

Review of Capital Construction Projects

for

Wyoming School Facilities Commission

Sweitzer Gymnasium Renovation Park County School District #6

November 25, 2002

Prepared by:

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Section 1 - Executive Summary

Project Authorization:

Sweitzer Gymnasium Renovation
Park County School District #6

SiteTek Financial Arts, Inc.

Building Name: Sweitzer Gym
Enrollment: N/A
Building SF: 36,849
Year Built: 1958
Condition Score: 46.79 (immediate need)
Recommendation: Approve funding for schematic design for renovation of existing Gym
Construction Costs: \$ 4,400,000

Proposed Project:

Building SF: 36,849
Design Phase: Schematic Design, Oct. 14, 2002
Architect: Plan One / Architects
Cost Estimator: Groathouse Construction, Inc.
Construction Costs: \$ 4,136,425

Adjustments / Reductions:

(based on Capital Construction Project Review completed November 4 & 5, 2002)

Overall Net Cost Savings to project of approximately \$ 138,000 based on the following combination of cost savings and value enhancements:

1. Fund asbestos abatement costs from another source – \$ 222,000 potential savings
2. Add new, hard ceilings at locker rooms - \$ 52,000 enhancement
3. Add heat recovery to outside air ventilation units - \$ 51,000 enhancement, life-cycle savings
4. Add ceiling at Gymnastics / Wrestling Rooms - \$ 25,000 enhancement
5. Concrete in lieu of hardwood sports floor at Mezzanine - \$ 24,000 savings

Recommendation:

Authorize funding for the project as designed for \$ 4,400,000.

Discussion / Justification:

1. Less cost to remodel existing Gym than to build significantly smaller replacement Gym (\$4,566,735)
2. Current structural system has significant lateral design and roof loading issues which need to be addressed immediately.

VALUE ENGINEERING SUMMARY

Sweitzer Gym

SiteTek Financial Arts, Inc.

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ITEM NO.	DESCRIPTION	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	TOTAL IMPLEMENTED COST SAVINGS
		ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O& M COST SAVINGS		
G	GENERAL					(\$222,017)	(\$222,017)
A	ARCHITECTURAL					\$21,706	\$21,706
S	STRUCTURAL					\$3,709	\$4,621
M	MECHANICAL					\$45,924	\$45,924
E	ELECTRICAL					\$12,376	\$12,376
TOTAL SUMMARY						(\$138,302)	(\$137,390)

VALUE ENGINEERING ALTERNATIVES	CATEGORY: GENERAL	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 2 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE					IMPLEMENTATION PHASE			
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
G-1	Reduce bleacher seating to match building capacity	Perceived cost reduction	In reality, leaving a void in the bleachers is not feasible for the District						\$0				
G-2	Add escalation to June construction start (1.5%)			X	\$0	\$56,406	\$56,406		\$56,406	X			\$56,406
G-3	Explore potential alternatives for funding asbestos abatement costs			X	\$267,660	\$0	(\$267,660)		(\$267,660)	X			(\$267,660)
G-4	Delete one plan review fee			X	\$10,763	\$0	(\$10,763)		(\$10,763)	X			(\$10,763)
TOTAL GENERAL									(\$222,017)				(\$222,017)

VALUE ENGINEERING ALTERNATIVES	CATEGORY: ARCHITECTURAL	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 3 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE				IMPLEMENTATION PHASE				
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
A-1	Abandon basement uses (use for mechanical equipment only)												
A-2	Add freight elevator												
A-3	Re-use existing public restrooms												
A-4	Add hard ceilings at locker rooms	Appearance, maintenance	Additional cost	X	\$0	\$51,657	\$51,657		\$51,657	X			\$51,657
A-5	Abandon locker rooms												
A-6	Concrete in lieu of wood floor at mezzanine	Lower cost	Could limit usage of space for special activities	X	\$35,274	\$11,345	(\$23,929)		(\$23,929)	X			(\$23,929)
A-7	Use gypsum board and metal studs above CMU at mezzanine	Lower cost, acoustics	Durability	X	\$35,740	\$22,828	(\$12,912)		(\$12,912)	X			(\$12,912)
A-8	Align bleacher aisles with new columns												
A-9	Increase R values in roof and walls (R38 & R19)			DS									
SUB-TOTAL ARCHITECTURAL									\$14,816				\$14,816

VALUE ENGINEERING ALTERNATIVES	CATEGORY: ARCHITECTURAL	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 4 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE				IMPLEMENTATION PHASE				
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
A-10	Change tile to VCT at lobby	Lower cost	Maintenance, longevity of surface	X	\$28,620	\$10,411	(\$18,209)		(\$18,209)	X			(\$18,209)
A-11	Put ceiling in gymnastics / wrestling room	Appearance, acoustics, structural support for wall	Additional cost+	X	\$0	\$25,099	\$25,099		\$25,099	X			\$25,099
A-12	Enhance building elevations			DS									
A-13	Reduce size of wood gym floor												
TOTAL ARCHITECTURAL									\$21,706				\$21,706

VALUE ENGINEERING ALTERNATIVES	CATEGORY: STRUCTURAL	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 5 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE					IMPLEMENTATION PHASE			
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
S-1	Concrete in lieu of CMU shear walls			X	\$38,041	\$37,129	(\$912)		(\$912)			X	
S-2	CMU shear walls in-board of existing walls	Does not disturb building, less disruption to other trades		X	\$67,097	\$71,718	\$4,621		\$4,621	X			\$4,621
S-3	Piers in lieu of footings at new columns	None - soils at site non-conducive to this method	Inability to place in existing soils										
TOTAL STRUCTURAL									\$3,709				\$4,621

VALUE ENGINEERING ALTERNATIVES	CATEGORY: MECHANICAL / PLUMBING	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 6 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE					IMPLEMENTATION PHASE			
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
M-1	Use pre-packaged roof top units	Reduced cost to install. Eliminates hot water piping to all units.	O&M costs may be higher.	X		(\$20,502)	(\$20,502)		(\$20,502)	X			(\$20,502)
M-2	Eliminate hot water heating. Use existing steam system												
M-3	Re-use existing domestic hot water system (add new boiler to central boiler room)	Eliminates gas supply to Gym-reducing safety concerns. Easier to vent boiler.	Boiler remote to load; more piping between boiler and Gym demand.	X	\$0	\$13,535	\$13,535		\$13,535	X			\$13,535
M-4	Tempered water in lieu of hot & cold	Saves installation cost of hot and cold water piping.	Less control over temperature at point of use.	X		(\$2,087)			(\$2,087)	X			(\$2,087)
M-5	Add space conditioning												
M-6	Eliminate radiant floor heating system												
M-7	Use heat recovery on outside air ventilation units	Saves energy. Allows use of exhaust air heat to pre-heat outside air to ventilation units.	More expensive to provide coils and piping between exhaust and ventilation units.	X	\$0	\$50,085	\$50,085	(\$44,759)	\$50,085	X			\$50,085
M-8	Use battery operated flush valves	Cost savings- no electrical power required. Reduces vandalism.	Annual maintenance to replace batteries.	X		(\$3,967)	(\$3,967)	(\$1,815)	(\$3,967)	X			(\$3,967)
M-9	Use no hub in lieu of hub & spigot piping	Less expensive to install. Allowed in State Facilities Guidelines.	Possible failure of underground joints if installed improperly.	X		(\$2,982)	(\$2,982)		(\$2,982)	X			(\$2,982)
SUB-TOTAL MECHANICAL / PLUMBING									\$34,082				\$34,082

VALUE ENGINEERING ALTERNATIVES	CATEGORY: MECHANICAL / PLUMBING	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 7 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE					IMPLEMENTATION PHASE			
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
M-10	Use self closing sensor faucets at lavatories	Saves water, reduces vandalism problems. Permitted in State Facilities Guidelines.	More expensive to install.	X		\$4,472		(\$4,539)	\$4,472	X			\$4,472
M-11	Put toilet / locker exhaust on energy management system	Saves energy.	Adds cost to controls contract.	X		\$7,370		(\$243,691)	\$7,370	X			\$7,370
M-12	Abandon use of chlorine room												
TOTAL MECHANICAL / PLUMBING									\$45,924				\$45,924

VALUE ENGINEERING ALTERNATIVES	CATEGORY: ELECTRICAL	Sweitzer Gym	SiteTek Financial Arts, Inc.	PAGE 8 OF 8
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CREATIVE / EVALUATION PHASE					DEVELOPMENT PHASE					IMPLEMENTATION PHASE			
ITEM NO.	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SELECTED	COST SAVINGS				TOTAL RECOMMENDED COST SAVINGS	ACCEPT	REJECT	REVIEW	TOTAL IMPLEMENTED COST SAVINGS
					ORIGINAL COST	PROPOSED COST	INITIAL COST SAVINGS	O & M COST SAVINGS					
E-1	Use 480V service in lieu of 208 Volt service.	Reduces size of conduit and wire sizes.	May increase cost for supplying new transformer to serve building.	X	\$0	\$2,982	\$2,982		\$2,982	X			\$2,982
E-2	Use 277V lights in lieu of 120V	Energy savings, smaller conduit and wire sizes.	Increases number of light tubes in maintenance stock for replacement.	X					included in E1				
E-3	Use 480V mechanical equipment	Reduces size of conduit and wire sizes.	None.	X					included in E1				
E-4	Add lighting controls to EMS												
E-5	Provide additional conduit for security systems & add 5 security cameras.	Cheaper to install spare conduit while building is under construction.	May not provide conduit in right place for future needs.	X	\$0	\$10,166	\$10,166		\$10,166	X			\$10,166
E-6	Add card readers at doors (wireless)	Restricts access to building; increases campus security.	Adds cost to project.	X	\$0	\$1,789	\$1,789		\$1,789	X			\$1,789
E-7	Use recessed fixtures in locker rooms	Less costly to install. Reduces vandalism.	Adds cost to install ceiling in locker room.	X			(\$4,350)		(\$4,350)	X			(\$4,350)
E-8	Add float alarm at chlorine room and water main	Reduces potential damage to building in case of water or pool piping leak.	Adds cost to project.	X	\$0	\$1,789	\$1,789		\$1,789	X			\$1,789
TOTAL ELECTRICAL									\$12,376				\$12,376

VALUE ENGINEERING ALTERNATIVE		No. G-1	
PROJECT: Sweitzer Gymnasium			
ITEM: Reduce bleacher seating to match building capacity			
ORIGINAL DESIGN: Maximize bleacher capacity at existing mezzanines.			
ALTERNATIVE DESIGN: Reduce bleacher capacity to match building capacity.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Give school district and community additional seating for events. Perceived cost reduction.			
Disadvantages: In reality, leaving a void in the bleachers is not feasible for the District			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$	\$	\$
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			\$ - 0 -

VALUE ENGINEERING ALTERNATIVE			No. G-2
PROJECT: Sweitzer Gymnasium			
ITEM: Add escalation to June construction start (1.5%)			
ORIGINAL DESIGN: Current estimate is priced to start in February 2003.			
ALTERNATIVE DESIGN: Add escalation to project cost for construction delay until June 2003.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Provides more accurate estimate of construction costs.			
Disadvantages: Escalation increases cost of construction.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ - 0 -	\$	\$
Proposed Design	\$ 56,408	\$	\$
Add	\$ 56,408	\$	\$ 56,408
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 56,408

VALUE ENGINEERING ALTERNATIVE		No. G-3	
PROJECT: Sweitzer Gymnasium			
ITEM: Explore potential alternatives for funding asbestos abatement costs			
ORIGINAL DESIGN:		Current cost estimates includes cost of asbestos abatement of ceiling acoustical and flooring materials.	
 ALTERNATIVE DESIGN: Investigate alternative funding source to pay for asbestos abatement.			
 DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Reduce cost to project.			
Disadvantages: None.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 267,660	\$	\$
Proposed Design	\$ - 0 -	\$	\$
Savings	(\$ 267,660)	\$	(\$ 267, 660)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 267,660)

VALUE ENGINEERING ALTERNATIVE			No. G- 4
PROJECT: Sweitzer Gymnasium			
ITEM: Delete one plan review fee			
ORIGINAL DESIGN: Current cost estimates includes cost for Plan Check and Fire Marshall Reviews			
ALTERNATIVE DESIGN: Only one of these plan review fees is required.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Reduce cost to project.			
Disadvantages: None.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 21,526	\$	\$
Proposed Design	\$ 10,763	\$	\$
Savings	(\$ 10,763)	\$	(\$ 10,763)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 10,763)

VALUE ENGINEERING ALTERNATIVE			No. A-4
PROJECT: Sweitzer Gymnasium			
ITEM: Add hard ceiling at locker rooms			
ORIGINAL DESIGN: Existing concrete tees left exposed.			
ALTERNATIVE DESIGN: Install abuse resistant hard ceiling on bottom side of concrete tees.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Better appearance, lower maintenance			
Disadvantages: Additional cost.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ - 0-	\$	\$
Proposed Design	\$ 51,657	\$	\$
Add	\$ 51,657	\$	\$ 51,657
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 51,657

VALUE ENGINEERING ALTERNATIVE		No. A-6	
PROJECT: Sweitzer Gymnasium			
ITEM: Concrete in lieu of wood floor at east mezzanine			
ORIGINAL DESIGN: Remove and replace existing wood flooring on the east mezzanine.			
ALTERNATIVE DESIGN: Remove the existing wood flooring from the east mezzanine floor. Pour concrete topping and seal.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Reduced cost.			
Disadvantages: Could limit usage of space for special activities.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 35,274	\$	\$
Proposed Design	\$ 11,345	\$	\$
Savings	(\$23,929)	\$	(\$ 23,929)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 23,929)

VALUE ENGINEERING ALTERNATIVE		No. A-7	
PROJECT: Sweitzer Gymnasium			
ITEM: Install gypsum board above CMU at mezzanine			
ORIGINAL DESIGN: Install new CMU wall at south side of the mezzanine wrestling area			
ALTERNATIVE DESIGN: Install new stud wall at south side of the mezzanine wrestling area. Include sound insulation in the wall.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Reduced cost. Additional acoustical value.			
Disadvantages: Reduced durability.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 35,740	\$	\$
Proposed Design	\$ 22,828	\$	\$
Savings	(\$ 12,912)	\$	(\$ 12,912)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 12,912)

VALUE ENGINEERING ALTERNATIVE		No. A-9	
PROJECT: Sweitzer Gymnasium			
ITEM: Increase R-Value in roof and walls			
ORIGINAL DESIGN: Existing roof and walls to receive no additional insulation.			
ALTERNATIVE DESIGN: Investigate existing conditions, determine R-values. Increase R-values as budget permits.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Improved operating costs. Improved appearance.			
Disadvantages: Additional costs.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$	\$	\$
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			Design Suggestion

VALUE ENGINEERING ALTERNATIVE		No. A-10	
PROJECT: Sweitzer Gymnasium			
ITEM: Change tile to VCT at lobby.			
ORIGINAL DESIGN: The lobby to receive porcelain ceramic floor tile.			
ALTERNATIVE DESIGN: Change the porcelain ceramic to VCT.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Reduced cost.			
Disadvantages: Reduced maintenance, longevity of surface			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 28,620	\$	\$
Proposed Design	\$ 10,411	\$	\$
Savings	(\$18,209)	\$	(\$ 18,209)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 18,209)

VALUE ENGINEERING ALTERNATIVE		No. A-11	
PROJECT: Sweitzer Gymnasium			
ITEM: Put ceiling in gymnastics / wrestling room			
ORIGINAL DESIGN: Existing curved roof to remain exposed at wrestling / gymnastics area			
ALTERNATIVE DESIGN: Install new hard ceiling over the gymnastics / wrestling area			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Appearance, acoustics, structural support for exterior wall			
Disadvantages: Additional cost			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ - 0 -	\$	\$
Proposed Design	\$ 25,099	\$	\$
Add	\$ 25,099	\$	\$ 25,099
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 25,099

VALUE ENGINEERING ALTERNATIVE		No. S-1	
PROJECT: Sweitzer Gymnasium			
ITEM: Concrete in lieu of concrete masonry unit shear walls			
ORIGINAL DESIGN: Reinforced concrete masonry unit shear walls.			
ALTERNATIVE DESIGN: Cast-in-place concrete shear walls			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 38,041	\$	\$
Proposed Design	\$ 37,129	\$	\$
Savings	(\$ 912)	\$	(\$ 912)
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$ 912)

VALUE ENGINEERING ALTERNATIVE		No. S-2	
PROJECT: Sweitzer Gymnasium			
ITEM: Concrete masonry shear walls in-board of existing walls			
ORIGINAL DESIGN: Masonry shear walls in place of existing brick walls			
ALTERNATIVE DESIGN: Masonry shear walls in-board of existing masonry walls. (demolition deduct \$16,096) (see attached sketch)			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages: Leaves building completely closed during construction. Less disruption to other trades.			
Disadvantages: Additional cost (almost a wash, but preferred method). Placement of new footings to support walls.			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 67,097	\$	\$
Proposed Design	\$ 71,718	\$	\$
Add	\$ 4,621	\$	\$ 4,621
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 4,621

VALUE ENGINEERING ALTERNATIVE	No. M-1
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PROJECT: Sweitzer Gym Renovation

ITEM: Use pre-packaged roof top Units.

ORIGINAL DESIGN: New hot water Unit Ventilators to be installed in the Gym.

ALTERNATIVE DESIGN: Replace existing hot water Unit Ventilators with rooftop gas fired unit ventilators.

DISCUSSION / JUSTIFICATION:
 (Advantages / Disadvantages)

Advantages:

Disadvantages:

COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	(\$20,502)	\$	(\$20,502)
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$20,502)

VALUE ENGINEERING ALTERNATIVE		No. M-3	
PROJECT: Sweitzer Gym Renovation			
ITEM: Re-use Existing Domestic HW System (new boiler in Boiler Room)			
ORIGINAL DESIGN:		New gas fired domestic hot water boiler and storage tanks to be installed in the basement of the Gym.	
ALTERNATIVE DESIGN:		Replace existing domestic water heater in the Boiler Room next door with new larger water heater (existing water heater serves Gym plus other campus buildings); install new water storage tanks in the basement of the Gym. This will eliminate the potential hazard of gas fired boiler in the basement level, and also the difficult problem of venting the boiler to the roof.	
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$ 13,535 (add)	\$	\$
Add	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 13,535

VALUE ENGINEERING ALTERNATIVE		No. M-4	
PROJECT: Sweitzer Gym Renovation			
ITEM: Tempered water in Lieu of Hot and cold piping to lavs and showers.			
ORIGINAL DESIGN: Showers and lavatories to be plumbed with hot and cold water.			
ALTERNATIVE DESIGN: Provide tempering water valve at the water heater. Pipe showers and Lavs with tempered water only, with recirculation line to keep water temperature at design temp.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	(\$2,087)	\$	(\$2,087)
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$2,087)

VALUE ENGINEERING ALTERNATIVE		No. M-7	
PROJECT: Sweitzer Gym Renovation			
ITEM: Use Heat Recovery on OSA Ventilation Units			
ORIGINAL DESIGN:		Outside air (OSA) supplied to ventilation units serving the Gym proper to be heated to supply temperature, without any consideration for heat recovery.	
ALTERNATIVE DESIGN:		Install water to water heat recovery heat exchanger in the exhaust fans, with pump and piping/controls to recover 80% of the heat exhausted to pre-heat the outside air supplied to the ventilation units serving the Gym proper.	
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$ 50,085	(\$4,931/yr)	\$ 50,085
Add	\$	(\$44,759)	\$ 50,085
ANNUAL O&M SAVINGS			(\$4,931/yr)
TOTAL ADD			\$ 50,085

VALUE ENGINEERING ALTERNATIVE		No. M-8	
PROJECT: Sweitzer Gym Renovation			
ITEM: Use battery operated flush valves.			
ORIGINAL DESIGN:		Flush valves for water closets and urinals to be sensor controlled 120 volt type.	
ALTERNATIVE DESIGN:		Use battery operated sensor operated flush valves in lieu of the 120 volt type. This saves the cost of running power wiring to each valve.	
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$ 0	\$
Proposed Design	(\$ 3,697)	(\$200/yr) savings	(\$3,697)
Savings	\$	\$	(\$3,697)
ANNUAL O&M SAVINGS			\$ 200/year
TOTAL SAVINGS			(\$ 3,697)

VALUE ENGINEERING ALTERNATIVE			No. M-9
PROJECT: Sweitzer Gym Renovation			
ITEM: Use no hub in lieu of hub & spigot piping.			
ORIGINAL DESIGN: Only permits use of hub & spigot in the Mechanical Specifications.			
ALTERNATIVE DESIGN: Give Contractor choice of no hub with dual bands to reduce labor cost on underground waste piping systems.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	(\$3,697)	\$	(\$3,697)
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$3,697)

VALUE ENGINEERING ALTERNATIVE			No. M-10
PROJECT: Sweitzer Gym Renovation			
ITEM: Use self closing sensor faucets at lavatories.			
ORIGINAL DESIGN: Two handle faucets, manually operated.			
ALTERNATIVE DESIGN: Install sensor operated self closing faucets on lavatories to save water, and reduce maintenance costs.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	\$4,472	(\$500/yr)	\$ 4,472
Add	\$	\$	
ANNUAL O&M SAVINGS			(\$ 500/yr)
TOTAL ADD			\$ 4,472

VALUE ENGINEERING ALTERNATIVE		No. M-11	
PROJECT: Sweitzer Gym Renovation			
ITEM: Put Toilet/Locker Exhaust on EMS			
ORIGINAL DESIGN: Toilet/Locker Exhaust fans to be on wall switch or run continuously.			
ALTERNATIVE DESIGN: Install auxillary contacts in the starters on the toilet Room/Locker Room exhaust fans wired to the building Energy Management System, to control the on/off of the exhaust fans based on building occupancy.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	\$ 7,370	(\$26,847/yr)	\$ 7,370 (add)
Add	\$	(\$243,691)	
ANNUAL O&M SAVINGS			\$ 26,847/yr
TOTAL ADD			\$ 7,370

VALUE ENGINEERING ALTERNATIVE		No. E-1	
PROJECT: Sweitzer Gymnasium Renovation			
ITEM: 480 volt service in lieu of 208 volt service			
ORIGINAL DESIGN:		Current design based on re-using existing 208 volt, 3 phase transformer and service conduit and conductors to the building. New 208 v/3ph service entrance section and new local power and lighting panels to be installed.	
ALTERNATIVE DESIGN:		Replace 208 v/3 ph service to building with new 480 v transformer and replace service entrance section to new 480 volt panel. Replace existing 208 v panels with new 480 v/3ph panels. Provide new 208 v transformer and panel for 120 volt power requirements in the building.	
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	\$ 2,982	\$	\$ 2,982
Add	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 2,982

VALUE ENGINEERING ALTERNATIVE		No. E-2	
PROJECT: Sweitzer Gymnasium Renovation			
ITEM: 277 Volt Lights in Lieu of 120 volt Lights.			
ORIGINAL DESIGN: All lighting in Gym to be 120 volt type.			
ALTERNATIVE DESIGN: If 480 volt, 3 ph service is provided, use 277 volt light fixtures supplied from new 480 volt panels.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$	\$	\$
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			\$ total included in E1

VALUE ENGINEERING ALTERNATIVE		No. E-3	
PROJECT: Sweitzer Gymnasium Renovation			
ITEM: Mechanical Equipment supplied with 480 volt motors.			
ORIGINAL DESIGN: All mechanical equipment to be supplied with 208 volt motors, served from 208 volt panels.			
ALTERNATIVE DESIGN: If 480 volt service is installed in Gym, all mechanical equipment to be specified with 480 volt motors.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$	\$	\$
Proposed Design	\$	\$	\$
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			\$ total included in E1

VALUE ENGINEERING ALTERNATIVE		No. E-5	
PROJECT: Sweitzer Gymnasium Renovation			
ITEM: Additional conduit for Security Systems and cameras.			
ORIGINAL DESIGN: No future security system capacity provided.			
ALTERNATIVE DESIGN: Provide spare conduit in the building based on anticipated needs for future security upgrades. Provide 5 additional security cameras.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	\$ 10,166	\$	\$ 10,166
Add	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL ADD			\$ 10,166

VALUE ENGINEERING ALTERNATIVE	No. E-6
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PROJECT: Sweitzer Gymnasium Renovation

ITEM: Add wireless card readers at doors.

ORIGINAL DESIGN: Standard door hardware to be installed on outside doors.

ALTERNATIVE DESIGN: Install wireless card access hardware on selected doors to control access to the building.

DISCUSSION / JUSTIFICATION:
 (Advantages / Disadvantages)

Advantages:

Disadvantages:

COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	\$ 1,789	\$	\$ 1,789
Add	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			\$ 1,789

VALUE ENGINEERING ALTERNATIVE			No. E-7
PROJECT: Sweitzer Gymnasium Renovation			
ITEM: Recessed light fixtures in Locker Rooms.			
ORIGINAL DESIGN: Locker room lighting to be provided by security grade wall mounted fixtures.			
ALTERNATIVE DESIGN: If ceilings are installed in the locker rooms, then recessed fluorescent light fixtures to be installed, and conduit can be hidden in the ceilings.			
DISCUSSION / JUSTIFICATION: (Advantages / Disadvantages)			
Advantages:			
Disadvantages:			
COST SUMMARY	CAPITAL COST	ANNUAL O&M	TOTAL SAVINGS
Original Design	\$ 0	\$	\$
Proposed Design	(\$ 4,350)	\$	(\$4,350)
Savings	\$	\$	\$
ANNUAL O&M SAVINGS			\$
TOTAL SAVINGS			(\$4,350)

ATTENDANCE LIST

Value Engineering Workshop

Project: Sweitzer Gymnasium, Cody, Wyoming

Date: November 4 & 5, 2002

PARTICIPANTS:

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Review of Capital Construction Projects for Wyoming School Facilities Commission

District: Park County School District #6
Project: Sweitzer Gym Renovation **Architect: Plan One**

1. FACILITIES GUIDELINES

Comment	Resolution
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1.1 Site Requirements

1.1.1	Consider construction fencing alignment to allow pedestrian access after demolition and installation of replacement sidewalk section.	
1.1.2	Note 17 - Potential maintenance issue with delamination of epoxy coating on concrete substrate due to freeze-thaw cycle.	

1.2 Physical Education

1.2.1	Sht AR1.1: Gym Court (122) - Add volleyball court markings to comply with listed program uses.	
1.2.2	Sht AR1.1: Offices 117 & 127 - Show furniture layout; appears to be tight for anything other than built-ins along wall.	
1.2.3	Sht AR1.1: Weight Room 137 - Show exercise equipment layout; appears to be tight. Consider additional space in area occupied by Janitor Rm 101. Enlarge door from Lobby 100 to double doors for ease of access.	
1.2.4	Ref. WPS Facilities Guidelines, pg 13, Showers - Privacy issue would require small dressing areas adjacent to shower stalls. (Discuss)	
1.2.5	EXCEPTION to WPS Facilities Guidelines, pg 13, Showers - Not all locker and dressing areas are visible from PE offices. (Discuss)	
1.2.6	Sht A1.2: Show openings cut through floor for new stairs.	

1.3 Commons, Circulation and Entries

1.3.1	Sht AR1.0: South Entrances - Key Note #32 is incorrect; should be reference to area drain.	
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1.4 Building Support Areas

1.4.1	Sht AR1.0: Key Note #26 - add "& gates".	
1.4.2	Sht AR1.0: Key Note #27 - add "HM(?) and frame".	
1.4.3	Sht AR1.1: Rm 101 Janitor - Why so large? Is space for storage to be included? If so, access to mop sink could be blocked by storage.	
1.4.4	Sht AR1.2: Mechanical Rooms 202 & 204 - Provide 6070 HM drs in lieu of 3070 HM door to facilitate access to HVAC equipment.	

Review of Capital Construction Projects for Wyoming School Facilities Commission

District: Park County School District #6

Project: Sweitzer Gym Renovation

Architect: Plan One

1.5 Electrical and Lighting Considerations

1.5.1	Sht AR1.1: Key note #21 - add "motor operated". Include power & switches.	
1.5.2	Sht E2.1: Add light fixtures in Janitor Rm 101.	
1.5.3	Sht E2.1: Add Display Case lighting in Lobby 100.	
1.5.4	Sht E2.1: Add 2-2x4 light fixtures in corridor south of Rm 103 Concessions.	
1.5.5	Sht E 2.1: Add light fixtures in Shower Rooms along N/S walls; delete light fixture on E/W walls.	
1.5.6	The existing electrical service size is not given in the design analysis. The building size is 41,189 sf at 14VA/SF minimum equals 576,646VA and at 277/480V, 3 phase, 4 wire, the load is 694 amps. We suggest using an 800 Amp 277/480V, 3 phase, 4 wire SES.	
1.5.7	The available fault current should be 30,000 amps; much lower than 65,000A for a 1600A, 120/208V, SES be sure to do all fault current calculations.	
1.5.8	The design analysis is not clear as to reusing existing panels or not. In any event the 277/480V panel boards will be new and the 120/208V panel boards should be new with main circuit breakers fed thru new step down transformers. Panels to be 42 circuit d	
1.5.9	No specifications on wire types. Use copper wire for smaller wire. An alternate of aluminum with compression lugs, for 100 Amps and larger wire is acceptable.	
1.5.10	No grounding shown on the drawings. No 1-line diagram on the drawings. No specifications; narrative only and not complete.	
1.5.11	Types of fixtures not shown on the lighting drawings E1.1, E2.1, E3.1 No lighting fixture schedule on the drawings nor in the specifications. No exit and emergency lights shown. No lights shown on lighting drawing E1.1. Drawing not complete. Some rooms ha	
1.5.12	No exterior lights are shown on any drawings. Suggest using high pressure sodium security lights for exterior; more efficient and lamps last longer. No site plan, no parking lot security lights.	

Review of Capital Construction Projects for Wyoming School Facilities Commission

District: Park County School District #6
Project: Sweitzer Gym Renovation **Architect: Plan One**

1.6 Plumbing Considerations

1.6.1	Use sensor controlled wc, Urinals, and Lavs. Allow no-hub waste piping undergrade. Investigate possibility of leaving domestic water heater in the Boiler Building, and pipe back to the Gym. This will eliminate gas in the basement of the Gym, and the diff	
1.6.2	Sht AR1.1: Rm 103 Concessions - Is commercial refrigerator or ice maker required? If so, add floor sink. Add keynote regarding hand sink.	
1.6.3	Sht AR1.1: Laundry Rooms 109 & 134 - Show washer & dryer equipment and connections.	

1.7 Heating, Ventilating and Air Conditioning (HVAC) Considerations

1.7.1	Sht AR1.1: Laundry Rooms 109 & 134 - Dryer venting thru roof or outside wall not shown.	
1.7.2	Recommend water/water heat recovery on Unit Ventilators. Consider using space below the lockers for exhaust grilles to ductwork located in the piping tunnel below the floor.	

2. ENERGY EFFICIENCY

Comment	Resolution
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2.1 District Policies and Procedures regarding energy conservation

2.1.1	Specifications only list low energy efficient fluorescent fixtures with electronic ballasts (T8 lamps) with low harmonic distortion; 10% maximum. (120V)	
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2.2 Lighting fixtures and bulbs

2.2.1	All lighting fixtures to be new and are high efficient fluorescent with T8 lamps (4100 Degree K) and low harmonic distortion ballasts. No fixture schedule on drawings nor in the specifications.	
2.2.2	Use all 3-lamp and 4-lamp ballasts in place of 2-1 and 2-2 lamp ballasts; saves energy.	

2.3 Security lighting and parking lot lighting

2.3.1	Outside lights are listed in the design analysis as metal halide. Change to high pressure sodium if possible; more efficient and lamps last longer. No fixture shown on plans and no specifications.	
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Review of Capital Construction Projects for Wyoming School Facilities Commission

District: Park County School District #6

Project: Sweitzer Gym Renovation	Architect: Plan One
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2.4 Exit Lighting	
2.4.1	No exit nor emergency lights are shown on the drawings. Exit and emergency lighting is listed in the design analysis; none on the drawings. Drawings and specifications need to be completed. 1 FC Avg illumination.

2.5 Load shedding controls	
2.5.1	No load shedding controls are shown on the drawings and in the design analysis. Load shedding controls not needed for this building.

2.6 Occupancy sensors	
2.6.1	No occupancy sensors shown the drawings nor in the analysis. Occupancy sensors (dual technology) should be used for small rooms.

2.7 Lighting and fan timers	
2.7.1	Connect toilet room exhaust fans into new EMS.
2.7.2	No timers are shown on the drawings nor in the specifications. Should be added.

2.8 Insulation Values	
2.8.1	Confirm insulation values of existing walls and roof. Increase R-values where financially feasible to R-38 in roof and R-19 in walls.

2.9 Water Saving Devices	
2.9.1	Use self closing (sensor controlled) faucets on lavs. Use timer controlled, tempered water showers to control length of shower.

3. SAFETY AND SECURITY	
Comment	Resolution

3.1 Building access system	
3.1.1	No building access system is specified or noted on the drawings. Consider adding a wireless building access system.

3.2 Security system	
3.2.1	Add empty conduit for future installation of security system

3.3 Internal communication system	
3.3.1	No intercom devices are shown on the drawings. A new clock/intercom system is proposed in the outline specifications.

**Review of Capital Construction Projects for
Wyoming School Facilities Commission**

District: Park County School District #6

Project: Sweitzer Gym Renovation

Architect: Plan One

3.4 Traffic segregation

3.4.1	Sht AS1.0: Alternate Layout for construction staging plan would allow for continued safe use of existing facilities and segregate construction parking next to GC storage area.	
3.4.2	East side of Gym - Replace broken sidewalk during initial phase. Pedestrian	

3.5 Environmental Issues

3.5.1	Sht A1.0: If necessary, perform asbestos and lead paint testing and abatement in mechanical rooms and pipe chases.	
3.5.2	Sht AR11.2: Asbestos coating to be removed from ceiling.	
3.5.3	Add float alarm at chlorine room.	
3.5.4	Add emergency eyewash in pool chlorine room in basement	