Final Project Proposal

Budget Year 2013-2014

Community College Construction Act of 1980
Capital Outlay Budget Change Proposal

New Emergency Services (OE-2) Building
Proposal Name

San Bernardino Community College District
Community College District

Crafton Hills College
College or Center

July 1, 2011
Date

A____ P__X__ W__X__ C__X__ E___X___

FINAL PROJECT PROPOSAL CHECK LIST

District: **San Bernardino Community College District**
College: **Crafton Hills College**
Project Name: **New Emergency Services (OE-2)**
Prepared by: **Maas Companies** **Data Prepared: 1-Jul-11**

	Description	*Completed*
1.1	Title Page	yes
2.1	Final Project Proposal Checklist	yes
3.1	Approval Page - FPP Proposal (original signatures)	yes
3.2	Project Terms and Conditions	yes
4.1	Analysis of Building Space--JCAF 31	yes
4.1A	Quantities & Unit Cost for JCAF-32	yes
5.1	Cost Estimate Summary - JCAF 32	yes
5.2	Energy Calculator	yes
6.1	California Energy Commission Audit	yes
7.1	State Administrative Manual Requirements	yes
8.1	CEQA Compliance	yes
9.1	Outline of Specifications	yes
10.1	Federal Funds Detail	yes
11.1	Analysis of Future Costs	yes
12.1	Campus Plot Plans	yes
13.1	Diagrams of Building Area	yes
13.2	Site Plans	yes
13.3	Floor Plans	yes
13.4	Exterior Elevations	yes
13.5	Electrical Plans (as needed)	NA
13.6	Mechanical Plans (as needed)	NA
13.7	Building Cross-Sections (as needed)	NA
14.1	Guideline-Based Group 2 Equipment	yes
15.1	Justification of Additional Costs Exceeding Guidelines	yes
16.1	Detailed Equipment List	yes

APPROVAL PAGE

Final Project Proposal

Budget Year 2013-2014

District: San Bernardino Community College District

Project Location: Crafton Hills College
(College, campus, or center)

Project Name: Emergency Services (OE-2)

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

District Certification

Contact Person: Charlie Ng
(Vice-President, Fiscal Services)

Telephone: (909) 382 – 4021

E-Mail Address: chng@sbccd.org

Fax: (909) 382 - 0144

Approved for submission: _____
(Chancellor)

Date: 6-16-11

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.

_____
(President of the Board of Trustees Signature and Date)

_____
(Secretary of the Board of Trustees Signature and Date)

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
1107 Ninth Street, Suite 500
Sacramento, CA 95814-3607

Chancellor's Office Certification

Reviewed by: _____

Date Completed: _____

PROJECT TERMS AND CONDITIONS

District: **San Bernardino Community College District** **College**: **Crafton Hills College**
Project: **Emergency Services (OE-2)** **Budget Year: 2013-2014**

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 certifies to the Board of Governors of the California Community Colleges that:
   a. Pursuant to the provisions of Section 57001.5 of Title 5 of the *California Code of Regulations* 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 Section 57001.5.
   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, Division of the State Architect.
   e. Pursuant to the provisions of Section 57001 of Title 5 of the *California Code of Regulations*, 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.
   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 State law, no State-funded construction contract shall be awarded prior to approval of the project by the State Public Works Board and release of funds by the State Department of Finance.
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 and approved by the State Public Works Board.

Project Terms and Conditions (Continued)

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 agreement 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 change in the scope of the project or assignable areas shall only be granted with the approval of legislature or its designated agent.

ANALYSIS OF BUILDING SPACE USE AND WSCH - JCAF 31

District: **San Bernardino Community College District** **Project:** **Emergency Services (OE-2)**
College: **Crafton Hills College** **Prepared by:** **Maas Companies** **Date:** **1-Jul-11**

Room Type	*TOPS Code*	*DescriptionDepartment*	*Project Space ASF*	*Existing Space ASF*	*Increase in Space ASF*		*ASF Change Prior Submittal*	*WSCH Capacity*	*Cost/ASF*	*Total Allowable Cost*
50	99	Inactive-General Assignment		891	-891			0	0	0
110	1201	Classroom-General Assignment	6,290	3,863	2,427			5,657	$446	2,805,340
210	1200	Laboratory-Health Occupations	1,350		1,350			631	$530	715,500
210	2100	Laboratory-Public & Protective Services	4,050		4,050			1,892	$446	1,806,300
215	2100	Lab. Serv.-Public & Protective Services	830	465	365			0	$446	370,180
215	4900	Lab. Serv. Interdisciplinary Studies	400		400			0	$464	185,600
220	2100	Special Class Lab.-Public/Protect. Serv.	1,200	1,208	-8			561	$446	535,200
230	4900	Ind. Studies Lab.-Interdis. Studies	1,488		1,488			579	$464	690,432
310	99	Office-General Assignment (Faculty)	1,080	1,332	-252			0	$471	508,680
310	6000	Office-Instructional Administration	160		160			0	$452	72,320
315	99	Office-Service	210		210			0	$471	98,910
680	99	Meeting Room	990		990			0	$444	439,560
740	2100	Vehicle Storage-Public/Protective Serv.	4,120	4,536	-416			0	$127	523,240
		Total ASF	22,168	12,295	9,873					
		Total GSF	33,100	15,730	17,370		NA	9,320	$394.77	$8,751,262

CCI: 5394
EPI: 3016

QUANTITIES AND UNIT COSTS SUPPORTING THE JCAF 32

The District utilized two approaches for developing the cost estimate for the proposed OE-2 Replacement project. One approach utilized the CCI Index 5394 as provided by the Chancellor's Office to determine construction costs and the second appraoch was the preparation of an independent cost estimate for the project from a private cost estimating firm. The first approach utilized the CCI Index 5394 as provided by the Chancellor's Office to determine the construction cost. The second approach was to obtain an independent cost estimate from a local cost-estimating firm.The two estimates, are within 10% (approx) of each other.

As justification and additional background data, the detailed analysis prepared by Cumming has been included in the FPP in support of this cost estimate. The District will fund any project costs that exceed the total proposed budget of $13,233,887.

CUMMING

Crafton Hills College - OE2 Replacement
San Bernardino Community College District
Yucaipa, California

Rough Order of Magnitude Statement of Probable Cost
May 5, 2011
Cumming Project No. 11-00227.00

Prepared for Steinberg

660 SOUTH FIGUEROA STREET • SUITE 900 • LOS ANGELES, CALIFORNIA • 90017
PHONE: (213) 408 4518 • FAX: (213) 408 4665
www.ccorpusa.com/

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INTRODUCTION

1. Basis Of Estimate

This statement is based on the Rough Order of Magnitude package as prepared by Steinberg (dated 3/16/11), received on 4/19/11, along with verbal direction from the architect and engineer.

Drawings:	Existing site plan Proposed site plan Utility plan Proposed site plan marked up for landscape and hardscape Building plan
Specifications / Project Manual:	Space Needs Matrix
Consultant Reports:	MEP Basis of Design (Rough draft dated April 28th, 2011)
Costs provided by others:	N/A
Project Delivery Schedule:	As indicated in the IPP

2. Consultant Team

Company Name	Contact	Email Address	Telephone
Steinberg	John Wirfs	jwirfs@steinberg.us.com	213 542 1320

3. Scope of Estimate

The project comprises the construction of a new Emergency Services (OE 2) building that comprises teaching labs, classrooms, offices and vehicle storage totaling 33,087 square feet.

4. Items Affecting the Estimate

A Specific Inclusions

Items which are detailed in the backup to this estimate include the following:

1 Main building and site

INTRODUCTION

B Specific Exclusions

Items which are not detailed in the backup to this estimate include the following:

1 Professional design and consulting fees.
2 General building permit.
3 Testing fees.
4 Owner's field inspection costs.
5 Construction / project manager's fees.
6 Plan check fees and building permit fees.
7 Furnishings, fixtures and equipment (FF&E) / Group II.
8 Owner-furnished items.
9 Telephone equipment and cabling.
10 Building signage beyond code-required signage.
11 Artwork and interior plants.
12 Construction contingency.
13 Move-in costs or maintenance costs after move-in.
14 Financing and carry costs.
15 Hazardous material abatement (if required).
16 4 story tower
17 Escalation
18 Photovoltaic panels

C Items Affecting the Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:

1 Modifications to the scope of work included in this estimate.
2 Restrictive technical specifications or excessive contract conditions.
3 Any specified item of equipment, material, or product that cannot be obtained from at least three (3) different sources.
4 Any other non-competitive bid situations.
5 Bids delayed beyond the projected schedule.
6 Unit prices for commodities such as aggregate base, fill soils, and soils export can vary greatly from those presented herein, depending upon the demand for such materials (or lack thereof) within the dirt market at the time of actual construction.
7 Note: Given the current instabilities in the world market, the cost of many products (including, but not limited to, asphalt, Portland Cement concrete, lumber, sewer, water, and drain pipe, and steel) may differ significantly at the time material orders are actually placed from what is shown herein (beyond that accounted for by reasonable escalation rates).

INTRODUCTION

D **Assumptions made in the Cost Estimate**

This estimate was prepared under the following assumptions:

1 The site will be fully accessible during normal working hours.
2 No phasing will be required.
3 Construction contract procurement method is competitive, public G.C. bid.
4 Prevailing wage labor rate structure.
5 This project will be subject to DSA review and inspection.
6 This project is aiming to achieve LEED Certification.
7 The owner/owners representative will add escalation as they deem appropriate

5. Notes

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions.

This opinion of the probable cost of construction is made on the basis of the experience, qualifications, and best judgment of a professional consultant familiar with the construction industry. However, Cumming cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

The statement reflects probable construction costs obtainable in a competitive and stable bidding market. This estimate is based upon a minimum of four (4) competitive bids from qualified general contractors, with bids from a minimum of three (3) subcontractors per trade. This statement is a determination of fair market value for the construction of the project and is not intended to be a prediction of low bid. Experience indicates that a fewer number of bidders may result in a higher bid amount, and more bidders may result in a lower bid result.

In accordance with industry analyses, it has been determined that the number of competitive bids obtained may have the following effect:

1 bid	add	15% to 40%
2 to 3 bids	add	8% to 12%
4 to 5 bids		-4% to +4%
6 to 8 bids	deduct	5% to 7%
9 or more bids	deduct	8% to 25%

Caveat emptor! The bid price is not necessarily the final cost. Please be advised that opening up the bid process to all comers invites bid-day errors and "lowball" bids from potentially less-than-qualified bidders who will seek to make their profit on the job via an unending stream of change order requests.

The Cumming staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

INTRODUCTION

Recommendations for Cost Control

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure that it reflects their design intent.

Requests for modifications of any apparent errors or omissions to this document must be made within ten (10) working days of the date of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted. If the project is over budget, or there are unresolved budgeting issues, alternate systems / schemes should be evaluated before proceeding.

Basis for Quantities

Wherever possible and practical, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with references from other projects of a similar nature.

The gross floor area (GFA) quantities utilized herein were provided by the architect.

Basis for Unit Costs

The unit costs enumerated herein are based on current bid prices in the Yucaipa, California area.

Subcontractor's overhead and profit is included in each line item unit cost. This overhead and profit covers each subcontractor's cost for labor burden, materials and equipment sales taxes, field overhead, home office overhead, and profit. The general contractor's overhead and profit is shown separately on the Summary.

Sources for Pricing

This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design.

These consultants have used pricing data from the Cumming database for construction, updated to reflect current market conditions in the Yucaipa, California area at the time the estimate was prepared. In some cases, quotes were solicited from outside sources to substantiate in-house pricing data.

Subcontractor's Mark-ups

As stated earlier, subcontractor's mark-ups have been included in each line item unit cost. Depending on the trade, these mark-ups can range from 15% to 20% of the raw cost for that particular item of work.

INTRODUCTION

6. Prorates

General Conditions

A reasonable allowance based on 6% of the construction cost subtotal has been included for the contractor's general conditions.

Contractor's Bonds

A reasonable allowance based on 1% of the construction cost subtotal has been included for the contractor's payment and performance bonds (if required).

Contractor's General Liability Insurance

A reasonable allowance based on 1% of the construction cost subtotal has been included for the contractor's general liability insurance.

Contractor's Fee

A reasonable allowance based on 4% of the construction cost subtotal has been included for the general contractor's home office over head and profit. Site overhead is included in the general conditions.

Design / Estimating Allowance

None

Escalation

Escalation is excluded from this report.

Construction Start:	10/01/14
Construction Completion:	11/01/15
Construction Midpoint:	04/17/15
Construction Duration:	13 Months

Phasing Allowance

No phasing is required for this project.

Construction Management Fee

Not applicable.

Construction Contingency

This is a part of the Soft Costs which have been excluded from this estimate but it is prudent for all program budgets to include an allowance for change orders which occur during construction. These change orders normally increase the cost of the project. It is recommended that the owner, in their program budget, carry a percentage of anywhere from 5% - 10% of the construction cost for this construction contingency.

Crafton Hills College - OE2 Replacement
San Bernardino Community College District
Yucaipa, California
Rough Order of Magnitude Statement of Probable Cost **May 5, 2011**

COST ESTIMATE SUMMARY - JCAF 32

Section	
4. Construction (Budget CCI: 5394)	
A. Utility Service	**$180,899**
B. Site Development, Service	**$349,900**
C. Site Development, General	**$537,032**
D. Other Site Development	**N/A**
E. Reconstruction	**N/A**
F. New Construction	**$9,882,857**
G. Other (Energy Initiatives)	**N/A**
	$10,950,688

Crafton Hills College - OE2 Replacement
San Bernardino Community College District
Yucaipa, California
Rough Order of Magnitude Statement of Probable Cost **May 5, 2011**

OVERALL COMPONENT SUMMARY

Element	Subtotal	Total	Cost / SF	Cost / SF
A) Shell (1-5)		**$4,252,509**		**$125.86**
1 Foundations	$334,683		$9.91	
2 Vertical Structure	$453,896		$13.43	
3 Floor & Roof Structures	$1,336,917		$39.57	
4 Exterior Cladding	$1,638,288		$48.49	
5 Roofing and Waterproofing	$488,725		$14.46	
B) Interiors (6-7)		**$1,198,660**		**$35.48**
6 Interior Partitions, Doors and Glazing	$682,308		$20.19	
7 Floor, Wall and Ceiling Finishes	$516,353		$15.28	
C) Equipment and Vertical Transportation (8-9)		**$401,886**		**$11.89**
8 Function Equipment and Specialties	$401,886		$11.89	
9 Stairs and Vertical Transportation	$0		$0.00	
D) Mechanical and Electrical (10-13)		**$4,029,803**		**$119.27**
10 Plumbing Systems	$460,647		$13.63	
11 Heating, Ventilation and Air Conditioning	$1,431,228		$42.36	
12 Electrical Lighting, Power and Communications	$1,914,660		$56.67	
13 Fire Protection Systems	$223,268		$6.61	
E) Site Work (14-17)		**$1,067,831**		**$31.60**
14 Utilities Service	$180,899		$5.35	
15 Site Development	$349,900		$10.36	
16 Site Development General	$537,032		$15.89	
17 Other Site Development	$0		$0.00	
TOTAL ESTIMATED CONSTRUCTION COST		**$10,950,688**		**$324.11**

Total Area: **33,787 SF**

Schedule of Areas & Control Quantities

Schedule of Areas	SF	SF
Enclosed Areas		
First Floor	33,087	
Subtotal, Enclosed Areas		**33,087**
Covered Areas		
First Floor (Entrance canopies (x2)	1,400	
Subtotal, Covered Areas	**1,400**	
Covered Areas @ 50%		**700**
Total Gross Floor Area		**33,787**

Control Quantities		Qty		Ratio to Gross Area
Number of Levels		1	EA	0.03
Gross Area		33,787	GSF	1.000
Assignable Floor Area				
Classrooms		3,440	SF	0.102
Lecture		2,850	SF	0.084
Class laboratory		5,400	SF	0.160
Class Laboratory Services		1,230	SF	0.036
Spec Class Laboratory		1,200	SF	0.036
Individual Study Laboratory		1,488	SF	0.044
Office & Meeting Rooms		2,440	SF	0.072
Vehicular storage		4,120	SF	0.122
Total Assignable Floor Area		22,168	SF	0.656
Enclosed Area		33,087	SF	0.979
Covered Area		1,400	SF	0.041
Footprint Area		33,087	SF	0.979
Footprint Perimeter		950	LF	
Volume (gross)		586,805	CF	17.368
Gross Wall Area (skin)		19,996	SF	0.592
Retaining Wall Area (building)		-	SF	0.000
Finished Wall Area (skin)		19,996	SF	0.592
Windows or Glazing Area (skin)	25.00%	4,999	SF	0.148
Roof Area (flat)		33,087	SF	0.979
Roof Area (curved)		-	SF	0.000
Total Roof Area		33,087	SF	0.979
Interior Partitions		1,757	LF	0.052
Interior Doors	47 LF/ door	37	EA	0.001
Plumbing Fixtures		40	EA	0.001

A. Utility Service Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
A Utility Service				
Fire Water				
Water line, 8" pvc C900 cl 200, incl t & bf	190	LF	$103.46	$19,657
Fire hydrants	2	EA	$5,172.97	$10,346
Post indicator valves	2	EA	$3,621.08	$7,242
Gate valve, 6"	1	EA	$840.61	$841
Fire department connection	2	EA	$2,198.51	$4,397
Domestic Water				
PVC, 4" pipe, incl t & bf	160	LF	$60.78	$9,725
Water meter, 4"	1	EA	$16,294.85	$16,295
Sanitary Sewer				
6" Sanitary sewer line, incl t & bf	160	LF	$80.18	$12,829
Manholes	1	EA	$5,172.97	$5,173
Sewer cleanouts	1	EA	$1,034.59	$1,035
Storm Drainage				
12" PVC pipe, incl t & bf	500	LF	$93.11	$46,557
Grate Inlet, 12" x 12"	2	EA	$711.28	$1,423
Storm drain cleanout	2	EA	$750.08	$1,500
Junction structure	1	EA	$1,163.92	$1,164
Gas Piping				
Medium pressure gas system, 4", plastic, incl t & bf	90	LF	$60.78	$5,470
Gas meter	1	EA	$5,431.62	$5,432
Hot/chilled water				
Piping, inc trench & backfill:	90	LF	$116.39	$10,475
Electrical				
Extend electrical mains and connect to building	150	LF	$142.26	$21,338
				$180,899

B. Site Development, Service Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
B Site Development Services				
Demolition of building and structures				
Demolish existing single story buildings (x2)	15,000	SF	$10.35	$155,189
Site protective construction				
Erosion control	1	LS	$10,345.94	$10,346
Site clearing and grading				
Strip and remove existing paving, site walls, landscape, etc.	72,000	SF	$1.16	$83,802
Rough grading, cut and fill, based on balanced site	72,000	SF	$1.03	$74,491
Fine grading	72,000	SF	$0.36	$26,072
				$349,900

C. Site Development, General Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
C Site Development General				
Vehicular paving				
Heavy traffic, 3" AC over 12" AB	12,000	SF	$7.76	$93,113
Pedestrian paving				
Concrete paving, 4" thick, including sub base, reinforcement, and integral color finish	18,000	SF	$12.93	$232,784
Concrete curbs				
Concrete curbs	500	LF	$19.40	$9,699
Parking Lot Striping/Signage	1	LS	$6,466.21	$6,466
Landscape				
Grass, shrubs, trees, etc.	8,913	SF	$7.76	$69,160
Miscellaneous				
Site walls, planters, etc.	38,913	SF	$3.23	$125,810
				$537,032

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
1 Foundations				
Excavation				
Over excavation and recompaction of building footprint and 5' around perimeter of building, depth of excavation is 5'	7,009	CY	$10.35	$72,515
Reinforced concrete including excavation				
Reinforced concrete grade beams, column and wall footings; top of footing assumed to be 18" below grade with depth of footing not exceeding 3'	33,787	SF	$7.76	$262,169
				$334,683
2 Vertical Structure				
Columns and pilasters	-			
HSS steel tube columns, assume an allowance of 6lbs/gsf for vertical steel members, standard steel sizes and detail connections incorporating brace frame system with wide flange columns and HSS tube braces	101	T	$4,138.37	$417,976
Fireproofing steelwork				
Sprayed fireproofing	101	T	$355.64	$35,920
				$453,896
3 Floor & Roof Structures				
Floor at lowest level				
Reinforced concrete slab on grade, 5" thick				
Formwork	2,000	SF	$7.76	$15,519
Vapor barrier	33,087	SF	$0.19	$6,418
Sand cushion	33,087	SF	$0.39	$12,837
Gravel sub base - 6"	33,087	SF	$1.55	$51,347
Reinforcement, assume 1.65lbs/sf	33,314	LB	$0.97	$32,312
Concrete, 4000psi	648	CY	$245.72	$159,224
Finish and cure concrete surface	33,087	SF	$1.62	$53,487
Premium for additional thickness at vehicle storage	4,125	SF	$6.47	$26,673

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Flat roofs				
Structural steel wide flange girders and joists, assume 7lbs/sf	116	T	$4,138.37	$480,051
Verco W3 3" metal deck, 20 gauge	33,087	SF	$5.17	$171,158
Reinforced light weight concrete including mesh reinforcement with steel bar reinforcement as required	33,087	SF	$6.47	$213,947
Finish and cure concrete surface	33,087	SF	$1.62	$53,487
Miscellaneous				
Mechanical equipment pads located on roof	864	SF	$19.40	$16,760
Miscellaneous metals, support framing and wood blocking	33,787	SF	$1.29	$43,695
				$1,336,917

4 Exterior Cladding

Block work				
Reinforced CMU with burnished finish	19,996	SF	$28.45	$568,913
Windows, glazing and louvers				
Glazed aluminum framed windows with 1" insulated low "e" glazing	4,999	SF	$109.93	$549,518
Exterior door frames and hardware				
Single	3	EA	$3,879.73	$11,639
Double	3	EA	$7,759.45	$23,278
Motorized, glazed roll up	4	EA	$32,331.05	$129,324
Fascias, bands, screens and trim				
Shading devices and trim	19,996	SF	$6.47	$129,298
Signage	1	LS	$7,759.45	$7,759
Canopy				
Entrance canopies	1,400	SF	$84.06	$117,685
Balustrades, parapets and roof screens				
Pre-finished metal mechanical screen including galvanized structural steel supports	1,200	SF	$84.06	$100,873
				$1,638,288

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
5 Roofing and Waterproofing				
Insulation				
Rigid board insulation, R-30, polyisocyanurate	33,087	SF	$4.53	$149,763
Roofing				
PVC membrane system	33,087	SF	$7.76	$256,737
Roof deck or traffic surfaces				
Walkway pads at roof mechanical bay area	600	SF	$7.76	$4,656
Roofing upstands and sheet metal				
Parapet coping and wall flashings and miscellaneous flashings	33,087	SF	$1.29	$42,789
Skylights	100	SF	$84.06	$8,406
Roof access and ventilation				
Roof access hatch and stair/ladder	1	EA	$4,526.35	$4,526
Caulking and sealing				
Miscellaneous caulking and sealing	33,787	SF	$0.65	$21,847
				$488,725
6 Interior Partitions, Doors and Glazing				
Partition framing and core				
CMU partition walls	2,800	SF	$20.69	$57,937
Metal stud framing forming shaft walls, chase walls, 1 hour fire walls and non rated walls	25,350	SF	$10.35	$262,269
Partition surfacing				
Gypsum board, taped and sanded, 5/8"	49,350	SF	$2.72	$134,025
Paint gypsum board surfaces and cmu	54,950	SF	$0.91	$49,745
Sound insulation				
Batt insulation, R-14	25,350	SF	$1.03	$26,227
Sound caulking/acoustic sealants	33,787	SF	$0.52	$17,478
Window walls and borrowed lights				
Pass thru window	1	EA	$4,526.35	$4,526
Interior glazing	520	SF	$58.20	$30,262

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Interior doors, frames and hardware				
Solid core doors in hollow metal frames, including hardware and paint finish				
Single	35	EA	$2,586.48	$90,527
Double	2	EA	$4,655.67	$9,311
				$682,308
7 Floor, Wall and Ceiling Finishes				
Floors				
Sheet vinyl	17,987	SF	$7.76	$139,569
Ceramic tile	1,500	SF	$17.46	$26,188
Sealed concrete	6,100	SF	$1.94	$11,833
Sealed and polished concrete	4,500	SF	$6.47	$29,098
Carpet	3,000	SF	$5.17	$15,519
Bases				
Rubber, tile, etc.	33,087	SF	$0.65	$21,395
Walls				
Ceramic tile at restrooms, 48" height	1,000	SF	$18.11	$18,105
Ceilings				
Suspended gypsum board, including framing and paint finish	12,100	SF	$12.93	$156,482
Acoustical ceiling tile, 2'x2'	21,687	SF	$4.53	$98,163
				$516,353
8 Function Equipment and Specialties				
Prefabricated compartments and accessories				
Toilet cubicles				
Standard, solid phenolic	12	EA	$1,422.57	$17,071
ADA, solid phenolic	4	EA	$1,681.21	$6,725
Urinal screens	6	EA	$581.96	$3,492
Restroom accessories	1	LS	$12,932.42	$12,932
Shelving and millwork				
Fixed storage shelving	1	LS	$15,518.90	$15,519
Display cabinets, bulletin boards, etc.	1	LS	$19,398.63	$19,399
Janitors shelf and mop rack	1	EA	$840.61	$841

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Cabinets and countertops				
Fixed reception desk	16	LF	$840.61	$13,450
Vanity units, plastic laminate countertop	12	LF	$206.92	$2,483
Laboratory casework (teaching labs)	6,705	SF	$19.40	$130,068
Markerboards, signage, etc.				
Marker boards, seminars / classrooms, porcelain enamel, 3 ply backing including chalk rail, 16'-0" x 4'-0"	2	EA	$3,362.43	$6,725
Markerboards, 4' x 3'	9	EA	$387.97	$3,492
Markerboards, 10' x 4'	8	EA	$775.95	$6,208
Room identification and code signage	33,787	SF	$0.78	$26,217
Light control and vision equipment				
Motorized projection screens, allowance, 6'-0" x 8'-0", electrically operated	11	EA	$5,560.94	$61,170
Projector mounting bracket	11	EA	$969.93	$10,669
TV brackets	11	EA	$517.30	$5,690
Mechoshade, manual	4,999	SF	$11.64	$58,184
Amenities and convenience items				
Fire extinguisher and cabinet	3	EA	$517.30	$1,552
				$401,886

9 Stairs and Vertical Transportation

10 Plumbing Systems

Sanitary fixtures	33	FX		
Waterclosets	15	EA	$1,681.21	$25,218
Urinals	5	EA	$1,163.92	$5,820
Lavatories	10	EA	$1,551.89	$15,519
Service sinks	1	EA	$1,939.86	$1,940
Classroom sinks	2	EA	$1,551.89	$3,104
Sanitary waste, vent and domestic service				
Including floor drains, hosebibbs, cleanouts, water hammer arrestors, sanitary waste/vent, domestic hot/cold water, valves and specialties, insulation, backflow preventors	33	EA	$6,466.21	$213,385

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Water treatment and storage				
Gas fired storage type domestic hot water heater, expansion tanks, circulation pumps	1	LS	$19,398.63	$19,399
Laboratory equipment				
Standalone vacuum pumps, bottle racks, turret outlets, medical piping, compressed air system, valves and specialties	1	LS	$51,729.68	$51,730
Gas distribution				
Including gas piping, valves and specialties, seismic shutoff valve	33,787	SF	$0.86	$29,057
Surface water drainage				
Including roof/overflow drains and drainage piping	33,787	SF	$1.55	$52,434
Miscellaneous				
Fire stopping/core drilling	1	LS	$4,176.04	$4,176
LEED commissioning assistance	1	LS	$12,528.13	$12,528
Miscellaneous Plumbing	1	LS	$1,282.29	$1,282
Project requirements	1	LS	$25,056.26	$25,056
				$460,647
11 Heating, Ventilation and Air Conditioning				
Heat and cooling generation				
Connection to existing chilled water system	1	EA	$6,466.21	$6,466
Connection to existing heated hot water system	1	LS	$646.62	$647
Thermal storage and circulation				
Air separator				Not Required
Expansion tank				Not Required
Heated hot water pumps				Not Required
Condensate pump				Not Required
Variable frequency drives				Not Required
Vibration isolation				Not Required
Piping, valves and insulation				
Including heating hot water, chilled water, refrigerant piping, insulation, valves and specialties	33,787	SF	$4.53	$152,932
Air handling equipment				
Air handling units, including hc, cc, filters, sf, rf, vfd				
AHU-1,2) 9,500 cfm	2	EA	$61,428.99	$122,858

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
AHU-3) 5,000 cfm	1	EA	$32,331.05	$32,331
Terminal boxes, w/reheat coils	2	EA	$3,879.73	$7,759
AHU-4) Split DX fan coil system, 2 1/2 tons	1	EA	$16,165.52	$16,166
Sound attenuation				Not Required
Air distribution and return				
Galvanized sheetmetal ductwork, supply and return	32,000	LBS	$13.64	$436,598
Flexible ductwork	1,500	LF	$16.81	$25,218
Volume dampers	300	EA	$64.66	$19,399
Combination fire/smoke dampers	1	LS	$45,263.47	$45,263
Duct insulation	24,615	SF	$3.23	$79,584
Acoustical lining				Not Required
Diffusers, registers and grilles				
Including thermafusers, exhaust grilles, sound boots	33,787	SF	$2.59	$87,390
Controls and instrumentation				
Including direct digital controls, CO2 monitoring, LEED monitoring points, BACNET	33,787	SF	$6.47	$218,474
Testing and balancing	33,787	SF	$1.55	$52,434
Unit ventilation				
Including galvanized sheetmetal ductwork	500	LB	$13.64	$6,822
General rooftop exhaust fans, 5,300 cfm	1	EA	$6,466.21	$6,466
Vehicle exhaust	1	LS	$77,594.52	$77,595
Miscellaneous				
Fire stopping/core drilling	1	LS	$13,944.01	$13,944
LEED commissioning assistance	1	LS	$7,511.08	$7,511
Miscellaneous HVAC	1	LS	$3,755.54	$3,756
Project requirements	1	LS	$11,615.90	$11,616
				$1,431,228

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
12 Electrical Lighting, Power and Communications				
Main normal power				
Connection to existing manhole EMH-30 in parking lot G	1	EA	$6,466.21	$6,466
15.5kV, 4way, SF6 gas selector switch	1	EA	$19,398.63	$19,399
4.16KV-480/27&V transformer substation, 300kVA				Existing
Main distribution switchboard, 480/277V, 600A	1	EA	$21,726.47	$21,726
Digital metering	1	LS	$7,759.45	$7,759
Transformer, 480V-120/208V, 150KVA	1	EA	$14,548.97	$14,549
Distribution panel, 120/208V, 225A	1	EA	$8,147.42	$8,147
Panelboards, 480/277V, 100A	1	EA	$4,526.35	$4,526
Panelboards,120/208V, 100A dedicated to lab	5	EA	$4,526.35	$22,632
Panelboards,120/208V, 100A	2	EA	$4,526.35	$9,053
Feeder conduit and cable	450	LF	$129.32	$58,196
Emergency power - central lighting inverter	1	LS	$15,518.90	$15,519
Machine and equipment power Including HVAC equipment connections, elevator connections, automatic doors, VAV terminals, kitchen equipment, miscellaneous, feeder conduit and wire	33,787	SF	$2.59	$87,390
User convenience power Including receptacles, j-boxes, floor boxes, GFI, switches, feeder conduit and wire	33,787	SF	$7.76	$262,169
Lighting Including fixtures, emergency and exit lighting, exterior wall mounted lighting, switches, occupancy sensors, photocells, feeder conduit and wire	33,787	SF	$15.52	$524,337
Power specialties Including grounding, lighting control panels, etc	33,787	SF	$0.84	$28,402
Telecommunications Including telephone/data outlets - conduit and cable, terminal backboards IDF/MDF, conduit backbone, wireless access terminals, cable tray	33,787	SF	$10.35	$349,558
GPS clock system	33,787	SF	$0.45	$15,293
Audio/visual - conduit only	33,787	SF	$0.65	$21,847

F. New Construction Construction Component Detail

Element	Quantity	Unit	Unit Cost	Total
Fire alarm system				
Including main fire alarm panel, annunciator, smoke detectors, heat detectors, horns, strobes, horn/strobes, manual pull stations, tamper switches, power supply, feeder conduit and wire	33,787	SF	$4.53	$152,932
Security				
including access control, intrusion detection, CCTV monitoring, command center, conduit and wire	33,787	SF	$3.23	$109,237
Miscellaneous				
Fire stopping/core drilling	1	LS	$17,391.37	$17,391
LEED commissioning assistance	1	LS	$52,174.11	$52,174
Miscellaneous Electrical	1	LS	$1,609.80	$1,610
Project requirements	1	LS	$104,348.22	$104,348
				$1,914,660
13 Fire Protection Systems				
Automatic wet sprinkler system	33,787	SF	$5.82	$223,268
				$223,268

COST ESTIMATE SUMMARY AND ANTICIPATED TIME SCHEDULE - JCAF 32

California Community Colleges
Final Project Proposal

District: San Bernardino Community College District **College:** Crafton Hills College **CFIS Ref. No.:**
Project Name: New Emergency Services (OE-2) **Date Prepared:** 7/1/2011 **CCCI:** 5394 **Budget Ref. No.:**
Request for: A ☐ P ☑ W ☑ C ☑ E ☑ **EPI:** 3016 **Prepared by:** Maas Companies

	Locally Funded		State Funded	Total
	Non-State Supportable	State-Supportable		(Locally Funded State-Supportable + State Funded only)
1. Site Acquisition Acres:				
A. Purchase Price of Property				
B. Appraisals				
C. Costs Incurred in Escrow				
D. Surveys				
E. Other Costs		$ -	$ -	**$ -**
2. Plans and Working Drawings				
(Total may not exceed 13% of construction costs)				
A. Architectural Fee for Preliminary Plans		$ 145,029	$ 145,028	$290,057
B. Architectural Fee for Working Drawings		$ 186,465	$ 186,466	$372,931
C. Project Management		$ 51,796	$ 51,796	$103,592
D. Div of the State Architect Plan Check fee		$ 30,234	$ 30,234	$60,468
E. Community College Plan Check fee		$ 14,814	$ 14,813	$29,627
F. Preliminary Tests *(soil tests)*		$ 15,974	$ 15,975	$31,949
G. Other Costs		$ 21,299	$ 21,299	$42,598
		465,611	**465,611**	**$931,222** **$ 931,222**
3. Construction				
A. Utility Service		$ 90,500	$ 90,500	$181,000
B. Site Development, Service		$ 175,000	$ 175,000	$350,000
C. Site Development, General		$ 269,000	$ 268,000	537,000
D. Other Site Development (Re-Landscaping)		$ -	$ -	$0
E. Reconstruction		$ -	$ -	$0
F. New Construction *(Bldg.) (w/Group I equip)*		$ 4,375,631	$ 4,375,631	$8,751,262
G. Other (Energy Program)		**$ 4,909,631**	**$ 4,909,631**	$539,933 **$ 9,819,262**
H. Temporary Facilities ("Swing Space")	$1,672,000			
4. Tests		$ 51,796	$ 51,796	103,592
4a. Inspections		$ 76,853	$ 76,853	$153,706
5. Contingency		$ 258,980	$ 258,980	517,960
6. Construction Management *(if justified)*		$ 103,592	$ 103,592	$207,184
7. Architectural and Engineering Oversight		$ 82,873	$ 82,874	$165,747
8. Total Construction Costs *(items 3 through 7)*		$ 5,753,692	$ 5,753,692	$11,507,384
9. Furniture and Group II Equipment		$ 397,641	$ 397,640	$795,281
10. Total Project Cost *(items 1, 2, 8, and 9)*	$ 1,672,000	**$ 6,616,944**	**$ 6,616,944**	**$ 13,233,887**

11. Project Data	**Outside Gross Square Feet**	**Assignable Square Feet**	**Ratio ASF/GSF**	**Cost Per ASF**	**Cost Per GSF**		**District Funded**	**State Funded**
Construction	33,100	22,168	67%	$ 395	$ 264	Acquisition	NA	NA
Reconstruction						Preliminary Plans	$ 223,449	$ 223,448
12. Anticipated Time Schedule						Working Drawings	$ 242,162	$ 242,162
Start Preliminary Plans		9/1/2013	Advertise Bid for Construction		9/1/2014	Construction	$ 5,753,692	$ 5,753,692
Start Working Drawings		12/1/2013	Award Construction Contract		10/1/2014	Equipment	$ 397,640	$ 397,641
Complete Working Drawings		3/1/2014	Advertise Bid for Equipment		4/1/2015	Total Costs	$ 6,616,943	$ 6,616,944
State Architect (DSA) Final Approval		8/1/2014	Complete Project		11/1/2015	% of Project Costs	50%	50%

Energy Use Calculator

District: **San Bernardino Community College**
College: **Crafton Hills College**

Fiscal Year	Ann. Electrical KWH Usage	Electricity to BTU Conversion	Annual Natural Gas Therm. Usage	Total Annual BTU's Consummed	Gross Square Feet from Space Inv.	Weeks of Academic. Ops.	Total Weeks of Operation	Percent Reduction of Baseline Year Average BTU's Per GSF Per Week	
2001-2002	3,704,018	12,641,813,434	99,402	22,582,013,434	*$208,172*	*$ 44*	51	*2284*	*Baseline Year*
2002-2003	3,495,729	*11,930,923,077*	*99,813*	*21,912,223,077*	*208,172*	*$ 44*	51	*2216*	*-2.97%*
2003-2004	3,363,566	11,479,850,758	84,941	19,973,950,758	*219,212*	*$ 44*	51	*1918*	*-16.00%*
2004-2005	2,696,955	9,204,707,415	67,826	15,987,307,415	*$224,787*	*$ 44*	51	*1497*	*-34.44%*
2005-2006	3,098,490	10,575,146,370	73,353	17,910,446,370	*$224,787*	*$ 44*	51	*1677*	*-26.55%*
2006-2007	3,362,580	11,476,485,540	75,406	19,017,085,540	*$224,787*	*$ 44*	51	*1781*	*-22.01%*
2007-2008	3,302,037	11,269,852,281	84,446	19,714,452,281	*$224,787*	*$ 44*	51	*1846*	*-19.15%*
2008-2009	3,222,798	10,999,409,574	66,406	17,640,009,574	*$224,787*	*$ 44*	51	*1652*	*-27.66%*
2009-2010	3,496,058	11,932,045,954	87,148	20,646,845,954	*$224,787*	*$ 44*	51	*1934*	*-15.33%*

Instructions Used for Completion of Calculations:

1. Enter your electric and gas usage for 2001-02 and subsequent years. The spreadsheet will calculate your annual Btu use.
2. Enter your campus gross square footage from Space Inventory. Remove square footage that does not use electricity or gas.
3. Enter your normal weeks of Academic Operation.
4. Enter your total weeks of operation (add the Non-Academic Weeks of Operation to the Academic Weeks of Operation = 52 or less).
5. You are done. Save, print and send in with your 5YP & FPP. Since this is being submitted with your 5YP, your energy use data will be from the previous FY. Other data should correspond as closely to this previous FY as possible.

This chart was created to allow campuses to add academic weeks without being penalized for the additional energy those weeks would add to the normal calculation of the Energy Utilization Index (EUI); which is the Btu/sq. ft./year. In the normal calculation, the energy use would increase, but the square footage would remain constant, thus resulting in a higher EUI. By factoring in the weeks of operation, the increase to the EUI is diluted.

There is the presumption that a Non-Academic Week uses about 50% of the energy of an Academic Week, therefore only half of the difference between the number of Academic Weeks and the Total Weeks is added to the Academic Weeks to determine the 'total weeks' of operation for the calculation of the Average Btu/GSF/Week.

CALIFORNIA ENERGY COMMISSION APPROVED AUDIT

The District has a current, on-going Energy Management Program in place. The program has been in place since 1992 and is reviewed annually. With the passage of two local bond measures, the district has upgraded the existing campus infrastructure to meet the energy needs for all new facilities included in the campus master plan. This project is included in the master plan and will be integrated into the existing campus-wide Energy Management System.

RESPONSES TO SPECIFIC REQUIREMENTS OF THE STATE ADMINISTRATIVE MANUAL

STATE OF CALIFORNIA	**DEPARTMENT OF FINANCE**
CAPITAL OUTLAY	**915 L. Street**
BUDGET CHANGE PROPOSAL (COBCP)	**Sacramento, CA 95814**
BUDGET YEAR 2013-2014	**IMS Mail Code: A15**

ORG CODE: _____ COBCP NO:_____ PRIORITY:_____ PROJECT ID:_____

A.1 EXECUTIVE SUMMARY

In accordance with the college's *2008 Educational Master Plan,* and as updated as part of the College's 2010 Accreditation Self-Study, this project, a new Emergency Services Building, creates a new, or replacement, facility as proposed as part of the current Facilities Master Plan for the campus. Previously approved, and included in the Master Plan, are the Learning Resource Center (LRC), Humanities Building and Science Building. The proposed scope of this project is a 22,168 asf/33,100 gsf Emergency Services (OE-2) building comprised of primarily laboratory space for instructional programs in the 2100 and 1200 TOP Codes, Public Services and Health instructional areas. This project replaces all existing space (15,730 asf) in the current OE-2 Building (Space Inventory Building # 7). In addition, the project includes space for related instructional programs currently housed in classrooms throughout other buildings on the campus. The proposed Emergency Services (OE-2) building will provide a central location on the campus for all Public Service programs and related health occupational programs associated with emergency services and general education classes in the current space occupied by these two programs. This facility is the first new facility for occupational education for the campus in over 35 years. It will be the central instructional facility for public services, emergency services and related health occupation programs for the Redlands-Yucaipa service area. The proposed funding for the project is 50% local funds and 50% state funds.

A.2. PROBLEM STATEMENT:

The problem to be addressed by this project is to provide sufficient instructional space for the present and future Emergency Services and related Health Occupation programs offered by the College. The existing facility, which will be demolished as part of this project, was constructed to house vocational/occupational programs in 1975. It has been remodeled and modified over the past 30 years to adapt to changing curriculum and program growth. The facility is undersized in terms of space and can no longer be remodeled to meet the ever-increasing student enrollment in the Public Service programs. As a result, the presence of an inadequate facility is affecting the curriculum of the College. Crafton Hills College is located in Yucaipa, California, a very high growth area of San Bernardino County. While other areas throughout the surrounding area have shown a decline in population, the College's service area continues to consistently have an annual growth rate of over 8%. According to the District's 2010 Long Range Enrollment and WSCH Forecast prepared by the California Community College Chancellor's Office, Student enrollment and Weekly Student Contact Hours (WSCH) for the

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College is expected to increase by more than 47% from 80,380 WSCH in 2010 to 118,031 WSCH in 2017. The college has maximized its current facilities and cannot offer additional classes to meet this ever-increasing demand from residents of the service area. Even with limitations on funding, the college has expanded its instructional program into the late afternoon, evening and weekends to address this unmet need. The long-term growth in student enrollment for the District will be at Crafton Hills College. This project will assist in addressing the need for additional facilities to accommodate this growth. The table below depicts the space array for the proposed new facility and its associated capacity-load ratios.

SPACE ANALYSIS (ASF) FOR THE Emergency Services (OE-2) PROJECT

Type	Lecture	Lab	Office	Library	AV/TV	Other	Total
Primary	6,290	9,318	1,450	0	0	5,110	22,168
Secondary	-3,863	-1,673	-1,332	0	0	-5,427	-12,295
Net	2,427	7,645	118	0	0	-317	9,873
Beg. Cap/Load Ratios (2013)	79%	54%	99%	164%	84%	N/A	91
End. Cap/Load Ratios (2017)	115%	90%	102%	139%	89%	N/A	109

A.3. SOLUTION CRITERIA

This project will provide the following benefits to the academic program:

- Assists in addressing the shortage of campus-wide instructional lecture and laboratory space at the college and specifically in the areas of Emergency Services, Public Services and Health.
- Assists in addressing the instructional space needs associated with enrollment growth of the college.
- Provides modern, up-to-date facilities which are more adaptable for new instructional strategies.
- Provides facilities to support the joint educational programs between the college and public agencies in the College's service area.

In analyzing the possible solutions to the problem of inadequate instructional space for the Emergency Services and related Health and Public Service programs, the following strategies or options were considered as the basis for development of the project alternatives:

- Limit the number of instructional offerings in these instructional areas based on the existing instructional space. This solution will have the outcome of limiting the enrollment of the College and not addressing the demand for additional classes or meeting the employment needs of public agencies in the College's service area

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BUDGET YEAR 2013-2014	**IMS Mail Code: A15**

ORG CODE: _____ COBCP NO:_____ PRIORITY:_____ PROJECT ID:_____

- Maximize the extended day and weekend instructional offerings. This solution has the outcome of meeting the short-term needs of the program but has a finite limit based on the current capacity and quality of the existing facilities.

- Identify off-campus locations that could be used for additional instructional offerings. Include in this assessment the potential of establishing a joint-venture with other public or a private nonprofit agency to provide affordable space at off-campus locations. This solution has the outcome of providing the needed additional space at an off-site location but has a corresponding negative outcome of discouraging students to become full-time students due to the inconvenience of attending multiple locations.

- Reduce the instructional offerings in other areas of the curriculum and assign the space obtained from the reduction to the Public Services programs. This solution is viable for the Public Services programs but, at the same time, creates an outcome that skews the overall instructional program. It is an outcome that would require the College to address the issue of what is the balance in curriculum appropriate for the College and residents of the service area.

- Consider adding temporary (Portable) facilities on the campus to address the short-term need for additional space. The addition of temporary facilities is a short term solution. The outcome is that you have the necessary space but has not addressed the original problem of insufficient, permanent space for the Public Services instructional programs.

A. RELATIONSHIP TO THE STRATEGIC PLAN:

Crafton Hills College completed its initial College Master Plan in 1992. This initial Master Plan has been regularly updated by the faculty, staff and consultants with the latest update occurring during the 2010-11 academic year. The current Master Plan was prepared as part of the recently completed Accreditation Self-Study and is an integral part of the decision-making process at the College. It is the basis for the prioritization of capital construction projects.

The Master Plan addresses the long-term enrollment projection for the college and the corresponding projection of the instructional program to meet the needs of the proposed enrollment. The Emergency Services (OE-2) project is the first, new, instructional project that is proposed to address the need for additional occupational/technical space based on the

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ORG CODE: _____ COBCP NO:_____ PRIORITY:_____ PROJECT ID:_____

campus. The College's continued growth in enrollment validates the projections proposed in the Master Plan and the Final Project Proposal (FPP) presented for this project.

The Solution Criteria lists options the College addressed in developing the Educational/Facilities Master Plan and the accompanying requests for funding of the proposed project. If the proposed project is funded, then the College will have taken the next step in implementing the Educational/Facility Master Plan recommendations.

This facility will address the recommendation to integrate the use of technology into all elements of the College's instructional and support service programs. The desired outcome is that this building will serve as a key facility for the continued growth and expansion of the Public Services instructional program for residents of the College's service area. It is a critical element in the joint development of Public Service programs for all public entities in the greater Redlands/ Yucaipa area of the District.

Without it, the college will be restricted in its effort to accommodate student growth, will not be following the recommendations in the Master Plan and will not be able to provide the necessary instructional programs required to be a viable institution of higher learning in one of the fastest growing region in California.

B. ALTERNATIVES:

As part of the preliminary planning for this project, the College considered a number of potentially viable alternatives. Non-viable alternatives, such as limiting the number of instructional offerings and reducing the number of instructional offerings in other areas of the curriculum to allow the Public Services programs to expand were not pursued following the initial assessment of options.

Further complicating the problem is that the existing campus buildings are more than 35-years old and were constructed in a manner that makes it fiscally and physically very difficult to modify/remodel the existing size or re-configure the interior spaces in the existing buildings. This inflexibility of the current facilities has a significant impact on the capacity load ratios for the College and creates a false expectation that there is space available that is not being used in the lecture and laboratory categories. A visual inspection of the buildings confirms the problem with many of the current classrooms and laboratories in that they are inappropriately sized to accommodate the larger class sizes needed to efficiently offer the College's instructional programs and/or the implementation of technology to support today's learning systems.

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The project alternatives that may be viable are as follows:

1. Construct a new Emergency Services (OE-2) Building in accordance with the Educational & Facilities Master Plan.
2. Lease or jointly develop with other public agencies an off-campus facility for additional instructional space for the Emergency Services and related instructional programs.
3. Use a temporary or portable facility to house the Emergency Services and related instructional programs.
4. Remodel an existing building to accommodate the proposed Emergency Services and related instructional programs.

The detailed analysis of these alternatives is as follows:

1. Construct a new Emergency Services (OE-2) Building in accordance with the Educational & Facilities Master Plan

As shown on the Facilities Master Plan for the campus, the ideal location for the new, proposed building is the current location of the present Emergency Services (OE-2) facility (Space Inventory Building #7). This location requires the College to provide interim or "Swing Space" as may be necessary to house the instructional programs during the construction of the demolition and construction of the new building. In recognition of this additional cost, the District is proposing that the cost of the "Swing Space" which is anticipated to be as many as seven (7) temporary structures @ 960 gsf per modular, be paid solely by the District as a non-state supported expense. The cost is estimated at $1,671,500 and will be implemented, if needed, prior to the commencement of this project. Under this alternative, the proposed new Emergency Services building is designed as part of the new, vocational education core of the campus with convenient access to the LRC and student service areas.. This alternative is the most cost-effective solution for providing a new, permanent facility for the Emergency Services (OE-2) instructional program.

Scope of the Alternative: The scope of this alternative is to construct a new, 22,168 asf building to house the Emergency Services and related health and public service programs. The existing OE-2 facility will be demolished. This project will anchor the College's commitment to a new, vocational education complex located at the Southeast entrance to the campus. It will have the capacity to house all Public Service programs in

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a central, highly visible location and will highlight the changes the College is making to attract and accommodate new students and for the campus and to be a more viable part of the community. It will address the space needs for the Public Services and related Health and Emergency Services instructional programs through the year 2025 as outlined in the Educational and Facilities Master Plan for the College.

Academic Program Impact: The proposed facility will help the college meet the instructional space needs for the campus through the year 2025. No additional space will be required for the Public Services and Health/Emergency Services programs. It will allow the College to offer the curriculum, as designed and projected as part of the master planning process, through 2025.

Facility Management Benefits: The upkeep and maintenance of the new facility may require the College to slightly increase the level of staffing for custodial and maintenance staff but this may be off-set by the design elements of the new facility and its infrastructure. Since this is a new facility, the costs for major repairs and renovation will not have a significant impact for the next 7-10 years. This option is consistent with the Facilities Master Plan for the revitalization of the campus.

Source of Financing: The new facility is proposed as a 50% state and 50% local bond funded.

2. ***Lease or jointly develop with other public agencies an off-campus facility for additional instructional space for the Emergency Services and related Public Services programs.*** This alternative is an option in term of economics, but one that does not seem to be viable in terms of the instructional program for a comprehensive community college. The Public Services instructional programs need to be an integral part of the campus learning environment and are proposed as the central link to the majority of all vocational programs offered by the College. As such, the facility must be strategically placed at a highly visible, readily accessible location on the campus. There are significant ramifications of locating the program off-campus not the least of which is the disintegration of a comprehensive community college curriculum. However, if an off-site location became necessary the following information would serve as the basis for planning such a facility

   Scope of the Alternative: The scope of the project is to develop a joint-venture with another entity a 22,168 asf/33,100 gsf facility off-campus. The facility would be identical to the proposed on-campus facility except that it would be at an off-campus

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location. A joint venture, public services partner such as a County or a City, who has a building site for the proposed facility, would need to be included as the joint venture partner.

Academic Program Impact: Locating the facility off-site will allow the college to expand the course offerings pursuant to the Educational & Facilities Master Plan. However, it would have the impact of requiring students to attend core curriculum classes at more than one location. This would create scheduling problems for students and increase the probability of students taking fewer classes in a given semester thus reducing the WSCH/FTES ratio for the College.

Facility Management Benefits: The benefits listed in Alternative One would also be appropriate for this option. However, since it is an off-campus location, the logistics of maintenance and support services will have an additional impact on the operating budget.

Source of Financing: The funding for the project would have to be from sources other than the state and operating fund of the College. Subject to available funding, options could involve the lease-purchase of the site and the building from a private partner.

3. Use a temporary or portable facility to house the Emergency Services (OE-2) Instructional program.

This alternative has merit if one is willing to accept a short-term, rather than a long-term, solution to the problem. It is cost-effective in that the temporary facility could be acquired on a lease/purchase basis utilizing operating funds and/or local bond funds of the District.

Scope of Alternative: The proposed facility would be a 33,100 gsf temporary building. Contained in the facility would be the same number of instructional spaces as proposed for a permanent facility.

Academic Program Impact: If located on-campus, the impact would be that the College has space to immediately expand the curriculum offering in Emergency Services and related programs such as Health and Public Services. The long-term impact would be that the programs housed in the facility will never be considered an integral part of the campus. Students will have that perception typically associated with temporary facilities of being on-campus but not quite equal to a permanent facility. This could lead to a lower than expected enrollment in classes scheduled in the temporary facilities. Another negative impact is that temporary facilities are also inconsistent with the master planning of the campus.

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Facility Maintenance Benefits: Initially, the upkeep and maintenance will be minimal. As the facility ages, there will be a need to upgrade and maintain the facility which will have a greater than normal impact on the operating budget of the college. Temporary or portable facilities do not provide a long-term solution for projects listed in the Facilities Master Plan. They provide a short-term solution that is not eligible for state funding.

Source of Financing: The purchase of the facilities would require using operating funds. Given the current level of funding from the state, it is not possible for the District to fund the project from its general operating fund.

4. ***Remodel an existing building to accommodate the proposed Emergency Services (OE-2) program.***

This Alternative proposes to use space in an existing facility on campus. All existing buildings on the campus have on-going instructional programs housed in them that would need to be relocated or eliminated if this alternative were selected.

Scope of Alternative: Locate 22,168 asf of space in an existing, on-campus facility. This may not be viable but it is an alternative that needs preliminary assessment. There are no vacant buildings on campus. To move the Emergency Services program into a building would result in the displacement of the current instructional programs housed in that facility. A review of the capacity load ratios for space on the campus indicates the College has no excess lecture or laboratory space. Therefore, the capacity load ratios for the College would be projected to an even lower level than what currently exists.

Academic Program Impact: Eliminating instructional classes in another facility to make room for Emergency Service programs will result in a net reduction in the number of class offerings and a corresponding decrease in student WSCH.

Facility Management Benefits: Since this option would result in a remodeled facility, major repair and maintenance costs would not have a significant impact for the next 7-10 years.

Source of Financing: The remodel of an existing building could be accomplished using a combination of local funds and state funds similar to the 50%/50% formula proposed for the new facility.

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SUMMARY OF ALTERNATIVES –CRITERIA ANALYSIS

Criteria	Alt. #1	Alt. #2	Alt. #3	Alt. # 4
Permanent Facility	Yes	Yes	No	Yes
Consistent with Master Plan	Yes	No	No	No
Benefits Inst. And Support Services	Yes	No	No	No
Minimizes Increase in Op. Budget	Yes	No	No	No
Programs/Services in one location	Yes	No	No	Yes
Access Compliant	Yes	Yes	Yes	Yes
Improves Capacity Load Ratio	Yes	No	No	Yes

SUMMARY OF ALTERNATIVES -- ECONOMIC ANALYSIS

Category	Alt. #1 (Replace-Expand)	Alt. #2 (40 yr. (Lease)	Alt. #3 (Lease/Purchase Temp. Units)	Alt. # 4 (Remodel Other Space)
Utility Services	$181,000	$0	$88,000	$375,000
Site Development, Service	$350,000	$0	$45,000	$323,000
Site Development, General	$537,000	$0	$148,000	$475,000
Site Development, Other: Grading, Temp. Footings, Anchors, Permits etc.	$0	$0 (Included in Lease)	$50,000 (Grading, materials Footings)	$420,000
Soft/Support Costs: A/E, Tests, Insp., Mgt Allow, etc.	$2,620,000	$500,000	$220,000	$5,380,000
Reconstruction	$0	$0	$0	$6,125,000
New Construction**	$8,751,000	$0	$0	$9,000,000
Parking (200 Spaces) Plus—Ground lease for parking area and facility site	$0	$1,050,000 (Initial Construction Cost @ $1,700/space + Grd. Lease	$0	$0
Group II Equipment	$795,000	$795,000	$795,000	$795,000
Facilities Lease or Lease-Own, Delivery, Install/const.	$0	$23,800,000 40-Yr. Lease	$1,035,000	$0
Total Project Cost @ CCCI 5065 & EPI 2894	**$13,234,000**	**$26,145,000**	**$2,381,000**	**$22,893,000**

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Notes:

The Cost analysis for Option 1 is the proposed JCAF-32 for the project

The cost analysis for Options 2-4 are as follows:

A. Option 2: Off-campus, Joint-venture, Leased Facility:

1. Assume a 40-Year lease including building and parking to accommodate 200 students, faculty and staff.
2. Construct the building in accordance with the JCAF-31 proposed for the project (22,168 asf/33,100 gsf) with all tenant improvements included.
3. Assume the parking formula will be 125 Vehicles/acre. Therefore, 1.6 acres will be needed for parking. The cost of land for parking will be included in the lease payments. The capital cost for parking improvements will be $1,700/space or $340,000.
4. The 22,168 asf/33,100 gsf facility will require 0.9 acres of property.
5. The total site acreage with be 2.5 acres.
6. The facility will be built to DSA/CBC standards
7. The lease payment schedule will be a 40-year schedule with 3-year incremental adjustments of 10% in the lease rate.
8. The lease will not include the on-going cost of utilities or the cost of equipment. These costs will be paid by the College.
9. The baseline factors for the lease are as follows:
   a. The basic ground rent will be 8.0%/year of the land cost of $80,000/acre = $6,400/acre or $12,800/year for the 2.0 acre site or $38,400 for the first three years of the lease period. The ground rent for the 2.0 acre site for the 40-year lease period, assuming the 3-year escalation factor, would be $712,000.
   b. The basic cost for parking improvements will be $1,700/space or $340,000 for 200 spaces.
   c. The base lease rate for the building will be ($1.30/gsf/month)(33,100 gsf) = $43,000/month or $516,400/year for the first three years of the lease.
   d. The total lease cost for the initial 3-year lease (Building & Parking) = $1,664,300.
   e. If the lease payment is adjusted by 8.0% every three years for the 40-years of the lease, then the total lease payment over the 40-year life of the lease would be

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$23,800,000 plus equipment costs of $795,000 and "soft costs" of $500,000 for the 40-year lease period for a total project cost of $26,145,000.

(Note: This cost estimate does not include potential renegotiation of lease terms, remodel costs or equipment replacement costs over the 40-year period)

10. **Total Project Cost = $25,095,000**

B. Option 3-Temporary/Modular Facility

a. Cost of a 960 gsf temporary/modular building is $45,000/unit.

(Based on a cost estimate from GE Capital Corporation. 23 Modular Units would be required to construct the amount of square footage (asf) proposed for the project.

The cost of the 23 modular units is: (23 units)($45,000/unit) = $1,035,000

b. Delivery and setup on prepared site on temporary foundations is (23 Units)($13,500/unit) = $310,500

c. The cost for site improvements including utilities, pedestrian access, drainage, etc. = $331,000

d. Soft costs including permits, architectural fees, engineering fees and management fees is = $220,000

e. The cost for equipment is in accordance with the JCAF-33 for the project = $795,000.

f. **Total Project Cost: $2,381,000.**

Note: The Total Project Cost is for initial construction only and has not been projected for a typical 40-Year life cycle for a capital construction project.

C. Option 4:-Remodel another Existing Facility on the campus—(Note: Renovating other space on campus will displace the programs currently in that space and require a 1:1 replacement ratio for new construction. Therefore, 22,168 asf of new space will need to be constructed for the displaced instructional programs.)

a. Site improvement costs for this alternative are slightly greater than the costs for constructing only a new facility as this alternative requires renovation/demolition of an existing building plus the construction of a new 22,168 asf facility to accommodate the programs displaced by the relocation of the Emergency Services programs. Total site improvement costs for this option are estimated at $975,000.

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b. The cost of renovating the existing space is estimated at 70% of the cost of new construction or $6,125,000 assuming similar classroom, laboratory and office configurations and as based on the CCI 5394 Table of Costs.

c. The cost for replacing 22,168 asf of space in the existing building with new space is essentially the cost of constructing the proposed project. However, due to differences in the existing space in terms of disciplines and room use, the cost is slightly more than the proposed new building. Based on CCI 5394 guidelines, the construction cost for the new, replacement building is estimated at $9,000,000 or $406/asf. (Construction costs only).

d. The equipment costs for this option are the same as for all options proposed for this project with a cost of $795,000 as calculated from the JCAF-33 for the project. No new equipment is budgeted for the programs that would be relocated.

e. The total time line for the option of a new facility plus the renovation project will be approximately 14 months longer than if only a new facility were constructed as the new facility would need to be built and occupied before the existing building could be renovated. As an option, the concept of using temporary facilities to house the programs that are to be relocated is presented. The cost for the temporary facilities is estimated at $2,700,000. This cost would be off-set by the additional management, supervision, general conditions and inspections associated with the longer construction period. Using temporary facilities will reduce the overall timeline for the project back to approximately a 12 month schedule saving the additional costs associated with the extended construction period and the disruption to the educational program at the College.

** All construction calculations based on CCI 5394 and EPI 3016.

f. **Total Project Cost: $22,893,000**

C. RECOMMENDED SOLUTION:

1. Which alternative and why?
   The recommended solution is Alternative 1--to construct a new Emergency Services (OE-2) Building. The reasons for selecting this alternative are as follows:

   a. It is the most cost effective alternative for a permanent facility that is consistent with the College Educational & Facilities Master Plan.

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b. In the long-term, it is the most cost-effective solution because the cost of renovating an existing facility to Title 5/Title 24 standards, plus the secondary effects (new facility), is greater than the cost of just constructing a new facility for the proposed programs.

c. It provides the best solution for the delivery of the Emergency Services and related Public Services curriculum.

d. It provides the physical space necessary to support the efforts of the college to respond to the increase in student enrollment and will have limited impact on the students and faculty in terms of day-to-day activities on the campus.

e. A temporary unit provides a short-term solution but is not compatible with the long-term *Educational & Facility Master Plan* for the College.

f. A new facility will result in only a limited increase in the operational budget for the College and these costs will be covered by the increase in FTES generated by the instructional programs.

A. Detail Scope Description.

This project will construct a new, 22,168 asf on the site of the present OE -2 facility near the Southeast entrance to the Campus. The project will be designed to be compatible with other new facilities being developed as part of the facilities master plan. This building will be part of the focal point of the new instructional spine for the campus. The detailed breakdown of the building spaces is as follows:

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Building Space Allocation

Type	*TOPS Code*	*Description/Department*	*Project Space ASF*
50	99	Inactive-General Assignment	
110	1201	Classroom-General Assignment	6,290
210	1200	Laboratory-Health Occupations	1,350
210	2100	Laboratory-Public & Protective Services	4,050
215	2100	Lab. Serv.-Public & Protective Services	830
215	4900	Lab. Serv. Interdisciplinary Studies	400
220	2100	Special Class Lab.-Public/Protect. Serv.	1,200
230	4900	Ind. Studies Lab.-Interdisciplinary Studies	1,488
310	99	Office-General Assignment (Faculty)	1,080
310	6000	Office-Instructional Administration	160
315	99	Office-Service	210
680	99	Meeting Room	990
740	2100	Vehicle Storage-Public/Protective Serv.	4,120
		Total ASF	**22,168**
		Total GSF	**33,100**

B. Basis for cost information.

a. Cost estimates were developed by engineering and construction management professionals currently working on projects in the Inland Empire area and also using recently completed community college projects. Costs for temporary facilities were obtained from the manufacturer. Site preparation costs were obtained from similar, recently completed community college projects. The cost for leasing was obtained from the local Board of Realtors.

b. The District will use the energy incentive allowance to design the proposed to a minimum of LEED "Silver" rating. The 2% energy incentive for this project will be used to assist in reaching this goal through funding of energy efficiency measures. Energy efficiency measures to be considered include:

- Design, installation and operation of efficient HVAC systems
- Conformity of windows and doors to LEED standards
- Building envelope design that facilitates energy conservation

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- Orientation of building and design of exterior design to reinforce energy conservation guidelines.
- Installation of landscaping that reduces water and energy operational costs.
- Use of renewable energy systems such as solar where possible to reduce the energy requirements for the facility.

Factors/Benefits for Recommending Project Other Than the Least Expensive Alternative. As noted previously, the recommended alternative is the only alternative that is consistent with the Facilities Master Plan for the college, is the best facility solution to meet the needs of the instructional and support services of the College, and is the best solution to meet the long-term instructional and technology needs of the College.

As discussed in Section C—A Alternatives, the least expensive economical solution is not always the best long-term decision. In this case, the use of temporary, portable facilities is the least expensive alternative. Unfortunately, it is not a viable solution because it does not address the long-term facility needs for a modern, technology-based, vocational education facility. It also does not address the operational costs, aesthetic impact, or the political ramifications of building a temporary structure rather than permanent facilities.

c. Complete description of impact on support budget.
The proposed project does not increase the number of certificated staff assigned to the programs and services proposed for this building. Staff will, however, have efficient and ergonomically sound work spaces, which should result in better overall efficiency. Therefore, there will be no additional costs directly attributable to this project.

d. With respect to maintenance and operations, this project will add 9,873 assignable square feet of space to the college inventory. Historical data indicates that this new facility will not impact the deferred maintenance program until 2021. Because this is a new facility, the design and construction will be in accordance with modern, energy efficient systems and materials. This design should minimize the day-to-day operating costs of the building.

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e. Identify and explain any project risks.

The only risk associated with the project would be unknown underground conditions that exist on the proposed building site.

f. List requested interdepartmental coordination and/or special project approval (including mandatory reviews and approvals, e.g. technology proposals).

1. Division of State Architect (DSA)
2. CALFire and Local Fire Offices
3. Public Works Board

E. Consistency with Chapter 1016, Statutes of 2002 – AB 857

1. Does the recommended solution (project) promote infill development by rehabilitating existing infrastructure and how?

2. Does the project improve the protection of environmental and agricultural resources by protecting and preserving the state's most valuable natural resources?

3. Does the project encourage efficient development patterns by ensuring that infrastructure associated with development, other than infill, support efficient use of land and is appropriately planned for growth?

Response: Consistent with the provisions of AB 857, Chapter 1016, Statutes of 2002, the California Community Colleges are exempt from these specific provisions of this legislation.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

ENVIRONMENTAL IMPACT REPORT

An update to the original campus master plan was completed in 2006 and also the Environmental Impact Report for the Plan has been completed. This update to the Master Plan included the proposed Emergency Services (OE-2) Replacement project. The State Clearinghouse Number is 2006011080 and the Notice of Determination was filed on December 15, 2006.

OUTLINE OF SPECIFICATIONS

District: **San Bernardino Community College District** **College**: **Crafton Hills College**

Project: **New Emergency Services (OE-2)**

DIVISION 1 - GENERAL REQUIREMENTS

01010 - Summary of Work

The Project Scope includes the construction of an approximate 33,000 gross square footage Occupational Education #2 building for Crafton Hills College located in Yucaipa, CA. Interior spaces include:

1. Public and Protective Services Classrooms, Public and Protective Services Labs, EMT/Res. Care Classroom and Lab and Support spaces.
2. Vehicular Storage
3. Tutorial/Individualized Study Room
4. Staff Offices
5. Lecture Rooms

01040 - Coordination

Requirements for coordination of Work of the Contract.

01450 - Quality Control

Requirements for quality assurance and control of installation, field samples, manufacturer's field services and reports, and identification of reference standards.

01405 - Testing and Inspection

Provide testing and inspection services to meet requirements of the California Building Code (CBC), Title 24, Parts 1 and 2 - current edition.

01500 - Temporary Construction Facilities

Contractor to provide temporary construction facilities such as: temporary utilities, Owner's inspector's office, sanitary facilities for workmen, construction aids, tree & plant protection, access road, parking area, dust control, erosion & sediment control, security and project identification sign.

01600 – Product Requirements

Requirements regarding products, transportation and handling, storage and protection, options, substitutions and owner-furnished products.

01700 – Execution Requirements

Requirements and limitations regarding cutting and patching for work, cleaning, project record documents, closeout procedures, adjusting, operation and maintenance data, warranty and guarantee, spare parts and maintenance materials, instruction to Owner’s personnel.

01725 - Field Engineering

Contractor is required to make provisions of survey and field engineering services for the project. Establish a minimum of two permanent bench marks on site, referenced to established control points.

DIVISION 2 - SITE WORK

02230 - Site Clearing

The existing site will be graded to a rough grade condition ready for grading to construct buildings and other improvements. Locate existing utilities to be connected to, capped or relocated. Protect existing facilities to remain. Work Includes: Removal of vegetation, grass, grass roots, shrubs, tree stumps, trees, upturned stumps, weed growth, tree roots, brush, masonry, concrete, rubbish, debris and other objectionable materials, within limits of

construction. Removal of concrete and bituminous surfaces. Remove materials and debris and dispose of legally off-site.

02300 - Earthwork

Excavation for building and retaining foundations. Over excavation and re-compaction per soils report recommendation. Preconstruction removal and stock piling of topsoil. Rough grading and contouring of site in preparation for building excavation including cutting, filling and compacting. Import of fill material if required. Excavation for building and retaining foundations. Backfilling required for building and retaining wall perimeters up to subgrade elevations. Import or export of material if required.

02315 - Trenching

Excavation, backfilling and compaction of trenches for utilities to within 5 feet of building lines. Requirements for excavation, backfilling and compaction of concrete filled utility trenches in sidewalk areas; as provided under other sections.

02362 - Termite Control

Furnish five year written warranty certifying that applied soil treatment prevents infestation of subterranean termites and that if subterranean termite activity is discovered during warranty period, soil will be retreated and damage caused by termite infestation will be repaired or replaced at no additional cost to Owner.

Termite Control: Emulsified concentrate insecticide for dilution with water specially formulated to prevent infestation by termites and not injurious to vegetation.

02515 - Unit Pavers

Precast concrete unit pavers with dry mortared joints installed over aggregate bed over compacted soil base.

02520 - Portland Cement Concrete Paving

Install new natural concrete sidewalks, driveways, curbs and gutters. Integral color sidewalks and paving with scored decorative patterns at indicated areas.

02575 - Pavement Repair

Bituminous Surfacing Repair: Areas removed for utility trenches, heaved by tree roots, cracked areas, protruding areas where pavement meets hard surfaces, depressed areas, holes and areas around new structures, and raveled bituminous pavement.
Concrete Pavement Repair: Areas heaved by tree roots, cracked areas, holes and trenches, and areas around new structures.

02577 - Pavement Striping

Painting parking stalls, divider striping, traffic symbols, accessibility symbols, lettering and curb demarcations on asphaltic concrete paving and Portland cement concrete curbs and wheel stops. Provide painting of loading and fire lane areas where indicated.

02620 - Subdrainage

Subsoil Drainage Piping: Polyethylene: Perforated corrugated polyethylene tubing, ASTM F405 and F667, complete with fittings, couplings, filter fabric wrap, and joint materials. PVC: Polyvinyl chloride pipe, ASTM D2729 or D3034, with three rows of 3/8 inch diameter holes spaced on 5 inch centers at 60 degrees apart.

Filter Fabric: Non-woven, geotextile fabric of polypropylene or polyester fibers. Water Flow Rate: 230 GPM/SF minimum.

Subsurface Drainage Mat: Vertical grade drainage mat, polyester or polypropylene geotextile fabric bonded to compression-resistant three-dimensional, non-biodegradable, single-sided, sheet polymeric core construction designed to effectively conduct water to foundation drainage system.

02711 - Gas Distribution Systems

Coordination of installation of natural gas piping and appurtenances.

02713 - Water Distribution System

Water service lines including connection to the existing City of Yucaipa potable water distribution system. Testing and sterilization.
Fire service lines with reduced pressure backflow, fire department connections, and post indicator valves connected to the City of Yucaipa Water Department potable water distribution system.

02721 - Storm Drain System

Surface drainage receptors, area drains, catch basins, foundation drainage system and under ground piping to within 5 feet of building lines including connections of building storm drain system to existing campus drainage system.

02722 - Sanitary Sewage Systems

Sanitary sewer piping with fittings, manholes, and accessories to within 5 feet of building lines including connections to the campus sanitary sewer system.

02780 - Electrical and Communication Utilities

Electrical and communications duct and structures for main runs to transformers and main panels including duct piping, manholes, pullboxes, transformer pads, stub-outs for buildings and connection to existing CHC system.

02810 - Landscape Irrigation System

Work included: Irrigation Work includes but is not limited to the following:
Replacement of existing irrigation mains, points of connection, valves, control wires, electrical boxes, controllers, sprinkler heads and caps for future connections.

02840 - Walk, Road, and Parking Appurtenances

Traffic and parking control signage complete with excavation for post bases and concrete post footings. Signage to be compliant with campus standards.

02870 - Site and Street Furnishings

Concrete benches, trash receptacles, tree grates, and specified site furnishings.

02871 - Bicycle Racks

Metal Bicycle Rack: Undulating steel pipe, set in ground. Quantity and location as indicated on the Drawings.

02900 - Planting

Preparation of sub-grade including placement of topsoil, soil amendments, fertilizers, and final grading. Planting of trees, palms, plants, ground covers, meadows and lawns with temporary support, mulching and fertilizing.

DIVISION 3 - CONCRETE

03100 - Concrete Formwork

Formwork for cast-in-place concrete with shoring, bracing and anchorage including form accessories and stripping forms. Forming materials consist of but are not limited to panel forms, board forms, chamfer strips, wood framing, form ties and spreaders, expansion joint filler, form sealer, release agent also included.

03200 - Concrete Reinforcement

Reinforcing, supports and accessories for cast-in-place concrete: Bars, welded wire fabric, tie wires, welding electrodes and bar supports.

03300 - Cast-In-Place Concrete

Cast-in-place concrete for building footings, walls, columns, floor slabs on grade and wearing slabs at stairs and balconies. Concrete Mixes: Wearing Slabs at Stairs and Balconies: Minimum 3000 psi compressive strength; 115 lbs/cu ft air dry; 4 inch slump. Other Concrete: Minimum 3000 psi compressive strength after 28 days; 145 lbs/cu ft air dry; 3-1/2 inch slump. Interior Slab: Steel troweled. Exterior Concrete: Smooth finish. Slabs to receive Setting Bed for Tile or Terrazzo: Scratch finish.

03350 - Sealed Concrete Finishing

Applied Finishes include floor sealers, water based acrylic sealing compounds, that are compatible with subsequent coatings and toppings.

03450 - Precast Architectural Concrete

Architectural Precast Concrete: Wind Loading, Engineer typical exterior envelope to withstand 40 PSF positive and negative wind load acting normal to plane of walls or building code requirements, whichever is greater.
Engineer corner within 10 feet and parapet areas of exterior envelope to withstand plus 40 PSF and minus 60 PSF wind load acting normal to plane of walls or building code requirements, whichever is greater.
Testing Laboratory Mock-up: Provide architectural precast concrete units as necessary to make full size mock-up at testing laboratory. Finish: Match Architect's sample.

Structural Requirements: Employ professional structural engineer registered in State of California to engineer each component of exterior wall system and to prepare and supervise preparation of engineering data for architectural precast concrete system. Included are drawings, development of testing program, interpretation of test results, and comprehensive engineering analysis showing compliance with performance and other Specification requirements.

DIVISION 4 - MASONRY

04200 - Masonry Units

Concrete masonry, mortar, grout, reinforcement, anchorage and accessories for 6", 8" and 12" concrete masonry units.
Mortar: ASTM C270 Proportion Method, portland cement/hydrated lime mix; use Type S, 1800 PSI for load bearing walls; ASTM C270, Type N, 750 PSI for non-load bearing walls. Use of masonry cement not allowed.
Masonry Grout: 3000 PSI at 28 days, 9-1/2 inch slump.
Horizontal Joint Reinforcing: ASTM A82 hot dip galvanized, truss for single wythe; ladder design for cavity walls.
Concrete Masonry Units: ASTM C90, Type II non-moisture controlled, Grade N, lightweight or normal weight aggregate at Contractor's option.

DIVISION 5 - METALS

05120 - Structural Steel

Structural steel elements including temporary and permanent bracing in accordance with AISC "Specifications and Code of Standard Practice."

05300 - Metal Decking

Metal Decking roll-formed sheets conforming to ASTM A 653, with G90 zinc coating. Refer to Drawings for metal decking requirements. Requirements of Regulatory Agencies be responsible for obtaining DSA and Underwriters Laboratories Inc. (UL) approval for the decking when used as a part of an assembly indicated on Drawings in which fire resistive construction ratings are required. Work of the Regulatory Agencies shall be in accordance with CBC Chapter 22A.

05500 - Metal Fabrications

Shop fabricated miscellaneous non-structural metal items and associated manufactured items.

A. Miscellaneous Items: ASTM A36.
B. Rolled Steel Bars, Plates, and Shapes: ASTM A6/A6M
C. Steel Tubing: Cold-formed, ASTM A500.
D. Structural Steel Sheet: Hot-rolled, ASTM A570/A570M, Class 1; of grade required for design loading.
E. Galvanized Structural Steel Sheet: ASTM A653/A653M, Quality SQ, of Grade required for design loading.
F. Cold-Rolled Steel Sheet, Commercial Quality: ASTM A366.
G. Steel Pipe: ASTM A53
H. Pipe Bollards: Galvanized steel pipe filled with concrete with formed dome top.
I. Lateral Supports for Storefronts

J. Toilet Partition Supports
K. Vanities and Countertops: Provide framing to support countertops.
L. Miscellaneous Items: ASTM A36
M. Provide galvanized steel for all steel items exposed to exterior and built into exterior walls.
N. Fasteners: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
O. Furnish bent or custom fabricated bolts, plates, anchors, hangers, dowels and miscellaneous steel and iron shapes required for framing, supporting, anchoring or securing fixtures, accessories, and furnishings.

05515 - Ladders

Vertical Ladders: Provide at elevator pit and roof access hatches. Structural Requirements: Comply with applicable provisions of ANSI A14.3 for design, materials, fabrication and installation of component parts, and with ANSI/ASME A17.1 ladder requirements at elevator pits. Stair treads: capable of withstanding concentrated 1000 lb load without deformation.

05520 - Handrails and Railings

Handrails and Guardrails: Capable of Withstanding specified loads: Concentrated load of 200 pounds applied at any point in any direction. Uniform load of 50 PLF applied in any direction. Concentrated and uniform loads above need not be applied simultaneously. Round Structural Tubing System: ASTM A500, seamless, Grade A. Size: 1-1/2 inches, outside diameter.

05585 - Column Covers

Metal Column Covers: Aluminum fabricated to shapes indicated.
Finished Work: Straight and true without scratches, scars, creases, buckles, ripples or chatter marks. Do not use exposed fasteners.

05700 - Ornamental Metalwork

Architecturally exposed structural steel: Provide architecturally exposed metals free from surface blemishes in finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable. Provide architectural grade steel where exposed to view.

05720 - Ornamental Metal Railings

Manufactured Ornamental Stainless Steel Handrails and Railings: Capable of withstanding following loads applied: Concentrated load of 200 pounds applied at any point in any direction, uniform load of 50 PLF applied in any direction, concentrated and uniform loads above need not be applied simultaneously.

DIVISION 6 - WOOD AND PLASTICS

06100 - Rough Carpentry

Wood framing auxiliary to building structure, miscellaneous blocking and curbing, concealed wood framing, furring, sheathing, fire and preservative treated.
Lumber: Structural grade I Air or kiln dried prior to arrival on site to maximum 19 percent moisture content, except for 2 inch lumber which may be maximum 15 percent at time of surfacing. Surfaced four sides, resawn finish at heavy timber construction.

06200 - Finish Carpentry

Fabrication and installation of exposed, site finished, non-structural wood items, other than casework and paneling, complete with blocking, grounds, and nailers.
Standards: Woodwork Institute of California (W.I.C.), latest edition for exterior and interior trim, miscellaneous millwork and laminated plastic covered casework and countertops. Hardwood: WIC Custom Grade Walnut, Transparent Finish. Cedar Siding: Western Red Cedar, WIC, Section 3, Custom Grade, transparent finish, 1 x 6, T & G with beveled edges, smooth surfaced. No edge knots. Laminated Plastic Paneling: Wilsonart Wall Panel System No. 210, standard, with manufacturer's recommended moldings. Fiberglass Reinforced Panels. (FRP):

Kemlite Corp. “Glasboard”, Marlite Brand “FPR”, 1/8” thick, with manufacturer’s standard molding in color matching panels.

06400 - Architectural Woodwork

Architectural woodwork shall include, casework, trim, hardware, countertops and shelving. Comply with Woodwork Institute of California (W.I.C.) Manual of Millwork guideline as a minimum requirement.
Standards: WIC, latest edition for exterior and interior trim, miscellaneous millwork and laminated plastic covered casework and countertops.

06650 - Solid Polymer Fabrications

Solid Polymer Sheets: ANSI Z124. Fabricate solid polymer to follow thicknesses; unless indicated otherwise:
Solid Polymer Countertop: 3/4 inch minimum
Solid Polymer Splash: 3/4 inch minimum

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07130 - Sheet Waterproofing

Sheet Waterproofing: Materials: Rubberized asphaltic sheet laminated to a polypropylene film, 60 mil minimum total thickness.

Locations:

a. Vertical surfaces of two sided formed foundation walls.
b. Horizontal surfaces of plaza decks with occupied space below.
c. Planters.
d. Sandwich slabs.
e. Elevator pits.

Protection Board: Asphaltic, preformed sheet or board, 1/8 inch thick. Fan-Fold Protection Board (Vertical Applications): Extruded polystyrene sandwiched between non-perforated film laminates designed for use in commercial foundation waterproofing applications; 15 PSI compressive strength. Thickness: 1/4 inch.

07141 - Hot Rubberized Asphalt Waterproofing

Hot Rubberized Asphalt Membrane: Rubberized asphalt membrane compound for thick-coat application, fast setting, self-bonding to substrate, non-shrinking, thermosetting.
Physical Properties: Solids: 100 percent,. Pouring Temperature: 400 degrees F.
Thickness: 225 mils minimum, reinforced. Insulation, Plaza Deck Drainage Mat and Architectural Pavers.

07160 - Cementitious Waterproofing

Crystalline (Cementitious) Waterproofing: Non-shrinking, cementitious mixture producing capillary penetration into substrate, manufacturer's standard colors. Trowel or dry-shake applied waterproofing, designed for negative side waterproofing, manufacturer's required thickness.

07190 - Water Repellents

Penetrating Water Repellent Sealer: Water based silane/siloxane based composition; non-staining, breathable solution. Locations: Architectural Precast Concrete. Penetrating non-film forming type which does not alter natural surface appearance. Field Sample: 100 SQ FT sample of coating for Architect's review.

07210 - Building Insulation

Maximum use of recycled material with minimum of 20 percent post consumer and 5 percent post industrial recycled glass cullet. Use formaldehyde free materials where available.

Batt (Blanket) Insulation
Fiberglass Batt Insulation - Unfaced: Glass fiber composition, friction fit type, unfaced. Location: Exterior walls including return air plenums and underside of roof decks.
Fiberglass Batt Insulation - Vapor Retarder: Glass fiber composition with integral fire retardant foil reinforced kraft laminate vapor retarder.

Spandrel Glass Insulation: Inorganic glass or mineral fiber semi-rigid board insulation. Location: Applied to curtain wall spandrel glass.

Schedule: Provide minimum thermal resistance (R Values) for insulation in locations as follows:

1. Exterior Walls: Thermal resistance R Value of 19.
2. Roof Decks: Thermal resistance R Value of 30.

07260 - Vapor Retarders

Class A Vapor Retarder (10 mil): Virgin waterproof polyolefin film; recycled materials not allowed. Comply with ASTM E1745, Class A minimum. Tensile Strength: 45 pound/inch minimum, ASTM E154, Section 9. Permeance: ASTM E96, Procedure A; 0.05 perms maximum. Puncture Resistance: 2200 grams minimum, ASTM D1709, Method B. Location: Under slabs on grade.
Joint Tape: Manufacturer's recommended, pressure sensitive type, self adhering, and of perm rating not less than vapor retarder.
Pipe Boots: Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

07270 - Spray-on Air Barrier

Fluid Applied Air Barriers: One component, liquid emulsion, breathable fluid applied material. Color: Manufacturer's standard. Transition Membrane: Self-adhering membrane consisting of an SBS rubberized asphalt compound, integrally laminated to polyethylene film. Compatible with spray applied air/vapor barrier. Provide compatible transition sheet between differing substrates and for terminating at penetrations.

07412 - Preformed Metal Wall Panels

Insulated Core Panels: Interlocking male/female edges, consisting of interior and exterior metal skin laminated to foam insulating core.

Metal: Prefinished galvanized sheet steel, ASTM A446/A446M, Grade A, with ASTM A653, G90 zinc coating, 22 gage minimum. Insulation: FS HH-I-530, 95 percent minimum closed cell structure, poured in place polyisocyanurate foam. Fabricated for joint orientation indicated on Drawings. 24 inch widths, 2 inch overall thickness. Corners: Factory fabricated formed corner panels. Stucco-embossed pattern. Flashing, Copings, Trim, Closure Pieces, Drips, and Accessories: Same material, thickness, and finish as adjacent metal panels, brake formed to required profiles.

07525 - PVC Thermoplastic Membrane Roofing

Install an adhered roofing membrane with flashings and other components to comprise a roofing system.
Reinforced Thermoplastic (PVC) Membranes: Flashing Materials: PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles, Fasteners: corrosion resistant, miscellaneous accessories, including walk pads as recommended by roofing manufacturer, and Polyisocyanurate Insulation.

07600 - Flashing and Sheet Metal

Sheet Metal Flashing and Trim: Galvanized Steel Sheet: Zinc coating, hot dip galvanized, flattened sheets, chemically treated. Finish: Mill phosphatized. Coordinate with PVC coated materials required for roofing membrane terminations.
Fabrication Items: Flashing, gutters, downspouts, coping, fascia/gravel stop, scuppers, and conductor heads.
Standard: Sheet Metal and Air Conditioning Contractor's National Association, Inc., (SMACNA): Architectural Sheet Metal Manual.

07700 - Roof Specialties and Accessories

Curbs and Supports: Factory formed roof curb framing with 18 gage minimum galvanized steel construction, internal steel reinforcing, factory insulated, and pressure treated wood nailers. Minimum height of 8 inches above finished roof.
Pipe Portals: Manufacturer's standard ABS and EPDM rubber boots to accommodate 3/8 through 6 inch diameter pipe.

Roof Hatch: Single leaf. Provide primed galvanized steel or aluminum body and door, liner insulation for door, rigid insulation around body and hardware. Ladder Safety Post: Provide telescoping tubular safety post fabricated from hot-dipped galvanized steel.

07810 - Applied Fireproofing

Sprayed Fireproofing: Factory formulated mixture of asbestos-free cementitious materials with aggregates. Testing: Perform thickness and density tests on installed fireproofing in accordance with ASTM E605.

07840 - Firestopping

Make firestop and smoke seal assembly selections that comply with UL Fire Resistance Directory, authority having jurisdiction, and applicable codes for: Materials, fabrication, and installation of firestops and smoke seals. Fire containment. Fire resistant construction joints. Dynamic partition head details. Edge of slab and curtain wall conditions. Penetrations through fire-rated floors, walls, and shafts. Duct and damper firestops.

Firestop voids and openings in applicable locations. Select appropriate systems with UL ratings for conditions encountered, obtain approval from authorities having jurisdiction, and place identification label at each location indication materials, rating, and UL assembly number.

07920 - Joint Sealants

Warranty: Five year warranty covering installed sealants and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion, exhibit loss of cohesion, and do not cure.

A. Acrylic Latex: ASTM C834; non-sag; non-staining; non-bleeding.
B. Silicone—General Purpose: ASTM C920; Type S; Grade NS; Class 25; Uses NT, G, A, O.
C. Silicone—Sanitary: ASTM C920; Type S; Grade NS; Class 25; Uses NT, M, G, A, O.
D. Urethane—Traffic-Bearing (Designation U-TB): ASTM C920; Type M; Grade P or NS; Class 12-1/2; Uses T, M, O.
E. Provide necessary sealant backing bond breaker rods and tape, and elastomeric tubing joint fillers.

DIVISION 8 - DOORS AND WINDOWS

08110 - Steel Doors and Frames

Custom fabricated hollow steel doors, door frames and glazed light frames with accessories and anchors complying with HMMA 861 "Guide Specifications for Commercial Hollow Metal Doors and Frames."

Doors: Flush Doors: HMMA Type A; flush with continuous welded edge seams; full flush and flush with vision panels. Stile and Rail: HMMA Type D; tubular stiles and rails with no edge seams; full glazed configuration.

Door Construction: Exterior: Minimum 16 gauge cold rolled steel conforming to ASTM A366 with hot-dipped zinc coating per ASTM A526 G60. Interior: Minimum 18 gauge cold rolled steel conforming to ASTM A366.

Frames: Exterior: Minimum 14 gauge cold rolled steel conforming to ASTM A366 with hot-dipped zinc coating per ASTM A526 G60; corners continuously welded full depth of frame. Interior: Cold rolled steel cold rolled steel conforming to ASTM A366; corners continuously welded full depth of frame. Openings to 4 Feet Wide: Minimum 16 gauge. Openings Over 4 Feet Wide: Minimum 14 gauge.

08210 - Wood Doors

Factory finished solid core interior flush wood doors meeting WIC requirements for paint grade. Fire rating label as required. Doors: Thickness: 1-3/4 inch. Finish: WI System Number 4 – Conversion Varnish.

08310 - Access Doors

Doors for access to utilities in walls and ceilings. Fire rating label as required.
Access Doors in Gypsum Plaster and Cement Plaster Ceilings:

Non-Rated Ceilings in Utility Spaces: Flush steel door; one piece frame with exposed flange; screw driver operated steel cam lock; prime painted finish.

Non-Rated Ceilings in Occupied Spaces: Recessed steel door to receive drywall panel; integral drywall bead at frame; flush screwdriver operated cam lock; prime painted finish.

Rated Ceilings: Flush insulated steel door; self-closing and self-latching; bolt type latch operated by ring turn or direct action knurled knob; interior latch release; one piece frame with exposed flange; 3-hour WHI label; prime painted finish.

Access Doors in Gypsum Board Partitions:

Non-Rated Partitions in Utility Spaces: Flush steel door; one piece frame with exposed flange; key operated steel cam lock; prime painted finish.

Sound Transmission Classification (STC): Provide sound retardant doors capable of achieving STC rating selected, when tested in accordance with ASTM E90-75. Units are to be complete with doors, frames, seals, anchors and hardware. Supply composite felt/elastomer sound seals, adjustable seal retainer, cover plates, threaded fastener and appropriate door bottom sound seal.

08520 - Steel Windows

Steel windows with fixed and operable awning sash complete with screens, glass and glazing, operating hardware; anchorage and attachments, paper flashing and perimeter sealant.

Awning Windows: Steel; single web and tubular construction; 1-1/8 inch deep perimeter frame; 1 inch deep vent frame; integral nail-on fin; square profile extruded steel glazing beads for 5/8 inch glass; Projected and Casement Windows.

Glass and Glazing Materials:

Glass: Clear and tinted insulated acoustic clear float glass units; 5/8 inch overall.

08710 – Finish Hardware

Template hardware throughout.
Fastenings as required or recommended by manufacturer, furnished with all hardware.
Finish: US 10B.
Finish hardware material per Hardware Schedule.
Door Hinges: All doors with door closers to have ball bearing hinges. Outswing exterior doors to have non-removable pins.
Exterior: Match campus standard.
Interior: Match campus standard.
Stops and Holders: Match campus standard, generally floor type with three connections to the floor.
Seals and Weatherstrip: Aluminum extrusions with neoprene seals.
Thresholds: Maximum ½" height, and in compliance with the most restrictive accessibility requirements.

08712 - Door Hardware

Operating Door Hardware and trim, gasketing and thresholds complying with state accessibility codes and applicable fire codes.
Locksets:

Doors: Schlage L Series Heavy Duty Mortise Locks.
Exit Devices: Von Duprin Exit Devices.
Keying: Grand master, master keyed to SBCCD standards alike and keyed different.

08800 - Glazing

Glass and glazing for wood doors, steel doors, wood windows, and steel glazed light frames. Requirements for glass specified in other sections.
Flat Glass:

Clear Float Glass: ASTM C1036, Type I, Class 1, Quality q3; clear; 1/8 and 1/4 inch thicknesses.

Clear Tempered Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality q3; fully tempered clear; 1/4 inch thick.

Heat Absorbing Tinted Glass: ASTM C1048,Type 1, Class 3, Quality Q3, Float Type, tempered, light reducing in gray color; light transmittance of 42 percent, shading coefficient of .51; ¼ inch thick.

Security Glazing; Laminated glass with poly carbon core & clear glass on outer faces.
Spandrel Glass: Float, ASTM C1036, Type 1, Class 1, Quality q5. Coating ceramic frit on No. 2 surface.

08830 - Mirrors

Unframed Mirror Glass: ASTM C1036, Type I transparent flat, Class 1 clear, Quality q2 mirror. Type: Annealed. Thickness: 1/4 inch
Edges: Square and polished
Reflective Coating: Manufacturer's standard silver coating followed by electrolytic deposited copper coating and separate coat of protective paint. Fasten with mirror adhesive.

08920 - Glazed Aluminum Curtain Walls

Structural Requirements: Provide system engineered by registered professional engineer licensed to practice structural engineering in jurisdiction where Project is located. Design anchors, fasteners and braces to be structurally stressed not more than 50 percent of allowable stress when maximum loads are applied. Solar Shades: Custom design for attachment to curtain wall.

Design Requirements: Metal stick framed systems with interior and exterior exposed metal framing. Fabricate glazing systems for exterior glazing. Solar shades: Design solar shades as integral part of curtain wall system.

Framing Materials and Accessories: Aluminum: ASTM B221, alloy 6063-T5 for extrusions; ASTM B209, alloy 5005-H16 for sheets; or other alloys and temper recommended by manufacturer appropriate for specified finish. Thermal Break: Manufacturer's standard non-metallic urethane insulating core, isolator spacers, or clip system to provide thermal separation between exterior and interior components. Internal Reinforcing: ASTM A36/A36M for carbon steel; or ASTM B308/B308M for structural aluminum. Inserts and Anchorage Devices: Manufacturer's standard formed or fabricated assemblies, steel or aluminum, of shapes, plates, bars or tubes. Glazing Gaskets: Compression type design, replaceable, molded or extruded neoprene, polyvinyl chloride (PVC), or ethylene propylene diene monomer (EPDM), ASTM C509 or C864 to maintain uniform pressure for watertight seal; black color; factory molded corners required at exterior.

Solar Shades: Fabricate assemblies of extruded aluminum except where specifically noted otherwise. Provide steel outriggers finished to match curtain wall. Isolate aluminum from steel surfaces to prevent electrolytic action. Field bolt connections between frame members where necessary by solar shade size. Dress exposed welds smooth and flush with adjacent surfaces. Fabricate fascia/nosing to match profiles indicated. Finish solar shade to match curtain wall.

DIVISION 9 - FINISHES

09110 – Non-Load Bearing Metal Studs

Formed metal stud framing at interior partitions and non-bearing exterior walls. Studs: ASTM A446, Grade A, minimum yield 33 ksi, hot-dip galvanized or ASTM A591 minimum yield 33 ksi electro galvanized sheet steel, DW Type, punched web, 20 gage minimum thickness, sizes as required to conform to details and scheduled wall thickness.

09200 – Lath and Plaster

Supply and install lath and Portland cement plaster exterior and interior as indicated.

09210 - Gypsum Plaster

Gypsum plaster wall and ceiling finishes complete with acoustic insulation, acoustic sealant, metal lath and trim accessories. Comply with ML/SFA "Guide Specifications for metal lath and furring.
Base Coat Materials: Gypsum neat plaster, ASTM C 28, sand aggregate, ASTM C 35, 5/8 inch thicknesses.
Finish Coat Plaster Materials: ASTM C28, Finishing Hydrated Lime ASTM C 206, Type N or S, sand aggregate ASTM C 35, 3/8 inch thickness.

09220 – Portland Cement Plaster

Portland Cement plaster for exterior wall, ceiling, and soffit locations. Provide complete lath and trim accessories. Plaster materials: Portland cement, ASTM C 150, Type I or III, Lime, ASTM C 206, Type S, aggregate, manufactured or natural colored sand and mica flakes, ASTM C 897, potable water, color, texture, and appearance to match a referee sample provided by the Architect. Fill voids in existing plaster over 3/8 inch deep with a plaster coat prior to applying finish coat.

09250 – Gypsum Wallboard

Metal Accessories: Manufacture's standard galvanized steel trim accessories.
Joint Treatment: ASTM C-474 and C-475.
Finish: Provide textured finish on all gypsum wallboard surfaces except omit texture finish where gypsum wallboard is concealed in structure or by other finish material (except paint). Omit texture finish in mechanical, electrical, storage and custodial rooms.

09260 - Gypsum Board Systems

Gypsum board wall and ceiling finishes complete with acoustic insulation, acoustic sealant, resilient channels and joint treatment.

Standard Gypsum Board: 5/8 inch thickness.
Fire Rated Gypsum Board: ASTM C36; UL rated with Type X - fire resistant core; 5/8 inch thickness.
Gypsum Backer Board: ASTM C442; standard and UL rated with Type X core; 1/2 and 5/8 inch thickness.
Gypsum Board to Resilient Channels: Type "S" bugle head; length to prevent penetration into framing.

09300 - Tile Work

Quarry and ceramic tile with related sound isolation sheets, mortar beds, membranes, expansion joints, grout and grout sealer. Materials and manufacturers per campus standards.
Waterproofing Membrane: Heavy duty non-plasticized chlorinated polyethylene synthetic elastomeric sheet membrane; 40 mil thickness
Ceramic Wall Tile in Showers: Install glazed ceramic wall tile over reinforced mortar bed over membrane in accordance with TCA B414.
Ceramic Wall Tile in Other Locations: Install glazed ceramic wall tile over reinforced mortar bed over membrane over solid backing in accordance with TCA W222.

09500 - Acoustical Cement Fiber Panel

The cement fiber acoustic unit material shall be uniformly thick, per the drawing, with tolerance not to exceed plus or minus 1/8 inch. Planks shall be sufficient length for a two span condition, except end filler, to accommodate stagger joint installation. Spans over 7 inches shall be single span condition.

09510 – Acoustical Tile ceiling

Acoustical panel sizes as indicated in the Drawings.
Thickness 1.125 inch minimum
NRC Range 0.85
Suspension System, ASTM C635, intermediate duty, interlocking components to resist seismic lateral pullout. Accessories include hangers, edge moldings and supports for light fixtures and mechanical outlets. Provide reveal edge trim where ceiling meets vertical surfaces.

09541 - Fiber Reinforced Plastic Paneling

Adhesive/mechanically fastened fiber reinforced plastic paneling with matching molding and accessories.
Panels: Fiberglass reinforced plastic; hard non-porous surface resistant to stains, odor, mildew and mold; meeting USDA and FDA requirements for use in food processing areas; embossed pebble texture one face; 0.090 inches thick.

09545 – Special Ceiling Surfaces

Prefabricated Acoustical Ceiling Cloud System: Core: 6 to 7 PCF density semi-rigid glass fiber. Thickness: 1-1/8 inch. Colors: Colors as selected. NRC: 0.85. Light Reflectance: 90 percent. Fire classification: Class A, ASTM E84. Edges: Fabric wrapped; concealed aluminum frame rigidly attached to core. Installed Panel Deflection: 0.27 percent maximum.

09650 - Resilient Flooring

Vinyl Composition Tile by Armstrong or equal. ASTM F 1066 Class 2, ASTM E662 Smoke Developed 450 or less, Static Load Limit: ASTM F 970 125PSI, minimum 12 inches x 12 inches x 1/8 inches thick (nominal)

Resilient sheet flooring with integral cove base and resilient base for glue down carpeting with accessories.
Linoleum Sheet: ASTM F2034, Type 1. Homogeneous sheet linoleum of primarily natural materials consiting of linseed oil, wood flour, and rosin binders, mixed and calendered onto natural jute backing. Thickness: 0.120 inch, minimum overall. Heat Welding Rod: Color-matched welding rod.

Resilient Base: ASTM F1861, Type TP. Straight, toe-less type for carpet areas; set-on type with standard toe for other areas. Thickness: 0.125 inch minimum, height as indicated in the Drawings. Corners field fabricated.

09680 - Carpeting

Yarn: Minimum 3 ply 100% continuous filament nylon with static control.
Meet Federal flammability Standard BOCFF1-70 and ASTM D 2859-70T.
Direct Glue-down with integral cushion and related accessories.

09820 - Acoustical Insulation and Sealants

Thermafiber Sound Insulation Blankets by US Gypsum or equal.

09832 - Elastomeric Deck Coating

Elastomeric urethane waterproof deck coating: Liquid materials used in traffic-bearing deck coating shall be non-combustible and shall not emit solvents, or other recognized pollutants, into the atmosphere. Elastomeric deck coating shall not be applied during freezing or inclement weather. Do not apply elastomeric deck coating over surfaces that contain more than 7 percent moisture content.

Provide primer, flashings, sealants, etc. as required to provide a complete system as shown on the drawings and per manufacturer's recommendations.

09840 - Acoustical Wall Treatment

Fabric Covered Acoustical Wall Panels: 7 PCF minimum density fiberglass with 1/8 inch thick high density fiberglass laminated to core for impact resistance.
Assembly Flame Spread and Smoke Generation: Class A, ASTM E84.

09900 - Painting

Surface preparation and application of 3 coat finish system to exposed interior and exterior surfaces.

Exterior Surfaces:

- Uncoated Ferrous Metals: Semi-gloss acrylic enamel; one coat alkyd metal primer; two coats semi-gloss exterior latex house paint.
- Shop Primed Ferrous Metals: Semi-gloss acrylic enamel; touch-up of shop primer with alkyd metal primer; one coat alkyd metal primer; two coats semi-gloss exterior latex house paint.
- Galvanized Metals: Semi-gloss acrylic enamel; acid etch and rinse surfaces; one coat alkyd metal primer; two coats semi-gloss exterior latex house paint.
- Hardwood and Plank siding: Semi-gloss acrylic enamel; two coats alkyd wood primer; two coats interior/exterior latex semi-gloss enamel.

Interior Surfaces Gypsum Board:

- Semi-gloss Acrylic Latex Stipple Finish: One coat gypsum board pretreatment; one coat stipple; one coat interior latex semi-gloss enamel.
- Satin Two-Component Epoxy Finish: One coat gypsum board pretreatment; 2 coats interior waterbourne satin mixture epoxy.
- Uncoated Ferrous Metals: Semi-gloss acrylic enamel; one coat alkyd metal primer; two coats interior acrylic latex semi-gloss enamel.
- Shop Primed Ferrous Metals: Semi-gloss acrylic enamel; touch-up of shop primer; one coat alkyd metal primer; two coats interior acrylic latex semi-gloss enamel.
- Galvanized Metals: Semi-gloss acrylic enamel; acid etch and rinse surfaces; one coat alkyd metal primer; two coats interior acrylic latex semi-gloss enamel.
- Prefinished Metals: Semi-gloss acrylic enamel; acid etch and rinse surfaces; one coat alkyd metal primer; one coat interior alkyd enamel undercoat; two coats interior acrylic latex semi-gloss enamel.

- Wood: Semi-gloss acrylic enamel; one coat interior alkyd enamel undercoat; two coats interior/exterior latex semi-gloss enamel.

09962 – Fabric Covered Tack Panels

Vinyl coated fabric complying with Federal Specification CCC-W-408A, Type II, maximum 24 oz per lineal yard, color and pattern as selected by Architect from manufacturer's standard list, flame spread less than 25, smoke density less than 450, ASTM E84, NFPA 255. Substraight filler as recommended by adhesive and wall covering manufacturer as compatible.

DIVISION 10 - SPECIALTIES

10100 - Visual Display Boards

Porcelain Steel Markerboard: Porcelain finish on 24 gage enameling sheet steel. ¼ inch thick hardboard of 3/8 inch particleboard. Backing sheet 0.015 inch aluminum foil.
Linoleum Resilient Homogeneous Tackable Surface Material: Natural materials consisting of linseed oil, granulated cork, rosin binders and dry pigments, mixed and calendered onto a natural burlap backing. Uni-color shall extend throughout thickness of material. Contains no harmful by-products or carcinogens. Thickness ¼ inch.

10155 –Toilet Compartments

Material: HDPE or solid phenolic partitions and screens as indicated in the Drawings.
Hardware: Institutional type, satin finish stainless steel. Chrome plate zamac not acceptable.
Compartments: Ceiling hung design complete with attachments and hardware.
Urinal Screens: Wall hung-flange supported complete with attachments and hardware.

10210 - Metal Wall Louvers

Stationary blade steel wall louvers with insect screens. Louvers: Fabricated from minimum 18 gauge galvanized sheet steel; fixed blades; channel shaped frame with welded corners; shop primed finish.

10400 - Identifying Devices

Code mandated accessibility signage, stair signage and room occupancy signage complying with CBC requirements and campus standards.
Project building, permanent room identification signage and building directories complying with CBC and ADA requirements.

10522 - Fire Extinguishers, Cabinets and Accessories

Fire extinguishers, cabinets and brackets with mounting hardware.
Cabinets: Fire rated; double wall 18 gauge cold rolled steel box lined with 5/8 inch thick fire barrier material; certified and listed by Warnock-Hersey for one and two hour combustible and non-combustible wall systems to meet requirements of UBC Standard No. 43-6; semi-recessed with 4 inch deep rolled edge return trim; tubular steel door with full clear acrylic; flush pull handle with self-adjusting roller latch; continuous piano hinge; maximum 4 inch overall projection from wall.

10675 – Metal Storage Shelving

Steel "Clip" type shelving manufactured by Republic steel or equal.

10800 - Toilet Accessories

Toilet and custodial accessories for common areas and bath accessories for living units complete with rough-in frames and attachment hardware. Bobrick or equal.
Manufacturer: Bobrick, American Specialties, Bradley, McKinney/Parker or approved equal.

Recommended Schedule of Toilet Accessories is based on Bobrick Model #s:

Paper Towel Dispenser	Semi-recessed	No. B-3994
Sanitary Napkin Vendor	25-cent coin operated, recessed	No. B-3500
Sanitary Napkin Disposal	Recessed	No. B-353
Sanitary Napkin Disposal	Partition Mounted	No. B-354

Seat Cover Dispenser	Recessed	No. B-3013
Toilet Tissue Dispenser	Recessed, Multi-roll	No. B-3888
Toilet Tissue Dispenser	Partition Mounted, Multi-roll	No. B386 (serves 2 compartments)
Soap Dispenser		No. B822
Stainless Steel Framed Mirror & Shelf		No. B-292
Grab Bar		No. B-5806 series
Utility Shelf with Mop and Broom Holder – 36" long with (4) mop holders		No. B-224
Warm Air Hand Dryer	Recessed	No. B-750

DIVISION 11 - EQUIPMENT

11132 – Projection Screens

Electrically Operated Screen: Recessed in ceiling with mounted automatic ceiling closure.
Screen: Matte white, flame and mildew resistant.
Size: As indicated on drawings.

DIVISION 12 – FURNISHINGS

12300 – Manufactured Casework

Laminated plastic-faced casework complying with Woodwork Institute of California (WIC) Manual of Millwork, Section 15:

Open Cabinets and Cabinets with Glass Doors:	Premium Grade
All other Casework:	Custom Grade
Casework Design:	Flush Overlay
Construction Style:	
Style A, frameless	
Construction Type:	Type I, multiple self-supporting units fastened together to form a larger unit

Countertops:

Standard Laminate Plastic:	WIC Section 16, Custom Grade
Acid Resistant Laminated Plastic:	WIC Section 17
Epoxy Resin:	WIC Section 17C

- Hardware: Satin stainless steel finish. Keying: Grandmaster key system.
- Mechanical Service Fixtures: Provide for air, gas, vacuum, cold water, and hot water
- Casework Accessories: drawer number plates, apparatus rods, metal tube legs.
- Accessory Cabinets: flammable liquids storage cabinet, vented; corrosive liquids storage cabinet.

12481 - Floor Mats and Frames

Frames: Fabricate manufacturer's standard frame profiles to fit size and style of grille for permanent installation in shallow, level bottom recess in subfloor without drain pan.
Stainless Steel Grates: Fabricate tread rails from stainless steel wire; minimum .071 by 0.156 inch triangular profile. Provide 4 hidden lock-down devices near corners of each grille section.

12493 - Rolling Shades

Motor operated rolling shades. Shade Materials: Decorative fabric or black-out fabric as selected by Architect.

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DIVISION 13 – SPECIAL CONSTRUCTION

13700 - Security System

The Work includes the supply and installation of all components, specified or not, for a complete and working security systems. This includes, but is not limited to, the supply and installation of:

1. Access Control and Alarm Monitoring System (ACAMS)
2. CCTV Cameras, housing and lenses
3. Intercom System

DIVISION 14 - CONVEYING DEVICES

No specifications for this section.

DIVISION 15 - MECHANICAL

15011 – General Requirements for Equipment

Principal Items to be Included:

- Air handling units with chilled & heating hot water coils, exhaust fans for laboratory, exhaust fans for restrooms, supply air valves or VAV boxes with hot water reheat coils and exhaust air valves or VAV exhaust boxes.

General System Description:

- The air handlers serving the building shall be variable air volume (VAV) with single-supply air duct system and VAV terminal boxes with hot water reheat coils for each zone.
- The exhaust system serving the building shall incorporate multiple fans in a centralized exhaust system on the roof and serve all the exhaust needs of the laboratory areas. The exhaust fans shall be sized to provide the required number of air changes per hour for the laboratories being served.
- Separate exhaust fans shall be specified for restrooms.
- Chilled and heating hot water shall be supplied to the building from the Central Plant.
- The telecommunications building distribution frame shall be provided with a dedicated DX cooling only split system to provide air conditioning 24/7.

15060 – Piping

Piping Material:

- Chilled water and heating hot water piping: 3" and larger, Schedule 40 black steel pipe ASTM A53, type ERW, grade B with thermal insulation to minimize heat gain or loss and prevent condensation.
- Chilled water and heating hot water piping: 2 ½" and smaller Type "L", hard drawn copper tube. Insulation shall be the same as the larger piping systems.
- Chilled water piping (below grade): pre-insulated PVC pipe (AWWA C900) with high density polyethylene (HDPE) jacket and restrained joints. Insulation shall be factory applied 2" thick void free polyurethane foam.
- Heating hot water piping (below grade): pre-insulated type K copper iron pipe with high density polyethylene (HDPE) jacket and brazed/soldered joints. Insulation shall be factory applied 2" thick void free polyurethane foam. Expansion control shall be provided by expansion control loops..
- HVAC Condensate Drain: Type "L" copper, insulated. Seamless copper tube. ASTM B88-96.

15140 – Domestic Water Piping Materials

Type L with wrought copper fittings and brazed or soldered joints. Seamless water copper tube: ASTM B88-96

15150 – Sanitary Waste and Vent Piping Materials

Heavy duty cast iron hubless pipe and fittings. ASTM A888 or CISPI 301 with hubless coupling gaskets: ASTM C-564

15201 – Natural Gas Piping Materials

Schedule 40 black steel with malleable iron fittings.

15250/15290 – Mechanical Insulation

Insulation Material:

- Ductwork: All concealed supply air ducts shall be insulated with 1.5" thick foil-faced fiberglass insulation. All exposed supply air ducts in duct shaft shall be lined with 1" thick 1.5 pound density fiberglass lining. All main supply air and return air duct shall be lined with fiberglass lining as indicated on the drawings from each air handling unit.
- Piping: Chilled water and hot water piping shall be insulated with 1.5" thick, heavy density fiberglass with

vapor barrier jacket. Insulation for all outdoor piping shall be covered with aluminum jacket.

15245 – Seismic Isolators

Vibration Isolators: Midland-Ross Superstrut or Pipe Shields, installed to prevent transmission of vibration to structure, including seismic restraints

15310 – Fire Protection System

Riser and cross mains shall be ASTM A 795 Steel Piping schedule 40 black steel pipe. All other sprinkler piping shall be ASTM A 795 schedule 40 black steel pipe, or ASTM B 88 Type K copper tube Connections or fittings shall be threaded, flanged, grooved or welded.

15440 – Plumbing Fixtures

Water Closets: Wall hung, vitreous china as manufactured by American Standard, Kohler or equal: "Afwall" Model No. 3355.160.

Urinals: Wall hung, vitreous china as manufactured by American Standard, Kohler or equal: similar to "Falcon" No. F-5000.

Sinks: Counter mounted 18 gauge stainless steel as manufactured by Elkay, Just or equal.

Lavatories: Wall hung, vitreous china as manufactured by American Standard, Kohler or equal: "Wheelchair Users Lavatory" No. 9141.011.

Service Sinks: Corner type precast terrazzo one piece by American Standard, Kohler or equal: Kohler Model No. K-6710.

Drinking Fountains: Wall mounted, projecting type made of stainless steel manufactured by Haws or equal, model 1011HPS "Hi-Lo".

15441 – Domestic Water Pump

Close Coupled, In-Line, Seal less Centrifugal Pumps: Factory-assembled and -tested, single-stage, close-coupled, in-line, seal less centrifugal pumps.

15450 – Domestic Water Heater

Low Nox Commercial Gas Tank Type Water Heaters: ANSI Z21.10.3, ASHRAE/IES
Glass lined tank equipped with integrated control system.

15500 - Heating, Ventilating, and Air Conditioning

Heating, ventilating and air conditioning equipment with related controls, piping and ductwork complying with SBCCD Design Guideline and Requirements (not yet provided).

Definitions:

HVAC: Heating, ventilating and air-conditioning.
EMS: Energy Management System.

Since the heating and air conditioning system is critically related to the function, industrial hygiene, capital cost, operating cost and maintenance cost, it is important that the type of system be determined at the preliminary planning stage. The selection of the type of heating and air conditioning system will require discussion between the Architect, their Mechanical Engineer, the Facilities Engineer and Facilities Maintenance Director.

Energy Management Control System:

- Existing start/stop contacts are available for some pieces of existing equipment. Contacts will be reused to the extent possible. Expansion of the system is not anticipated.
- Design all equipment to allow for future connection to an energy management control system.

Sound Levels:

- Design of air handling and other mechanical systems shall be such that sound levels in all occupied spaces fall within the NC levels tabulated in the ASHRAE Guide for the occupancies involved.

General Design Considerations:

- All duct and piping systems will be insulated according to Title 24 Energy Compliance requirements.
- Duct lining will be allowed in exposed gymnasium ductwork, but lining will not be allowed in other locations.

Vibration Isolation:

- All rotating or reciprocating equipment (e.g. fan, motors, compressors, etc.) shall be furnished with vibration isolation as dictated by program requirements.
- All vibration isolation devices shall be designed for seismic resistance in accordance with SMACNA Guidelines for Seismic Restraint of Mechanical Systems.
- Ductwork, piping, electrical conduit, etc. shall be suspended with vibration isolating hangers if required to control vibration in adjacent spaces as determined by program requirements.
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15521 – Laboratory Compressed Air Equipments

Packaged Air Compressors and Receivers: Factory-assembled, wired, piped and –tested; electric motor driven; air cooled; continuous duty; automatic control station; steel receiver tank; combination inlet filter silencer; refrigerant type air dryer; air cooled, fixed bundle, tubular separators; ASME labeled safety valve; automatic drain valve; bronze body pressure regulators; coalescing type compressed air filters.

15855 – Air Handling Units

Equipment and Materials:
Air Handling Units: Energy Labs or Alliance Air Products shall be located on the roof. They shall have a draw thru configuration. Units are composed of filters section, cooling coils, supply fans, return fans, economizer sections, sound traps and variable frequency drives. Units are variable air volume, providing minimum 3" external static pressure and operating on 460V – 3ph – 60Hz

AHU-1: 9500 CFM, 430 MBH cooling, MERV 13 filters, 100% OSA economizer, VFD
AHU-2: 9500 CFM, 430 MBH cooling, MERV 13 filters, 100% OSA economizer, VFD
AHU-3: 5000 CFM, 250 MBH cooling, MERV 8 filters, 100% OSA, VFD

15870 – Power Ventilators

The restrooms shall have common, single rooftop exhaust fan. The fans shall have the following characteristics and approximate capacity: 5300 CFM, .75 in.w.c. TSP, spun aluminum housing, down blast roof ventilator, direct drive fan with speed controller, factory curb and backdraft dampers. Exhaust fans for restrooms: Greenheck or Cook, roof exhauster, belt-driven with centrifugal backward inclined wheel.

15890 – Ductwork

Supply Air Ductwork: Supply air duct system shall be galvanized steel of minimum 4-inch water gauge pressure class for mains. Branch ducts shall be minimum 2-inch class. Sealing, reinforcing and supporting shall be according to SMACNA standards. Ductwork shall have thermal insulation to minimize heat gain, and prevent condensation.

General Exhaust Ductwork: General exhaust duct system shall be galvanized steel of minimum 2-inch water gauge pressure class. There shall be no insulation provided for exhaust ductwork.

15856 – AC Split Systems

BDF Split System: The ductless wall mounted split system serving the BDF shall be Carrier or Trane. It is a 2 1/2 Ton unit and the fan coil shall be mounted within the wall space of the BDF and the condensing unit shall be located on the roof. A low ambient control system shall be provided on the condensing unit to accommodate low ambient conditions.

15910 – Ductwork Accessories

Sound Traps: Vibro-Acoustics or IAC, at suction and discharge of each exhaust fan.

15930 – Air Terminal Devices

Variable Air Volume Boxes: The size and number of VAV terminal boxes to serve each area is based on the load, ventilation requirement, and functionality. All supply VAV boxes are furnished with a two-row reheat coil. All VAV boxes shall be pressure independent with closed-loop feedback controller.

15936 – Air Inlets and Outlets

Diffusers and Exhaust air grilles: Anemostat, Krueger, Titus or Tuttle & Bailey, flush with ceiling and furnished in Factory-finished enamel of color to match ceiling tiles. Provide low-velocity hemispherical pattern diffusers in laboratories housing fume hoods. Such diffusers are designed to handle a large volume of air in confined spaces with low room velocity. Conventional ceiling diffusers of square face panel type shall be provided in laboratories free of fume hoods, offices, classrooms and other non-laboratory areas. The exhaust grilles shall be steel or aluminum, perforated face panel with back pan and duct connection collar.

15950 – Testing, Adjusting and Balancing

All systems to be fully tested, adjusted and balanced.
Contractor shall be AABC certified. NEBB will not be accepted.

15975 – Direct Digital Control System

Direct Digital Controls: The building automation/energy management system shall be compatible with the existing energy management system resident. The building controllers shall integrate with central utilities and the laboratory control systems. The system shall be able to integrate multiple building functions, including equipment supervision and control, alarm management, energy management, historical data management and archiving, and monitoring of laboratory controls.

All control panels shall be stand-alone in memory, networking, and control operations. The design of the controls shall be in a modular format, permitting future expansion capabilities. The system shall monitor and control equipment according to the sequence of operation, as well as additional input and output points. The building control system shall operate to ensure operation safety, regulatory compliance and to satisfy process constraints as well as occupant comfort.

Conventional VAV boxes with direct digital control shall be provided in laboratories free of fume hoods, offices, classrooms, and other non-laboratory areas.

DIVISION 16 - ELECTRICAL

16010 – General Requirements

Concrete housekeeping pads are required for all floor-mounted electrical equipment, both interior and exterior. All equipment enclosures are required to have adequate working space without including areas impacted by door swings.

All electrical equipment doors are required to have concealed hinges and flush locks. All doors must swing in the direction of egress.

16050 – Basic Materials

All wiring devices (receptacles, GFIC devices and wall switches) shall be gray in color with satin stainless steel wall plates.

Receptacles and Switches: 20A Heavy duty. Manufacturers: Cooper, Hubbell, Leviton and P&S.

All surface mounted boxes are required to be plumb and square in all three dimensions – floor, walls and ceilings. Skewed boxes are unacceptable. Floor boxes are preferred to be Walker RFB4 Series with power fittings and accessories. Cover is preferred to be Walker S36CCTCAL cover “Floor Port” Flanged Activation Kits with insert areas to allow carpet and tile cutouts to match the finished floor.

Above ground: Rigid conduit, IMC or EMT are acceptable. Rigid conduit is required in all outdoor locations, and where conduit is exposed to physical damage.

All EMT conduit fittings shall be compression type. Screw type fittings are not allowed.

All power and fire alarm cables shall run in conduits. MC cables except for lighting whips (limited to 4 feet only) are not allowed.

All electrical equipment including receptacles and switches shall be labeled.

16122 – Medium Voltage Cable

5 kV feeders shall have 133 percent insulation, MV105 type, single-conductor; solid-dielectric Ethylene Propylene Rubber (EPR) insulated, shielded and jacketed rated for 105C for continuous service Manufacturers: Kerite, Okonite, Pirelli or Rome.

16321 – Pad Mounted Transformer

R-temp/ FM listed transformer with copper winding is preferred. Manufacturers: Square-D, G.E., Cutler Hammer and ABB transformers.

16363 – Selector Switch- 15 KV

Pad mounted 15 KV, SF6, (4) ways gas selector switch. Manufacturers: S&C, G&W Electric Company and Canada Power Products Corporation

16460 – Dry Type Transformer -600V or less

Transformers are required to have copper winding and 150°C class insulation. Manufacturers: Carol, Okonite, Rome, Southwire, Triangle or Pirelli.

16470 – Panels Boards

All panels shall have copper busses, bolt on type and equipped with main breakers. Manufacturers: General Electric, Square-D., Cuttler Hammer.

16471 – Distribution Boards

Switchboards and distribution boards shall have copper busses and are required to be dead front with all terminations front accessible. Manufacturers: Cuttler Hammer, General Electric, Square-D.

16510 – Lighting

Exit signs with LED type lamps are required.
Light fixtures: As shown on drawings or as indicated in fixture Schedule.
Lighting Controls: Douglas Lighting Control or Lighting Control and Design.
Day Lighting Controls: Step dimming ballast and photo sensors for automatic controls.

16620 – Emergency Power Distribution

Each automatic transfer switch will be 4-pole and provided with the bypass isolation feature. The bypass isolation switch will provide a safe and convenient means of manually bypassing and isolating the automatic transfer switch regardless of the condition or position of the switch. Manufacturers: Asco, Zenith and Russell Electric.

16675 – Transient Voltage Surge Suppression

Transient voltage surge suppression: Current Technology

16721 – Fire Alarm

Microprocessor-based direct wired, multi-priority peer-to-peer networked system. Manufacturer: GE Security: EST Fire & Life Safety – EST3.

END OF OUTLINE SPECIFICATIONS

FEDERAL FUNDS DETAIL

No Federal Funds are available for this project

ANALYSIS OF FUTURE COSTS

Personnel Costs

Certificated:

The proposed project may increase the number of certificated staff assigned to the programs and services proposed for this building. The funding for these positions will occur as a result of the additional revenue from FTES generated by the instructional program. It is anticipated the revenue will offset the expenditures. Administrative staffing will remain the same.

Classified:

The proposed project may increase the number of classified or support staff assigned to the programs and services proposed for this building. The funding for the support staff positions will be offset by the additional FTES funding generated by the increase in enrollment. The revenue will offset the expenditures.

Depreciation, Maintenance, and Operation:

Community colleges are not required to depreciate the value of their buildings. With respect to maintenance and operations, this project will add approximately 22,168 ASF/33,100 GSF of space to the college inventory. The college has developed a long-term funding program for additional support staff positions and operational costs that will occur as a result of the capital construction program. It is anticipated the costs associated with the on-going maintenance and operation of the building will be absorbed within the annual operating budget of the college.

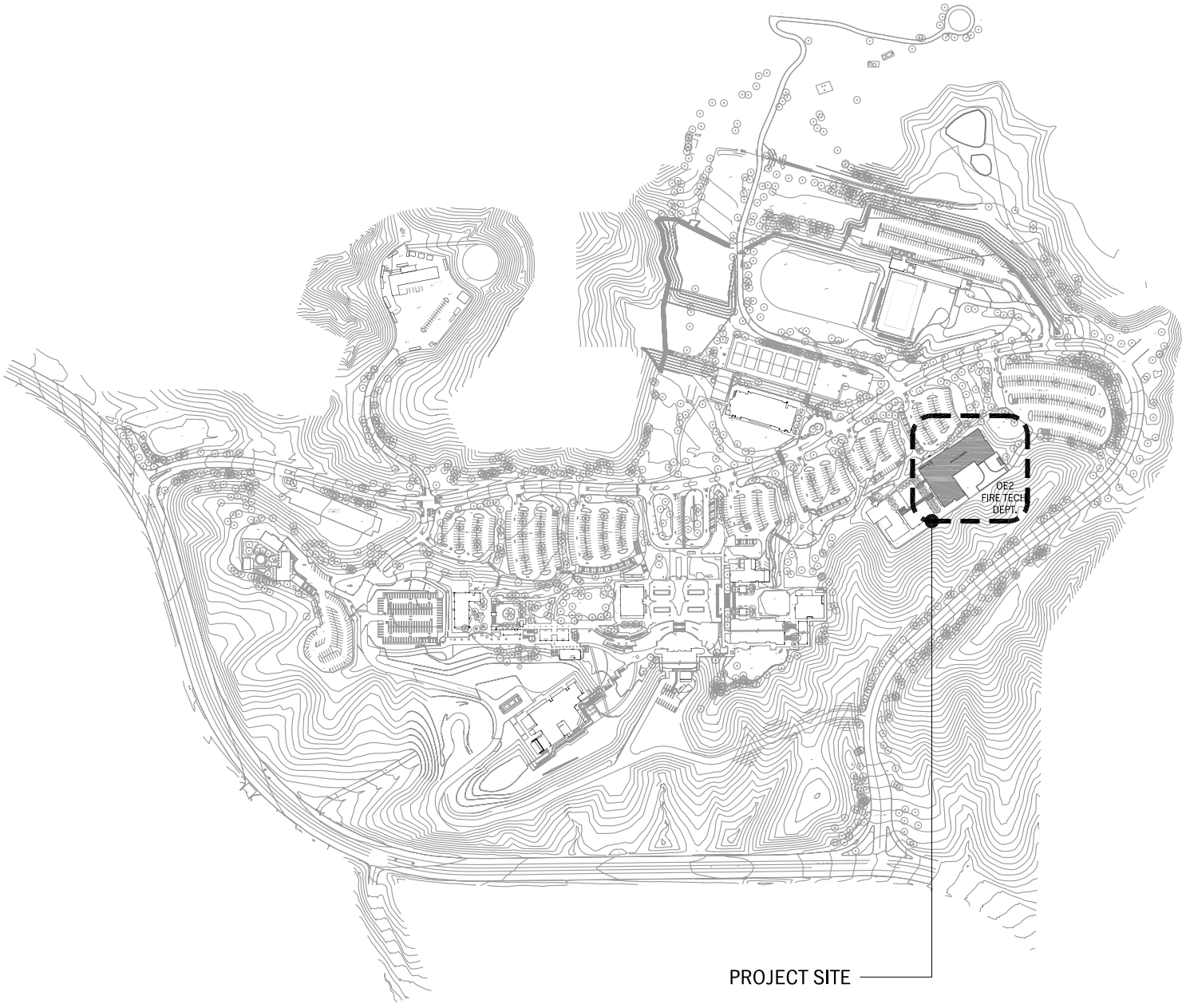
Because this is a new facility, the design and construction will be in accordance with modern, energy efficient systems and materials. This design should minimize the day-to-day operating costs of the building.

Analysis of Future Costs (Continued)

Program/Course/Services Approvals

List all new programs/courses/services to be housed in this project or its secondary effects and give the date of approval. If there are no new programs/courses/services for which approval is required, please so state. This is not required for "equipment-only" projects.

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



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03.May.2011

Steinberg Architects

San Bernardino Community College District

New Emergency Services (OE-2)

Crafton Hills College

Yucaipa, California

Campus Plan

NTS

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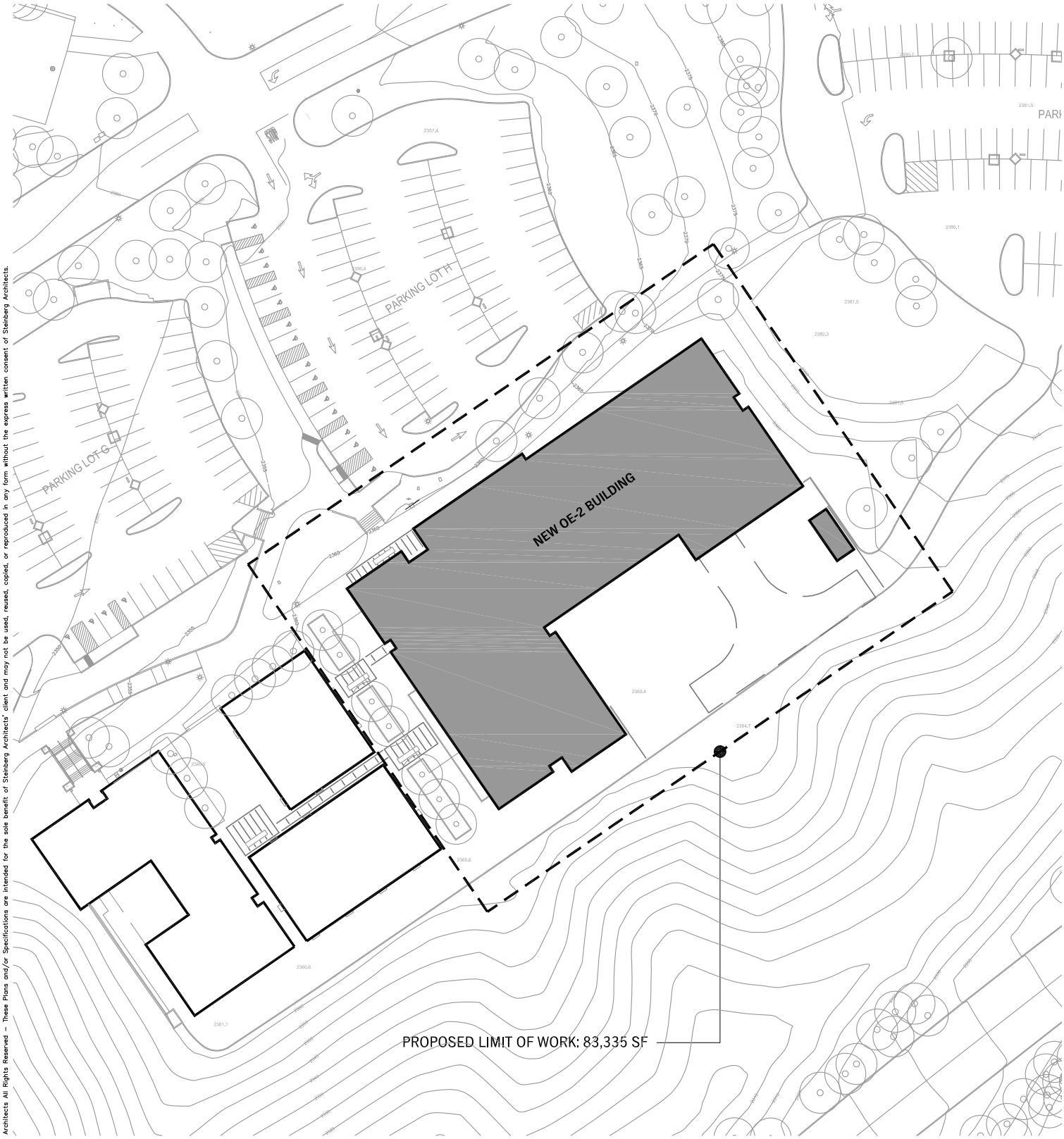

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San Bernardino Community College District

New Emergency Services (OE-2)

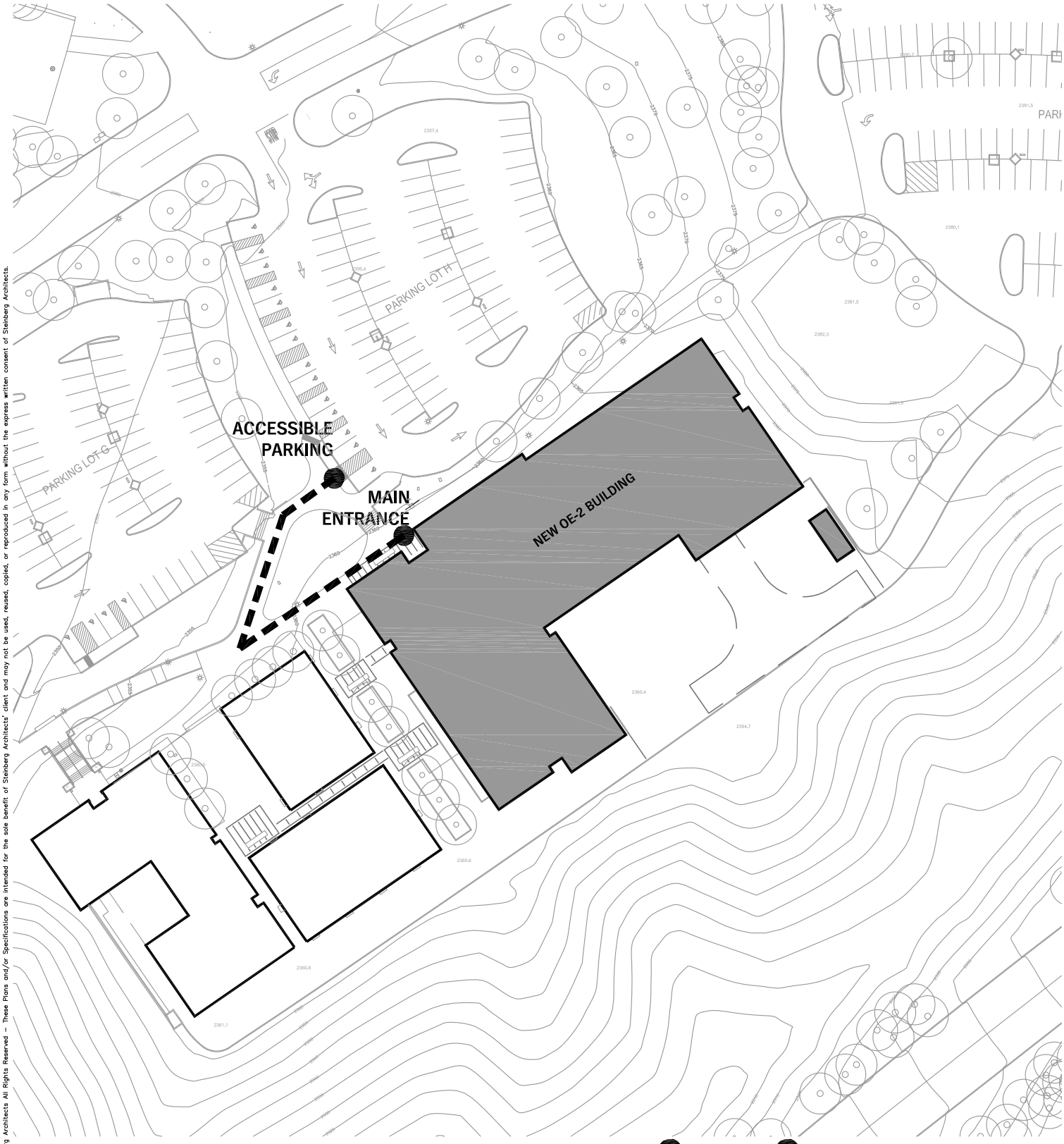
Crafton Hills College

Yucaipa, California

Site Plan

NTS

A0.2



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New Emergency Services (OE-2)

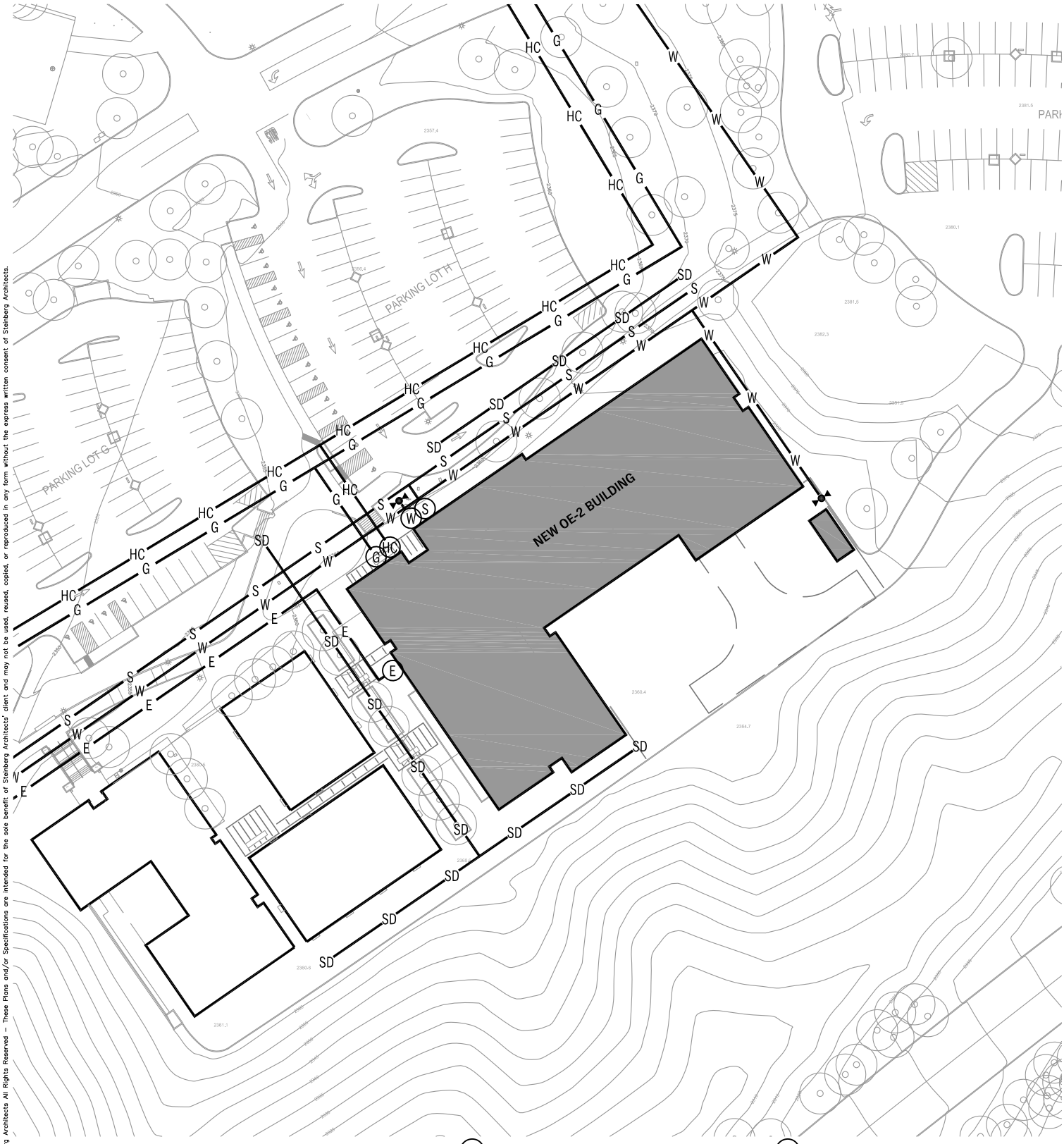
Crafton Hills College

Yucaipa, California

Site Accessibility Plan

NTS

A0.3



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New Emergency Services (OE-2)

Crafton Hills College

Yucaipa, California

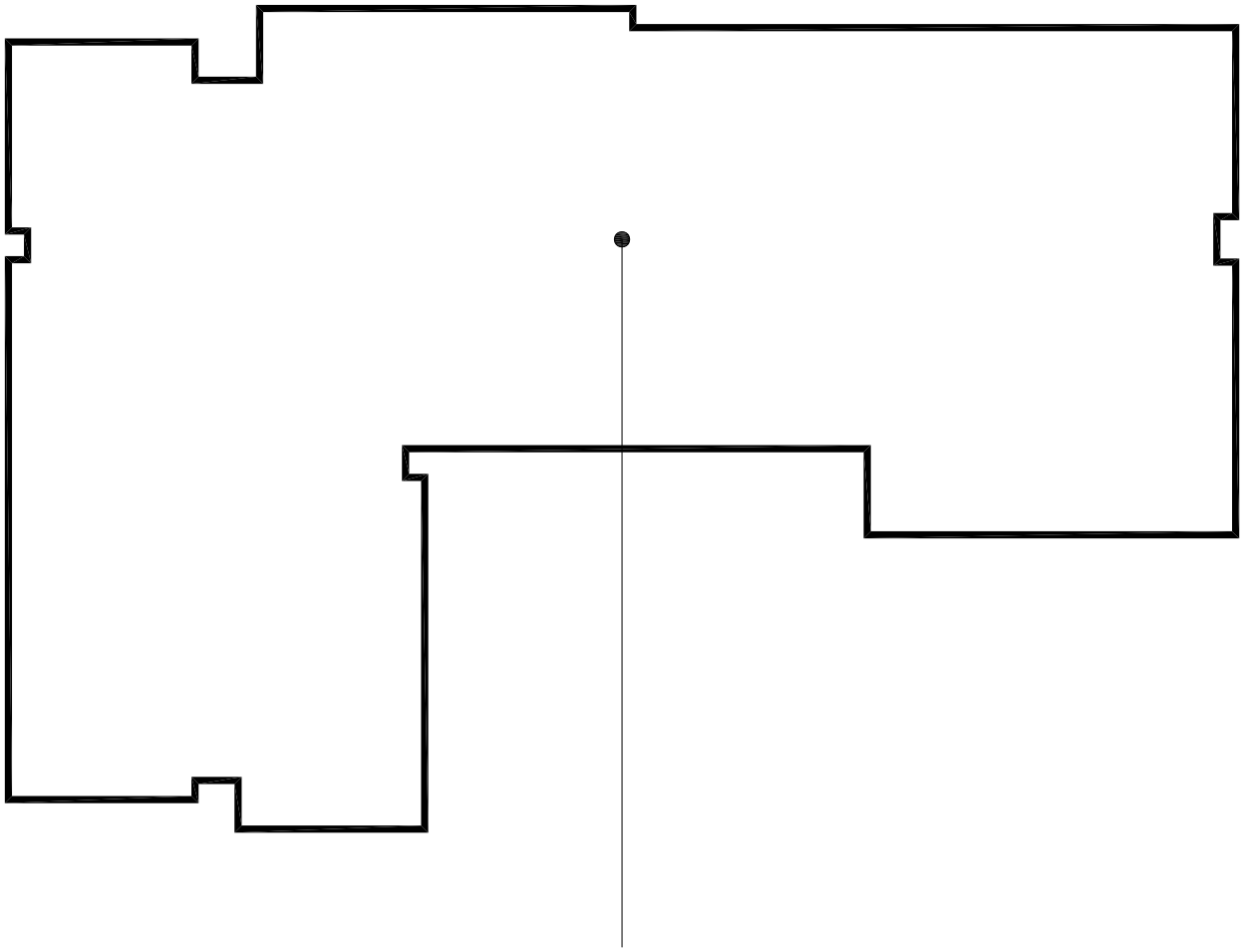
Utilities Plan

NTS

A0.4

SQUARE FOOTAGE TOTAL:

FIRST LEVEL	30,750 GSF
TOTAL	30,750 GSF



30,750 GSF

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New Emergency Services (OE-2)

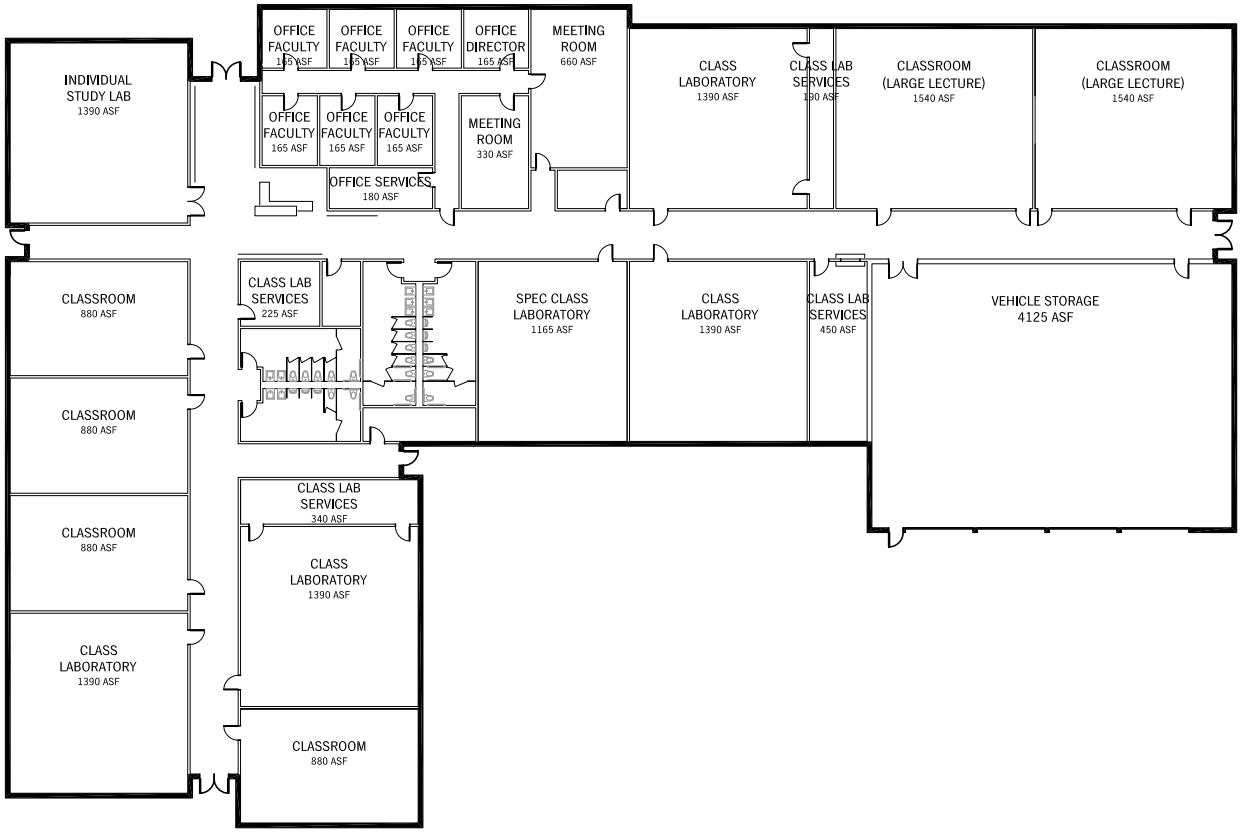
Crafton Hills College

Yucaipa, California

Gross Square Footage - First Floor

1" = 40' 0"

A1.1



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New Emergency Services (OE-2)

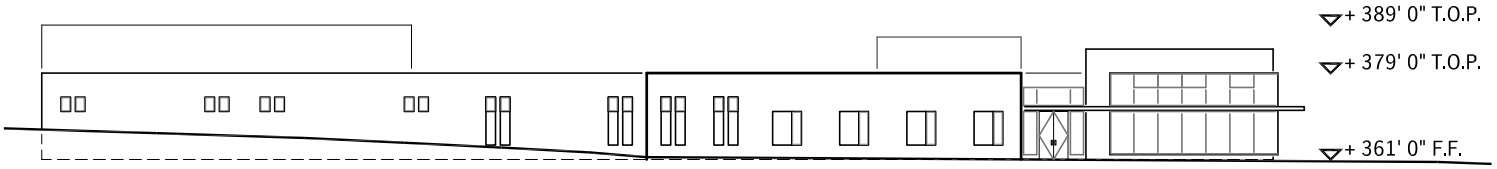
Crafton Hills College

Yucaipa, California

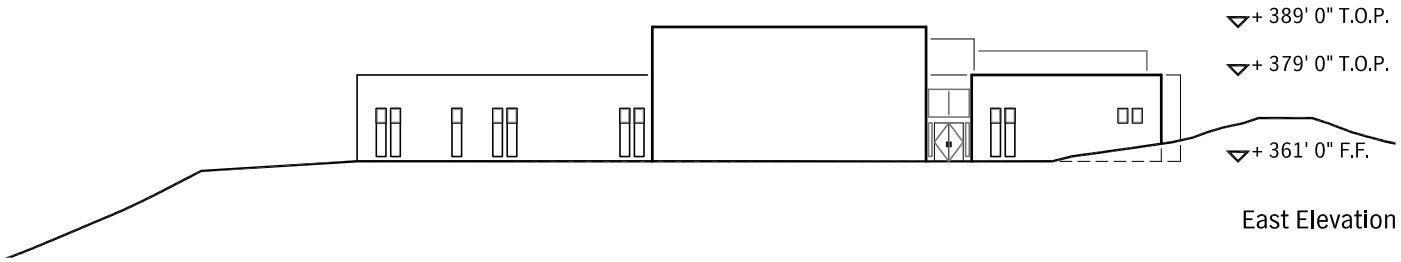
First Floor Plan

1" = 40' 0"

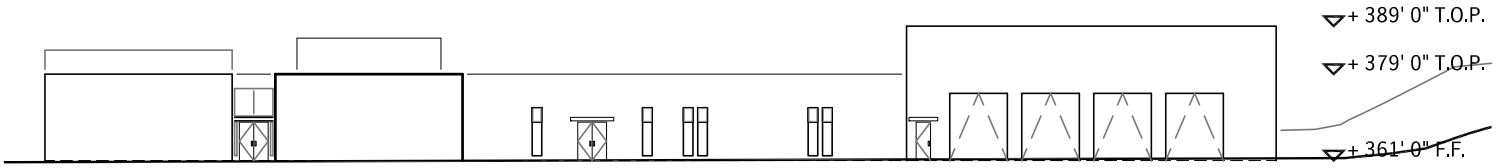
A2.1



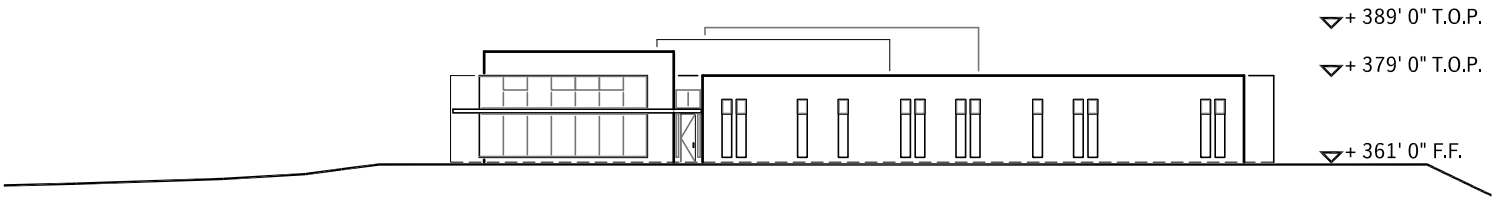
North Elevation



East Elevation



South Elevation



West Elevation

03.May.2011

Steinberg Architects

San Bernardino Community College District

New Emergency Services (OE-2)

Crafton Hills College

Yucaipa, California

Elevations

1" = 40' 0"

A3.1

GUIDELINE-BASED GROUP II EQUIPMENT COST ESTIMATE-JCAF 33

District: San Bernardino Community College District **Project:** New Emergency Services (OE-2)
College: Crafton Hills College **Prepared by:** Maas Companies **Date:** 1-Jul-11

☒ New Construction ☐ Reconstruction* ☐ Replacement Project*

Room Type	*# Rms*	*4 Digit Tops Code #/Name*	*Project Space ASF*	*Existing Space ASF*	*Increase in Space (ASF)*	*Cost/ASF per Guidelines*	*Gross Allowable Cost*	*Equipment Useable in New Space/Progam*	*Total Allowable Cost*
110	8	0099-Classroom	6,290	3,863	2,427	$14.10	34,221	$3,600.00	30,621
210	1	1200-Laboratory-Health Occ.	1,350		1,350	$51.60	69,660	$7,200.00	62,460
210	4	2100-Laboratory-Public Serv.	4,050		4,050	$71.68	290,304	$19,500.00	270,804
215	2	2100-Lab. Serv.-Public Serv.	830	465	365	$71.68	26,163	$3,600.00	22,563
215	1	4900-Lab. Serv. -Ind. Studies	400		400	$205.02	82,008	2,200	79,808
220	1	2100-Special Class Lab.	1,200	1,208	-8	$71.68	-573	0	-573
230	1	4900-Ind. Studies Lab.	1,488		1,488	$205.02	305,070	0	305,070
310	6	0099-Office-Faculty	1,080	1,332	-252	$22.05	-5,557	0	-5,557
310	1	6000-Office-Inst. Adm.	160		160	$25.15	4,024	0	4,024
315	1	0099-Office-Service	210		210	$22.05	4,631	0	4,631
680	2	0099-Meeting Room	990		990	$22.86	22,631	1,200	21,431
740	1	2100-Veh. Storage-Pub. Ser.	4,120	4,536	-416	$0.00	0	0	0
99	1	0050-Inactive	0	891	-891	$0.00	0	0	0
	29	Total ASF	**22,168**	**12,295**	**9,873**				
		Total GSF	**33,100**	**15,730**	**17,370**		**832,582**	**37,300**	**$795,281**

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

Equipment Price Index: **3016**

JUSTIFICATION FOR ADDITIONAL COSTS EXCEEDING GUIDELINES

■ New Construction (Including Group I Equipment) ❒ Reconstruction ■ Equipment (Group II and Furniture)

District: **San Bernardino Community College District** **College:** **Crafton Hills College**

Project: **New Emergency Services (OE-2)**

Based on current construction costs (CCI 5394 and EPI 3016), it is anticipated that costs will not exceed the state guidelines for new construction or equipment for this project.

Emergency Services (OE-2) --Equipment List

Location	Qty.	Item Description	Unit Price	Ext. Price

A detailed Equipment List with a value of $795,281 will be included upon initial approval of the Final Project Proposal