Final Project Proposal

2006-2007

Community College Construction Act of 1980
Capital Outlay Budget Change Proposal

Fire Alarm System Phase #2
Proposal Name

San Joaquin Delta Community College District
Community College District

San Joaquin Delta College
College or Center

July 1, 2004
Date

A _____ P __X__ W __X__ C __X__ E __X__

APPROVAL PAGE

Final Project Proposal

Budget Year 2006-2007

District: San Joaquin Delta Community College District

Project Location: San Joaquin Delta College
(College, campus, or center)

Project Name: Fire Alarm Phase #2

The district proposes funds for inclusion in the State capital outlay budget (check items):
site acquisition [ ] preliminary plans [X] working drawings [X] construction [X] equipment [X]

District Certification

Contact Person: T.C. Arbuckle
(Facilities, Planning and Development)

Telephone: 209-954-5063

E-Mail Address: tarbuckle@sjccd.cc.ca.us

Fax: 209-954-5602

Approved for submission: _____
(Chancellor/President/Superintendent Signature)

Date: June 15, 2004

District Board of Trustees Certification

The Governing Board of the District approves the submission of this application to the Board of Governors of the California Community Colleges and promises to fulfill the succeeding list of Project Terms and Conditions.

Anthony E. Bruce 15 June 04 (President of the Board of Trustees Signature and Date)

Secretary of the Board of Trustees Signature and Date) 6/15/04

Attach a copy of the Board Resolution which substantiates approval of the application and promises to fulfill the Project Terms and Conditions.

Submit proposal to:
Facilities Planning and Utilization
Chancellor's Office
California Community Colleges
1102 Q Street, 4th Floor
Sacramento, CA 95814

Chancellor's Office Certification

Reviewed by: _____

Date Completed: _____

PROJECT TERMS AND CONDITIONS

District: San Joaquin Delta Community College District

Project: Fire Alarm Phase #2 **Budget Year**: 2006-2007

1. The applicant hereby requests State funds in the amount prescribed by law for the project named herein. All parts and exhibits contained in or referred to in this application are submitted with and made part of this application.

2. The applicant hereby assures the Board of Governors of the California Community Colleges that:

   A. Pursuant to the provisions of Section 57001.5 of Title 5 no part of this application includes a request for funding the planning or construction of dormitories, stadia, the improvement of sites for student or staff parking, single-purpose auditoriums or student centers other than cafeterias. The facilities included in the proposed project will be used for one or more of the purposes authorized in 57001.5 of Title 5.

   B. Any State funds received pursuant to this application shall be used solely for defraying the development costs of the proposed project.

      If the application is approved, the construction covered by the application shall be undertaken in an economical manner and will not be of elaborate or extravagant design or materials.

   C. Pursuant to the provisions of Section 81837 of the Education Code, approval of the final plans and specifications for construction will be obtained from the Board of Governors of the California Community Colleges before any contract is let for the construction.

   D. No changes in construction plans or specifications made after approval of final plans which would alter the scope of work, function assignable and/or gross areas, utilities, or safety of the facility will be made without prior approval of the Chancellor's Office of the California Community Colleges and the Department of General Services Office of Architecture and Construction.

   E. Pursuant to the provisions of Section 57001 of Title 5, an adequate and separate accounting and fiscal records and accounts of all funds received from any source to pay the cost of the proposed construction will be maintained, and audit of such records and accounts will be permitted at any reasonable time, during the project, at the completion of the project, or both.

Project Terms and Conditions (Continued)

F. Architectural or engineering supervision and inspection will be provided at the construction site to ensure that the work was completed in compliance with the provisions of Section 81130 of the Education Code and that it conforms with the approved plans and specifications.

G. Pursuant to the provisions of Section 8 of the Budget Act, no contract will be awarded prior to the allocation of funds to the Board of Governors by the Public Works Board.

3. It is understood by the applicant that:

A. No claim against any funds awarded on this application shall be approved which is for work or materials not a part of the project presented in this application as it will be finally allocated by the Public Works Board.

B. The failure to abide by each of the assurances made herein entitles the Board of Governors of the California Community Colleges to withhold all or some portion of any funds awarded on this application.

C. Any fraudulent statement which materially affects any substantial portion of the project presented in this application, as it may be finally approved, entitles the Board of Governors of the California Community Colleges to terminate this application or payment of any funds awarded on the project presented in this application.

4. It is further understood that:

A. The appropriation which may be made for the project presented in this application does not make an absolute grant of that amount to the applicant.

B. The appropriation is made only to fund the project presented in this application, as it is finally approved, regardless of whether the actual cost is less than or equals the appropriation.

C. A reduction in the scope of the project or assignable areas shall result in a proportionate reduction in the funds available from the appropriation

ANALYSIS OF BUILDING SPACE USE AND WSCH - JCAF 31

☐ New Construction ■ Reconstruction

District: San Joaquin Delta Community College District **Project:** Fire Alarm Phase #2

College: San Joaquin Delta College **Prepared by:** CCS Group

Date: July 1, 2004

									State Use Only	
Room Type (1)	State Use Room Type	# of Rooms (2)	4 Digit TOP #, Name (3)	Project Space ASF (4)	Existing Space ASF (5)	New Space/ Programs ASF (4)-(5) (6)	ASF Change from Prior Submittal (If Applicable)	FTE/WSCH Capacity	Cost per ASF Per Guidelines	Total Allowable Cost
			Not Applicable							
			No Changes							
			Sub-total							
			Total ASF							
			Total GSF							

COST ESTIMATE SUMMARY AND ANTICIPATED TIME SCHEDULE - JCAF 32:

Campus: San Joaquin Delta College
CFIS Ref. #: 40.26xxx
Project Title: Fire Alarm System Phase #2 Date Prepared: 7/1/2004 CCI Index: 4100
Budget Ref #:
Request for: P, W, C EPI: 2564
Prepared by:CCSgroup

		Total Cost	State Funded	District Funded	
				State-Supportable	Non State-Supportable
1. Site Acquisition	Acres:	**0**			
2. Plans	Budget CCI Index: 1	**59,836**	59,836	0.00	0.00
A. Architectural Fees (for preliminary plans)		11,274	11,274	0.00	0.00
B. Project Management (for preliminary plans)		4,026	4,026	0.00	0.00
C. Preliminary Tests *(soils, hazardous materials)*		0.00	0.00	0.00	0.00
D. Other Costs *(for preliminary plans)*		25,110.00	25,110.00	0.00	0.00
E. Specialty Consultant (Asbestos Abatement)		19,426.00	19,426.00	0.00	0.00
3. Working Drawings	Budget CCI Index: 1	**25,145**	25,145	0.00	0.00
A. Architectural Fees (for working drawings)		14,495	14,495	0.00	0.00
B. Project Management (for working drawings)		0.00	0.00	0.00	0.00
C. Office of the State Architect, Plan Check Fee		9,500.00	9,500.00	0.00	0.00
D. Community College Plan Check Fee		1,150	1,150	0.00	0.00
E. Other Costs *(for working drawings)*		0.00	0.00	0.00	0.00
(Total PW may not exceed13% of construction)			0.00	0.00	0.00
4. Construction	Budget CCI Index: 1	**402,645**	402,645	0.00	0.00
A. Utility Service		0.00	0.00	0.00	0.00
B. Site Development, Service		0.00	0.00	0.00	0.00
C. Site Development, General		0.00	0.00	0.00	0.00
D. Other Site Development		0.00	0.00	0.00	0.00
E. Reconstruction		0.00	0.00	0.00	0.00

F. New Construction *(building) (w/Group I equip)*		402,645	402,645	0.00	0.00
G. Other		0.00	0.00	0.00	0.00
5. Contingency		**28,185**	28,185	0.00	0.00
6. Architectural and Engineering Oversight		**6,442**	6,442	0.00	0.00
7. Test and Inspections		**152,240**	152,240	0.00	0.00
A. Tests		4,026	4,026	0.00	0.00
B. Inspections		148,214	148,214	0.00	0.00
8. Construction Management *(if justified)*		**8,053**	8,053	0.00	0.00
9. *Total Construction Costs (items 4 through 8 above)*		**597,566**	597,566	0.00	0.00
10. Furniture and Group II Equipment	Budget CCI Index: 1	**0.00**	0.00	0.00	0.00
11. Total Project Costs *(items 1,2,3,9, and 10)*		**682,546**	682,546	0.00	0.00

12. Project Data	**Outside GSF**	**Assignable Square Feet**	**Ratio ASF/GSF**	**Unit Cost Per ASF**	**Unit Cost Per GSF**	**14**	**State Funded**	**District Funded**		**District Funded Total**
								Supportable	**Non - Supportable**	
Construction						Acquisition	$0.00	$0.00	$0.00	$0.00
Reconstruction	734,019	525,572	72%	$0.66	$0.93	Preliminary Plans	59,836	$0.00	$0.00	$0.00
13. Anticipated Time Schedule						Working Drawings	25,145	$0.00	$0.00	$0.00
Start Preliminary Plans	July 2006		Advertise Bid for Construction	June 2007		Construction	402,645	$0.00	$0.00	$0.00
Start Working Drawings	Oct. 2006		Award Construction Contract	July 2007		Equipment	$0.00	$0.00	$0.00	$0.00
Complete Working Drawings	Dec. 2006		Advertise Bid for Equipment	June 2007		**Total Costs**	**682,546**	$0.00	$0.00	$0.00
DSA Final Approval	June 2007		Complete Project	June 2008		% of SS Total	100.00%	0.00%		

Quantities and Unit Costs Supporting the JCAF-32
(Architect's Cost Estimate)

1	**Site Acquisition**				
2	**Plans**				
	a. Architect's Fee for Preliminary Plans				
	402,645 x 8% x 35%				$11,274
	b. Architectural Fee for Working Drawings				
	402,645 x 8% x 45%				$14,495
	c. Specialty Consultant				$19,426
	Asbestos				
	d. Project Management Fee				
	402,645 x 1%				$4,026
	e. Division of the State Architect				
	Plan Check Fee, Structural, Fire, Life Safety Review				
	.007 x 1,000,000				$7,000
	.005 x 0				
	Access Compliance Review				
	Up to $2,000,000 ($2,500) +				$2,500
	.0001 x 0				
	f. Community College Plan Check Fee				
	402,645. x 2/7 of 1% (state)				$1,150
	g. Preliminary Test (Soil Test)				
	h. Other Costs:				
	Plans				$22,000
	CEQA				$3,000
	Advertising				$110
	Total Plans				$84,982
3	**Construction**				
		Units	**$ per Unit**	**Est. Cost**	
	a. Utility Services				
	(1) Sanitary Service			$0	
	(2) Domestic Water			$0	
	(3) Fire Water			$0	

	(4) Natural Gas Service			$0	
	(5) Site Electrical			$0	
	Total Utility Service				$0
	b. Site Development Service				
	(1) Demolition				
	(a) Remove underground utilities			$0	
	(b) General Site Demolition			$0	
	(2) Site Preparation				
	(a) Excavation			$0	
	(b) Over-excavation			$0	
	(c) Backfill-native			$0	
	(d) Stockpile Excavated Soil for future use			$0	
	(e) Fine Grade			$0	
	(3) Storm Drainage			$0	
	Total Site Development Service				$0
	c. Site Development General				
	(1) AC Paving			$0	
	(2) Concrete Work				
	(a) Concrete Walkway			$0	
	(b) Concrete Paving			$0	
	(c) Parking Curb			$0	
	(d) Concrete Steps on Grade w/ Foundation			$0	
	(e) Concrete Ramps on Grade			$0	
	(f) Concrete Retaining Wall w/ Foundation			$0	
	(g) Concrete Retaining Wall for Building			$0	
	(h) Concrete Retaining Foundation			$0	
	Total Site Development General				$0
	d. Other Site Development				
	(1) Irrigation			$0	
	(2) Landscape				
	(a) 24" Box Trees			$0	
	(b) 15 Gallon Trees			$0	
	(c) Ground Cover / Lawn			$0	
	(3) Miscellaneous Site Items				
	(a) Handrail			$0	
	(b) Guardrail			$0	
	(c) Project Signs			$0	

	(d) Tables and site amenities			$0	
	Total Other Site Development				$0
	e. Reconstruction				
	(1) General Work				
	a. Architectural	320	$41	$13,120	
	(2) Group I Equipment			$12,197	
	(3) Plumbing			$0	
	(4) Fire Protection			$0	
	(5) Mechanical			$0	
	(6) Electrical (includes Telecom, Fire Alarm)			$185,728	
	(7) General Demolition			$15,000	
	(8) Asbestos (Detail Below)				
	Cutting and Patching in all buildings			$176,600	
	Total Construction				$402,645
	Total Construction Cost				$402,645
4	**Tests & Inspections**				
	(a) Test = 1% x402,645				$4,026
	(b) Inspection = 12 months x $7,000				$84,000
	(c) Inspection (IOR / Laboratory) Asbestos Removal				$44,150
	(d) Fire Watch 1,056 hours at $19 per hour				$20,064
	Total Testing and Inspection				$152,240
5	**Contingency**				
	402,645 x 7%				$28,185
6	**Construction Management**				
	402,645 x 2%				$8,053
7	**Architectural & Engineering & Oversight**				
	402,645 x 8% x 20%				$6,442
8	**Total Construction Costs**				
	(Items 3 through 7 above)				$597,565
9	**Furniture & Group II Equipment**				$0
10	**Total Project Cost**				
	(Items 1, 2, 8 and 9)				$682,546

11	**Overall Cost per Square Foot**				$0.93

CALIFORNIA ENERGY COMMISSION APPROVED AUDIT

The project will meet or exceed all current building codes and associated energy requirements.

RESPONSES TO SPECIFIC REQUIREMENTS OF THE STATE ADMINISTRATIVE MANUAL

PROBLEM

The current fire alarm system needs modification in order to improve the safety of students, staff, and visitors. Limitations within the current system could mean failure of signaling during an alarm event.

The College already has worked to improve the existing fire alarm system. In June of 2003 Simplex panels that were problematic were replaced with a Honeywell panel Model XLS1000. Remote transponders were also replaced with the Honeywell Model XLS200. These panels are up to current code.

The existing Campus fire alarm system has evolved over the years to consist of both new and old system components to keep the system operational. The primary components of the system, the main fire alarm panel and building transponders, are new and very reliable. The concerns about the system focus on the initiating and signaling device components and wiring.

The most significant issues are associated with the non-compliant horns and associated appurtenances, which are installed in the system in order to maintain its functionality. The initiating and signaling devices are the original devices that were included during construction in 1974. The horns are no longer California State Fire Marshal (CFSM) listed, cannot be obtained as parts, and are not equipped with battery backup. Failure of a horn or component of the horn circuit could result in extended loss of evacuation signal coverage. The horn circuits do not report a horn circuit failure to the fire alarm panel, which could result in a failed signaling circuit at the time of an alarm event.

Additional concerns exist with the fire alarm system and the lack of modern equipment. Only 3 of the 19 buildings on campus are equipped with smoke detectors. These three are not connected directly to the transponder panel. There are very few visual strobes throughout the campus. On the entire campus there are few visual strobes: 2 at the Shima Center that houses 189 rooms and 2,169 people; 9 at the Locke Center that house 146 rooms and 1,995 people; and, 4 at Danner Hall that houses 88 rooms and the food service facility (52,024 square feet in size). The remainder of the campus is without any visual signaling.

The initiating circuit devices and the associated wiring are also a concern to system reliability. Wiring is showing signs of corrosion. Ground faults in the initiating circuit wiring and at device terminals are detected as signals by the fire alarm panels and result in annoying trouble signals at the main fire alarm panel. Some of the more sensitive Honeywell system transponder power supplies have

been bypassed and older, less sensitive Simplex power supplies have been used in order to eliminate the constant trouble signals. Visual signaling devices are not of sufficient quantities and do not provide coverage as preferred for all areas of the campus.

Water flow switches are not adequate and are not presently monitored by the fire alarm system.

At this time, the existing fire alarm system does not have the reliability preferred for a fire alarm detection and evacuation system. The system does not contain all CSFM listed components and is not Underwriters Laboratory (UL) certifiable. An upgrade of the existing initiating and signaling devices and wiring is imperative to provide a more safe and reliable fire alarm detection and evacuation signaling for the campus.

Many of the upgrades to the existing fire alarm system have not occurred because in order to do this work, the campus must abate and remove asbestos from the area of work. Every building on campus includes asbestos in the walls, ceilings, and flooring. This work creates a large additional cost that the College cannot cover.

A solution to the problem would achieve the following goals:

A. Improve the safety of the environment for students, staff, and visitors.
B. Provide a fire alarm system that complies with current code including ADA.
C. Provide a fire alarm system that uses current technology and that can be maintained at Code requirements.
D. Asbestos abatement to allow for fire alarm upgrades.

SUPPORT OF STRATEGIC PLAN

It has been in the plans of the College to improve the fire alarm system. The College completed the first phase of this work with scheduled maintenance funding in 2003. However, because of the asbestos throughout the campus the second phase is more costly. Therefore, an IPP was submitted and the second phase is considered a capital outlay project. This project is included within the Five Year Construction Plan.

ALTERNATIVES

No Project

The College could continue to operate with the current fire alarm system. However, this continues a situation that is unacceptable to the College. It is important to the College to provide an environment with a higher degree of safety.

Complete Phase #2 Fire Alarm Improvements

The completion of the improvements would begin with asbestos abatement to enable the upgrades to occur. Following minor asbestos removal, the following could be completed to upgrade the fire alarm system, bringing it into compliance with current code:

1. Replace all existing hard-wired manual pull stations and wiring with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
2. Replace all existing area smoke detectors with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
3. Replace all existing duct smoke detectors with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
4. Provide new addressable interface modules for all existing water-flow switches and provide intelligent device communication cabling. Re-use existing conduits.
5. Install new valve tamper switches at all fire sprinkler risers and connect to the water-flow/tamper addressable interface modules.
6. Disconnect and remove all existing Simplex power supplies at transponder panels and connect Honeywell power supplies.
7. Replace all existing AC fire alarm horns with new supervised DC horns and connect with new wiring to the transponder panels. Re-use existing conduits.
8. Add fire alarm visual notification devices with new wiring and conduits to all areas of the campus in accordance with California State ADA requirements.
9. Replace all existing analog remote annunciator panels with digital units at each building. Provide new cabling in existing conduits.
10. Replace the existing fire alarm panel and devices at the Child Development Center with new Honeywell equipment and connect to the existing campus fire alarm loop.
11. Replace the existing fire alarm panel and devices at the Child Care Portable Building with new Honeywell equipment and connect to the existing campus fire alarm loop.

12. Connect the existing Honeywell transponder at the Holt Annex Building to the fire alarm communication loop and remove separate auto-dialer.
13. Connect the two existing cooking hood fire suppression systems to the fire alarm system for monitoring.
14. Connect the two existing spray paint booth fire suppression systems to the fire alarm system for monitoring.
15. Connect the two existing Halon fire suppression systems to the fire alarm system for monitoring.
16. Provide programming, adjustments, and testing of new system as needed for new intelligent device reporting.

CRITERIA ANALYSIS

GOALS:

1. Improve the safety of the environment for students, staff, and visitors.
2. Provide a fire alarm system that complies with current code including ADA.
3. Provide a fire alarm system that uses current technology and can be maintained at Code requirements.
4. Asbestos abatement to allow for fire alarm upgrades.

MEETS GOALS:

ALTERNATIVES	1	2	3	4
No Project	No	No	No	No
Complete Phase #2 Fire Alarm Improvements	Yes	Yes	Yes	Yes

ECONOMIC ANALYSIS

ALTERNATIVES:

A. No Project
B. Complete Phase #2 Fire Alarm Improvements

ALTERNATIVES	A	B
Utility Service	0	0
Site- Service	0	0
Site-General	0	0
Other Site	0	0
Reconstruction	0	402,645
New Construction	0	0

Other	0	0
Total Construction Costs	0	402,645
Construction Soft	0	279,901
Subtotal Project Costs	0	682,546
Group II Equipment	0	0
Local Budget Cost	0	0
Total Project Cost	0	682,546

RECOMMENDED SOLUTION

The recommended alternative is to complete the Phase #2 Fire Alarm Improvements to meet all of the goals. This solution will bring the existing fire alarm system into compliance with current Code by installing Code compliant initiating and signaling devices. Additionally, corroded wiring will be replaced. An upgraded fire alarm system will provide a reliable fire alarm detection and evacuation system.

DETAILED SCOPE DESCRIPTION

In order to run the necessary wire and install the equipment for the fire alarm system there will be disturbance of areas containing asbestos, therefore, abatement activities will occur prior to installation of the Fire Alarm System components. After the abatement of asbestos the following will be completed:

1. Replace all existing hard-wired manual pull stations and wiring with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
2. Replace all existing area smoke detectors with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
3. Replace all existing duct smoke detectors with new addressable devices and intelligent device communication cabling. Re-use existing conduits.
4. Provide new addressable interface modules for all existing water-flow switches and provide intelligent device communication cabling. Re-use existing conduits.
5. Install new valve tamper switches at all fire sprinkler risers and connect to the water-flow/tamper addressable interface modules.
6. Disconnect and remove all existing Simplex power supplies at transponder panels and connect Honeywell power supplies.
7. Replace all existing AC fire alarm horns with new supervised DC horns and connect with new wiring to the transponder panels. Re-use existing conduits.
8. Add fire alarm visual notification devices with new wiring and conduits to all areas of the campus in accordance with California State ADA requirements.

9. Replace all existing analog remote annunciator panels with digital units at each building. Provide new cabling in existing conduits.
10. Replace the existing fire alarm panel and devices at the Child Development Center with new Honeywell equipment and connect to the existing campus fire alarm loop.
11. Replace the existing fire alarm panel and devices at the Child Care Portable Building with new Honeywell equipment and connect to the existing campus fire alarm loop.
12. Connect the existing Honeywell transponder at the Holt Annex Building to the fire alarm communication loop and remove separate auto-dialer.
13. Connect the two existing cooking hood fire suppression systems to the fire alarm system for monitoring.
14. Connect the two existing spray paint booth fire suppression systems to the fire alarm system for monitoring.
15. Connect the two existing Halon fire suppression systems to the fire alarm system for monitoring.
16. Provide programming, adjustments, and testing of new system as needed for new intelligent device reporting.

The total estimated cost for the Fire Alarm Phase #2 project is $682,546.00.

BASIS FOR COST INFORMATION

Ken Rubitsky, a professional electrical engineer with Ken Rubitsky and Associates, provided the cost information with assistance from John McGuire at AC Martin Partners, architectural firm. The estimate reflects experience for similar projects and coordination with the College.

FACTORS/BENEFITS FOR RECOMMENDATION OTHER THAN THE LEAST COST ALTERNATIVE

The completion of the Fire Alarm Phase #2 improvements is the option that adequately supports the existing upgrades to the campus and provides for a system that is up to Code and in compliance with ADA. To forego completion of these improvements or to leave out any requirement will allow false alarms to continue while limiting the safe operation of the fire alarm system.

COMPLETE DESCRIPTION OF IMPACT ON SUPPORT BUDGET

Once this system is complete it will not need financial support. Therefore, there is no impact on the support budget.

IDENTIFY AND EXPLAIN ANY PROJECT RISKS

There is a small risk with asbestos abatement. Therefore, the College will hire the same firm that they have worked with in the past to abate and dispose of asbestos.

This firm specializes in asbestos abatement and that is the only work that they complete. For this project, they will complete demolition, removal, and disposal of all asbestos material. This work will occur during the summer months following the close of spring session.

MASTER PLAN/FIVE YEAR CONSTRUCTION PLAN

This project is a priority for the College. It is included as a priority in the Five-Year Construction Plan.

CALIFORNIA ENVIRONMENTAL QUALITY ACT
ENVIRONMENTAL IMPACT REPORT

(Reference: California Code of Regulations, Title 5 Section 57121)

Following approval of the FPP the District will complete the appropriate CEQA document prior to completing this work.

OUTLINE SPECIFICATION

FOR THE

FINAL PROJECT PROPOSAL (FPP)

FOR THE

FIRE ALARM SYSTEM PHASE #2

FOR THE

SAN JOAQUIN DELTA COMMUNITY COLLEGE DISTRICT

PREPARED

July 1, 2004

The following is a Preliminary Outline Specification for the Final Project Proposal for the Fire Alarm System Phase #2. Its intent is to describe the initial understanding of the project improvements & materials necessary to complete the improvements. This information is in support of the FPP documents prepared for the project. It is to be used as an updated checklist of materials, equipment and finishes anticipated for the project with information collected to date during the Pre-design Phase.

Division 16 – Electrical

16010 General Provisions

A. Description and Related Work
   1. Index of Electrical Specifications
B. Scope
   1. Furnishing and installation of new replacement campus fire alarm initiating and signaling devices with connections to existing campus fire alarm panels.
   2. Upgrade of existing fire alarm system to include ADA approved visual signaling devices.
   3. Furnishing and installation of new fire alarm wiring for new and replacement devices.
   4. Demolition of all existing fire alarm devices and wiring scheduled for replacement.
   5. Complete start up and testing of the completed fire alarm system, with annual certification.
   6. Owner training for programming and operation of the fire alarm system.
   7. Hangers, supports, anchors, etc. necessary for the electrical work.
   8. As-built fire alarm drawings for all new wiring, conduit and devices and connections for work under this contract.
C. Codes and Standards
   1. California Electric Code – CEC
   2. California Building Code – CBC
   3. California Fire Code – CFC
   4. ANSI-C2, National Electrical Safety Code - NESC
D. Specification Terminology
   1. Definitions
E. Drawings, Specifications and Symbols
   1. Complementary drawings and specification
   2. Drawing symbols
   3. Verification of site conditions
F. Safety and Indemnity
   1. Safety precautions
G. Product and System Submittals
   1. Catalog designation or model number
   2. Rough in data or dimensions

3. Operating characteristics
4. Wiring diagrams
5. Shop drawings

H. Inspection
1. Quality of work
2. Product and material conformance
3. Inspection scheduling

I. Permits and Tests
1. Obtaining permits
2. Scheduling testing

J. Operation and Maintenance Manuals
1. Operating sequence narratives
2. Maintenance instructions

K. Guarantee
1. Defective materials or workmanship
2. Guarantee start date and duration

16100 Basic Materials and Methods

A. Description
1. Products and methods of execution

B. Coordination
1. Layout of new work
2. Conflicts
3. Field verification of site conditions

C. Serviceability of Products
1. Access space to equipment
2. Orientation of equipment for service

D. Accessibility of Products
1. Layout drawings
2. Access doors for equipment in concealed spaces

E. Materials and Equipment
1. American made
2. Material standards
3. Material and equipment manufacturer qualifications

16110 Conduit and Fittings

A. Conduit
1. Galvanized rigid steel conduit – GRC
2. Intermediate metal conduit – IMC
3. Rigid copper free aluminum conduit
4. Electrical metallic tubing – EMT

B. Fittings
1. Galvanized steel
2. Iron or copper free
3. Insulated throats

C. Conduit Supports

1. Hangers
2. Trapeze hangers
3. Conduit straps

D. Pullboxes and Cabinets
1. Code gauge galvanized steel
2. Nema ratings

E. Conduit Seals
1. Fire retardant silicone foam
2. ASTM E-119 compliance
3. Underwriters Laboratories, Inc. listings

F. Installation Methods
1. Joints and fittings
2. Conduit routing
3. Conduit connectors at cabinets
4. Pullwires
5. Ground conductors

16120 Wire and Cable

A. Labeling
1. Underwriters label
2. Gauge
3. Voltage
4. Type of insulation
5. Manufacturer
6. Trade name

B. Insulation
1. 600V, type THWN/THHN

C. Conductors
1. 98% conductivity, stranded, soft drawn copper
2. Color coding

D. Connections
1. Screw type lugs
2. Joints, splices and taps
3. Crimping tool connections

16130 Outlet Boxes

A. Cast Boxes
1. Threaded hubs and gasket covers
2. Wet or damp locations

B. Outlet Boxes
1. Steel boxes
2. Grounding
3. Accessories

C. Outlet Box Support
1. Securely fastened
2. Hangers

16131 Pull and Junction Boxes

A. Pull and Junction Box Types
   1. Sheet metal boxes
   2. Nema 3R boxes
   3. Pre-cast concrete boxes

B. Accessibility
   1. Covers to be readily accessible
   2. Adequate working clearances

16721 Fire Alarm System

A. General
   1. Furnishing and installation of new replacement fire alarm devices and wiring with connections to existing campus fire alarm panels.
   2. Initiating circuits shall be individually configurable.
   3. Indicating appliance circuits shall be individually configurable.
   4. Equipment submittals.

B. Operation
   1. Alarm operation subsequent to activation of any manual station, automatic detection device, or sprinkler flow switch.
   2. Alarm and trouble signals.
   3. Alarm sequence recording.

C. Supervision
   1. Independently supervised initiating circuits
   2. Fire sprinkler supervisory circuit
   3. Supervised notification appliance circuits
   4. Supervision of manual controls
   5. LCD readouts of supervised circuits
   6. Power circuit supervision
   7. Battery supervision
   8. Maintenance and testing

D. Fire Alarm Control Panel
   1. Existing Honeywell XLS1000 main fire alarm control panel
   2. Existing Honeywell XLS200 remote transponder panels.

E. Peripheral Devices
   1. Horns – Honeywell XLS-757 series
   2. Audible/Visual Devices – Honeywell XLS-757 series
      a. Honeywell XLS-202 Mini-signal line strobe

F. Addressable Peripheral Devices
   1. Smoke Detectors – Honeywell XLS-1S
   2. Duct Smoke Detectors – Honeywell XLS-1S-SIGA-DH
   3. Pull Stations – Honeywell XLS-278
   4. Water Flow Switches – Honeywell SIGA-MM1
   5. Valve Tamper Switches – Honeywell SIGA-MM1

G. Testing
   1. Testing of completed fire alarm system in accordance with NFPA-72.

2. Testing in the presence of the California State Fire Marshal.
3. Certification.

H. Warrantee
1. One (1) year from date of completed and certified testing.
2. Annual certification.

End of Preliminary Outline Specification

FEDERAL FUNDS DETAIL

THERE ARE NO FEDERAL FUNDS ASSOCIATED WITH THIS PROJECT.

ANALYSIS OF FUTURE COSTS

Personnel Costs

Certificated:

There are no plans to increase staff.

Classified:

There are no plans to increase staff.

Depreciation, Maintenance, and Operation

There will be no additional or increased costs associated with this project.

Program/Course/Service Approvals

NA

Name of New Program/Course/Service	Date of Approval
None	

CAMPUS PLOT PLAN AND DIAGRAMS OF BUILDING AREAS, ELEVATIONS, AND CROSS-SECTIONS

District: San Joaquin Delta **College**: San Joaquin Delta College

Project: Fire Alarm System Phase #2

Prepared by: AC Martin Partners **Date:** July 1, 2004

Email Address: john.mcguire@acmartin.com **Telephone #:** 916-686-2890

Provide the following conceptual drawings: Site Plan, Floor Plans, Exterior Evaluations. If the project has unusual characteristics that need further explanation, the following conceptual drawings need to be provided: Electrical Plans (as needed), Mechanical Plans (as needed), Building Cross Sections.

The Fire Alarm System Phase #2 project will impact every building on campus. The planning of locations of disruption and conduit for the entire campus will be extensive. At this time, planning to this level of detail has not been completed due to the up-front costs associated. If the project is approved the plans will be submitted to the Chancellors Office for approval.

GUIDELINE-BASED GROUP II EQUIPMENT COST ESTIMATE—JCAF 33

New Construction ☐ Reconstruction* ☒ Replacement Project* ☐

District: San Joaquin Delta CCD **Project**: Fire Alarm System Phase #2

College: San Joaquin Delta College Prepared By: CCS Group Date: July 1, 2004

Room Type (1)	# of Rooms. (2)	4 Digit TOP #, & Name (3)	Project Space ASF (4)	Existing Space ASF (5)	New Space/ Programs ASF (4)-(5) (6)	Cost Per ASF Per Guidelines (7)	Gross Allowable Cost (6) x (7) (8)	Equip Usable in New Space/Program (9)	Total Allowable Cost (8) - (9) (10)
		Not Applicable							
		Total							

Total Equipment Allowance (This sum should equal the "Total Amount Needed" Column on Form B-25) $ _____

Equipment Price Index = _____

* Equipment is available only for new program space or expanded space in existing programs.

JUSTIFICATION FOR ADDITIONAL COSTS EXCEEDING GUIDELINES

Construction (including Group I equipment), [X] Equipment (Group II and Furniture) [ ]

District: San Joaquin Delta CCD **College**: San Joaquin Delta College

Project: Fire Alarm System Phase #2

The project includes asbestos abatement in the places where asbestos will be disturbed in an effort to complete the project. The cost of the asbestos portion of the project is estimated at $176,600.00. This is a significant project cost. However, the San Joaquin Delta College completed most of its construction in 1974 and was constructed with materials that all contain asbestos (walls, flooring, ceilings, doors, etc.). To safely complete this project this hazard must be removed. The removal, demolition, testing and inspections, is included in the Quantities and Costs detail of the JCAF 32.

The campus fire alarm system is currently operating with fire alarm equipment that is no longer up to code (included in original 1974 construction) nor ADA compliant. Some of the fire alarm wiring is now corroded. With corroded wires, and equipment that is not up to code, a replacement of this equipment is required.

While the project is under construction the fire alarm system will have to be shut off at each building for 3 days. Additionally, the more complex system upgrades in the childcare center and portable building will require a shut down of the system for 5-6 days. Therefore, included in the cost to complete this project is fire watch. This required service will protect the College from possible fire damage and threat to safety of those on campus. The total estimated cost of fire watch service is $20,064.00.

DETAILED EQUIPMENT LIST

College: San Joaquin Delta College

Project: Fire Alarm System Phase #2

Item #	Units	Item Name[1]	Unit Cost	Total Cost	Less Existing Inventory[2]	Total Amount Needed
1	191	Manual Pullstation	99.81	$19063.71	None	$$19063.71
2	29	Smoke Detector	109.44	3173.76		3173.76
3	14	Duct Smoke Detector	300.04	4200.56		4200.56
4	12	Waterflow Interface	109.45	1313.4		1313.4
5	12	Valve Tamper Switch	97.90	1174.80		1174.80
6	157	Horn/Strobe	65.62	10302.34		10302.34
7	314	Strobe	49.49	15539.86		15539.86
8	25	Heat Detector	89.94	2248.50		2248.50
9	13	Loop Card	1329.82	17287.66		17287.66
10	10	Control Relay Module	72.24	722.40		722.40
11	12	Signal Module	89.75	1077.00		1077.00
12	12	Network Card	403.88	4846.56		4846.56
13	12	Remote Annunciator	1412.57	16950.84		16950.84
14	3	Transponder Panel	4500.00	13500.00		13500.00
15	10	Booster Panel	300.	3000.00		3000.00
16	50000 ft.	¾" EMT	.70	35000.00		35000.00
17	25000 ft.	¾" PVC	.69	1725.00		1725.00
18	2	Pull Box	240.00	480.00		480.00
19	120000 ft.	#14 AEG CU Wire	.06	7200.00		7200.00
20	15000 ft.	Communication Cable	.29	4350.00		4350.00
21	2	Connect Halon panels	825.00	1650.00		1650.00
22	2	Connect Kitchen Hoods	800.00	1600		1600
23	2	Connect Paint Booths	1300.00	2600.00		2600.00

[1]Cost requests for equipment are to be limited to those required for new programs and for net expansion space in existing programs.

[2]Reduce the request by the existing usable equipment transferred from other locations to the new program space or expanded space.