas with cold weather ballast for instant on capability and increased efficiency.

Power distribution inside the building will be 277/480 volts 3 phase power with local transformers to reduce line loss and reduce wire size. This is a very good system to reduce power losses and produce a clean power system for technology systems.

The following is a summary of the energy efficiency options to be considered. The energy savings projected, if all of these energy saving measures are implemented, can

be substantial. However, one cannot add all of the estimated costs to get a net savings. If all of the above items were implemented an estimated energy savings would be \$8,400 annually using the above assumptions. Based on District input, they are either going to implement or are reviewing all of the above items except items 1, 2 and 4, resulting in a projected annual saving of \$3,400 in energy costs.

Item	Description	Advantages	Disadvantages	Projected Energy Saved Kw-hr/yr	Potential Annual Savings
1.	Reduce corridor volume & eliminate clerestory windows	Reduced energy for HVAC	Eliminates natural light into corridor and aesthetics	80,000	\$3,600
2.	Use T5 lights instead of T8 lights in classrooms	Reduced number of fixtures, reduced ceiling height and reduced energy	New technology and District may have to stock more than one type of lamp	22,000	\$990
3.	Replace HID lighting in gym and commons area with 'spotlights'	Reduced energy use through reduced light levels when necessary, instant on-off, and better efficiency	More expensive fixtures and re-lamp costs	43,000	\$1,900
4.	Cool rinse in kitchen dishwasher	Reduced energy	Increased chemicals and reduced cleaning of stains	20,000	\$400 (includes cost of chemicals)
5.	Light harvesting in classrooms, commons and gym	Reduced energy use by shutting off lights	Additional controls that might increase maintenance	17,000	\$765
6.	Occupancy sensors in classrooms, offices and restrooms	Reduced energy use by shutting off lights when not occupied	Increased cost and maintenance	11,700	\$525
7.	Use compensating hood or energy recovery in kitchen	Reduced energy use and heat recovery in high heat area		5,000	\$225
8.	Increase roof insulation to R-30 or greater	Reduced energy use for HVAC system	Increased cost	Undetermined	

Assumptions: Equivalent Energy Cost \$0.045per kilowatt-hour
 Assumed classroom use of 2200 hours per year
 Assumed gym use of 3600 hours per year
 No demand charge for the electrical utility.

2.5 Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team. See Appendix B for the complete review.

Issue

Are the school grounds fenced? Are all play areas fenced?

Analysis

The plan does not show any fencing.

District's Response

"The school grounds are not to be fenced at this time. If the K-5 wing is added in the future, a fence around the k-5 play area will be added at that time."

"A chain link fence will be added around the exterior storage areas."

Comments/Recommendations

The review team concurs.

Issue

Is visual surveillance of playground areas and equipment possible from a single point?

Analysis

The play areas are on either side of the building making single point surveillance not possible.

District's Response

This was an existing site and the placement of the building was given first priority.

Comments/Recommendations

The review team concurs.

Issue

Are remote or high-risk areas covered by surveillance cameras?

Analysis

This was not indicated on the submittal.

District's Response

A security camera system has been added to the scope of work.

Comments/Recommendations

The review team concurs.

Issue

Are trees planted away from the building to prevent access to the roof and upper floors?

Analysis

The plan shows trees planted close to the building.

District's Response

The district will keep this in mind when finalizing the landscape plan.

Comments/Recommendations

The review team concurs.

Issue

Are trees planted far enough back from intersections to allow good lines of sight for traffic, especially taller buses?

Analysis

The original plan has been revised to eliminate trees close to the intersections.

Issue

Is visual surveillance of parking lots possible from the main office?

Analysis

The original plan has been revised to make this possible.

Issue

Have bus loading areas been designed to restrict other vehicles?

Analysis

The submittal does not show any apparent restrictions.

District's Response

"Signage will be added to the project to delineate the student parking, staff parking, bus loading, and parent drop-off."

Comments/Recommendations

The review team concurs.

Issue

Are locker rooms visible from inside the coach's office?

Analysis

The coach's office is not located adjacent to the locker rooms.

District's Response

"The PE staff specifically requested this layout. We wish to leave this configuration as shown"

Comments/Recommendations

Without knowing the logic of the PE staff, the review team recommends relocating the coach's office to allow for visual surveillance of the locker rooms.

Issue

Are exterior wall finishes graffiti repellent or capable of repeated cleaning?

Analysis

The exterior walls are steel siding and concrete block.

District's Response

The district does not feel that graffiti is an issue.

Comments/Recommendations

The review team concurs.

Summary

The District has responded to almost all of the review teams comments regarding safety and security and there are no substantial concerns with this design.

3.0 BUFFALO 9-12 SCHOOL

3.0 BUFFALO HIGH SCHOOL

3.1 Project Description

The District has proposed building a new 9-12 high school to replace the existing structure. The existing high school was originally built in 1911 with additions in 1938, 1956, 1960, 1986, and 1988. The 1911 portion was demolished in the 1988 addition and the 1938 portion is now 63 years old.

The proposed new school will be built on property owned by the district on the eastern end of town. The design capacity is for 424 students in 135,771 GSF.

Since the workshop with Johnson County School District, the architectural team has made revisions to the proposed project in response to the review teams comments/recommendations. To the extent possible, those revisions will be reflected in this report.

3.2 Design Guidelines and Rules Review

Rules and guidelines with which the project design did not align are detailed below with the district's response and the review team's comment or recommendation. To review the results of the complete review, see Appendix A.

Rule

Section 7 (c) Senior high schools shall be designed within the range of 150 to 180 GSF per student.

- (d) Teaching stations, common space, mechanical space, gym space as shown in the facilities guidelines, and auditoriums in facilities having a projected design capacity of 1200 students or more, are included in the space standards shown above. Gym space that exceeds the typical space of the guideline examples, auditoriums in schools that have fewer than 1200 students in projected capacity, mezzanine space and natatoriums are not included in the space standards.*

Analysis

The project is designed for a capacity of 424 students with 135,771 GSF or 320 GSF per student.

The project includes an auditorium of 9,516 SF and an auxiliary gym of 7,249 SF. If these spaces are excluded from the total GSF, the ratio is approximately 278 GSF per student. $((9,516 + 7,249) \times 1.06 = 17,770$. $135,771 - 17,770 = 118,001 / 424 = 278.3$)

District's Response

“Serious efforts have been made to reduce the overall square footage, and still provide the educational “basket of goods”. We feel the design is as efficient as possible.

We currently load the classrooms with an average of 15 students in order to deliver the “basket of goods”. If we were at an average of 25 students per class (as used by the state to figure sf guidelines) we would then be at 175 sf per student and meet the guideline criteria.”

Comments/Recommendations

The proposed design contains 31 teaching stations for an average class size of 13.67 students. A class loading analysis is included in Appendix C.

Reductions in the media center, the competition gym, the weight room, the wrestling room, and the shops could reduce the area used to calculate the ratio by approximately 13,600 SF. This would reduce the ratio to 244 GSF per student. $(13,600 \times 1.06 = 14,416$. $118,001 - 14,416 = 103,585 / 424 = 244.3$)

The average classroom size is 858 SF which is providing approximately 63 SF per student with an average class size of 13.67. The provision of 28 additional SF of classroom space per student over the guideline of 35 SF per student, is a key factor in this facility not meeting the guidelines.

Given classes do vary, getting as large as 28, smaller classrooms would limit scheduling flexibility. In order to achieve alignment with the guidelines, the school would have to increase class sizes and eliminate classrooms.

Rule

Section 7 (f) For new construction, the projected design capacity, as used for gross square footage computations, may not exceed the enrollment of the previous school year by more than 10 percent (10%).

Analysis

The September 2001 enrollment at Buffalo High School was 380 students. $380 \times 1.1 = 418$. The proposed capacity of the school is 424 students.

While the district is close to the guideline, it has not provided any enrollment projections to justify building to the maximum allowable design capacity.

District's Response

The District has submitted demographic data showing that the county is growing, but did not submit enrollment projects for Buffalo High School.

Comments/Recommendation

The district should develop 5 year, at a minimum, enrollment projections to justify the design capacity.

Rule

Rule Section 7 (i) For new construction having projected enrollments fewer than 600 pupils, a multi-purpose room may serve in place of an auditorium. Where auditoriums are provided, they should seat one-third of the school's Average Daily Membership (ADM). Additional city or community funds, above those required to qualify for state assistance, can be combined with school funds if a larger auditorium is desired for community use.

Analysis

The project design includes an auditorium with a seating capacity of 500 or 1.18 times the ADM.

District's Response

"This would be the only auditorium in the town of Buffalo. It is felt that this auditorium is an integral space not only for the school but also for the community. This auditorium will be used not only for the high school, but for the middle school and elementary school as well. It will be a district and community wide resource."

Comments/Recommendation

The rules state that a district should seek additional community funds if it desires an auditorium larger than the rule allows. It follows that a district should also seek community funds if it desires an auditorium at a school which does not qualify for an auditorium under the rule.

Guideline

The main room of a media center will provide 4-6 GSF per ADM, with a minimum of 1.250 GSF, and a capacity of 40 students or 10% of the ADM, whichever is greater.

Analysis

The proposed design provides a main room of 3,379 SF, which is sized for an ADM of 563 students. ($3,379 / 6 = 563.16$) An additional 1,147 SF of support space is provided for a total of 4,526 SF.

The guideline would allow for 1,250 SF main room.

District's Response

The District feels the media center is within the guidelines.

Comments/Recommendation

The area of the media center main room should be reduced to comply with the guideline. This reduction would save 2,129 SF.

Guideline

The gymnasium guideline calls for one competition court with two practice cross-courts. The exact GSF may vary depending on seating. The play area of the court should be 50'x84'. Seating should be 400-500 SF per 100 seats.

Analysis

The proposed design has one competition gym of 13, 242 SF, which would have a potential seating capacity in excess of 1400, per the guidelines.

The design also includes an auxiliary gym of 7,249 SF.

District's Response

"A full size gym is an important part of this building program. The inside clear dimensions of the gym are 119' 10" x 110' 6" for a total of 13,242 sf. There are several reasons for the need of this gym space.

First, this size allows a divider curtain to be dropped in the middle, and the school to have the capability of two practice courts when the bleachers are retracted. Due to Title 9 requirements, they need to be able to provide equal space for both boys and girls at the same time. As many as 6 different team practices take place on a given day.

Secondly, this school often has as many as 4 P.E. classes in sessions at one time. This compounds the need for gym space. Due to their current lack of gym space, team practices starts as early as 5:30 AM in the morning, and last as late

as 9:00 PM at night. This is a hardship not only to the students, but also to their families.”

Comments/Recommendations

The elimination of the auxiliary gym and the reduction of the competition gym to 11,000 SF, which would allow seating for 600, would reduce the plan by approximately 9,490 SF.

Summary

The guidelines state that a school of this size, 424 students, should have a maximum of 180 GSF per student. As designed, Buffalo High School, has 278 GSF per student when the auditorium and auxiliary gym are excluded. In order to bring the design into alignment with the guidelines, the area of some program spaces would need to be reduced, such as the weight room, and class sizes would need to be increased so that the number of classrooms could be reduced. These decisions would have to be done in consultation with educational curriculum specialists who clearly understood the requirements of the educational “basket of goods”.

3.3 Value Analysis

Johnson County School District #1, the design team, and the construction manager completed a value analysis (Value Engineering) program on a parallel track with this value analysis study. The results of the District’s VE study were provided to the VE team just prior to our meeting with the District and design team on October 2 through the 4, 2001. Many alternatives and items were included in both VE studies.

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance, and other critical factors (determined by the Owner) meeting the customer’s expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project

constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.

2. **Function Phase:** This phase identifies functions and a cost versus worth model was prepared. Worth was defined as the lowest cost that is required to perform a function. Areas where there was a large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the design team and District.
3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking, brainstorming, and even speculation. This phase was done independent of the District and design team.
4. **Analysis Phase:** After the alternatives were developed, they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we provide the actions proposed by the District.

3.3.1 Information.

The following information was used within this VE study:

1. Schematic Design package as prepared by Plan One / Architects including District information, design narratives, site geotechnical data, schematic design plans, and draft system specifications.

2. Cost Data. Groathouse Construction provided estimated cost for construction and general conditions in a detail estimate. Cost data for the cost worth model was obtained from Means Cost Works data and other school construction cost data adjusted for the local conditions.

3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and construction procedures and functions. From the information the following basic items were determined:

New Building

Site currently owned by Johnson County School District

Building Size: 135,696 square feet
(including the Auditorium, Aux. Gym and Industrial Arts)

Site area: 40 acres

Total Estimated Cost: \$19,650,000 excluding A/E fees

Building cost:	\$11,274,000
Auditorium:	\$1,444,000
Auxiliary Gym:	\$782,000
Industrial Arts Shop:	\$574,000
Site Improvements:	\$3,609,000
General Conditions:	\$1,968,000

3.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system, and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy

consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. The cost/worth model indicated there were these areas where there might be some reduction in costs. The VE team concentrated on these areas for defining function and determining options.

1. Earthwork
2. Site Improvements – Landscaping and Irrigation
3. Foundation
4. Superstructure
5. Roofing
6. Interior Construction
7. HVAC and Special Mechanical Systems
8. Lighting and Power

In these areas there was a difference of cost versus worth per our model of approximately \$4 million. This is not to say that the building can be constructed for \$4 million less and still meet the requirements of the State or the School District. These areas were identified as the most likely to find value improvements based on the cost versus worth model.

3.3.3 Creative Phase.

The VE team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
C-1	Balance site earthwork	Eliminates or Reduces Barrow	Requires additional design work	\$ 75,000	Yes	District VE Study added \$271,00 to earthwork estimate.
C-2	Mass grading of site with conventional 'cat & can' grading	Reduces unit costs for mass site grading	Requires complete site design prior to any building construction	\$215,000	Yes	This should be a separate contract prior to building construction.
C-3	Find a new site	Eliminates the large amount of earthwork	Requires the purchase of a new site	\$300,000	No	Site costs are very high in the local area, District currently owns site.
C-4	Reduce paths number and size	Reduces amount of construction and materials	Limited vehicle traffic	\$45,000	Yes	Identified in District VE at savings of \$35,000
C-5	Reduce landscaping	Reduces amount of construction and long term maintenance	Less visually appealing	\$208,000	Yes	Identified in District VE Study – Eliminating sod and landscaping – reducing costs \$261,000
C-6	Eliminate kiosk or reduce size of "midway" feature on site.	Reduces construction cost and maintenance	Less visually appealing	\$40,000	Yes	District reduced size
C-7	Provide storm drainage on south side of building	Protects building from Storm water runoff	Increased costs	(\$43,000)	Yes	
S-1	Eliminate drilled pier foundation	Reduced cost with site cuts at building already into rock or near rock.	Not as conservative	\$315,000	No	District will meet with Structural and Geotechnical Eng. To discuss.
S-2	Minimum pitch membrane roofs on building	Reduced cost – better snow control	Increased maintenance and less aesthetic appeal	\$860,000	Yes/No	District identifies this is their VE study and changed to a minimum pitched roof on the Gym, music and theater with asphalt shingles on the remaining building resulting in a savings of \$584,000

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
S-3	Eliminate masonry on upper clerestory wall	Reduced structural elements		\$30,000	Yes	
A-1	Eliminate corridor at south side of auditorium	Exit directly to exterior – less floor space	Access to south side limited	\$78,000	No	District requires access around entire auditorium box for performers
A-2	Reduce volume and windows in Media Center	Reduced volume and structural costs	Less aesthetically pleasing	\$128,000	Yes	District reduced volume and reduced number of windows
A-3	Reduce corridor width and height, and stair width	Reduced volume and floor space	Reduces gathering space and natural lighting in second floor	\$119,000	Yes/No	Eliminating clerestories would not provide the architectural statement desired. Stair width has been reduced
A-4	Reduce distance between floors – story height	Reduced volume	Less space for mechanical and electrical work	\$40,000	Yes	District is reviewing opportunity to reduce story height.
A-6	Reduce operating windows in building	Reduced cost and better HVAC control	Less outside air from windows	\$38,000	Yes	District will reduce number of operating windows in classrooms to those needed for egress.
A-7	Move fan room to mezzanine area above classrooms	Reduced floor space	Construction of mezzanine, increased maintenance and eliminates clerestories	\$96,000	No	The District has chosen to keep the clerestory as a design element, which will not allow the construction of a mezzanine in the corridor space.
A-8	Protect structural members with gyp board moves fire envelope from ceiling to roof structural members.	Reduced costs	Fire damage could be more to structure	\$265,000	Yes	Identified in District VE study with an estimated cost savings of \$303,800

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
A-9	Simplify building configuration	Reduced costs for structure and foundation	Less aesthetically pleasing	\$196,000	Yes	Identified in District VE Study and the building configuration was changed substantially
A-10	Add roof covering at entrances for protection	Protects people waiting at entrance and protects doors	Increased costs	(\$35,000)	Unknown	
A-11	Add stairs for access to gym floor from commons	Provides security for quick access to gym floor	Increased costs and reduces space in gym	(\$12,000)	No	District is adding stairs outside of gym box so track is left unaffected.
A-12	Increase roof insulation to R-39	Increased building energy efficiency	Increased cost	(\$23,000)	Yes	
M-1	Use alternative HVAC system such as closed-loop heat pump	Reduced capital cost and reduced energy	Increased maintenance	\$430,000	No	Electrical costs increased and maintenance costs show no savings on a life cycle cost basis.
M-2	Use auto flush valves in urinals and toilets	More sanitary	Increased maintenance	(\$12,000)	Yes	
E-1	Reduce number of exterior light fixtures in parking lot	Less cost less maintenance	Higher poles and less uniform lighting	\$24,000	Yes	District is reviewing for final design.
E-2	Add occupancy sensors to classrooms, offices and restrooms	Reduced energy costs	Increased costs	(\$4,000)	Yes	
E-3	Use T-5 indirect lighting in classrooms instead of T-8	Reduces ceiling height and reduced energy	District may have to stock two type of bulbs	\$36,000	No	District has determined that they would only like to stock one type of light

The District's VE program reduced the overall cost of the project by an estimated \$443,000. We believe the District can achieve additional savings of \$600,000 to \$900,000, if some, or all of the alternatives are accepted and implemented.

The Johnson County School District and their design and construction professional did a very good job of designing the building and implementing the VE process. Many of the alternatives suggested by this VE team were suggested and implemented by the District's VE process. This process both validated and improved on the VE process completed by both teams.

3.4 Energy Efficiency Review

Introduction

The review team reviewed the schematic documents for energy efficiency strategies. Options to increase energy efficiency were discussed with the District during the workshop. The options are listed below. In each case the proposed options will save energy. The design team must complete the life cycle cost analysis to determine if the options and alternatives are cost effective.

HVAC, Mechanical and Electrical

HVAC

The heating, ventilation and air conditioning (HVAC) system, as proposed, is a state-of-the-art system with flexibility to increase functions as necessary. The system is a hot water system with multiple boilers. Cool water will be used for cooling, as well as air-side economizers. The ventilation system will use air-to-air heat exchangers to capture heat. A more detailed description of the proposed system is included in the schematic design proposal.

The design team reviewed other alternatives including a closed loop water-to-water heat pump system and completed a life cycle cost analysis on the two systems. It was determined that the life cycle cost of the proposed Variable Air Volume (VAV) system was less than the heat pump system based on a 50 year analysis. It is recommended to continue to review options and alternatives to decrease initial and life cycle costs.

Electrical

The electrical system as proposed again is near state-of-the-art. The lighting systems proposed is T-8 fluorescent lights for classrooms, compact florescent for low height ceiling areas and metal halide in the gymnasium and commons areas. We would recommend use of T-5 fluorescent lighting fixtures instead of the T-8 fixtures for better efficiency and better lighting levels and color. We would recommend the use of multiple compact florescent lights (sports lights) in the gymnasium and commons area for instant on capability, higher efficiency and the ability to supply different light levels for different events.

The parking lot lighting and exterior security lighting proposed is metal halide or high-pressure sodium. We would discourage the use of HPS lighting due to the poor color rendering associated with this type of light. We would also recommend the use of compact florescent lighting in these areas with cold weather ballast for instant on capability and increased efficiency. As an example, a 250-watt compact fluorescent bulb will produce the same light as a 400-watt metal halide.

Power distribution inside the building will be 277/480 volts, 3-phase power with local transformers to reduce line loss and reduce wire size. This is a very good system to reduce power losses and produce a clean power system for technology systems.

The following is a summary of the energy efficiency options to be considered. As seen, if all of these energy saving measures are implemented, the energy savings projected can be substantial. If all of the above items were implemented, estimated energy savings would be \$9,300 using the above assumptions. Based on District input, they are either going to implement or are reviewing all of the above items except items 1, 2 and 4.

Item	Description	Advantages	Disadvantages	Estimated Energy Saved Kw-hr/yr	Potential Annual Savings
1.	Reduce corridor volume & eliminate clerestory windows	Reduced energy for HVAC	Eliminates natural light into corridor and aesthetics	120,000	\$5,400
2.	Use T5 lights instead of T8 lights in classrooms	Reduced number of fixtures, reduced ceiling height and reduced energy	New technology and District may have to stock more than one type of lamp	50,000	\$2,250
3.	Replace HID lighting in gym and commons area with 'sportlights'	Reduced energy use through reduced light levels when necessary, instant on-off, and better efficiency	More expensive fixtures and re-lamp costs	72,000	\$3,240
4.	Cool rinse in kitchen dishwasher	Reduced energy	Increased chemicals and reduced cleaning of stains	40,000	\$800 (includes cost of chemicals)
5.	Light harvesting in classrooms and media center	Reduced energy use by shutting off lights	Additional controls that might increase maintenance	30,000	\$1,350
6.	Occupancy sensors in classrooms, offices and restrooms	Reduced energy use by shutting off lights when not occupied	Increased cost and maintenance	22,500	\$1,000
7.	Use compensating hood or energy recovery in kitchen	Reduced energy use and heat recovery in high heat area		15,000	\$675
8.	Increase roof insulation to R-30 or greater	Reduced energy use for HVAC system	Increased cost	Undetermined	
9.	Reduce window area in media center	Reduced energy use for HVAC system	Aesthetics	Undetermined	

Assumptions: Equivalent energy cost \$0.045per kilowatt-hour
 Assumed classroom use of 2200 hours per year
 Assumed gym use of 3600 hours per year
 No demand charge for the electrical utility. Safety and Security Review

3.5 Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team.

Issue

Are the school grounds fenced? Are all play areas fenced?

Analysis

The plan does not show any fencing.

District's Response

"The school grounds are not to be fenced at this time. The District considers fencing the site unnecessary."

"The District has decided to add a security fence along the east side of the football field to contain spectators on the school property."

"A chain link fence will be added around exterior storage areas."

Comments/Recommendations

The review team concurs.

Issue

Are remote or high-risk areas covered by surveillance cameras?

Analysis

This was not indicated on the submittal.

District's Response

A security camera system has been added to the scope of work.

Comments/Recommendations

The review team concurs.

Issue

Are trees planted away from the building to prevent access to the roof and upper floors?

Analysis

This was not indicated on the submittal.

District's Response

New trees will be placed so that access is not available to the building roofs.

Comments/Recommendations

The review team concurs.

Issue

Does the location and height of landscaping prevent surveillance?

Analysis

This was not indicated on the submittal.

District's Response

The District will consider this in laying out landscaping elements.

Comments/Recommendations

The review team concurs.

Issue

Are trees planted far enough back from intersections to allow good sight for traffic, especially taller buses?

Analysis

This was not indicated on the submittal.

District's Response

"Trees have been removed from the landscape plan near the intersections and drive approaches."

Comments/Recommendations

The review team concurs.

Issue

Is visual surveillance of parking lots possible from the main office?

Analysis

The office was orientated such that it did not have visual surveillance of the parking lots.

District's Response

The District reoriented the office to make visual surveillance possible.

Comments/Recommendations

The review team concurs.

Issue

Are raised sidewalks used to separate pedestrians in parking areas?

Analysis

This was not indicated on the submittal.

District's Response

"Raised sidewalks will occur around the perimeter of the parking areas. Raised sidewalks will not occur in the parking area itself to facilitate snow removal."

Comments/Recommendations

The review team concurs.

Issue

Has traffic flow been directed to eliminate congestion and confusion?

Analysis

Buses, student drivers and visitors use the same vehicle entrance to the school. Students and visitors must cross the bus lane to enter the school.

District's Response

"The bus lane has been moved back by the staff parking lot. Students no longer cross the bus lane to enter the school. High school faculty and the bus drivers will monitor the bus loading and unloading."

Comments/Recommendations

The review team concurs.

Issue

Have bus loading areas been designed to restrict other vehicles?

Analysis

Student and visitor vehicles have to use the same driveway as the buses.

District's Response

"Signage will be added to the project to delineate the student parking, staff parking, bus loading, and parent drop-off."

Comments/Recommendations

The review team concurs.

Issue

Are covered areas provided for waiting students?

Analysis

No covered areas, other than at the front entrance, were provided for waiting students.

District's Response

"With the redesign of the bus loop, an enlarged staging area has been provided with covered shelters. The front entrance canopy of the building has also been enlarged to protect pedestrians there."

Comments/Recommendations

The review team concurs.

Issue

Are locker rooms visible from inside gym teacher's offices?

Analysis

Two of the locker rooms are and two are not.

District's Response

Communicating doors were added between the locker rooms to increase visibility.

Comments/Recommendations

The review team concurs.

Issue

Are elevators designed for limited access and electronic surveillance?

Analysis

This was not indicated on the submittal.

District's Response

"Elevator access will be controlled with a card and/or a key system."

Comments/Recommendations

The review team concurs.

Issue

Is the building designed to minimize the number of staff necessary to provide visual surveillance to all interior hallways and common spaces?

Analysis

This was true except for the shop and music areas.

District's Response

This was not a major concern.

Comments/Recommendations

The review team concurs.

Issue

Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?

Analysis

The exterior walls were metal siding and concrete block.

District's Response

The District did not have a concern with graffiti and chose exterior materials for durability, weather tightness, and appearance.

Comments/Recommendations

The review team concurs.

Summary

The District has responded to almost all of the review teams comments regarding safety and security and there are no substantial concerns with this design.

**4.0 NEW PRESIDENT'S
ELEMENTARY SCHOOL**

4.0 NEW PRESIDENT'S ELEMENTARY SCHOOL

4.1 Project Description

The District has proposed building a new K-6 elementary school to replace three existing elementary schools: Garfield, Grant and Jefferson. The District states that all three of the schools are overcrowded. Garfield was originally built in 1927 with a 1950 addition, the other two schools were both built in the 50's. The condition scores for the existing schools are 30.22 for Garfield, 66.35 for Grant, and 57.45 for Jefferson.

The new facility will be located on the existing Garfield school site. Some property will be added to the site in a trade with Casper College. The school will be designed for a capacity of 512 students in 61,233 GSF.

4.2 Design Guidelines and Rules Review

Rules and guidelines with which the project design did not align are detailed below with the district's response and the review team's comment or recommendation. To review the results of the complete review, see Appendix A.

Rule

Section 7 (f) For new construction, the projected design capacity, as used for gross square footage computations, may not exceed the enrollment of the previous school year by more than 10 percent (10%).

Analysis

The design proposes a capacity of 512 students. This is a 10% increase over the enrollments of the existing three schools and technically meets the guidelines.

The District has not submitted enrollment projections to substantiate this increase.

An analysis of the teaching stations produces a design capacity of 550.

Type of Teaching Station	Capacity	Quantity	Total Capacity
PK - 3	22	12	264
4 - 6	25	9	225
Special Ed.	4	12	48
Other	5	22	110
Total Capacity	(total x .85)		550

District’s Response

The district calculated the capacity using only the PK-3 and 4-6 teaching stations.

Comments/Recommendations

The guidelines do not clearly state how to calculate the design capacity of a school facility.

Guideline

General music rooms will have a maximum size of 1050 GSF.

Analysis

The submittal shows a music room of 2,140 sf.

District’s Response

The school may need to have as many as three sections of music and some of the 2,140 sf will be used for storage space.

Comments/Recommendations

The review team concurs.

Guideline

The guideline for the media center is 4-6 GSF per ADM, with a minimum of 1,250 GSF. An additional maximum of 2,000 GSF is allowed for support space. Maximum capacity shall be 40 students or 10% of the ADM.

Analysis

The submittal shows a media center of 2,598 sf, which is sized for an ADM of 433 students according to the guidelines. (2,598 / 6 = 433)

District’s Response

The design may incorporate some of the excess space into support space.

Comments/Recommendations

The media center should be brought into compliance with the guidelines and redesigned to 1,250 SF.

Summary

This project generally complies with the rules and guidelines.

4.3 Value Analysis

Natrona County School District #1, the design team from Gorder-South Architects completed a schematic design package for the new Presidents Elementary School. The schematic design and other information were presented to this VE team for review. The VE team meet with the Natrona School District on October 9 through 11, 2001.

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance and other critical factors (determine by the Owner) meeting the customer's expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.
2. **Function Phase:** This phase identifies functions and a cost versus worth model was prepared. Worth was defined as the lowest cost that is required to perform a function. Areas where there was a large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the District's design team and District.
3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking,

brainstorming and even speculation. This phase was done independent of the District and the District's design team. .

4. **Analysis Phase:** After the alternatives were developed they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and District's design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we provide the actions proposed by the District.

4.3.1 Information.

The following information was used within this VE study:

1. Schematic design package as prepared by Gorder/South Group, dated July 31, 2001 including program statement, program, project drawings and outline specifications.
2. Cost Data. The schematic design package included a preliminary budget and systems cost for the proposed project as prepared by Gorder/South Group. The costs were based on a cost per square foot basis.
3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and

construction procedures and functions. From the information the following basic items were determined:

New Building

Site currently owned by Natrona County School District, additional land to be acquired from City of Casper and an access needs to be developed for the existing church building.

Building size:	61,233 square feet (including gym commons and media center)
Circulation space	14,775 square feet
Total Estimated Cost:	\$12,942,000 (including A/E fees)
Building cost:	\$7,179,190 (including contingencies & inflation)
Site Improvements:	\$2,036,000
Demolition and Asbestos	\$280,000
Furniture and Technology	\$1,442,000
Professional Fees:	\$870,000
Owner & Contingencies	\$1,135,000

On November 21, 2001 we received a revised schematic design package from Gorder/South Group. The following information was contained in the new submittal:

Building size:	59,213 square feet (including the existing and new addition.)
Circulation space	10,445 square feet
Total Estimated Cost:	\$12,599,000 (including A/E fees)
Building cost:	\$6,803,000 (including contingencies & inflation)
Site Improvements:	\$2,210,000
Demolition and Asbestos	\$150,000
Furniture and Technology	\$1,103,000
Professional Fees:	\$895,000
Owner & Contingencies	\$1,103,000

4.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy

consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. The cost/worth model indicated there were these areas where there might be some reduction in costs. These were the areas where the VE team concentrated on for defining function and determining options.

1. Site Improvements
2. Substructure
3. Superstructure
4. Roofing
5. Wall Closure
6. Interior Construction
7. Equipment

In these areas there was a difference of cost versus worth per our model of approximately \$2.3 million. This is not to say that the building can be constructed for \$2.3 million less and still meet the requirements of the State, or the School District. These areas were identified as the most likely to find value improvements based on the cost versus worth model.

4.3.3 Creative Phase.

The VE Team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
C-1	Revise grading to minimize retaining walls	Reduced cost and improved access	Steeper grades or reorientation of building on site	\$262,000	Yes	District has reoriented the building on the site eliminating the retaining walls
C-2	Provide fire truck access around building.	Safety and access	Security	(\$28,000)	Yes	District added fire access around building with new design.
C-3	Eliminate trench drains	Reduced maintenance and costs		\$15,000	Yes	
C-4	Consider access from Walnut Street for better access and less extensive site work	Reduced cost, better grades on site	Access through neighborhood	\$145,000	Yes	Building was reoriented for access from Walnut Street but requires a separate entrance drive to church
C-5	Eliminate drilled piers and use conventional spread footing in deep excavation area on building.	Reduces construction cost	Less conservative, eliminates crawl space for mechanical	\$160,000	No	Building was reoriented eliminating the need for deep excavations and now piers are required.
C-6	Consider the use of PVC pipe or other materials for storm drain over reinforced concrete pipe	Reduced cost and construction.	May not meet City standards	\$18,000	Yes	District is using PVC pipe for the new storm drainpipe.
S-1	Over excavate and use slab on grade rather than a structural floor.	Reduced cost	Does not provide a space for mechanical equipment and may be susceptible to expansive soils	\$138,000	No	Expansive soils require the use of structural floor per structural engineers
S-2	Simplify building configuration reduce or eliminate bump outs	Lower cost, reduced foundation and reduced structural concerns	Aesthetics	\$268,000	Yes	Building has been simplified eliminating many of the bump outs.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
S-3	Use wood structural members (TGI) in lieu of steel joists	Simplify construction reduced cost	May require additional fire protection	\$31,000	Yes/No	The District is investigating the use of TJI's in building
A-1	Add covered entries	Protection of people and door area	Increase cost	(\$24,000)	Yes	Added covered entries in the revised plan.
A-2	Reduce corridor height, width and eliminate skylights	Reduced cost, reduced energy, reduced maintenance	Aesthetics and reduces natural light	\$43,000	Yes	Reduced skylight and corridor height
A-3	Add restroom for preschool room	Access for preschool children	Added cost	(\$28,000)	Yes	Added restroom in preschool room.
A-4	Reduce or eliminate glass storefront system	Reduced cost, reduced energy for heating and cooling	Aesthetics	\$61,000	Yes	Substantially reduced
A-5	Reduce or eliminate Kalwall systems	Reduced cost, reduced energy for heating and cooling	Reduced natural light and aesthetics	\$47,000	Yes	Substantially reduced
A-6	Increase insulation in roof structure	Reduced energy use	Increased cost	(\$3,000)	Yes	
A-7	Use asphalt shingles rather than metal roof on pitched roofs	Reduced cost	Aesthetics and may increase maintenance	\$126,000	Yes	District is now using asphalt shingles on roof.
A-8	Eliminate lower floor in gym	Reduced cost and eliminates need for ADA ramps		\$27,000	Yes	District eliminated lowered floor
A-9	Eliminate curved wall in media center	Reduced cost	Aesthetics	\$11,000	Yes	District eliminated curved wall.
E-1	Add occupancy sensors in classrooms, offices and restrooms	Reduced energy use	Increased capital cost and maintenance	(\$4,000)	Yes	

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
E-2	Consider the use of atomic clocks rather than a central clock system	Reduced cost	No single point of control	\$20,000	Yes	
G-1	Reduce scope of technology	Reduced cost – We have not seen this in other districts	Less desirable	\$750,000 to \$ 1 million	No	District still has extensive technology program at \$2,000 per pupil

It appears many of the suggested alternatives were accepted and implemented by the District. However, the estimated total project costs have increased from the data presented in the original schematic design submittal to the revised schematic design package. The cost data submitted in the revised schematic design was much more detailed and prepared by a professional cost estimating firm. The cost estimates in the revised cost estimate are probably more accurate and up-to-date for the revised plan. One item that has increased in the estimated price is the cost of site work despite the elimination of the extensive retaining walls and extensive earthwork to site the building under the original schematic design. This may be one area where further investigations and analysis may be beneficial to reduce costs on the site work. The building configuration has been simplified and has resulted in reduced costs that are not necessarily reflected in the revised estimate.

There are still some systems that may be able to be improved upon based on the revised drawings. . The District is to be complimented in implementing many of the suggested alternatives in the revised schematic design. We would encourage the District and the design team to continue to identify opportunities to remove unnecessary costs while maintaining quality, reliability, performance in the project design.

4.4 Energy Efficiency Review

Introduction

The review team reviewed the schematic documents for energy efficiency strategies. Options to increase energy efficiency were discussed with the district during the workshop. The options are listed below. In each case the proposed options will save energy. The design team must complete the life cycle cost analysis to determine if the options and alternatives are cost effective.

HVAC, Mechanical and Electrical

HVAC

The heating, ventilation and air conditioning (HVAC) system, as proposed, is a state-of-the-art system with flexibility to increase functions as necessary. The system is a hot water system with multiple boilers. Cool water will be used for cooling as well as air-side economizers.

Electrical

The electrical system as proposed is state-of-the-art. The lighting systems proposed is high efficiency T-8 fluorescent lights for classrooms, lay-in florescent for low height ceiling areas, multi purpose rooms and computer rooms. We would recommend use of T-5 fluorescent lighting fixtures instead of the T-8 fixtures for better efficiency and better lighting levels and color. We would recommend the use of lay-in high bay T-5 fixtures for high ceiling areas such as the gym and commons for instant on capability, higher efficiency and the ability to supply different light levels for different events.

The parking lot lighting and exterior security lighting proposed is metal halide or high-pressure sodium. We would discourage the use of HPS lighting due to the poor color rendering associated with this type of light. We would also recommend the use of compact florescent lighting in these areas with cold weather ballast for instant on capability and increased efficiency.

Power distribution inside the building will be 277/480 volts 3 phase power with local transformers to reduce line loss and reduce wire size. This is a very good system to reduce power losses and produce a clean power system for technology systems.

The following is a summary of the energy efficiency options to be considered.

Item	Description	Advantages	Disadvantages	Potential Energy Saved Kw-hr/yr	Potential Annual Savings
1.	Reduce or eliminate store front and Kalwall systems	Reduced energy for HVAC	Reduces natural light	160,000 to 200,000	\$7,200
2.	Use T5 lights instead of T8 lights in classrooms, commons and media center.	Reduced number of fixtures, reduced ceiling height and reduced energy	New technology and District may have to stock more than one type of lamp	47,000	\$2,100
3.	Light harvesting in media center and commons.	Reduced energy use by shutting off lights when natural lighting is adequate	Additional controls that might increase maintenance	12,000	\$540
5.	Occupancy sensors in classrooms, offices and restrooms	Reduced energy use by shutting off lights when not occupied	Increased cost and maintenance	10,000	\$450

Assumptions: Equivalent Energy Cost \$0.045per kilowatt-hour
 Assumed classroom use of 2200 hours per year
 Assumed gym use of 3600 hours per year
 No demand charge for the electrical utility.

The energy savings projected, if all of these energy saving measures are implemented, can be substantial. However, one cannot add all of the estimated costs to get a net savings. If all of the above items were implemented an estimated energy savings would be \$10,300 annually using the above assumptions. Based on the revised schematic design the District has implemented some of the alternatives that will result in energy savings particularly reducing the use of storefront systems and Kalwall systems and adding occupancy sensors in the classrooms and offices.

4.5 Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team.

Issue

Are the school grounds fenced? Are all play areas fenced?

Analysis

The plan does not show any fencing.

District's Response

The play field will be fenced. The District does not fence the front of their schools.

Comments/Recommendations

The review team concurs.

Issue

Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?

Analysis

The building is not totally accessible.

District's Response

Only one area is not accessible and this is acceptable to the fire department.

Comments/Recommendations

The review team concurs on condition of Fire Department acceptance.

Issue

Is visual surveillance of the parking areas possible from the main office?

Analysis

The parking area is not visible from the main office.

District's Response

The parking area is visible from the Principal's office.

Comments/Recommendations

The design team should try to make the parking area visible from the main office since the principal is not always in his/her office.

Issue

Has auto and bus traffic been separated?

Analysis

They are separated but they are not well laid out. Student bike racks are located near the bus loading area, and there is a student entrance located next to a service delivery area.

District's Response

The District will look into separating these activities.

Comments/Recommendations

The review team concurs.

Issue

Have hazardous entrances off main thoroughfares been eliminated?

Analysis

The main entrance is off a main thoroughfare with a sharp downhill turn into the school site.

District's Response

The city's traffic department is forcing this problematic entrance into the school site. The District will revisit this issue with the City.

Comments/Recommendations

The review team concurs.

Issue

Are major corridors at least 10" wide for elementary schools?

Analysis

Corridors are shown as 8' wide.

District's Response

The width of the hallways modulates with the wider areas at door openings.

Comments/Recommendations

The review team concurs.

Issue

Do basketball courts have a minimum 6' safety border?

Analysis

The stage steps intrude into this border area.

District's Response

The District will look into reconfiguring the steps.

Comments/Recommendations

The review team concurs.

Issue

Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?

Analysis

The exterior wall finishes are brick.

District's Response

The District does not have a problem with graffiti.

Comments/Recommendations

The review team concurs.

Summary

The main safety and security concerns with this project are the conflicts in pedestrian/bicycle traffic and vehicular traffic, and the main vehicular entrance to the school site. The district should work to resolve these issues.

**5.0 VERDA JAMES
ELEMENTARY SCHOOL**

5.0 VERDA JAMES ELEMENTARY SCHOOL

5.1 Project Description

The District is proposing to renovate and add to the existing elementary school. The District states that the existing facility is overcrowded according to state standards and the enrollment is projected to remain stable. The existing facility has a condition score of 44.26.

The project will rehabilitate major systems in the existing facility, reconfigure some spaces in the existing facility, and add approximately 12,700 GSF of new space. The new space will include a larger media center, additional resource rooms, space for preschool programs, a commons/lunch area, a new administrative area, a science room, and expanded special education space. The new facility will be designed for 469 students in 56,319 GSF.

5.2 Design Guidelines and Rules Review

Rules and guidelines with which the project design did not align are detailed below with the district's response and the review team's comment or recommendation. To review the results of the complete review, see Appendix A.

Rule

Section 7 (f) For new construction, the projected design capacity, as used for gross square footage computations, may not exceed the enrollment of the previous school year by more than 10 percent (10%).

Analysis

The design proposes a capacity of 469 students. This is a 10% increase over the enrollment of the existing school and technically meets the guidelines.

The District has not submitted enrollment projections to substantiate this increase.

Comments/Recommendations

The District should prepare enrollment projections to substantiate the needed capacity.

Guideline

All classrooms shall have windows.

Analysis

The science, art and resource rooms do not have windows. They are located internally and do not have an exterior wall.

District's Response

All other homeroom classrooms have windows. These are existing spaces and will be partially lit from a skylight.

Comments/Recommendations

The review team concurs.

Guideline

The guideline for the media center is 4-6 GSF per ADM, with a minimum of 1,250 GSF. An additional maximum of 2,000 GSF is allowed for support space. Maximum capacity shall be 40 students or 10% of the ADM.

Analysis

The proposed media center main room is 3,537 SF, which is sized for an ADM of 590. ($3,537/6 = 589.5$)

District's Response

The media center also contains a computer lab.

Comments/Recommendations

The review team concurs.

Summary

This project substantially complies with the guidelines and rules. The design capacity is not based on enrollment projections, but rather on the maximum allowed under the guidelines. The district should prepare enrollment projections.

5.3 Value Analysis

Natrona County School District #1, the design team from Gorder-South Architects completed a schematic design package for the Verda James Elementary Remodel and Addition. The schematic design and other information were presented to this VE team for review. The VE team meet with the Natrona School District on October 9 through 11, 2001.

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance and other critical factors (determine by the Owner) meeting the customer's expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.
2. **Function Phase:** This phase identifies functions and a cost versus worth model was prepared. Worth was defined as the lowest cost that is required to perform a function. Areas where there was a large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the District's design team and District.
3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking, brainstorming and even speculation. This phase was done independent of the District and the District's design team. .

4. **Analysis Phase:** After the alternatives were developed they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and District's design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we provide the actions proposed by the District.

5.3.1 Information.

The following information was used within this VE study:

1. Schematic design package as prepared by Gorder/South Group, dated July 31, 2001 including program statement, program, project drawings and outline specifications.
2. Cost Data. The schematic design package included a preliminary budget and systems cost for the proposed project as prepared by Gorder/South Group. The costs were based on a cost per square foot basis.
3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and construction procedures and functions. From the information the following basic items were determined:

Remodeled and new addition on an existing building

Site currently owned by Natrona County School District additional land to be acquired from City of Casper.

Building size:	56,319 square feet
(including the existing and new addition.)	
New Addition	17,154 square feet
Existing Space	24,985 square feet
Circulation space	14,180 square feet
Total Estimated Cost:	\$5,436,000 including A/E fees
Building cost:	\$2,805,000
Site Improvements:	\$696,000
Furniture and Technology	\$1,095,000
Professional Fees:	\$455,000
Owner & Contingencies	\$385,000

On November 12, 2001 we received a revised schematic design package from Gorder/South Group. The following information was contained in the new submittal:

Building size:	56,358 square feet
(including the existing and new addition.)	
New Addition & Renovation	16,422 square feet
Existing Space	24,985 square feet
Circulation space	14,951 square feet
Total Estimated Cost:	\$6,007,000 including A/E fees
Building cost:	\$3,482,000
Site Improvements:	\$512,000
Furniture and Technology	\$1,129,000
Professional Fees:	\$445,000
Owner & Contingencies	\$440,000

5.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. The cost/worth model indicated there were these areas where there might be some reduction in costs. These were the areas where the VE team concentrated on for defining function and determining options.

1. Substructure
2. Superstructure
3. Roofing
4. Wall Closure
5. Mechanical
6. Interior Construction
7. Lighting and Power
8. Equipment

In these areas there was a difference of cost versus worth per our model of approximately \$1 million. This is not to say that the building can be constructed for \$1 million less and still meet the requirements of the State or the School District. These areas were identified as the most likely to find value improvements based on the cost versus worth model.

5.3.3 Creative Phase.

The VE Team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
C-1	Balance earthwork	Eliminates or reduces barrow and export	Requires additional design work	\$ 8,000	Yes	District has used excess material to construct berms.
C-2	Review retaining wall options or seek to eliminate retaining walls	Reduced costs	May require additional earthwork.	\$84,000	Yes	Based on the new cost estimates it appears the retaining walls have been eliminated.
C-3	Eliminate berms	Increased security and lower maintenance	Adds to earthwork	(\$15,000)	No	Berms were placed to provide a barrier to vehicle traffic for the playground
C-4	Reduce landscaping and irrigation system	Reduces amount of construction and long term maintenance	Less visually appealing	\$36,000	Yes/No	Some landscaping was modified but some was added to overall project after modifications.
S-1	Shorten drilled piers to 20-25 feet to reflect shallow rock depth	Reduces construction cost	Less conservative	\$20,000	Unknown	
S-2	Over excavate and use slab on grade rather than a structural floor.	Reduced cost	Does not provide a space for mechanical equipment and may be susceptible to expansive soils	\$38,000	No	
S-3	Eliminate round shape for the addition	Lower cost and conventional construction materials	Aesthetics	\$168,000	Yes	District changes the shape from circular to polygon
S-4	Use wood structural members (TGI) in lieu of steel joists	Reduced cost	May require additional fire protection	\$25,000	No	

Item	Description	Advantages	Disadvantages	Estimated Capital Cost Savings	Accepted	Notes
A-1	Eliminate or reduce aluminum storefront system	Reduced cost, lower energy for heating and cooling	Aesthetics	\$54,000	Yes/No	District reduced the use of storefront system and added conventional windows and exterior walls.
A-2	Eliminate lowered floor in commons area	Reduced structural costs and eliminates ADA ramps	Reduces space definition	\$28,000	No	
A-3	Central access to commons	Easier access for students	No room and eliminates some classroom space	-	No	
A-4	Eliminate corridor behind stage	Reduced costs	Reduced access	\$8,000	No	This is an existing ramp, which was not clear on the initial drawings – District will maintain ramp.
A-5	Direct access lavatories for preschool	Self contained for pre-school	Increased cost	(\$15,000)	Yes	Lavatory was added in preschool room
A-6	Increase insulation in roof structure	Reduced energy use	Increased cost	(\$3,000)	Unknown	
A-7	Use asphalt shingles rather than metal roof on pitched roofs	Reduced cost	Aesthetics and may increase maintenance	\$65,000	Yes	District is now using asphalt shingles on roof.
A-8	Eliminate radius structure	Easier construction better space utilization	Aesthetics	Same as S-3	Yes	
A-9	Eliminate arced roof lines	Reduced cost simpler construction	Appearance	\$15,000	Yes	District has changed the structure
G-1	Reduce scope of technology	Reduced cost – We have not seen this in other districts	Less desirable	\$750,000 to \$ 1 million	No	District still has extensive technology program at \$2,000 per pupil

It appears many of the suggested alternatives were accepted and implemented by the District. However, the estimated costs have increased from the data presented in the original schematic design submittal. The cost data submitted in the revised schematic design was much more detailed and prepared by a professional cost estimating firm. The cost estimates in the revised cost estimate are probably more accurate and up-to-date for the revised plan.

There are still some systems that may be able to be improved upon based on the revised drawings. Reducing the angled and curved walls could result in some cost savings as an example. . The District is to be complimented in implementing many of the suggested alternatives in the revised schematic design. We would encourage the District and the design team to continue to identify opportunities to remove unnecessary costs while maintaining quality, reliability, performance in the project design.

5.4 Energy Efficiency Review

Introduction

The review team reviewed the schematic documents for energy efficiency strategies. Options to increase energy efficiency were discussed with the district during the workshop. The options are listed below. In each case the proposed options will save energy. The design team must complete the life cycle cost analysis to determine if the options and alternatives are cost effective.

HVAC, Mechanical and Electrical

HVAC

The heating, ventilation and air conditioning (HVAC) system, as proposed, is an addition to the existing system using the existing boiler and duct work in the existing school and new equipment and duct work in the addition. The system will include a new

direct digital control (DDC) that is a state-of-the-art control system with flexibility to increase functions as necessary.

Electrical

The electrical system as proposed again is an addition to the existing system. There will be a secondary system installed to carry the additional loads with a new electrical switchboard. This adds additional costs but allows for more central and better control. The new lighting systems proposed is high-efficiency T-8 fluorescent lights for classrooms, compact florescent for low height ceiling areas. We would recommend use of T-5 fluorescent lighting fixtures instead of the T-8 fixtures for better efficiency and better lighting levels and color.

The parking lot lighting and exterior security lighting proposed is metal halide or high-pressure sodium. We would discourage the use of HPS lighting due to the poor color rendering associated with this type of light. We would also recommend the use of compact florescent lighting in these areas with cold weather ballast for instant on capability and increased efficiency.

As a remodel the items available for energy savings are limited. The following is a summary of the energy efficiency options to be considered. The energy savings projected, if all of these energy saving measures are implemented, can be substantial. . If all of the suggested items were implemented, an estimated energy savings would be approximately \$5,900 annually using the assumptions. The district has implemented many of the suggestions, particularly the reduction of storefront and Kalwall systems. The District should look for other ways to save energy particularly daylight harvesting in the commons and media center.

Item	Description	Advantages	Disadvantages	Estimated Energy Saved Kw-hr/yr	Potential Annual Savings
1.	Reduce or eliminate store front and Kalwall systems	Reduced energy for HVAC	Reduces natural light	60,000 to 100,000	\$3,600
2.	Use T5 lights instead of T8 lights in classrooms	Reduced number of fixtures, reduced ceiling height and reduced energy	New technology and District may have to stock more than one type of lamp	12,000	\$540
3.	Replace HID lighting in gym and commons area with 'sportlights'	Reduced energy use through reduced light levels when necessary, instant on-off, and better efficiency	More expensive fixtures and re-lamp costs	18,000	\$810
4.	Light harvesting in media center and commons.	Reduced energy use by shutting off lights when natural lighting is adequate	Additional controls that might increase maintenance	12,000	\$540
5.	Occupancy sensors in classrooms, offices and restrooms	Reduced energy use by shutting off lights when not occupied	Increased cost and maintenance	10,000	\$450

Assumptions: Equivalent Energy Cost \$0.045per kilowatt-hour
 Assumed classroom use of 2200 hours per year
 Assumed gym use of 3600 hours per year
 No demand charge for the electrical utility.

5.5 Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team.

Issue

Are the fence gates secured with locks?

Analysis

Not indicated on the submittal.

District's Response

The play field will be jointly used with the parks department and locking the gates would be problematic.

Comments/Recommendations

The review team concurs.

Issue

Are remote or high-risk areas covered by surveillance cameras?

Analysis

The submittal did not indicate any camera coverage.

District's Response

There are two areas that may need camera coverage. The District will consider this.

Comments/Recommendations

The review team concurs.

Issue

Are trees planted away from the building to prevent access to the roof and upper floors?

Analysis

Not indicated on the submittal.

District's Response

The District will consider this when designing the landscaping.

Comments/Recommendations

The review team concurs.

Issue

Does the location and height of landscaping prevent surveillance?

Analysis

Not indicated on the submittal.

District's Response

The District will consider this when designing the landscaping.

Comments/Recommendations

The review team concurs.

Issue

Is visual surveillance of parking lots possible from the main office?

Analysis

Surveillance was not possible on original submittal.

District's Response

The District has revised the design to make surveillance of the visitor parking area possible.

Comments/Recommendations

This revision is an improvement. Due to the configuration of the site, it is probably not possible to make the staff parking area visible from the main office.

Issue

Are raised sidewalks used to separate pedestrians in parking areas?

Analysis

This was not indicated on the submittal.

District's Response

Raised sidewalks will occur around the perimeter of the parking areas

Comments/Recommendations

The review team concurs.

Issue

Have bus loading areas been designed to restrict other vehicles?

Analysis

The bus loading area was on the main street in the original submittal.

District's Response

The bus loading area has been redesigned to separate it from street traffic.

Comments/Recommendations

Signage should be added to identify the area for buses only.

Issue

Are covered areas provided for waiting students?

Analysis

No covered areas, other than at the front entrance, were provided for waiting students.

Comments/Recommendations

The District should consider providing a covered area for students waiting for the buses.

Issue

Is the building designed to minimize the number of staff necessary to provide visual surveillance to all interior hallways and common spaces?

Analysis

This is true in the new portion of the building but not in the existing portion.

Comments/Recommendations

The revision of the existing space would not be economically feasible. Appropriate surveillance can be accomplished with sufficient staffing.

Issue

Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?

Analysis

The exterior walls are brick.

District's Response

The District did not have a concern with graffiti.

Comments/Recommendations

The review team concurs.

Issue

Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops, and labs) protected by a security alarm system?

Analysis

This was not indicated on the submittal.

District's Response

Only the computer room has an alarm system.

Comments/Recommendations

The District should install an alarm system in other high-risk areas.

Summary

The fact that this project is an addition to an existing building limits some measures which could be taken for safety and security. The District should strongly consider having an alarm system in all high-risk areas.

**6.0 EASTSIDE ELEMENTARY
SCHOOL**

6.0 Eastside Intermediate School

6.1 Project Description

The District has proposed building a new intermediate school to replace the existing East Junior High School. The original building was built in 1957 with an addition in 1995. The building has a building condition score of 47.72.

The design capacity of the new school is 709 students in 107,163 GSF. The school would house 7th, 8th and 9th grades.

At the time of the review, the District had prepared a conceptual design for the school but had not selected a site for the project. One potential site would have had a significant impact on the design of the school. The review team discussed some issues with the District about the conceptual design but could not conduct an in depth review until the schematic design is completed. At the time of this report, the District had not submitted a schematic design for an actual site.

**7.0 WORLAND MIDDLE
SCHOOL**

7.0 WORLAND MIDDLE SCHOOL

7.1 Project Description

The District proposes to build a new middle school to replace the existing middle school. The new project will include space for the District's Education Resource Center (ERC) and an auditorium. The original building was built in 1942 as part of the Worland High School with an addition in 1948. The middle school was added in 1948 with additions in 1950-1980 and in 1984. The building condition assessment score of the existing facility is 47.63.

The new school will be built on property owned by the district, which is adjacent to the high school and the district office. The project will utilize property owned by the National Guard for play fields. The design capacity will be for 432 students in 100,225 GSF (including the ERC and the auditorium).

7.2 Design Guidelines and Rules Review

Rules and guidelines with which the project design did not align are detailed below with the district's response and the review team's comment or recommendation. To review the results of the complete review, see Appendix A.

Rule

Section 7 (b) Middle schools shall be designed within the range of 120 to 150 GSF per student.

- (e) Teaching stations, common space, mechanical space, gym space as shown in the facilities guidelines, and auditoriums in facilities having a projected design capacity of 1200 students or more, are included in the space standards shown above. Gym space that exceeds the typical space of the guideline examples, auditoriums in schools that have fewer than 1200 students in projected capacity, mezzanine space and natatoriums are not included in the space standards.*

Analysis

The project is design for a capacity of 432 students with 69,900 GSF or 162 GSF per student.

The total project includes 100,225 GSF. The following breakdown shows which space are excluded from the above calculation.

Middle School	69,900 GSF	Included
Additional Gym area	2,800 GSF	Excluded
Auditorium	18,480 GSF	Excluded
Educ. Resrce Ctr.	4,160 GSF	Excluded
Mech. Mezz.	4,885 GSF	Excluded
Total Space	100,225 GSF	

District's Response

The District feels that the design is efficient. Class loading charts for the new school are included in Appendix C. The district states that the middle school concept requires both a planning and a prep period each day for the teachers and this lowers the efficiency of classroom use. Consequently, even if the capacity of the school was lowered, the number of classrooms could not be reduced. Since class sizes vary considerably, the size of classrooms could not be reduced significantly either.

Comments/Recommendations

The overall design of the school is efficient. To bring the design into alignment with the guidelines, some program spaces would have to be reduced or eliminated. For instance, the guidelines do not provide for a wrestling room in a middle school. The elimination of this space, along with a reduction in storage space, and a reduction in media center space would bring the design into alignment with the guidelines.

Wrestling Room	2,731 SF
Library reduction	1,151 SF
Storage reduction	917 SF
Total	4,799 SF x 1.33 = 6,383 GSF

$$69,900 - 6,383 = 63,517 / 432 = 147 \text{ GSF per student}$$

The District should alter the design to bring it into alignment with the guidelines.

Rule

Section 7 (f) For new construction, the projected design capacity, as used for gross square footage computations, may not exceed the enrollment of the previous school year by more than 10 percent (10%).

Analysis

The design proposes a capacity of 432 students. This is a 10% increase over the enrollment of the existing school and technically meets the guidelines.

The District has not submitted enrollment projections to substantiate this increase.

Comments/Recommendations

The District should prepare enrollment projections to substantiate the needed capacity.

Rule

Rule Section 7 (i) For new construction having projected enrollments fewer than 600 pupils, a multi-purpose room may serve in place of an auditorium. Where auditoriums are provided, they should seat one-third of the school's Average Daily Membership (ADM). Additional city or community funds, above those required to qualify for state assistance, can be combined with school funds if a larger auditorium is desired for community use.

Analysis

The project design is for a school of less than 600 students and includes an auditorium.

District's Response

"The entire District will use the auditorium. The high school and middle school campuses are adjacent to each other. The Auditorium is located on the high school side of the site to provide close access for the high school students. A direct route new sidewalk is being added to further facilitate student movement."

Comments/Recommendation

The rules state that a district should seek additional community funds if it desires an auditorium larger than the rule allows. It follows that a district should also seek community funds if it desires an auditorium at a school which does not qualify for an auditorium under the rule.

Guideline

The guideline for the media center is 4-6 GSF per ADM, with a minimum of 1,250 GSF. An additional maximum of 2,000 GSF is allowed for support space. Maximum capacity shall be 40 students or 10% of the ADM.

Analysis

The proposed media center main room is 2,656 SF which is sized for an ADM of 442.

Comments/Recommendations

Reduce the reading room to accommodate 10% of the ADM. 10% of 432 = 43 x 35 SF/student = 1505 SF.

Summary

The overall design is efficient and generally complies with the guidelines. Some reductions in the program space could be made to bring the design into compliance with the 120 to 150 GSF per student guideline.

7.3 Value Analysis

Washakie County School District No. 1, the design team, and the construction manager completed a schematic design for a new middle school to serve the Worland area. The schematic design and other information were presented to this VE team for review. The VE team members meet with the Washakie County School District on October 24, 2001 to review the project and discuss the alternatives

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance, and other critical factors (determined by the Owner) meeting the customer's expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.
2. **Function Phase:** This phase identifies functions and a cost versus worth model was prepared. Worth was defined as the lowest cost

that is required to perform a function. Areas where there was a large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the design team and District.

3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking, brainstorming, and even speculation. This phase was done independent of the District and design team.
4. **Analysis Phase:** After the alternatives were developed, they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we provide the actions proposed by the District.

7.3.1 Information.

The following information was used within this VE study:

1. Schematic Design package as prepared by CTA Architects Engineers including District information, design narratives, site geotechnical data, schematic design plans, and draft system specifications.
2. Cost Data. Groathouse Construction provided estimated cost for construction and general conditions in a detail estimate. Cost data for the cost worth model was obtained from Means Cost Works

data and other school construction cost data adjusted for the local conditions.

3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and construction procedures and functions. From the information the following basic items were determined:

New Building

Site currently owned by Washakie County School District near existing High School.

Building Size: 100,225 square feet
(including the Auditorium, Gym and District ERC)

Site area: 16 acres assigned to Middle School

Total Estimated Cost: \$11,540,000 excluding A/E fees

Building cost:	\$6,787,500
Auditorium:	\$2,153,900
Site Improvements:	\$1,308,600
General Conditions:	\$1,290,000

7.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system, and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. The cost/worth model indicated there was not a significant differential between the systems as estimated and the worth model.

Based on this the VE review team reviewed all of the following systems for alternatives that would provide the function and reduce costs.

1. Site Improvements
2. Foundation
3. Superstructure
4. Roofing
5. Interior Construction
6. HVAC and Special Mechanical Systems
7. Lighting and Power

7.3.3 Creative Phase.

The VE team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
C-1	Reduce parking lot, parking lot is large for a middle school parking lot.	Reduces cost	Reduced parking capacity for other uses	\$97,000	No	District is using parking for High School event parking as it is next to the athletic venues and will serve the auditorium.
C-2	Add sanitary sewer in Howell Street to serve school	Need service		(\$22,000)	No	Sanitary sewer is located in Howell and was not shown on schematic drawings
C-3	Add fire hydrants and water line to back of building	Provides fire fighting service to back of school	Increased cost	(\$30,000)	No	Not required by the local fire district.
C-4	Reduce the scope of landscaping and irrigation	Reduced cost and maintenance	Aesthetics	\$65,000	No	
C-5	Approaches to parking, bus traffic, and parent drop off conflicts – add another approach or widen.	Eliminates conflicts better traffic flow	Increased cost	(\$45,000)	Yes	District will review and improve during design development.
C-6	Enlarge or provide discharge for stormwater retention area. Appears too small for entire site	Protects parking and building from floods	Increased cost	(\$65,000)	Yes	District will review and revise during design development.
S-1	Review foundation due to high total and differential settlement indicated in geotechnical report	Reduces potential structural problems	Increased cost	Unknown	Yes	District will review with structural and geotechnical engineer.
S-2	Use minimum pitch roof throughout building	Reduced cost – better snow control	Increased maintenance, less aesthetic appeal	\$460,000	No	District has determined that the pitched metal roof better fits the community desires.
S-3	Pitch the joists for the roof slope on minimum pitch roofs instead of tapered insulation	Reduced cost		\$30,000	Yes	

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
A-1	Change gym, locker and uniform storage to concrete masonry	Adds durability	Increased costs	(\$23,000)	Yes	District will review during design development
A-2	Use asphalt shingles on sloped roof instead of metal roofing	Reduced cost	Aesthetics and increased maintenance	\$178,000	No	District has determined that the pitched metal roof better fits the community desires.
A-3	Add roof over entries at Vestibules	Protection of people and doors	Added cost	(\$33,000)	Unknown	
A-4	Use high-density gypsum board in corridor walls.	Reduces vandalism and damage	Increased cost	(\$47,000)	Unknown	
A-5	Suggest use of concrete masonry or brick veneer instead of EIFS	Reduced maintenance and more durable	More weight on foundation and higher capital cost	(\$65,000)	Yes	District will review life cycle costs.
A-6	Use structural masonry walls in gym see A-1	More durable	Cost	Unknown	Yes	District will review during design development.
A-7	Consider using rated gypsum board at bottom of roof structure rather than the fire-rated ceiling	Easier access to mechanical and electrical and reduced cost	Increased cost	Unknown	Unknown	District reviewed and has determined that the cost is higher for the structure protection over ceiling fire rating.
M-1	Consider VAV system for HVAC, others have seen this as more cost effective than closed loop heat pump	Reduced maintenance	Increased capital cost	Unknown	No	The district feels the heat pump system is more cost effective.
M-2	Increase roof insulation to R-38	Increased building energy efficiency	Increased cost	(\$23,000)	No	District designers do not feel this is cost effective
M-3	Use auto flush valves in urinals and toilets	More sanitary	Increased maintenance	(\$12,000)	Yes	

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
E-2	Add occupancy sensors to classrooms, offices and restrooms	Reduced energy costs	Increased costs	(\$4,000)	Yes	
E-3	Use T-5 indirect lighting in classrooms instead of T-8	Reduces ceiling height and reduced energy	Increased cost	\$36,000 to \$190,000	Yes	District will review

The VE process identified some area where capital cost could be reduced by an estimated \$400,000 to \$600,000. This is primarily in the roof selection.

The Washakie County School District and their design and construction professional did a very good job of designing the building and implementing an internal VE process. There were very few major systems that could be improved or costs reduced substantially. We would recommend that the district continue to review the systems during design development as they have done and select the most cost effective system that meets the District needs.

7.4 Energy Efficiency Analysis

Introduction

The review team reviewed the schematic documents for energy efficiency strategies. Options to increase energy efficiency were discussed with the District during the workshop. The options are listed below. In each case the proposed options will save energy. The design team must complete the life cycle cost analysis to determine if the options and alternatives are cost effective.

HVAC, Mechanical and Electrical

HVAC

The heating, ventilation and air conditioning system (HVAC) system is a two pipe (cool side and warm side) heat pump system. This type of system uses heated water from a boiler to feed a heat pump that raises the temperature. The water is transferred to an air heat exchanger and the air is feed to a classroom or office or other area. In reverse mode the system will remove heat from a space and act as an air conditioner. The system is also capable of 'moving' heat or cooling around the building by removing heat from areas where they need cooling and transferring the heat to the water so it can

be used in an area that needs heat. The building configuration of Worland School lends itself well to this type of system and the life cycle cost analysis shows it is cost effective. It is recommended to continue to review options and alternatives to decrease initial and life cycle costs.

Electrical

The electrical system as proposed again is near state-of-the-art. The lighting systems proposed is T-8 fluorescent lights for classrooms, compact florescent for low height ceiling areas and metal halide in the gymnasium. We would recommend use of T5 fluorescent lighting fixtures instead of the T8 fixtures for better efficiency and better lighting levels and color. Using indirect T-5 lighting fixture in the classroom also provides the opportunity to reduce ceiling height and overall building volume further saving on capital cost and HVAC costs. We would recommend the use of multiple compact florescent lights (sports lights) in the gymnasium and commons area for instant on capability, higher efficiency and the ability to supply different light levels for different events.

The exterior lighting and exterior security lighting proposed is metal halide or high-pressure sodium. We would discourage the use of HPS lighting due to the poor color rendering associated with this type of light. We would also recommend the use of compact florescent lighting in these areas with cold weather ballast for instant on capability and increased efficiency. As an example, a 250-watt compact fluorescent bulb will produce the same light as a 400-watt metal halide.

Power distribution inside the building will be 277/480 volts, 3-phase power with local transformers to reduce line loss and reduce wire size. This is a very good system to reduce power losses and produce a clean power system for technology systems.

The following is a summary of the energy efficiency options to be considered. As seen, if all of these energy saving measures are implemented, the energy savings projected can be substantial. If all of the above items were implemented, estimated energy savings would be \$6,100 using the above assumptions. Based on District input, they are either going to implement or are reviewing all of the listed items.

Item	Description	Advantages	Disadvantages	Projected Energy Saved Kw-hr/yr	Potential Annual Savings
1.	Use T5 lights instead of T8 lights in classrooms	Reduced number of fixtures, reduced ceiling height and reduced energy	New technology and District may have to stock more than one type of lamp	41,000	\$1,850
2.	Replace HID lighting in gym with 'sportlights'	Reduced energy use through reduced light levels when necessary, instant on-off, and better efficiency	More expensive fixtures and re-lamp costs	64,000	\$2,880
4.	Cool rinse in kitchen dishwasher	Reduced energy	Increased chemicals and reduced cleaning of stains	30,000	\$600 (includes cost of chemicals)
5.	Occupancy sensors in classrooms, offices and restrooms	Reduced energy use by shutting off lights when not occupied	Increased cost and maintenance	18,000	\$800
6.	Increase roof insulation to R-30 or greater	Reduced energy use for HVAC system	Increased cost	Undetermined	

Assumptions: Equivalent energy cost \$0.045per kilowatt-hour
 Assumed classroom use of 2200 hours per year
 Assumed gym use of 3600 hours per year
 No demand charge for the electrical utility.

7.5 Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team.

Issue

Does the District have written policies related to building security?

Analysis

Not indicated on the submittal.

District's Response

The District does have policies but they are not written.

Comments/Recommendations

The District should develop written policies to ensure they are clearly understood by all building administrators.

Issue

Is visual surveillance of parking lots possible from the main office?

Analysis

Surveillance was not possible on original submittal.

District's Response

The District will consider using cameras to make surveillance possible from the main office.

Comments/Recommendations

The review team concurs.

Issue

Are raised sidewalks used to separate pedestrians in parking areas?

Analysis

This was not indicated on the submittal.

District's Response

The District did not feel that this was an issue.

Comments/Recommendations

The review team recommends exploring this option.

Issue

Has auto and bus traffic been separated?

Analysis

The bus drop off lane is part of the events/staff parking lot.

District's Response

The District did not feel that this was an issue.

Comments/Recommendations

The review team was concerned about mixing of bus and car traffic. The District should explore ways to eliminate this.

Issue

Does each room have at least one window that can be used for emergency rescue?

Analysis

There are some interior rooms without windows.

District's Response

The District did not feel that this was an issue. All interior rooms have a second exit.

Comments/Recommendations

The review team concurs.

Issue

Are the exterior wall finishes graffiti repellent or capable of repeated cleaning?

Analysis

The exterior walls are brick.

District's Response

The District did not have a concern with graffiti.

Comments/Recommendations

The review team concurs.

Issue

Is there a central alarm system in the school which is remotely monitored?

Analysis

This was not indicated on the submittal.

District's Response

The building is not remotely monitored.

Comments/Recommendations

The District should have the building alarmed and remotely monitored.

Summary

The building generally complies with the safety and security checklist. The major safety and security concerns are unwritten building security policies, bus traffic, and the lack of a remotely monitored alarm system.

8.0 ARAPAHOE SCHOOL

8.0 ARAPAHOE SCHOOL

8.1 Project Description

The District proposes to renovate an existing natatorium into a special education classroom building. The original building was built in the late 1960's and used until 1998 when it was assessed to be in such poor condition that it could not be used safely. The renovated building will house the Alternative Learning Center (ALC) for emotionally disturbed students and other students requiring special services. The new design will contain two classrooms, an office, and a small physical education space.

8.2 Design Guidelines and Rules Review

Since this project involves the remodeling of an existing space for a special education program, there are very few guidelines that apply. The project does comply with the applicable guidelines.

8.3 Value Analysis

Fremont County School District #38 and the design team from Quinn/Richardson/Kucera, P.C. Architects completed a schematic design package for the Arapahoe School Classroom project. The project is a building renovation for the resources education program at Arapahoe School. The project consists of remodeling a building that enclosed the swimming pool. The swimming pool has not been used for several years. The schematic design and other information were presented to this VE team for review. The VE team met with the School District and the design team on October 28, 2001.

The VE process identifies opportunities to remove unnecessary costs while maintaining quality, reliability, performance and other critical factors (determined by the Owner) meeting the customer's expectations. The VE process used is as follows:

1. **Information Phase:** The first phase of the value engineering process is to gather project data and information including project constraints, cost constraints, quality expectations, space requirements, functions, cost estimates, and other pertinent data.
2. **Function Phase:** This phase identifies functions and a cost versus worth model is prepared. Worth was defined as the lowest cost that is required to perform a function. Areas where there was a large difference of cost versus worth were identified for further study and evaluation. This phase was done independent of the District's design team and District.
3. **Creative Phase:** This phase is to generate alternate ideas for providing the NEEDED functions through creative thinking, brainstorming and even speculation. This phase was done independent of the District and the District's design team. .
4. **Analysis Phase:** After the alternatives were developed they were presented to the District and design team at the meeting. Each item was discussed and analyzed at the meeting with the District and District's design team.
5. **Recommendation Phase:** This report is the recommendation phase of the VE study by this team. Where applicable or the information is available we have provide the actions proposed by the District.

8.3.1 Information

The following information was used within this VE study:

1. Schematic design package as prepared by Fremont County School District #38 and Quinn/Richardson/Kucera, P.C., dated August 1, 2001 including program statement, program, project drawings, and outline specifications.
2. Cost Data. The schematic design package included a preliminary budget and systems cost for the proposed project as prepared by Quinn/Richardson/Kucera, P.C.
3. Regulations and requirements for schools in the State of Wyoming.

The schematic design proposal information and drawings were reviewed with the objective of understanding the design direction in terms of materials, systems and construction procedures and functions. From the information the following basic items were determined:

Remodel of a thirty-year-old rigid frame steel building that covered a pool.

Site currently owned by Fremont County School District #38.

Building size: 9,400 square feet (approximate)
(including the existing and new addition.)

Total Estimated Cost:	\$995,200 including A/E fees
Building cost:	\$835,800 (includes contingencies & inflation)
Site Improvements:	\$5,300
Professional Fees:	\$70,000
General & Contingencies	\$84,100

Based on the schematic submittal the VE Team reviewed, the project had some concerns that were not covered in the schematic submittal. We did not see that alternatives to remodeling the metal pool building were reviewed and concerns about the

remaining useful life of the building were raised by several members of the VE review team. A life cycle cost analysis for the building remodel versus a new structure needed to be completed. A life cycle cost analysis based on information in the schematic submittal and assumptions by the VE team members indicated that there were many factors that would not justify the remodel of this swimming pool building.

At the meeting on October 25 the members of the VE team toured the existing building. The exterior and interior steel siding and rigid frames looked to be in good condition. However, there was evidence that there was significant corrosion between the panels that may have affected the structural integrity of the roof and wall purlins. Any major replacement of wall systems or roof structure would favor the replacement of the building over the remodel of the existing building based on the VE team's life cycle cost analysis. We suggested that the building be re-inspected by removing some interior ceiling and wall panels to determine the condition of the panels and structure.

On November 27, 2001 we received a submittal from Fremont County School District #38 indicating the inspection had been completed and cost estimates were completed. Based on this evaluation by the design team, it was shown that the exterior walls and roof needed replacement to extend the life of the building to a reasonable period. The estimated cost of replacing the exterior walls and roof along with the other modifications was \$1.563 million. The estimated cost for demolishing the entire building and construction a new one was \$1.6 million. The evaluation was based on equal square footage for each option. It is the opinion of the VE team that a new building would lend itself to some more efficient space, which could reduce the cost of replacement even further.

It is the request of the District that they be allowed to modify the project to include demolition of the existing building and construct a new building in its place. We would

concur with the evaluation but will recommend that the space analysis be reviewed to determine if the total required space can be modified for more efficient space.

8.3.2 Function Phase.

The second phase was to review the information with a review team, determine function of each system and complete the cost/worth model. The review team consisted of a civil engineer, structural engineer, architect, geotechnical engineer, and an energy consultant. The review team commented on the schematic design proposal to determine relative system costs, functions, and alternatives. Based on the recent findings of the District on a new project consisting of a building replacement the alternatives and options suggested by the VE team have no relevance. They are submitted in this report only as opportunities to be aware of for the development of a new schematic design of the new building.

8.3.3 Creative Phase.

The VE Team suggested alternatives for the above systems and other systems during the review. The following are the suggestions made and the advantages, disadvantages, and reasons for the suggestions if applicable. Only those applicable to a new building are shown.

The alternatives explored are divided into the different elements Civil, Structural, Architectural, Mechanical, and Electrical.

Item	Description	Advantages	Disadvantages	Potential Capital Cost Savings	Accepted	Notes
S-1	Add seismic structure for interior CMU walls	Increased safety	Increased costs		N/A	The walls were already designed for seismic loads
A-1	Use 1-hour construction on interior walls rather than fire sprinklers.	Small size lends itself to this type of construction over fire sprinklers			N/A	District has made this evaluation and will make the evaluation for a new building.
A-2	Use metal studs and gypsum board for interior walls instead of CMU walls in classroom, restrooms and offices	Reduces construction cost	Less durable		N/A	District has made this evaluation and will make the evaluation for a new building.
E-1	Use T5 indirect lighting in classrooms and T-5 lay-in or Sportlights for commons	Reduced energy costs	District may have to stock other bulbs		N/A	District will review
E-2	Use occupancy sensors on classroom, hallway and office lights	Reduced energy costs	Increased costs		N/A	District will review
M-1	Use auto-flush valves on toilets and urinals				N/A	

Energy Efficiency Review

Since this project is being redesigned, an Energy Efficiency Analysis was not completed.

Safety and Security Review

The following items are issues which the project design did not resolve completely. The district's response is included with any comments or recommendations by the review team.

Issue

Have bus loading areas been designed to restrict other vehicles?

Analysis

The bus loading area was part of the parking area.

Comments/Recommendations

The bus loading area was an existing configuration and would be difficult to reconfigure under this project.

Issue

Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?

Analysis

The exterior walls are metal siding.

District's Response

The District did not have a concern with graffiti.

Comments/Recommendations

The review team concurs.

Issue

Is there a central alarm system in the school which is remotely monitored?

Analysis

This was not indicated on the submittal.

District's Response

The building is not remotely monitored, however there is a guard on duty at all hours.

Comments/Recommendations

The review team concurs.

8.4 Summary

The limited scope of this project causes most of the safety and security elements to be not applicable because they generally apply to the design of a complete school facility. The project does comply with those elements that are applicable.

APPENDICES

***APPENDIX A – DESIGN
GUIDELINES AND RULES
REVIEW***

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

District: Johnson County School District No. 1

Project: Kaycee 6-12

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.			X	
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.			X	
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.	X			

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.			X	

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.			X	
2. Pre-kindergarten and kindergarten students should have separate play area.			X	
3. All grade levels should have paved activity areas.		X		Were eliminated as cost savings but will reconsider.
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.	X			
5. Student parking for high schools should accommodate a minimum of one-fourth of the students	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student				
2. Middle School: 120 to 150 GSF per student				
3. Senior High School: 150 to 180 GSF per student				
4. Schools less than 350 students: graduated adjustment	X			Proposed capacity = 100 18 teaching stations x 15 = 270 54,086 / 105 = 515 GSF per student

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school may not exceed the enrollment of prior year by more than 10%.	X			Proposed 100

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.	X			
2. No classroom shall be less than 560 GSF.	X			
3. Resource rooms may range from 100 to 560 GSF.	X			

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.	X			
2. When an auditorium is provided, it should seat one-third of the ADM.			X	

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.	X			
2. Add 15 SF for each computer workstation.	X			

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RULES AND DESIGN GUIDELINES

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"	X			
2. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless	X			
3. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor	X			

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. <i>Size:</i>				
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>				
6-8 Science 1,250	X			
6-8 Combination Math/Science 1,050				
9-12 Biology, Chemistry, Physics, 250 GSF per 2 labs Storage /Prep Rooms				
9-12 Physical Science 1,250				
Biology 1,250				
Physics 1,250				
Earth Science 1,250				
Chemistry 1,500				
Multi-Purpose Science 1,500	X			

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RULES AND DESIGN GUIDELINES

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows	X			
3. Ceiling height: 10'-0"	X			10'-6"
4. Eye protection/showers shall be provided per OSHA requirements	X			

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom	X			

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RULES AND DESIGN GUIDELINES

F. Music

Requirement	Yes	No	N/A	Recommendation/Comment
1. Size:				
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>				
K-6 General Music 1,050				
6-8 General Music 1,050				
6-12 Vocal 10-18 SF per student				
6-12 Instrumental 25-35 SF per student	X			Proposed is 1,148 SF
Instrument Storage 600	X			
Instrument Lockers 300				
Music Library 200				
Instrument Repair 150				
Office (each) 150	X			
Uniform Storage Varies				
Practice Room 60		X		71 SF (70 min per code.)
Ensemble Practice Room 200				
2. Ceiling Height				
<u>Room Size</u> <u>Guideline</u>				
900 SF and less 9'-4"				
901-999 SF 10'-0"				
1,000-1,199 SF 12'-0"				
1,200-1,800 SF 14'-0" - 18'-0"	X			16'-0"
Over 1,800 SF 16'-0" - 18'-0"				

G. Art Education

Requirement	Yes	No	N/A	Recommendation/Comment
1. Size:				
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>				
K-8 Art classroom 1,400				
9-12 Art classroom 1,500	X			
K-12 Kiln/clay storage 60	X			Total kiln/clay and material storage. = 102
K-12 Art material storage 150				

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G. Art Education

Requirement	Yes	No	N/A	
2. Ceiling height: 10'-0"	X			10"-6"
3. Art classrooms should have windows	X			

H Theater Arts - Auditoriums

Requirement	Yes	No	N/A	
1. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM			X	

I. Vocational Education

Requirement	Yes	No	N/A	
1. Size: Varies	X			
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"	X			
3. Windows should be provided per regular classrooms.	X			

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RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																																														
1. Size: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Grade</u></th> <th style="text-align: left;"><u>Room</u></th> <th style="text-align: left;"><u>Guideline (MGSF)</u></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>K-12</td> <td>Main Room</td> <td>4-6 GSF per ADM 1,250 GSF min.</td> <td style="text-align: center;">X</td> <td rowspan="8" style="vertical-align: top;">2,386 SF / 6SF = 397 students</td> </tr> <tr> <td>K-5</td> <td>Support Spaces (see below)</td> <td>1,200</td> <td></td> </tr> <tr> <td>6-8</td> <td>Support Spaces (see below)</td> <td>1,800</td> <td></td> </tr> <tr> <td>9-12</td> <td>Support Spaces (see below)</td> <td>2,000</td> <td></td> </tr> <tr> <td>K-5</td> <td>Video Production Room</td> <td>300</td> <td></td> </tr> <tr> <td>6-12</td> <td>Video Studio</td> <td>400</td> <td></td> </tr> <tr> <td></td> <td>Control/Editing</td> <td>260</td> <td></td> </tr> <tr> <td></td> <td>Equipment Storage</td> <td>80</td> <td></td> </tr> </tbody> </table>	<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>			K-12	Main Room	4-6 GSF per ADM 1,250 GSF min.	X	2,386 SF / 6SF = 397 students	K-5	Support Spaces (see below)	1,200		6-8	Support Spaces (see below)	1,800		9-12	Support Spaces (see below)	2,000		K-5	Video Production Room	300		6-12	Video Studio	400			Control/Editing	260			Equipment Storage	80			X									
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5. Windows are recommended in main room.	X																																																

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RULES AND DESIGN GUIDELINES

K. Physical Education

Requirement			Yes	No	N/A
1. Size:					
<u>Grade</u>	<u>Spaces</u>	<u>Guideline (MGsf)</u>			
K-6	Multipurpose/Indoor P.E. <i>(Play Area)</i>	3,600 min. plus 4 SF per <i>student over 600students</i>			
6-9	Gymnasium Play Area	varies 42x74 practice court min. 50x84 competition court			
9-12	Seating <i>Gymnasium</i>	400-500 SF per 100 seats <i>One competition court with two practice cross- courts.</i>	X		Proposed = 9,580 SF Guideline with seating for 650 = 9,450 SF
	Play Area	GSF varies depending on seating 50x84 court 6' on sides 8' on ends			
9-12	Seating Wrestling	400-500 SF per 100 seats 3,000			
9-12	Weight Room	2000-3,000	X		
2. Ceiling Heights:					
<u>Grades</u>	<u>Rooms</u>	<u>Guideline</u>			
K-6	<i>Multipurpose</i>	<i>15' (18' recommended)</i>			25'-1"
6-9	Gymnasiums	20'-22' min.			
9-12	<i>Gymnasiums</i>	<i>20'-25' min. (25' recommended)</i>	X		
	Support area under 850 SF	9'-4"			
	Dressing, showers	10'-0"			
	Teaching areas	12'-0"			
3. Showers are recommended			X		

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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A	
1. Size varies	X			
2. Ceiling height per regular classrooms	X			
3. Windows are recommended.	X			

M. School Building Administration

Requirement	Yes	No	N/A	
1. Size:				
<u>Rooms</u>				
Principal		X		218 SF
Assistant Principal (each)	X			
Reception Area		X		400 SF
Secretary		X		440 SF for sec. and other
Other student services		X		
Workroom/Storage				200 varies
Conference Room				200
Record Storage	X			100
General Storage	X			100 varies

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-5 Guidance 450				
6-12 Guidance 300	X			
9-12 Reception/Career Center Varies				
K-12 Counselor Office 150				
K-5 Other student services 150				
6-12 Other student services 200	X			
K-8 Health Room 200				
9-12 Health Room 200	X			
K-12 Health Room Toilet 50		X		83 SF

O. Staff Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-12 Group Teacher Office/Planning 100 per teacher				
K-12 Special Assistant and Itinerant teacher office/work space 100 per teacher				
K-12 Workroom Varies	X			
K-12 Lounge Varies	X			
2. Faculty toilets should be located near classrooms		X		

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RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A	
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14			X	2,626 SF / 14 = 187 capacity
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"			X	
3. Serving area varies	X			
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880	X			

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

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RULES AND DESIGN GUIDELINES

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom				<u>Guidelines (SGSF)</u> Add 15 SF per PC
K-5 computer lab				1,050
6-8 computer lab				1,050-1,400
9-12 computer lab				1,050-1,400
Distance learning room				1,050
Wiring closets				15-120
Main Head-End room				450-800
	X			
	X			

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RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels		X		Conforms to new IES guidelines
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			
2. All classrooms should be wired for telephone	X			

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RULES AND DESIGN GUIDELINES

District: Johnson County School District No. 1

Project: Buffalo High School

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.				
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.				
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.	X			39 acres

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.			X	

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.	X			
2. Pre-kindergarten and kindergarten students should have separate play area.			X	
3. All grade levels should have paved activity areas.	X			
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.	X			
5. Student parking for high schools should accommodate a minimum of one-fourth of the students	X			

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RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student				
2. Middle School: 120 to 150 GSF per student				
3. Senior High School: 150 to 180 GSF per student		X		135,924 / 424 = 320 SF/adm 96,657 / 242 = 228
4. Schools less than 350 students: graduated adjustment				

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school may not exceed the enrollment of prior year by more than 10%.	X			387 x 1.1 = 425 Proposed capacity = 424 No enrollment projections

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RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.	X			
2. No classroom shall be less than 560 GSF.	X			
3. Resource rooms may range from 100 to 560 GSF.			X	

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.		X		Deviation requested for 500 seat auditorium
2. When an auditorium is provided, it should seat one-third of the ADM.				

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.	X			
2. Add 15 SF for each computer workstation.	X			

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C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
3. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"	X			
4. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless	X			4'x16' = 64SF
5. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor	X			

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. <i>Size:</i>				
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>				
6-8 Science 1,250				
6-8 Combination Math/Science 1,050				
9-12 Biology, Chemistry, Physics, 250 GSF per 2 labs Storage /Prep Rooms	X			
9-12 Physical Science 1,250	X			
Biology 1,250	X			
Physics 1,250	X			
Earth Science 1,250				
Chemistry 1,500	X			
Multi-Purpose Science 1,500				

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D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows	X			
3. Ceiling height: 10'-0"	X			
4. Eye protection/showers shall be provided per OSHA requirements	X			

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom	X			

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RULES AND DESIGN GUIDELINES

F. Music

Requirement	Yes	No	N/A	Recommendation/Comment	
1. Size:					
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>					
K-6 General Music 1,050					
6-8 General Music 1,050					
6-12 Vocal 10-18 SF per student					
6-12 Instrumental 25-35 SF per student	X			1,702 SF / 35 SF/student = 48 student capacity	
Instrument Storage 600	X				
Instrument Lockers 300					
Music Library 200	X				
Instrument Repair 150	X				
Office (each) 150	X				
Uniform Storage Varies	X				
Practice Room 60	X				
Ensemble Practice Room 200	X				
2. Ceiling Height					
<u>Room Size</u> <u>Guideline</u>					
900 SF and less 9'-4"					
901-999 SF 10'-0"					
1,000-1,199 SF 12'-0"					
1,200-1,800 SF 14'-0" - 18'-0"	X			22'	
Over 1,800 SF 16'-0" - 18'-0"					

G. Art Education

Requirement	Yes	No	N/A	
1. Size:				
<u>Grade</u> <u>Room</u> <u>Guideline (MGSF)</u>				
K-8 Art classroom 1,400				
9-12 Art classroom 1,500	X			
K-12 Kiln/clay storage 60		X		161 SF
K-12 Art material storage 150		X		156 SF

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RULES AND DESIGN GUIDELINES

G. Art Education

Requirement	Yes	No	N/A	
2. Ceiling height: 10'-0"	X			
3. Art classrooms should have windows	X			

H Theater Arts - Auditoriums

Requirement	Yes	No	N/A	
1. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM		X		424 ADM, Proposed capacity = 500

I. Vocational Education

Requirement	Yes	No	N/A	
1. Size: Varies	X			
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"	X			
3. Windows should be provided per regular classrooms.	X			

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RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																												
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4. Ceiling Height: <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>Main Room</td> <td>Min. 12'-0"</td> </tr> <tr> <td>Support Areas:</td> <td>9'-0"</td> </tr> </tbody> </table>	Main Room	Min. 12'-0"	Support Areas:	9'-0"	X																										
Main Room	Min. 12'-0"																														
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5. Windows are recommended in main room.	X																														

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

K. Physical Education

Requirement	Yes	No	N/A																					
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	Support area under 850 SF	9'-4"																						
	Dressing, showers	10'-0"																						
	Teaching areas	12'-0"																						
3. Showers are recommended	X																							

**State of Wyoming
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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A	
1. Size varies			X	
2. Ceiling height per regular classrooms			X	
3. Windows are recommended.			X	

M. School Building Administration

Requirement	Yes	No	N/A	
1. Size:				
<u>Rooms</u>				
Principal		X		338 SF
Assistant Principal (each)	X			
Reception Area	X			
Secretary	X			
Other student services	X			
Workroom/Storage	X			
Conference Room	X			
Record Storage	X			
General Storage			X	
Guidelines (MGSF)				
Principal				200
Assistant Principal (each)				150
Reception Area				400
Secretary				150
Other student services				200
Workroom/Storage				200 varies
Conference Room				200
Record Storage				100
General Storage				100 varies

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-5 Guidance 450				
6-12 Guidance 300				
9-12 Reception/Career Center Varies	X			
K-12 Counselor Office 150	X			
K-5 Other student services 150	X			
6-12 Other student services 200				
K-8 Health Room 200				
9-12 Health Room 200				
K-12 Health Room Toilet 50				

O. Staff Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-12 Group Teacher Office/Planning 100 per teacher			X	
K-12 Special Assistant and Itinerant teacher office/work space 100 per teacher			X	
K-12 Workroom Varies			X	
K-12 Lounge Varies	X			1,208 SF
2. Faculty toilets should be located near classrooms		X		No faculty toilets on second floor classroom wing. Staff not concerned.

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RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A	
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14	X			Using auxiliary gym.
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"	X			
3. Serving area varies	X			
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880	X			

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RULES AND DESIGN GUIDELINES

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom				<u>Guidelines (SGSF)</u>
K-5 computer lab				Add 15 SF per PC
6-8 computer lab				1,050
9-12 computer lab				1,050-1,400
Distance learning room	X			1,050
Wiring closets				15-120
Main Head-End room	X			450-800

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RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels	X			IES standard.
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			
2. All classrooms should be wired for telephone	X			

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RULES AND DESIGN GUIDELINES

**District: Natrona County School District #1
Project: New President's Elementary School**

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.	X			12-13 acres
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.				
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.				

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.			X	

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.			X	
2. Pre-kindergarten and kindergarten students should have separate play area.	X			
3. All grade levels should have paved activity areas.	X			Minimal amount
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.	X			
5. Student parking for high schools should accommodate a minimum of one-fourth of the students			X	

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RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student	X			61,233 / 512 = 120
2. Middle School: 120 to 150 GSF per student				
3. Senior High School: 150 to 180 GSF per student				
4. Schools less than 350 students: graduated adjustment				

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school may not exceed the enrollment of prior year by more than 10%.	X			446 x 1.1 = 512

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RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.	X			
2. No classroom shall be less than 560 GSF.	X			
3. Resource rooms may range from 100 to 560 GSF.	X			

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.	X			
2. When an auditorium is provided, it should seat one-third of the ADM.			X	

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.	X			
2. Add 15 SF for each computer workstation.				Not indicated

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RULES AND DESIGN GUIDELINES

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
3. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"	X			10' typical
4. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless	X			
5. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor	X			

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment																																						
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RULES AND DESIGN GUIDELINES

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows			X	
3. Ceiling height: 10'-0"			X	
4. Eye protection/showers shall be provided per OSHA requirements			X	

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom	X			

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RULES AND DESIGN GUIDELINES

F. Music

Requirement	Yes	No	N/A	Recommendation/Comment																																																					
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G. Art Education

Requirement	Yes	No	N/A	Recommendation/Comment																					
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RULES AND DESIGN GUIDELINES

G. Art Education

Requirement	Yes	No	N/A	
2. Ceiling height: 10'-0"	X			
3. Art classrooms should have windows	X			

H Theater Arts - Auditoriums

Requirement	Yes	No	N/A	
1. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM	X			

I. Vocational Education

Requirement	Yes	No	N/A	
1. Size: Varies			X	
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"			X	
3. Windows should be provided per regular classrooms.			X	

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RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																																							
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2. Capacity shall be 40 students or 10% of ADM, whichever is greater.		x		2598 /6 = 433, 10% of 512 = 51																																						
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4. Ceiling Height: Main Room Min. 12'-0" Support Areas: 9'-0"					Not indicated																																					
5. Windows are recommended in main room.	X																																									

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

K. Physical Education

Requirement			Yes	No	N/A	
1. Size:						
<u>Grade</u>	<u>Spaces</u>	<u>Guideline (MGSF)</u>				
K-6	Multipurpose/Indoor P.E. <i>(Play Area)</i>	3,600 min. plus 4 SF per <i>student over 600students</i>	X			3540 sf
6-9	Gymnasium Play Area	varies 42x74 practice court min. 50x84 competition court				
9-12	Seating <i>Gymnasium</i>	400-500 SF per 100 seats <i>One competition court with two practice cross- courts.</i>				
	Play Area	GSF varies depending on seating 50x84 court 6' on sides 8' on ends				
9-12	Seating Wrestling	400-500 SF per 100 seats 3,000				
9-12	Weight Room	2000-3,000				
2. Ceiling Heights:						
<u>Grades</u>	<u>Rooms</u>	<u>Guideline</u>				
K-6	<i>Multipurpose</i>	<i>15' (18' recommended)</i>	X			
6-9	Gymnasiums	20'-22' min.				
9-12	<i>Gymnasiums</i>	<i>20'-25' min. (25' recommended)</i>				
	Support area under 850 SF	9'-4"				
	Dressing, showers	10'-0"				
	Teaching areas	12'-0"				
3. Showers are recommended					X	

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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A
1. Size varies			X
2. Ceiling height per regular classrooms			X
3. Windows are recommended.			X

M. School Building Administration

Requirement	Yes	No	N/A
1. Size:			
<u>Rooms</u>			
Principal		X	281 sf
Assistant Principal (each)			
Reception Area	X		474 sf for reception/secretary
Secretary			
Other student services		X	900 sf
Workroom/Storage			200 varies
Conference Room		X	243 sf
Record Storage		X	192 sf
General Storage	X		100 varies 121 sf

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-5 Guidance 450				
6-12 Guidance 300				
9-12 Reception/Career Center Varies				
K-12 Counselor Office 150				
K-5 Other student services 150				
6-12 Other student services 200				
K-8 Health Room 200	X			175 sf
9-12 Health Room 200				
K-12 Health Room Toilet 50		x		78 sf

O. Staff Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-12 Group Teacher Office/Planning 100 per teacher	X			500 sf
K-12 Special Assistant and Itinerant teacher office/work space 100 per teacher				
K-12 Workroom Varies	X			395 sf
K-12 Lounge Varies	X			59 sf
2. Faculty toilets should be located near classrooms	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A	
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14	X			3199 sf
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"				Not indicated
3. Serving area varies				Not indicated
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880		x		519 sf, prep only

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RULES AND DESIGN GUIDELINES

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom				
K-5 computer lab	X			1 @ 1064 sf, 1 @ 814 sf
6-8 computer lab				
9-12 computer lab				
Distance learning room				
Wiring closets				
Main Head-End room	X			77 sf

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RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels	X			IES standards
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			Not indicated
2. All classrooms should be wired for telephone	X			Not indicated

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RULES AND DESIGN GUIDELINES

District: Natrona County School District #1

Project: Verda James Elementary School

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.	X			8.69 acres required, actual is 9.32 includes park
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.				
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.				

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.				Not indicated

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.			X	
2. Pre-kindergarten and kindergarten students should have separate play area.	X			
3. All grade levels should have paved activity areas.	X			
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.	X			
5. Student parking for high schools should accommodate a minimum of one-fourth of the students			X	

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RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student	X			56,319 / 469 = 120
2. Middle School: 120 to 150 GSF per student				
3. Senior High School: 150 to 180 GSF per student				
4. Schools less than 350 students: graduated adjustment				

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school may not exceed the enrollment of prior year by more than 10%.	X			1999 enrollment = 426 x 1.1 = 468.6 proposed is 469

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RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.	X			
2. No classroom shall be less than 560 GSF.	X			
3. Resource rooms may range from 100 to 560 GSF.			X	

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.	X			
2. When an auditorium is provided, it should seat one-third of the ADM.			X	

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.	X			
2. Add 15 SF for each computer workstation.		X		Existing classrooms

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RULES AND DESIGN GUIDELINES

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
3. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"		X		9' existing
4. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless		X		Some existing interior rooms do not have windows.
5. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor	X			

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment																																						
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RULES AND DESIGN GUIDELINES

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows		X		Potential for skylight.
3. Ceiling height: 10'-0"		X		9' existing
4. Eye protection/showers shall be provided per OSHA requirements	X			

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom	X			

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RULES AND DESIGN GUIDELINES

F. Music

Requirement	Yes	No	N/A	Recommendation/Comment																																																								
3. Size:																																																												
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G. Art Education

Requirement	Yes	No	N/A	Recommendation/Comment																							
3. Size:																											
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RULES AND DESIGN GUIDELINES

G. Art Education

Requirement	Yes	No	N/A	
2. Ceiling height: 10'-0"		X		9' existing
3. Art classrooms should have windows		X		Potential for skylight

H Theater Arts – Auditoriums

Requirement	Yes	No	N/A	
1. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM		X		

I. Vocational Education

Requirement	Yes	No	N/A	
1. Size: Varies			X	
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"			X	
3. Windows should be provided per regular classrooms.			X	

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RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																												
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Support Areas:	9'-0"																														
5. Windows are recommended in main room.	X																														

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

K. Physical Education

Requirement			Yes	No	N/A	
1. Size:						
<u>Grade</u>	<u>Spaces</u>	<u>Guideline (MGSF)</u>	X			3,060 sf, existing
K-6	Multipurpose/Indoor P.E. <i>(Play Area)</i>	3,600 min. plus 4 SF per student over 600 students				
6-9	Gymnasium Play Area	varies 42x74 practice court min. 50x84 competition court				
9-12	Seating <i>Gymnasium</i>	400-500 SF per 100 seats <i>One competition court with two practice cross-courts.</i>				
	Play Area	GSF varies depending on seating 50x84 court 6' on sides 8' on ends				
9-12	Seating Wrestling	400-500 SF per 100 seats 3,000				
9-12	Weight Room	2000-3,000				
2. Ceiling Heights:						Not indicated
<u>Grades</u>	<u>Rooms</u>	<u>Guideline</u>				
K-6	<i>Multipurpose</i>	<i>15' (18' recommended)</i>				
6-9	Gymnasiums	20'-22' min.				
9-12	<i>Gymnasiums</i>	<i>20'-25' min. (25' recommended)</i>				
	Support area under 850 SF	9'-4"				
	Dressing, showers	10'-0"				
	Teaching areas	12'-0"				
3. Showers are recommended					X	

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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A
1. Size varies			X
2. Ceiling height per regular classrooms			X
3. Windows are recommended.			X

M. School Building Administration

Requirement	Yes	No	N/A
1. Size:			
<u>Rooms</u>			
Principal	X		194 sf
Assistant Principal (each)			
Reception Area		X	608 sf reception/secretary
Secretary		X	
Other student services	X		
Workroom/Storage	X		614 sf
Conference Room		X	251 sf
Record Storage	X		56 sf (not listed in program)
General Storage			

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A	
1. Size:				Not indicated, some rooms not labeled.
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-5 Guidance				450
6-12 Guidance				300
9-12 Reception/Career Center				Varies
K-12 Counselor Office				150
K-5 Other student services				150
6-12 Other student services				200
K-8 Health Room		X		200
9-12 Health Room				200
K-12 Health Room Toilet		X		50
				227 sf
				55 sf

O. Staff Support Areas

Requirement	Yes	No	N/A	
1. Size:				
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>				
K-12 Group Teacher Office/Planning	X			100 per teacher
K-12 Special Assistant and Itinerant teacher office/work space				100 per teacher
K-12 Workroom				Varies
K-12 Lounge				Varies
2. Faculty toilets should be located near classrooms	X			
				537 sf, also lounge

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A	
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14			X	
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"			X	
3. Serving area varies	X			
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880		X		245 sf, prep only

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RULES AND DESIGN GUIDELINES

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom				
K-5 computer lab				
6-8 computer lab				
9-12 computer lab				
Distance learning room				
Wiring closets				
Main Head-End room	X			
<u>Guidelines (SGSF)</u>				
Add 15 SF per PC				
1,050				
1,050-1,400				
1,050-1,400				
1,050				
15-120				
450-800				
				In media center

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RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels	X			IES standards
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			
2. All classrooms should be wired for telephone	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

District: Washakie County School District No. 1

Project: Worland Middle School

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.				
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.	X			
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.				

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.			X	

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.	X			
2. Pre-kindergarten and kindergarten students should have separate play area.			X	
3. All grade levels should have paved activity areas.	X			
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.	X			
5. Student parking for high schools should accommodate a minimum of one-fourth of the students			X	

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Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student				
2. Middle School: 120 to 150 GSF per student		X		72,700 / 432 = 168 GSF/ADM 69,900 / 432 = 162 GSF/ADM
3. Senior High School: 150 to 180 GSF per student				
4. Schools less than 350 students: graduated adjustment				

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school does not exceed the enrollment of prior year by more than 10%.	X			392 x 1.1 = 432 20 TS x 21 x .85 = 357 5 TS x 12 x .85 = 51 + 357 = 408

District calcs use 25 student per TS and 75% and 62% utilization

**State of Wyoming
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RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.	X			
2. No classroom shall be less than 560 GSF.	X			
3. Resource rooms may range from 100 to 560 GSF.			X	

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.		X		
2. When an auditorium is provided, it should seat one-third of the ADM.		X		

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.	X			
2. Add 15 SF for each computer workstation.				Not indicated

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RULES AND DESIGN GUIDELINES

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
3. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"		X		9'
4. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless		X		8% of 962 = 77 SF Proposed = 48 SF
5. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor	X			

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment																														
1. Size:																																		
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**State of Wyoming
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RULES AND DESIGN GUIDELINES

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows	X			
3. Ceiling height: 10'-0"		X		9'
4. Eye protection/showers shall be provided per OSHA requirements	X			

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom		X		9'

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RULES AND DESIGN GUIDELINES

F. Music

Requirement	Yes	No	N/A	Recommendation/Comment																																																								
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G. Art Education

Requirement	Yes	No	N/A																										
3. Size:																													
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RULES AND DESIGN GUIDELINES

G. Art Education

Requirement	Yes	No	N/A	
2. Ceiling height: 10'-0"	X			
3. Art classrooms should have windows	X			

H Theater Arts – Auditoriums

Requirement	Yes	No	N/A	
1. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM		X X		600 capacity

I. Vocational Education

Requirement	Yes	No	N/A	
1. Size: Varies	X			
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"		X		11'
3. Windows should be provided per regular classrooms.	X	X		Yes in shop, no in classroom

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RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																																														
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2. Capacity shall be 40 students or 10% of ADM, whichever is greater.		X		2656 / 35 = 96 capacity																																													
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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A	
1. Size varies	X			
2. Ceiling height per regular classrooms	X			
3. Windows are recommended.	X			

M. School Building Administration

Requirement	Yes	No	N/A	
1. Size:				
<u>Rooms</u>				
Principal	X			
Assistant Principal (each)				
Reception Area	X			
Secretary	X			372 sf, 3 secretaries
Other student services	X			
Workroom/Storage	X			
Conference Room		X		276 sf
Record Storage				
General Storage				

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A
1. Size:			
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>			
K-5 Guidance 450			
6-12 Guidance 300	X		
9-12 Reception/Career Center Varies			
K-12 Counselor Office 150			
K-5 Other student services 150			
6-12 Other student services 200			
K-8 Health Room 200	X		
9-12 Health Room 200			
K-12 Health Room Toilet 50			

O. Staff Support Areas

Requirement	Yes	No	N/A
1. Size:			
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>			
K-12 Group Teacher Office/Planning 100 per teacher			
K-12 Special Assistant and 100 per teacher			
Itinerant teacher office/work space			
K-12 Workroom Varies			
K-12 Lounge Varies	X		
2. Faculty toilets should be located near classrooms		X	

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RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A	
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14	X			
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"	X			
3. Serving area varies	X			
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880	x			1296 SF

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RULES AND DESIGN GUIDELINES

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom				Guidelines (SGSF) Add 15 SF per PC
K-5 computer lab				1,050
6-8 computer lab	X			1,050-1,400
9-12 computer lab				1,050-1,400
Distance learning room				1,050
Wiring closets				15-120
Main Head-End room	X			450-800

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RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels				Not indicated
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			
2. All classrooms should be wired for telephone	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

District: Fremont County School District #38

Project: Arapahoe School

I. Site Requirements

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary School: 4 acres with an additional acre for each 100 students.				
2. Middle School: 10 acres up to 300 students, 15 acres up to 500 students, 20 acres above 500 students.				
3. Senior High School: 20 acres up to 400 students, 25 acres up to 800 students, 30 acres above 800 students.			X	Existing site.

B. Existing Sites

Requirement	Yes	No	N/A	Recommendation/Comment
1. No additional space shall be added to an existing site when it is less than 50% of the recommended site size.			X	

C. Guidelines

Requirement	Yes	No	N/A	Recommendation/Comment
1. Sites with stadiums may require 10 additional acres.			X	
2. Pre-kindergarten and kindergarten students should have separate play area.			X	
3. All grade levels should have paved activity areas.			X	
4. Parking should be provided for all staff, itinerant specialists, and an additional 10-20% for visitors.			X	
5. Student parking for high schools should accommodate a minimum of one-fourth of the students			X	

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RULES AND DESIGN GUIDELINES

II. School Size

A. Size

Requirement	Yes	No	N/A	Recommendation/Comment
1. Elementary Schools: 90 to 120 GSF per student				
2. Middle School: 120 to 150 GSF per student				
3. Senior High School: 150 to 180 GSF per student				
4. Schools less than 350 students: graduated adjustment			X	Not applicable – remodel to existing school, no new space.

B. Enrollment

Requirement	Yes	No	N/A	Recommendation/Comment
1. Projected enrollment of a new school may not exceed the enrollment of prior year by more than 10%.			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

III. Class Size

A. General Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Not more than 1050 GSF and not less than 35 GSF per student.			X	
2. No classroom shall be less than 560 GSF.			X	
3. Resource rooms may range from 100 to 560 GSF.			X	

B. Auditoriums

Requirement	Yes	No	N/A	Recommendation/Comment
1. For schools less than 600 students, a multi-purpose room may serve as an auditorium.			X	
2. When an auditorium is provided, it should seat one-third of the ADM.			X	

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
1. Maximum regular classroom size is 1050 GSF.			X	
2. Add 15 SF for each computer workstation.			X	

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RULES AND DESIGN GUIDELINES

C. Guidelines for Regular Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
3. Ceiling Heights: - 805 SF or less, 9'-4" - 851 SF or more 10'-0" - Modular or mobile 8'-0" to 9'-0"			X	
4. All classrooms shall have windows - K-5: equal to or greater than 8% of floor area - 6-12: equal to or greater than 6-8% of floor area - 9-12: No more than 20% of teaching stations shall be windowless			X	
5. All classrooms shall have window for emergency rescue, or exterior door, or secondary access through adjoining classroom or directly to exit corridor			X	

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment																										
1. Size: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Grade</u></th> <th style="text-align: left;"><u>Room</u></th> <th style="text-align: left;"><u>Guideline (MGSF)</u></th> </tr> </thead> <tbody> <tr> <td>6-8</td> <td>Science</td> <td>1,250</td> </tr> <tr> <td>6-8</td> <td>Combination Math/Science</td> <td>1,050</td> </tr> <tr> <td>9-12</td> <td>Biology, Chemistry, Physics, Storage /Prep Rooms</td> <td>250 GSF per 2 labs</td> </tr> <tr> <td rowspan="5">9-12</td> <td>Physical Science</td> <td>1,250</td> </tr> <tr> <td>Biology</td> <td>1,250</td> </tr> <tr> <td>Physics</td> <td>1,250</td> </tr> <tr> <td>Earth Science</td> <td>1,250</td> </tr> <tr> <td>Chemistry</td> <td>1,500</td> </tr> <tr> <td></td> <td>Multi-Purpose Science</td> <td>1,500</td> </tr> </tbody> </table>	<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>	6-8	Science	1,250	6-8	Combination Math/Science	1,050	9-12	Biology, Chemistry, Physics, Storage /Prep Rooms	250 GSF per 2 labs	9-12	Physical Science	1,250	Biology	1,250	Physics	1,250	Earth Science	1,250	Chemistry	1,500		Multi-Purpose Science	1,500			X	
<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>																												
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	Physics	1,250																												
	Earth Science	1,250																												
	Chemistry	1,500																												
	Multi-Purpose Science	1,500																												

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

D. Guidelines for Science Classrooms

Requirement	Yes	No	N/A	Recommendation/Comment
2. Project and science rooms should have windows			X	
3. Ceiling height: 10'-0"			X	
4. Eye protection/showers shall be provided per OSHA requirements			X	

E. Guidelines for Exceptional Children

Requirement	Yes	No	N/A	Recommendation/Comment
1. Classroom size varies with program	X			
2. Resource room: 560 MGsf			X	
3. Ceiling height same as regular classroom	X			10'

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RULES AND DESIGN GUIDELINES

F. Music

Requirement			Yes	No	N/A	Recommendation/Comment
2. Size:						
<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>			X	
K-6	General Music	1,050				
6-8	General Music	1,050				
6-12	Vocal	10-18 SF per student				
6-12	Instrumental	25-35 SF per student				
	Instrument Storage	600				
	Instrument Lockers	300				
	Music Library	200				
	Instrument Repair	150				
	Office (each)	150				
	Uniform Storage	Varies				
	Practice Room	60				
	Ensemble Practice Room	200				
3. Ceiling Height						
<u>Room Size</u>	<u>Guideline</u>				X	
900 SF and less	9'-4"					
901-999 SF	10'-0"					
1,000-1,199 SF	12'-0"					
1,200-1,800 SF	14'-0" – 18'-0"					
Over 1,800 SF	16'-0" – 18'-0"					

G. Art Education

Requirement			Yes	No	N/A	Recommendation/Comment
4. Size:						
<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>			X	
K-8	Art classroom	1,400				
9-12	Art classroom	1,500				
K-12	Kiln/clay storage	60				
K-12	Art material storage	150				

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

G. Art Education

Requirement	Yes	No	N/A
2. Ceiling height: 10'-0"			X
3. Art classrooms should have windows			X

H Theater Arts – Auditoriums

Requirement	Yes	No	N/A
2. Size: <u>Grade</u> <u>Guideline (Seating Capacity)</u> K-8 Not recommended 9-12 1/3 of ADM			X

I. Vocational Education

Requirement	Yes	No	N/A
1. Size: Varies			X
2. Ceiling height: see regular classrooms and light-duty labs up to 1,200 SF 1,200 - 2,000 SF 12'-0" 2,000 SF and above 14'-0"			X
3. Windows should be provided per regular classrooms.			X

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

J. Media Centers

Requirement	Yes	No	N/A																											
1. Size: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Grade</u></th> <th style="text-align: left;"><u>Room</u></th> <th style="text-align: left;"><u>Guideline (MGSF)</u></th> </tr> </thead> <tbody> <tr> <td>K-12</td> <td>Main Room</td> <td>4-6 GSF per ADM 1,250 GSF min.</td> </tr> <tr> <td>K-5</td> <td>Support Spaces (see below)</td> <td>1,200</td> </tr> <tr> <td>6-8</td> <td>Support Spaces (see below)</td> <td>1,800</td> </tr> <tr> <td>9-12</td> <td>Support Spaces (see below)</td> <td>2,000</td> </tr> <tr> <td>K-5</td> <td>Video Production Room</td> <td>300</td> </tr> <tr> <td>6-12</td> <td>Video Studio</td> <td>400</td> </tr> <tr> <td></td> <td>Control/Editing</td> <td>260</td> </tr> <tr> <td></td> <td>Equipment Storage</td> <td>80</td> </tr> </tbody> </table>	<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>	K-12	Main Room	4-6 GSF per ADM 1,250 GSF min.	K-5	Support Spaces (see below)	1,200	6-8	Support Spaces (see below)	1,800	9-12	Support Spaces (see below)	2,000	K-5	Video Production Room	300	6-12	Video Studio	400		Control/Editing	260		Equipment Storage	80			X
<u>Grade</u>	<u>Room</u>	<u>Guideline (MGSF)</u>																												
K-12	Main Room	4-6 GSF per ADM 1,250 GSF min.																												
K-5	Support Spaces (see below)	1,200																												
6-8	Support Spaces (see below)	1,800																												
9-12	Support Spaces (see below)	2,000																												
K-5	Video Production Room	300																												
6-12	Video Studio	400																												
	Control/Editing	260																												
	Equipment Storage	80																												
2. Capacity shall be 40 students or 10% of ADM, whichever is greater.			X																											
3. Support Spaces: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Support Space</u></th> <th style="text-align: left;"><u>Guideline (MGSF)</u></th> </tr> </thead> <tbody> <tr> <td>Media office/admin.</td> <td>Up to 200 + 50/add'l staff</td> </tr> <tr> <td>Workroom</td> <td>600</td> </tr> <tr> <td>Production</td> <td>600</td> </tr> <tr> <td>Darkroom</td> <td>150</td> </tr> <tr> <td>Professional Area</td> <td>150</td> </tr> <tr> <td>Conference/Small Group</td> <td>150</td> </tr> <tr> <td>Equip. Stor./Distribution/Maintenance</td> <td>175</td> </tr> <tr> <td>Periodical Storage</td> <td>250</td> </tr> </tbody> </table>	<u>Support Space</u>	<u>Guideline (MGSF)</u>	Media office/admin.	Up to 200 + 50/add'l staff	Workroom	600	Production	600	Darkroom	150	Professional Area	150	Conference/Small Group	150	Equip. Stor./Distribution/Maintenance	175	Periodical Storage	250			X									
<u>Support Space</u>	<u>Guideline (MGSF)</u>																													
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Equip. Stor./Distribution/Maintenance	175																													
Periodical Storage	250																													
4. Ceiling Height: Main Room Min. 12'-0" Support Areas: 9'-0"			X																											
5. Windows are recommended in main room.			X																											

**State of Wyoming
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RULES AND DESIGN GUIDELINES

K. Physical Education

Requirement			Yes	No	N/A
1. Size:					
<u>Grade</u>	<u>Spaces</u>	<u>Guideline (MGSF)</u>			
K-6	Multipurpose/Indoor P.E. (Play Area)	3,600 min. plus 4 SF per student over 600 students			X
6-9	Gymnasium Play Area	varies 42x74 practice court min. 50x84 competition court			
9-12	Seating Gymnasium	400-500 SF per 100 seats One competition court with two practice cross-courts.			
	Play Area	GSF varies depending on seating 50x84 court 6' on sides 8' on ends			
9-12	Seating Wrestling	400-500 SF per 100 seats 3,000			
9-12	Weight Room	2000-3,000			
2. Ceiling Heights:					
<u>Grades</u>	<u>Rooms</u>	<u>Guideline</u>			
K-6	Multipurpose	15' (18' recommended)			X
6-9	Gymnasiums	20'-22' min.			
9-12	Gymnasiums	20'-25' min. (25' recommended)			
	Support area under 850 SF	9'-4"			
	Dressing, showers	10'-0"			
	Teaching areas	12'-0"			
3. Showers are recommended					X

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RULES AND DESIGN GUIDELINES

L. Home Economics

Requirement	Yes	No	N/A
1. Size varies			X
2. Ceiling height per regular classrooms			X
3. Windows are recommended.			X

M. School Building Administration

Requirement	Yes	No	N/A
1. Size:			
<u>Rooms</u>			
Principal	X		
Assistant Principal (each)			
Reception Area	X		
Secretary	X		
Other student services			
Workroom/Storage	X		
Conference Room			
Record Storage			
General Storage			

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RULES AND DESIGN GUIDELINES

N. Student Support Areas

Requirement	Yes	No	N/A
1. Size:			
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>			
K-5 Guidance 450			X
6-12 Guidance 300			
9-12 Reception/Career Center Varies			
K-12 Counselor Office 150			
K-5 Other student services 150			
6-12 Other student services 200			
K-8 Health Room 200			
9-12 Health Room 200			
K-12 Health Room Toilet 50			

O. Staff Support Areas

Requirement	Yes	No	N/A
1. Size:			
<u>Grades</u> <u>Rooms</u> <u>Guidelines (MGSF)</u>			
K-12 Group Teacher Office/Planning 100 per teacher			X
K-12 Special Assistant and Itinerant teacher office/work space 100 per teacher			
K-12 Workroom Varies			
K-12 Lounge Varies			
2. Faculty toilets should be located near classrooms	X		

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

P. Commons, Circulation and Entries

Requirement	Yes	No	N/A	
1. Corridor Widths: <u>Corridor</u> <u>Guidelines (MGSE)</u> Serving more than 2 classrooms 8'-0" Serving more than 10 classrooms 9'-0" Elementary and middle school major corridors 10'-0" High School major corridors 12'-0" Lockers along one wall Add 2'-0" Lockers along 2 walls Add 3'-0"	X			
2. Commons sizes for grades 7-12 varies			X	
3. Stairs, single run should not exceed 8'-0" in height without landing			X	
4. Toilets - Adequate privacy without doors - Minimum of two water closets	X		X	
5. Ceiling Heights: 9'-4"	X			

**State of Wyoming
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RULES AND DESIGN GUIDELINES

Q. Cafeterias

Requirement	Yes	No	N/A
1. Size: <u>Grades</u> <u>Guidelines (SGSF per student)</u> K-6 12-14 5-8 12-14 7-9 14 9-12 14			X
2. Ceiling Height Minimum below 3000 SF 12'-0" Minimum 3000 SF or above 14'-0"			X
3. Serving area varies			X
4. Kitchen <u>Lunches Served</u> <u>Guidelines (SGSF)</u> 100 856 250 1,261 500 1,518 750 1,938 1,000 2,208 1,250 2,566 1,500 2,880			X

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RULES AND DESIGN GUIDELINES

R. Building Support Areas

Requirement	Yes	No	N/A	
1. Size of all areas vary	X			

S. Technology

Requirement	Yes	No	N/A	
1. Size:				
<u>Spaces</u>				
Regular/science classroom			X	
K-5 computer lab				1,050
6-8 computer lab				1,050-1,400
9-12 computer lab				1,050-1,400
Distance learning room				1,050
Wiring closets				15-120
Main Head-End room				450-800

**State of Wyoming
Review of Capital Construction Grant Applications**

RULES AND DESIGN GUIDELINES

IV. Life-Cycle Cost Analysis

Requirement	Yes	No	N/A	Recommendation/Comment
A. All new construction more than 18,000 GSF shall have a life-cycle cost analysis			X	

V. Electrical and Lighting

A. Illumination

Requirement	Yes	No	N/A	Recommendation/Comment
1. See appendix for recommended lighting levels	X			
2. Energy efficient lighting is critical	X			

B. Fire Alarm

Requirement	Yes	No	N/A	Recommendation/Comment
1. Fire Alarm System per fire code	X			

C. Communications

Requirement	Yes	No	N/A	Recommendation/Comment
1. All classrooms should be equipped with two-way communication	X			
2. All classrooms should be wired for telephone	X			

***APPENDIX B – SAFETY AND
SECURITY REVIEW***

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

District: Johnson County School District No. 1

Project: Kaycee 6-12

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?	X			
3. Does the district require each school to have security procedures specific to its buildings?	X			
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

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SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?		X		Will do if K-5 wing is added.
2. Is the fence high enough so that intruders cannot easily climb over it?		X		6' - 8' if added
3. Are gates secured by locks?			X	
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?	X			

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?		X		Not possible due to existing site.
2. Does the playground equipment have tamper-proof fasteners?			X	
3. Are there separate play areas for pre-kindergarten and kindergarten children?			X	
4. Do the protective surfaces around the playground equipment extend to at least 6'?			X	
5. Are structures more than 30 inches high spaced at least 9' apart?			X	
6. Do the project specifications reference the "Handbook for Public Playground Safety"?			X	

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SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?	X			
2. Are remote or high-risk areas covered by surveillance cameras?	X			The District will consider this.
3. Are the athletics fields organized to allow a single point of surveillance?		X		Existing site configuration dictates location of fields.

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?		X		The District will consider this.
2. Does the location and height of landscaping prevent surveillance?		X		The District will consider this.
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?		X		The District will consider this.

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SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?		X		There will be surveillance cameras.
2. Are parking lots designed to minimize long straight runs that would encourage speeding?	X			
3. Are speed bumps used to slow traffic?			X	
4. Are raised sidewalks used to separate pedestrians in parking areas?	X			
5. Are student parking areas separate from other parking areas?	X			

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?	X			
3. Are there designated visitor parking areas?	X			
4. Has auto and bus traffic been separated?	X			
5. Have hazardous entrances off main thoroughfares been eliminated?			X	

State of Wyoming
Review of Capital Construction Grant Applications

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?	X			Will use signage to restrict autos.
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?		X		
4. Are covered areas provided for waiting students?	X			At entry.

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			May get congested due to staff parking.
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

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SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?	X			
2. Can unused areas be closed off during after-school activities?	X			
3. Is the entrance lobby visible from the main office?	X			
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?	X			
5. Are doors that open into corridors recessed or otherwise protected?	X			
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?	X			
9. Do basketball courts have a minimum 6' safety border?	X			

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Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?			X	
11. Are locker rooms visible from inside gym teacher's offices?		X		Staff preferred this.
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?	X			
13. Do hallway doors have vision panels?	X			
14. Do enclosed stairways have electronic surveillance?			X	
15. Are elevators designed for limited access and electronic surveillance?			X	
16. Does the health or nursing room contain lockable storage?	X			
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?	X			
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?	X			54"
19. Does the layout of the cafeteria promote efficient traffic flow?	X			Will need to reevaluate when K-5 wing is added.

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
20. Have toilet room doors been equipped with magnetic hold-opens to allow acoustic surveillance?	X			
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?	X			
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		This is not an issue in the district.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?	X			
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?	X			
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?	X			
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?	X			

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?	X			
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

District: Johnson County School District No. 1

Project: Buffalo High School

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?	X			
3. Does the district require each school to have security procedures specific to its buildings?	X			
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?		X		District doesn't have the need.
2. Is the fence high enough so that intruders cannot easily climb over it?			X	
3. Are gates secured by locks?			X	
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?	X			

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?	X			
2. Does the playground equipment have tamper-proof fasteners?			X	
3. Are there separate play areas for pre-kindergarten and kindergarten children?			X	
4. Do the protective surfaces around the playground equipment extend to at least 6'?			X	
5. Are structures more than 30 inches high spaced at least 9' apart?			X	
6. Do the project specifications reference the "Handbook for Public Playground Safety"?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?	X			
2. Are remote or high-risk areas covered by surveillance cameras?	X			
3. Are the athletics fields organized to allow a single point of surveillance?	X			

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?	X			District will take into consideration
2. Does the location and height of landscaping prevent surveillance?		X		District will take into consideration
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?	X			District will take into consideration

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?		X		District will take into consideration
2. Are parking lots designed to minimize long straight runs that would encourage speeding?	X			
3. Are speed bumps used to slow traffic?		X		They conflict with snow clearance.
4. Are raised sidewalks used to separate pedestrians in parking areas?		X		Layout of parking and snow clearance make this difficult.
5. Are student parking areas separate from other parking areas?	X			

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?		X		District will work on this.
3. Are there designated visitor parking areas?	X			
4. Has auto and bus traffic been separated?		X		District will work on this.
5. Have hazardous entrances off main thoroughfares been eliminated?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?		X		
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?		X		
4. Are covered areas provided for waiting students?		X		

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?	X			
2. Can unused areas be closed off during after-school activities?	X			
3. Is the entrance lobby visible from the main office?	X			
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?	X			
5. Are doors that open into corridors recessed or otherwise protected?	X			
6. Are daylight sources provided in locker rooms and laboratories to aid safe movement during power interruptions?		X		Yes in labs, no in lockers but there is emergency lighting
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?	X			
9. Do basketball courts have a minimum 6' safety border?	X			
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?			X	
11. Are locker rooms visible from inside gym teacher's offices?		X		Two are and two aren't - staff isn't concerned.
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
13. Do hallway doors have vision panels?	X			
14. Do enclosed stairways have electronic surveillance?		X		Will consider - only one stairway which is partially enclosed.
15. Are elevators designed for limited access and electronic surveillance?	X			
16. Does the health or nursing room contain lockable storage?	X			
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?	X			
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?	X			54"
19. Does the layout of the cafeteria promote efficient traffic flow?	X			
20. Have toilet room doors been equipped with magnetic hold-opens to allow acoustic surveillance?	X			
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?	X			Except shop & music areas.
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		Not an issue.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?	X			
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?	X			
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?	X			
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?	X			

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?	X			
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

State of Wyoming
Review of Capital Construction Grant Applications

SAFETY AND SECURITY REVIEW

District: Natrona County School District #1
Project: New Presidents Elementary School

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?	X			
3. Does the district require each school to have security procedures specific to its buildings?	X			
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?	X			No schools are completely fenced. Will fence play areas.
2. Is the fence high enough so that intruders cannot easily climb over it?	X			
3. Are gates secured by locks?	X			
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?		X		Only one part of building not accessible - ok with Fire Department

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?	X			
2. Does the playground equipment have tamper-proof fasteners?	X			
3. Are there separate play areas for pre-kindergarten and kindergarten children?	X			
4. Do the protective surfaces around the playground equipment extend to at least 6'?	X			
5. Are structures more than 30 inches high spaced at least 9' apart?	X			
6. Do the project specifications reference the "Handbook for Public Playground Safety"?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?	X			Will use natural landscaping, few if any trees.
2. Are remote or high-risk areas covered by surveillance cameras?			X	
3. Are the athletics fields organized to allow a single point of surveillance?	X			

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?			X	
2. Does the location and height of landscaping prevent surveillance?	X			
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?		X		
2. Are parking lots designed to minimize long straight runs that would encourage speeding?	X			
3. Are speed bumps used to slow traffic?			X	
4. Are raised sidewalks used to separate pedestrians in parking areas?	X			
5. Are student parking areas separate from other parking areas?			X	

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?	X			
3. Are there designated visitor parking areas?		X		Not shown but will accommodate near entrance.
4. Has auto and bus traffic been separated?	X			Some problems with bike racks and service entrance.
5. Have hazardous entrances off main thoroughfares been eliminated?		X		Must discuss with city.

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?	X			Will be signed
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?	X			
4. Are covered areas provided for waiting students?	X			

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?	X			Not shown but will do.
2. Can unused areas be closed off during after-school activities?	X			
3. Is the entrance lobby visible from the main office?	X			
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?		X		8' hallway, doors are grouped at wider areas.
5. Are doors that open into corridors recessed or otherwise protected?	X			
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?	X			
9. Do basketball courts have a minimum 6' safety border?		X		Need to reconfigure steps at stage.
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?			X	
11. Are locker rooms visible from inside gym teacher's offices?			X	
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?	X			
13. Do hallway doors have vision panels?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
14. Do enclosed stairways have electronic surveillance?			X	
15. Are elevators designed for limited access and electronic surveillance?			X	
16. Does the health or nursing room contain lockable storage?	X			
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?	X			
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?	X			
19. Does the layout of the cafeteria promote efficient traffic flow?	X			
20. Have doors been equipped with magnetic hold-opens on group toilet rooms to allow acoustic surveillance?	X			
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?	X			
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		Not a problem in the district.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?	X			
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?	X			
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?	X			
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?	X			

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?			X	
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

State of Wyoming
Review of Capital Construction Grant Applications

SAFETY AND SECURITY REVIEW

District: Natrona County School District #1

Project: Verda James Elementary School

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?	X			
3. Does the district require each school to have security procedures specific to its buildings?	X			
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?	X			
2. Is the fence high enough so that intruders cannot easily climb over it?	X			
3. Are gates secured by locks?		X		Site is jointly used with park.
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?	X			

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?	X			
2. Does the playground equipment have tamper-proof fasteners?			X	Existing equipment
3. Are there separate play areas for pre-kindergarten and kindergarten children?	X			
4. Do the protective surfaces around the playground equipment extend to at least 6'?	X			
5. Are structures more than 30 inches high spaced at least 9' apart?	X			
6. Do the project specifications reference the "Handbook for Public Playground Safety"?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?	X			
2. Are remote or high-risk areas covered by surveillance cameras?		X		Two areas may need cameras
3. Are the athletics fields organized to allow a single point of surveillance?	X			

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?		X		They will consider this.
2. Does the location and height of landscaping prevent surveillance?		X		They will consider this.
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?		X		Will try to redesign.
2. Are parking lots designed to minimize long straight runs that would encourage speeding?	X			
3. Are speed bumps used to slow traffic?			X	
4. Are raised sidewalks used to separate pedestrians in parking areas?		X		
5. Are student parking areas separate from other parking areas?			X	

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?	X			
3. Are there designated visitor parking areas?	X			
4. Has auto and bus traffic been separated?	X			
5. Have hazardous entrances off main thoroughfares been eliminated?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?		X		Will use signage.
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?		X		
4. Are covered areas provided for waiting students?		X		

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?		X		Some existing rooms on interior of building.
2. Can unused areas be closed off during after-school activities?	X			
3. Is the entrance lobby visible from the main office?	X			
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?	X			Existing are 8' and work well.
5. Are doors that open into corridors recessed or otherwise protected?	X			
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?	X			
9. Do basketball courts have a minimum 6' safety border?			X	
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?	X			
11. Are locker rooms visible from inside gym teacher's offices?			X	
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?	X			
13. Do hallway doors have vision panels?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
14. Do enclosed stairways have electronic surveillance?			X	
15. Are elevators designed for limited access and electronic surveillance?			X	
16. Does the health or nursing room contain lockable storage?	X			
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?	X			
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?	X			
19. Does the layout of the cafeteria promote efficient traffic flow?	X			
20. Have doors been equipped with magnetic hold-opens in group toilet rooms to allow acoustic surveillance?	X			Yes for new doors, will consider for old doors.
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?		X		Existing hallways.
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		Not an issue in the District.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			They will keep trees small.
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?	X			
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?		X		Computer room only.
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

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SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?	X			
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?	X			

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?			X	
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

District: Washakie County School District #1

Project: Worland Middle School

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?		X		District does have procedures but not written
3. Does the district require each school to have security procedures specific to its buildings?		X		District does have procedures but not written
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?	X			Partially
2. Is the fence high enough so that intruders cannot easily climb over it?	X			
3. Are gates secured by locks?	X			Or maze gates
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?	X			

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?	X			
2. Does the playground equipment have tamper-proof fasteners?			X	
3. Are there separate play areas for pre-kindergarten and kindergarten children?			X	
4. Do the protective surfaces around the playground equipment extend to at least 6'?			X	
5. Are structures more than 30 inches high spaced at least 9' apart?			X	
6. Do the project specifications reference the "Handbook for Public Playground Safety"?			X	

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SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?	X			District will consider
2. Are remote or high-risk areas covered by surveillance cameras?	X			District will incorporate
3. Are the athletics fields organized to allow a single point of surveillance?	X			

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?	X			
2. Does the location and height of landscaping prevent surveillance?	X			
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?		X		Will consider using camera.
2. Are parking lots designed to minimize long straight runs that would encourage speeding?	X			
3. Are speed bumps used to slow traffic?		X		May consider using.
4. Are raised sidewalks used to separate pedestrians in parking areas?		X		
5. Are student parking areas separate from other parking areas?			X	

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?		X		Will consider using some gates.
3. Are there designated visitor parking areas?	X			
4. Has auto and bus traffic been separated?		X		
5. Have hazardous entrances off main thoroughfares been eliminated?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?		X		
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?		X		
4. Are covered areas provided for waiting students?	X			

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?		X		Some interior rooms but all have second exit.
2. Can unused areas be closed off during after-school activities?	X			
3. Is the entrance lobby visible from the main office?	X			
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?	X			
5. Are doors that open into corridors recessed or otherwise protected?	X			Most are, some are not. Principal concerned about hiding places.
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?		X		Will consider.
9. Do basketball courts have a minimum 6' safety border?	X			
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?			X	Will use lockable cabinets where necessary.
11. Are locker rooms visible from inside gym teacher's offices?	X			
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?	X			
13. Do hallway doors have vision panels?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
14. Do enclosed stairways have electronic surveillance?			X	
15. Are elevators designed for limited access and electronic surveillance?			X	
16. Does the health or nursing room contain lockable storage?	X			
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?	X			
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?	X			
19. Does the layout of the cafeteria promote efficient traffic flow?	X			
20. Have doors been equipped with magnetic hold-opens on group toilet rooms to allow acoustic surveillance?		X		Will consider.
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?	X			
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		Not a major problem in district.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?		X		District will consider.
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?	X			
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?		X		Not needed
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?	X			

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?			X	
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

District: Fremont County School District #38

Project: Arapahoe School

I. Policies and Procedures

A. District Policies

Question	Yes	No	N/A	Recommendation/Comment
1. Does the district have written policies requiring each school to have an emergency plan?	X			
2. Does the district have written policies related to building security?		X		No written policies.
3. Does the district require each school to have security procedures specific to its buildings?	X			
4. Does the district have policies that require a security review for construction and/or renovation projects?	X			Will be in the project manual.

B. School Policies and Procedures

Question	Yes	No	N/A	Recommendation/Comment
1. If this project is remodeling an existing school, is there an emergency plan for the existing school?			X	
2. If this project is remodeling an existing school, are there written security procedures specific to the school?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

A. Fencing

Question	Yes	No	N/A	Recommendation/Comment
1. Are the school grounds fenced? Are all play areas fenced?	X			
2. Is the fence high enough so that intruders cannot easily climb over it?	X			
3. Are gates secured by locks?	X			
4. Are all areas of the school building and grounds accessible to cruising police vehicles and emergency vehicles?	X			

B. Playground

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of playground areas and equipment possible from a single point?	X			
2. Does the playground equipment have tamper-proof fasteners?			X	
3. Are there separate play areas for pre-kindergarten and kindergarten children?			X	
4. Do the protective surfaces around the playground equipment extend to at least 6'?			x	
6. Are structures more than 30 inches high spaced at least 9' apart?			X	
6. Do the project specifications reference the "Handbook for Public Playground Safety"?			x	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

II. Site Security

C. Surveillance

Question	Yes	No	N/A	Recommendation/Comment
1. Does the layout of buildings and landscape elements ensure open sight lines?		X		There are multiple buildings at the site which block sight lines but none of these are being altered.
2. Are remote or high-risk areas covered by surveillance cameras?	X			
3. Are the athletics fields organized to allow a single point of surveillance?			X	

D. Landscaping

Question	Yes	No	N/A	Recommendation/Comment
1. Are trees planted away from the building to prevent access to the roof and upper floors?			X	
2. Does the location and height of landscaping prevent surveillance?			X	
3. Are trees planted far enough back from intersections to allow good line of sight for traffic, especially taller buses?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

A. Parking

Question	Yes	No	N/A	Recommendation/Comment
1. Is visual surveillance of parking lots possible from the main office?			X	
2. Are parking lots designed to minimize long straight runs that would encourage speeding?			X	
3. Are speed bumps used to slow traffic?			X	
4. Are raised sidewalks used to separate pedestrians in parking areas?			X	
5. Are student parking areas separate from other parking areas?			X	

B. Circulation

Question	Yes	No	N/A	Recommendation/Comment
1. Are the number of entrances and exits to the school minimized?	X			
2. Has traffic flow been directed to eliminate congestion and confusion?	X			
3. Are there designated visitor parking areas?	X			
4. Has auto and bus traffic been separated?		X		Existing traffic pattern is not part of scope of project.
5. Have hazardous entrances off main thoroughfares been eliminated?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

III. Traffic

C. Bus Loading Area

Question	Yes	No	N/A	Recommendation/Comment
1. Have bus loading areas been designed to restrict other vehicles?		X		See above.
2. Are buses parked in single rows?	X			
3. Do buses have to back-up to turn or park?	X			
4. Are covered areas provided for waiting students?	X			

D. Parent Drop-off and Pick-up Area

Question	Yes	No	N/A	Recommendation/Comment
1. Is the parent drop-off and pick-up area clearly defined?	X			
2. Is it located so that students do not have to negotiate vehicular traffic?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

IV. Building

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
1. Does each room have at least one window that can be used for emergency rescue?	X			
2. Can unused areas be closed off during after-school activities?			X	
3. Is the entrance lobby visible from the main office?			X	
4. Are major corridors at least 10' wide for elementary and middle schools and 12' wide for high schools?	X			
5. Are doors that open into corridors recessed or otherwise protected?	X			
7. Are light switches for toilet rooms and corridors protected?	X			
8. Are mirrors in toilet rooms and dance classrooms shatterproof?	X			
9. Do basketball courts have a minimum 6' safety border?			X	
10. Is a well-ventilated area with a two-hour fire separation provided for the storage of potentially hazardous materials and equipment?			X	
11. Are locker rooms visible from inside gym teacher's offices?			X	
12. Are kilns located in separate rooms (not storage rooms) with adequate exhaust and ventilation?			X	
13. Do hallway doors have vision panels?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

A. Interior

Question	Yes	No	N/A	Recommendation/Comment
14. Do enclosed stairways have electronic surveillance?			X	
15. Are elevators designed for limited access and electronic surveillance?			X	
16. Does the health or nursing room contain lockable storage?			X	
17. Are the ceilings in toilet rooms and locker rooms of a hard surface to eliminate the possibility of hiding places?		X		The District will consider this.
18. Are interior media (library) stacks a maximum of 4' high and well spaced to facilitate visual surveillance?			X	
19. Does the layout of the cafeteria promote efficient traffic flow?			X	
20. Have doors been equipped with magnetic hold-opens on group toilet rooms to allow acoustic surveillance?		X		The District will consider this.
21. Are toilet partitions and equipment, such as hand dryers, heavy duty and securely attached?	X			
22. Is the building designed to minimize the number of staff necessary to provide open sight lines to all interior hallway/corridor and common spaces?	X			
23. Are restrooms designed to be closer to interior spaces and away from exterior doors?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

B. Exterior

Question	Yes	No	N/A	Recommendation/Comment
1. Are the exterior wall finishes graffiti repellant or capable of repeated cleaning?		X		Exterior is existing metal siding.
2. Are exterior covered walkways, walls, and berms designed to prevent access to roofs or upper level areas, and to promote adequate illumination and visual surveillance	X			
3. Is there only one clearly marked entrance for visitors?	X			
4. Are enclosed exterior courtyards designed to permit supervision by one individual?			X	

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

V. Security Systems

Question	Yes	No	N/A	Recommendation/Comment
1. Is there a central alarm system in the school which is remotely monitored?		X		There is guard on site.
2. Are high-risk areas (main office, computer room, cafeteria, gymnasium, shops and labs) protected by a security alarm system?	X			
3. Is there a two-way communication system between: - Classrooms and office? - Portable classrooms and office? - Large group areas and the office?	X			

VI. Lighting

Question	Yes	No	N/A	Recommendation/Comment
1. Is the perimeter of the school protected by adequate lighting?	X			
2. Is there sufficient lighting to provide marginal coverage in case a light does not work?	X			
3. Are photoelectric cells located out of reach of spotlights?	X			
4. Are accessible lenses protected by some unbreakable material?	X			
5. Is additional lighting provided at entrances and other points of intrusion?	X			
6. Are the switches and controls properly located and protected?	X			
7. Is access to electrical panels restricted?	X			

**State of Wyoming
Review of Capital Construction Grant Applications**

SAFETY AND SECURITY REVIEW

VII. Signage

Question	Yes	No	N/A	Recommendation/Comment
1. Are there signs posted that declare grounds to be drug-free and gun-free zones?	X			
2. Are there signs posted regarding the penalties for trespassing?	X			
3. Are there welcome signs that politely ask all visitors to check in at the office?	X			
4. Is there signage inside the building that provide directions to the office and other core spaces of the school?			X	

VIII. Temporary and Out-Buildings

A. Security

Question	Yes	No	N/A	Recommendation/Comment
1. Are out-buildings, sheds, and portable classrooms arranged to allow clear lines of sight for surveillance?			X	
2. Do portable classrooms have skirts to enclose the crawlspace?			X	

***APPENDIX C – CLASS
LOADING CHARTS***

KAYCEE K-12 SCHOOL
LOADING ANALYSIS (JH/HS INTEGRATION)

	TS	1	2	3	4	5	6	7	
LANGUAGE	1	17 Eng.Comm	15 Brit Lit	Resource	Plan	14 9th English	11 Spanish I	16 10th English	15
SOC. STUDIES	2	Plan	6 West Exp.	7 West Lit	21 Current Event	9 8thGr. Soc.	11 Am.Hist.	13 Civics	3
SCIENCE	3	14 Fresh Sci.	14 Biology	4 Astronomy	5 Chemistry	1 Physiology	Plan	13 Chem/Physics	8
MATH	4	16 7thGr. Math	5 Pre Calc	Plan	9 Algebra I	16 Algebra II	4 Algebra II	5 Pre Calc	6
BUSINESS	5	Plan	15 7th Compr	4 HS Comp.	3 HS Comp.	12 Bus Math	4 8thGr. Math	9 8th Comp.	5
ART, TECH/AG LAB	6	12 Ag Sci.	7th Compr	2 JH Art	8 Animal Sci.			8th Comp.	5
AG SHOP	7			Plan		3 Shop I	9 Shop I/II	9 Sr. Shop	13
WOOD SHOP	8				7 Shop	8 Shop	9 Shop		
M/P ROOM	9	1stGr. PE	2ndGr. PE	3rdGr. PE	4thGr. PE	5thGr. PE	Lunch	Lunch	Clean
GYM	10	14 PE II	13 PE I	15 6thGr. PE	17 7th PE		Clean		
WEIGHT RM	11	5 Wt Lifting	4 Wt Lifting	6 Wt Lifting					
MUSIC	12	2 Choir	Plan	20 Band	7 HS Choir				
HEALTH / PE	13	Plan	7 StudyHall	10 StudyHall	9 8 th PE	4 StudyHall	17 StudyHall	4 StudyHall	14
DIST. LEARNING	14								
JH 6TH	15	15	15	Plan	15	15	15	15	15
JH 7TH	16				Plan	15 Lang/Art	15 Geography	15 Science	
JH 8TH	17	8 Lang Arts	8 Lang Arts	5 Year Book	Plan				
SPECIAL ED (6-12)	18	1 Math	2 Reading	2 Art/SocStd	2 Science	2 Soc/Bio	4 W.Hist/Math	3 Read/Bus	

ELEMENTARY SCHOOL		1	2	3	4	5	6	Lunch	7	8	9	10	11	12	13
SPECIAL ED (K-5)	19	3	4	3	4	3	4		3	4	Plan				
5TH GRADE	20	14	14	14	14	Plan	14		14	14	14	14	14	14	14
4TH GRADE	21	14	14	14	Plan	14	14		14	14	14	14	14	14	14
3RD GRADE	22	9	9	Plan	9	9	9		9	9	9	9	9	9	9
2ND GRADE	23	11	Plan	11	11	11	11		11	11	11	11	11	11	11
1ST GRADE	24	Plan	18	18	18	18	18		18	18	18	18	18	18	18
KINDERGARTEN	25	13	13	13	13	13	13		13	13	13	13	13	13	13

TS = Teaching Station
 Colors represent grade levels
 Kindergarteners go to school for the entire day on T/W/Th one week, and T/Th the next week.

Freshman
 Sophomore

Junior
 Senior

Elective
 Plan

Not a TS
 Open Room

Each student does not necessarily attend all periods in a day

BUFFALO HIGH SCHOOL

LOADING ANALYSIS September 7, 2001

DEPT.	TS	BLOCK 'A' (MWF/TT)				BLOCK 'B' (TT/MWF)			
		A1	A2	A3	A4	B1	B2	B3	B4
ENGLISH	1	19 CP English	Plan	16 Freshman	8 English CR	10 Am. Lit	13 CP English	10 Mass Media	20 Freshman
	2	14 Sophomore	23 Am. Lit	20 Sophomore	Plan	Plan	20 Sophomore	17 Eng Lit	14 Am. Lit
	3	4 Learning Ctr	21 Freshman	Prep	15 Freshman	12 Freshman	16 Business Int	Plan	15 Sophomore
	4	22 Clg.Comp.	Plan	14 Theatre	19 Sophomore	20 Jr Comm	21 Clg.Comp.	Plan	24 Jr Comm
	Cnslrs Of	Guidence	1 Guidence	5 Guidence	1 Guidence	6 Guidence	4 Guidence	2 Guidence	4 Guidence
MATH	5	11 Algebra 1.5	4 Learning Ctr	12 Tech Geo	Plan	15 Algebra 1.5	Plan	9 Tech Geo	10 Math CR
	6	1 Plan/ I.S.	19 Algebra I	14 Algebra II	15 Algebra I	2 Math	16 Algebra II	20 Algebra I	23 Algebra II
	7	18 COP Ed	14 Tech Math	7 Plan/I.S.	19 Tech Algebra	6 Job Training	Plan	19 Tech Math	23 Tech Algebra
	8	9 Pre Calculus	12 Programing	1 Plan/I.S.	12 Fin Algebra	15 Fin Algebra	18 Pre Calculus	1 Plan/I.S.	15 Pre Calculus
SOC. STUDIES	9	18 Geography	Plan	21 US History	19 US History	23 Geography	15 US History	17 US History	Plan
	10	20 Am. Gov.	24 Am. Gov.	Prep	15 World Hist.	19 Am. Gov.	Plan	28 World Hist.	17 World Hist.
	11	Plan	21 Psychology	16 Am. Gov.	27 Psychology	21 Psychology	19 Study Hall	26 Am. Gov.	17 US History
FOR. LANG.	12	20 Adv Spanish	29 Spanish I	17 Spanish II	Plan	13 Spanish I	20 Spanish I	18 Spanish II	Plan
SCIENCE	13	10 Freshman Sci	13 Freshman Sci	14 Geo/Trig	2 Plan/I.S.	15 Geo/Trig	2 Calculus	15 Geo/Trig	14 Calculus
	14	21 Biology	20 Adv Biology	19 Life Sci	Plan	22 Biology	13 Adv Biology	Plan	24 Biology
	15	10 Appl Chem	14 Life Science	6 Plan/I.S.	22 C Prep Chem	14 C Prep Chem	16 Appl Chem	23 Appl Chem	1 Study Hall
	16	Plan	16 Physics	17 Appl Tech I	17 Appl Tech I	11 Appl Tech II	19 Appl Tech I	Plan	10 Physics
ART	17	21 Art Survey		11 Senior Art	17 Painting	22 Art Survey	20 Painting	22 Graphic Arts	21 Art Survey
	18	8 French I	16 Ceramics			11 French II			
MUSIC	19	Plan	21 Guitar	7 Adv Music	29 Band	2 Study Hall	43 Choir	17 Balladiers	17 Guitar
BUS. ED	20	18 Word/PwrPt	Plan	11 Comp Appl	20 Key/Word	16 Word/PwrPt	6 Annual	15 Key/Word	Plan
	21	11 Word II	Plan	16 Account I	16 PgMaker	13 PgMaker	13 Business Ed	20 PgMaker	5 Account II
IND. TECH	Wood	22	15 Wood I & II			15 Wood I & II	9 Wood I & II		
	CAD	23	Plan	7 Web Design	20 CAD Intro	13 AdTecDsgn	15 AdCADDsgn	Plan	24 CAD Intro
	Ag Lab	24	8 Plant Sci.	17 Animal Sci.		20 Agri Science			
	Ag Shop	25			16 Farm Shop I	12 Farm Shop II		13 Farm Shop II	25 Farm Shop I
		8	Exp Tech			8 Exp Tech		6 I.A.	4 I.A.
SPECIAL ED.	26	6 ERL Resrce	4 ERL Resrce	4 ERL Resrce	6 ERL Resrce	4 ERL Resrce	2 ERL Resrce	4 ERL Resrce	5 ERL Resrce
	27	4 ERL Resrce	4 ERL Resrce	2 ERL Resrce	14 ERL Strat	5 ERL Resrce	4 ERL Resrce	Plan	14 ERL Strat
	ERL Room	4	ERL Comm			3 ERL Comm			
Gym		4	ERL Phys			4	ERL Phys		
PE	Gym	28	25 Freshman		24 Freshman		20 Sophomore	18 Sophomore	27 Freshman
	AuxGym	29	17 Sophomore	22 Sophomore		17 Sophomore	14 Freshman		
	Weight	30	19 Wt Training		22 Wt Training	17 Wt Training	9 Wt Training	6 Annual	19 Wt Training
	Wrest'g	31		17 Fitness				17 Fitness	
MEDIA	Library	10	Media Tech	5 Media Asst	4 Media Asst	Prep	7 Media Tech	1 Media Asst	2 Study Hall
									4 Media Asst

TS = Teaching Station
Colors represent grade levels



Each student does not necessarily attend all periods in a day



**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 300 STUDENTS
DAY 1**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		20	15	Team	Planning	12	14	17	21	62.5%	17.4	21.1	14.0
Harkink/PE	149			21	Team	Planning			53		75.0%	33.2	53.5	20.2
Mischke/PE	149		22		Team	Planning				30				
Thiel/PE	149	20			Team	Planning	13	54						
6th Health	138	11						22			75.0%	16.4	21.9	10.5
7th Health	138			11					22					
8th Health	138		11							22				
Bellis/Band	134	76	31	59		Planning					37.5%	55.3	76.3	30.7
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		3	1	2	Planning		3	2	1	75.0%	1.8	2.6	0.9
K Miller/Spec. Ed.	116	8	8	8	8	Planning	8	8	8	8	87.5%	7.9	7.9	7.9
6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			11	11	12	Planning			25.0%	10.5	10.5	10.5
Hunter/Math	118	Team	20	20	16	16	13	Planning	21	21	75.0%	19.0	21.1	15.8
Keller/Language Arts	119	Team	20	20	17	17	14	Planning	21	21	75.0%	19.3	21.1	16.7
Krisko/Science	121	Team	21	21	20	20	14	Planning	21	21	75.0%	20.8	21.1	20.2
Rakness/Social St	120	Team	21	21	20	20	14	Planning	21	21	75.0%	20.8	21.1	20.2
Reutter/Fam & Cons Sci	163/4	Team	21	21	20	20	13	Planning	21	21	75.0%	20.8	21.1	20.2
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	21	21	Team	22	22	17	21	Planning	21	75.0%	21.3	21.9	21.1
Barnett/Lang Arts	124	18	18	Team	20	20	16	18	Planning	18	75.0%	18.7	20.2	17.5
Hilliard/Spec. Ed.	126	4	4	Team			15	6	Planning	6	50.0%	5.3	6.1	4.4
Kelton/Science	122	20	20	Team	21	21	18	21	Planning	21	75.0%	20.8	21.1	20.2
B. Miller/Social Studies	123	21	21	Team	21	21	13	21	Planning	21	75.0%	21.1	21.1	21.1
Picore/Math	125	18	18	Team	20	20	15	17	Planning	17	75.0%	18.4	20.2	16.7
Scott/PSA	114	4	4	Team	4		4	4	Planning	4	62.5%	3.5	3.5	3.5

8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	14	Team	14	15	15	12	16	16	Planning	75.0%	14.9	15.8	14.0
K Wise/Computer	163	18	Team	18	15	15	12	18	18	Planning	75.0%	17.0	18.4	14.9
Riedel/Math	128	17	Team	17	18	18	14	13	13	Planning	75.0%	15.8	17.5	13.2
Hill/Science	167	17	Team	17	16	16	12	17	17	Planning	75.0%	16.4	16.7	15.8
Winkler/Social Studies	127	15	Team	15	22	22	11	15	15	Planning	75.0%	17.3	21.9	14.9
Legg/Resource	130	4	Team	4			14	5	5	Planning	50.0%	4.8	5.3	4.4

**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 300 STUDENTS
ALTERNATE DAY**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		20	15	Team	Planning	12	14	17	21	62.5%	17.4	21.1	14.0
Harkink/PE	149			21	Team	Planning			53		75.0%	35.4	53.5	13.2
Mischke/PE	149		22		Team	Planning				30				
Thiel/PE	149	20			Team	Planning	13	54						
6th Health	138	11						22			75.0%	16.4	21.9	10.5
7th Health	138			11					22					
8th Health	138		11							22				
Bellis/Band	134	76	31	59		Planning					37.5%	55.3	76.3	30.7
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		3	1		Planning		3	2	1	62.5%	1.8	2.6	0.9
K Miller/Spec. Ed.	116	8	8	8	2	Planning	8	8	8	8	87.5%	7.0	7.9	1.8
6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			18	18	12	Planning	8	8	50.0%	12.7	17.5	7.9
Hunter/Math	118	Team	21	21	18	18	13	Planning	18	18	75.0%	18.7	21.1	17.5
Keller/Language Arts	119	Team	18	18	15	15	14	Planning	17	17	75.0%	16.7	18.4	14.9
Krisko/Science	121	Team	22	22	18	18	14	Planning	21	21	75.0%	20.2	21.9	17.5

6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Rakness/Social St	120	Team	21	21	18	18	14	Planning	21	21	75.0%	19.9	21.1	17.5
Reutter/Fam & Cons Sci	163/4	Team	21	21	18	18	13	Planning	20	20	75.0%	19.9	21.1	18.4
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	20	20	Team	19	19	17	21	Planning	21	75.0%	20.2	21.1	19.3
Barnett/Lang Arts	124	21	18	Team	17	17	16	18	Planning	18	75.0%	18.3	21.1	16.7
Hilliard/Spec. Ed.	126			Team	11	11	15	4	Planning	4	50.0%	7.5	10.5	4.4
Kelton/Science	122	22	22	Team	20	20	18	20	Planning	20	75.0%	20.8	21.9	20.2
B. Miller/Social Studies	123	20	20	Team	21	21	13	21	Planning	21	75.0%	20.8	21.1	20.2
Picore/Math	125	21	21	Team	17	17	15	18	Planning	18	75.0%	18.7	21.1	16.7
Scott/PSA	114	4	4	Team	4		4	4	Planning	4	62.5%	3.5	3.5	3.5
8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	18	Team	18	16	16	12	14	14	Planning	75.0%	16.1	18.4	14.0
K Wise/Computer	163	16	Team	16	16	16	12	18	18	Planning	75.0%	16.7	18.4	15.8
Riedel/Math	128	14	Team	14	14	14	14	17	17	Planning	75.0%	14.9	16.7	14.0
Hill/Science	167	19	Team	19	18	18	12	17	17	Planning	75.0%	17.8	19.3	16.7
Winkler/Social Studies	127	18	Team	18	16	16	11	15	15	Planning	75.0%	16.4	18.4	14.9
Legg/Resource	130		Team		5	5	14	4	4	Planning	50.0%	4.8	5.3	4.4

**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 342 STUDENTS
DAY 1**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		23	17	Team	Planning	14	16	19	24	62.5%	19.8	24.0	16.0
Harkink/PE	149			24	Team	Planning			60		75.0%	37.8	61.0	23.0
Mischke/PE	149		25		Team	Planning				34				
Thiel/PE	149	23			Team	Planning	15	61						
6th Health	138	12						25			75.0%	18.7	25.0	12.0
7th Health	138			12					25					
8th Health	138		13							25				
Bellis/Band	134	87	35	67		Planning					37.5%	63.0	87.0	35.0
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		3	1	2	Planning		3	2	1	75.0%	2.0	3.0	1.0
K Miller/Spec. Ed.	116	9	9	9	9	Planning	9	9	9	9	87.5%	9.0	9.0	9.0

6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			12	12	14	Planning			25.0%	12.0	12.0	12.0
Hunter/Math	118	Team	23	23	18	18	15	Planning	24	24	75.0%	21.7	24.0	18.0
Keller/Language Arts	119	Team	23	23	19	19	16	Planning	24	24	75.0%	22.0	24.0	19.0
Krisko/Science	121	Team	24	24	23	23	16	Planning	24	24	75.0%	23.7	24.0	23.0
Rakness/Social St	120	Team	24	24	23	23	16	Planning	24	24	75.0%	23.7	24.0	23.0
Reutter/Fam & Cons Sci	163/4	Team	24	24	23	23	15	Planning	24	24	75.0%	23.7	24.0	23.0
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	24	24	Team	25	25	19	24	Planning	24	75.0%	24.3	25.0	24.0
Barnett/Lang Arts	124	21	21	Team	23	23	18	20	Planning	20	75.0%	21.3	23.0	20.0
Hilliard/Spec. Ed.	126	5	5	Team			17	7	Planning	7	50.0%	6.0	7.0	5.0

7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Kelton/Science	122	23	23	Team	24	24	20	24	Planning	24	75.0%	23.7	24.0	23.0
B. Miller/Social Studies	123	24	24	Team	24	24	15	24	Planning	24	75.0%	24.0	24.0	24.0
Picore/Math	125	21	21	Team	23	23	17	19	Planning	19	75.0%	21.0	23.0	19.0
Scott/PSA	114	4	4	Team	4		4	4	Planning	4	62.5%	4.0	4.0	4.0
8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	16	Team	16	17	17	14	18	18	Planning	75.0%	17.0	18.0	16.0
K Wise/Computer	163	21	Team	21	17	17	14	20	20	Planning	75.0%	19.3	21.0	17.0
Riedel/Math	128	19	Team	19	20	20	16	15	15	Planning	75.0%	18.0	20.0	15.0
Hill/Science	167	19	Team	19	18	18	14	19	19	Planning	75.0%	18.7	19.0	18.0
Winkler/Social Studies	127	17	Team	17	25	25	12	17	17	Planning	75.0%	19.7	25.0	17.0
Legg/Resource	130	5	Team	5			16	6	6	Planning	50.0%	5.5	6.0	5.0

**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 342 STUDENTS
ALTERNATE DAY**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		23	17	Team	Planning	14	16	19	24	62.5%	19.8	24.0	16.0
Harkink/PE	149			24	Team	Planning			60		75.0%	40.3	61.0	15.0
Mischke/PE	149		25		Team	Planning				34				
Thiel/PE	149	23			Team	Planning	15	61						
6th Health	138	12						25			75.0%	18.7	25.0	12.0
7th Health	138			12					25					
8th Health	138		13							25				
Bellis/Band	134	87	35	67		Planning					37.5%	63.0	87.0	35.0
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		3	1	2	Planning		3	2	1	75.0%	2.0	3.0	1.0
K Miller/Spec. Ed.	116	9	9	9	9	Planning	9	9	9	9	87.5%	9.0	9.0	9.0

6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			20	20	14	Planning	9	9	50.0%	14.5	20.0	9.0
Hunter/Math	118	Team	24	24	20	20	15	Planning	20	20	75.0%	21.3	24.0	20.0
Keller/Language Arts	119	Team	21	21	17	17	16	Planning	19	19	75.0%	19.0	21.0	17.0
Krisko/Science	121	Team	25	25	20	20	16	Planning	24	24	75.0%	23.0	25.0	20.0
Rakness/Social St	120	Team	24	24	20	20	16	Planning	24	24	75.0%	22.7	24.0	20.0
Reutter/Fam & Cons Sci	163/4	Team	24	24	21	21	15	Planning	23	23	75.0%	22.7	24.0	21.0
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	23	23	Team	22	22	19	24	Planning	24	75.0%	23.0	24.0	22.0
Barnett/Lang Arts	124	24	21	Team	19	19	18	21	Planning	21	75.0%	20.8	24.0	19.0
Hilliard/Spec. Ed.	126			Team	12	12	17	5	Planning	5	50.0%	8.5	12.0	5.0
Kelton/Science	122	25	25	Team	23	23	20	23	Planning	23	75.0%	23.7	25.0	23.0
B. Miller/Social Studies	123	23	23	Team	24	24	15	24	Planning	24	75.0%	23.7	24.0	23.0
Picore/Math	125	24	24	Team	19	19	17	21	Planning	21	75.0%	21.3	24.0	19.0
Scott/PSA	114	4	4	Team	4		4	4	Planning	4	62.5%	4.0	4.0	4.0
8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	21	Team	21	18	18	14	16	16	Planning	75.0%	18.3	21.0	16.0
K Wise/Computer	163	18	Team	18	18	18	14	21	21	Planning	75.0%	19.0	21.0	18.0
Riedel/Math	128	16	Team	16	16	16	16	19	19	Planning	75.0%	17.0	19.0	16.0
Hill/Science	167	22	Team	22	20	20	14	19	19	Planning	75.0%	20.3	22.0	19.0
Winkler/Social Studies	127	21	Team	21	18	18	12	17	17	Planning	75.0%	18.7	21.0	17.0
Legg/Resource	130		Team		6	6	16	5	5	Planning	50.0%	5.5	6.0	5.0
		352		346	346	348	333	326	333	331		334		

**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 400 STUDENTS
DAY 1**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		27	20	Team	Planning	16	19	22	28	62.5%	23.2	28.1	18.7
Harkink/PE	149			28	Team	Planning			70		75.0%	44.2	71.3	26.9
Mischke/PE	149		29		Team	Planning				40				
Thiel/PE	149	27			Team	Planning	18	71						
6th Health	138	14						29			75.0%	21.8	29.2	14.0
7th Health	138			14					29					
8th Health	138		15							29				
Bellis/Band	134	102	41	78		Planning					37.5%	73.7	101.8	40.9
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		4	1	2	Planning		4	2	1	75.0%	2.2	3.5	1.2
K Miller/Spec. Ed.	116	11	11	11	8	Planning	11	11	11	11	87.5%	10.2	10.5	7.9

6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			14	14	16	Planning			25.0%	14.0	14.0	14.0
Hunter/Math	118	Team	27	27	21	21	18	Planning	28	28	75.0%	25.3	28.1	21.1
Keller/Language Arts	119	Team	27	27	22	22	19	Planning	28	28	75.0%	25.7	28.1	22.2
Krisko/Science	121	Team	28	28	27	27	19	Planning	28	28	75.0%	27.7	28.1	26.9
Rakness/Social St	120	Team	28	28	27	27	19	Planning	28	28	75.0%	27.7	28.1	26.9
Reutter/Fam & Cons Sci	163/4	Team	28	28	27	27	18	Planning	28	28	75.0%	27.7	28.1	26.9
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	28	28	Team	29	29	22	28	Planning	28	75.0%	28.5	29.2	28.1
Barnett/Lang Arts	124	25	25	Team	27	27	21	23	Planning	23	75.0%	25.0	26.9	23.4
Hilliard/Spec. Ed.	126	6	6	Team			20	8	Planning	8	50.0%	7.0	8.2	5.8
Kelton/Science	122	27	27	Team	28	28	23	28	Planning	28	75.0%	27.7	28.1	26.9
B. Miller/Social Studies	123	28	28	Team	28	28	18	28	Planning	28	75.0%	28.1	28.1	28.1

7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Picore/Math	125	25	25	Team	27	27	20	22	Planning	22	75.0%	24.6	26.9	22.2
Scott/PSA	114	5	5	Team	5		5	5	Planning	5	62.5%	4.7	4.7	4.7
8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	19	Team	19	20	20	16	21	21	Planning	75.0%	19.9	21.1	18.7
K Wise/Computer	163	25	Team	25	20	20	16	23	23	Planning	75.0%	22.6	24.6	19.9
Riedel/Math	128	22	Team	22	23	23	19	18	18	Planning	75.0%	21.1	23.4	17.5
Hill/Science	167	22	Team	22	21	21	16	22	22	Planning	75.0%	21.8	22.2	21.1
Winkler/Social Studies	127	20	Team	20	29	29	14	20	20	Planning	75.0%	23.0	29.2	19.9
Legg/Resource	130	6	Team	6			19	7	7	Planning	50.0%	6.4	7.0	5.8

**WASHAKIE COUNTY SCHOOL DISTRICT NO. 1
NEW MIDDLE SCHOOL CLASSROOM LOADING CHART FOR 400 STUDENTS
ALTERNATE DAY**

Elective Teacher/Subject	Room	Period 1	Period 2	Period 3	Period 4	Period 5	Homeroom	Period 6	Period 7	Period 8	Occupancy Rate	Avg Class Load	Max Class	Min Class
Barent/Art	131		27	20	Team	Planning	16	19	22	28	62.5%	23.2	28.1	18.7
Harkink/PE	149			28	Team	Planning			70		75.0%	47.2	71.3	17.5
Mischke/PE	149		29		Team	Planning				40				
Thiel/PE	149	27			Team	Planning	18	71						
6th Health	138	14						29			75.0%	21.8	29.2	14.0
7th Health	138			14					29					
8th Health	138		15							29				
Bellis/Band	134	102	41	78		Planning					37.5%	73.7	101.8	40.9
Stough/Band	134	w/Bellis				Planning								
Gopp/Library	161		4	1	2	Planning		4	2	1	75.0%	2.3	3.5	1.2
K Miller/Spec. Ed.	116	11	11	11	11	Planning	11	11	11	11	87.5%	10.5	10.5	10.5
6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Herman/Special Ed.	117	Team			23	23	16	Planning	11	11	50.0%	17.0	23.4	10.5
Hunter/Math	118	Team	28	28	23	23	18	Planning	23	23	75.0%	25.0	28.1	23.4

6th grade teacher/subject		Period 1	Block 2/3	Block 2/3	Block 4/5	Block 4/5	Homeroom	Explore	Block 7/8	Block 7/8				
Keller/Language Arts	119	Team	25	25	20	20	19	Planning	22	22	75.0%	22.2	24.6	19.9
Krisko/Science	121	Team	29	29	23	23	19	Planning	28	28	75.0%	26.9	29.2	23.4
Rakness/Social St	120	Team	28	28	23	23	19	Planning	28	28	75.0%	26.5	28.1	23.4
Reutter/Fam & Cons Sci	163/4	Team	28	28	25	25	18	Planning	27	27	75.0%	26.5	28.1	24.6
7th Grade Teacher/Subject		Block 1/2	Block 1/2	Period 3	Block 4/5	Block 4/5	Homeroom	Block 6/8	Period 7	Block 6/8				
Barent, D/Ind. Tech	132/3	27	27	Team	26	26	22	28	Planning	28	75.0%	26.9	28.1	25.7
Barnett/Lang Arts	124	28	25	Team	22	22	21	25	Planning	25	75.0%	24.4	28.1	22.2
Hilliard/Spec. Ed.	126			Team	14	14	20	6	Planning	6	50.0%	9.9	14.0	5.8
Kelton/Science	122	29	29	Team	27	27	23	27	Planning	27	75.0%	27.7	29.2	26.9
B. Miller/Social Studies	123	27	27	Team	28	28	18	28	Planning	28	75.0%	27.7	28.1	26.9
Picore/Math	125	28	28	Team	22	22	20	25	Planning	25	75.0%	25.0	28.1	22.2
Scott/PSA	114	5	5	Team	5		5	5	Planning	5	62.5%	4.7	4.7	4.7
8th Grade Teacher/Subject		Block 1/3	Period 2	Block 1/3	Block 4/5	Block 4/5	Homeroom	Block 6/7	Block 6/7	Period 8				
Hammons/Lang Art	129	25	Team	25	21	21	16	19	19	Planning	75.0%	21.4	24.6	18.7
K Wise/Computer	163	21	Team	21	21	21	16	25	25	Planning	75.0%	22.2	24.6	21.1
Riedel/Math	128	19	Team	19	19	19	19	22	22	Planning	75.0%	19.9	22.2	18.7
Hill/Science	167	26	Team	26	23	23	16	22	22	Planning	75.0%	23.8	25.7	22.2
Winkler/Social Studies	127	25	Team	25	21	21	14	20	20	Planning	75.0%	21.8	24.6	19.9
Legg/Resource	130		Team		7	7	19	6	6	Planning	50.0%	6.4	7.0	5.8