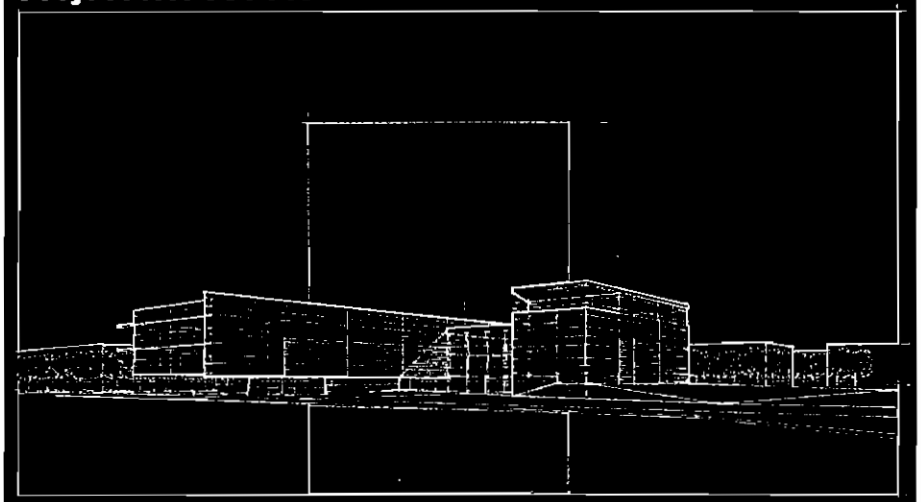
AGSM Building
Detailed Project Program
Project No. 950449



Gensler

June 12, 2002

University of California, Riverside
The A. Gary Anderson Graduate
School of Management (AGSM)

University of California, Riverside

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The proposed A. Gary Anderson Graduate School of Management (AGSM) Building will be a state-of-the-art, multi-purpose education, research, knowledge-sharing, and outreach facility for the University of California, Riverside's (UCR) A. Gary Anderson Graduate School of Management (AGSM). The new facility will provide an environment and learning community where interaction and collaboration between students, faculty, staff, and the community are facilitated and promoted. This environment will support the school's philosophy of providing students with a practical and relevant education in entrepreneurship, social responsibility, and domestic and international business within a non-hierarchical setting. The project site for the proposed AGSM Building is the northwest corner of Canyon Crest Drive and Martin Luther King Boulevard on UCR's West Campus.

The primary goals for the AGSM Building are to provide a synergistic environment, be a technology-enabled facility, promote a collaborative learning community, reflect a global business perspective, and incorporate the best practices of academic and corporate design. The objective of the project is to develop a facility that is in full support of the AGSM mission, "...to be recognized as a premier center of management research and education seeking to develop effective and socially responsible leaders."

The AGSM Building will be the headquarters for the undergraduate, Master of Business Administration (MBA), and Executive Education programs. The facility will be closely integrated with the UCR Heckmann Center Complex in Coachella Valley, offering AGSM students and executives additional educational opportunities, both on-site and through distance learning. Additionally, the facility will accommodate anticipated program growth within the AGSM. The demand for AGSM programs is high and continues to grow. From 2001-02 to 2010-11, enrollment in the graduate MBA program is projected to increase by 88%; in that same time period, the number of undergraduate business majors is projected to increase by 23%. The AGSM is presently housed in two wings of Anderson Hall (the original Citrus Experiment Station Building) located on the east side of the campus within the academic core. The AGSM is in a severe space deficit situation in its current space. Anderson Hall 1, the central wing, was constructed in 1917; Anderson Hall 2, the south wing, was constructed in 1916. Both building wings were renovated in 1994, at which time AGSM was relocated into the building. To accommodate its growth, the AGSM has installed partitions in all open spaces, including the main lobby, to house faculty and staff.

The AGSM Building will include a variety of state-of-the-art instructional and research spaces as well as offices for the School's faculty and administrative staff. The building will serve as a magnet for prospective students; provide team-based, highly interactive spaces with the most up-to-date technology for current students, and attract business executives to participate and contribute to student learning and professional development. The AGSM Building is programmed to accommodate the evolving requirements of the AGSM curriculum and provide for student enrollment growth through 2010-11.

The proposed AGSM Building will include a total of 55,370 assignable square feet (asf) comprised of three categories of spaces:

Academic Program	29,820 asf
Dean's Office	9,202 asf
Executive Education	16,348 asf
Total	55,370 asf

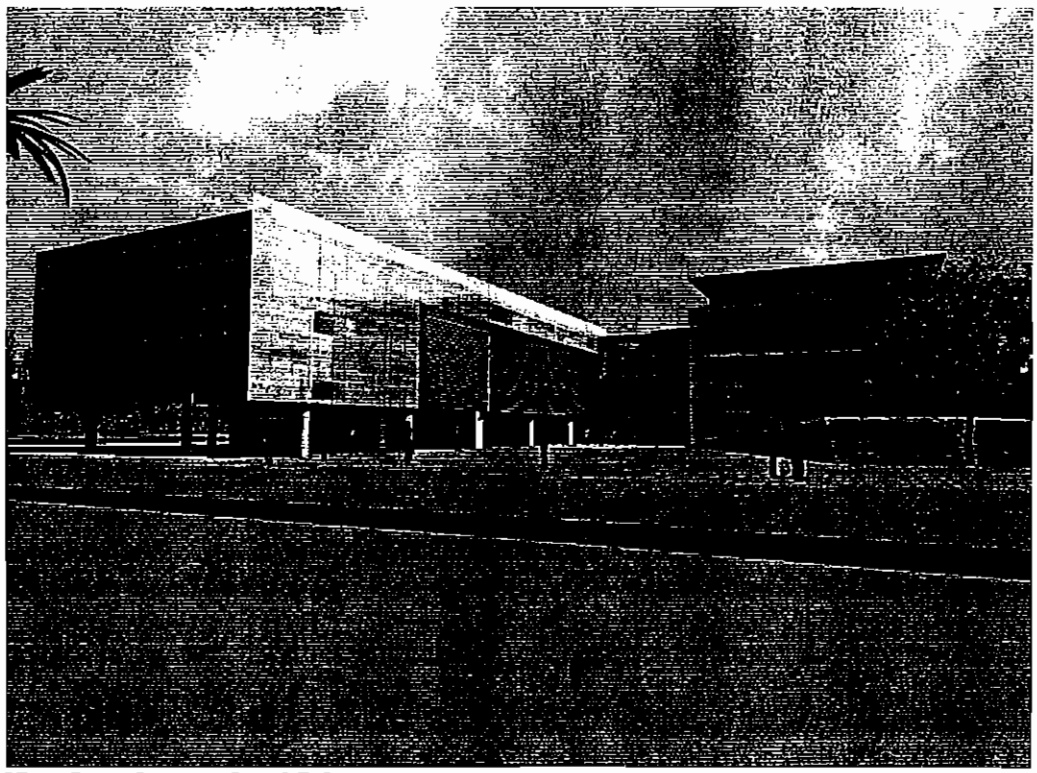
More details about the space program can be found in Section 2.

The AGSM Building will be the first academic facility to be built in the professional school development zone on the West Campus. The preferred siting plan positions the AGSM Building as a gateway to the West Campus, on axis with the Canyon Crest Drive underpass that links the east and west sides of the campus, which are otherwise bisected by the I-215 freeway. The AGSM Building will set the stage for future development and architectural design on the west side of the freeway. The West Campus project site will provide a highly visible location for the AGSM Building from the UCR campus to the east, local roadways, and the freeway. Additionally, the site will provide convenient pedestrian and vehicular access.

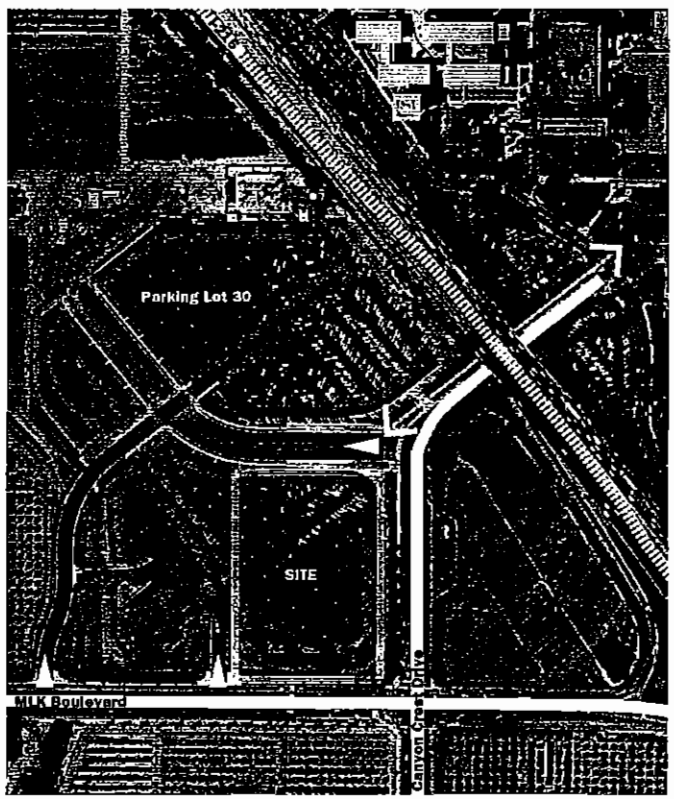
The preferred concept for the AGSM Building is two interlocking and fully integrated building components that connect by way of a main entrance, which draws people in from the east (existing campus) and west (professional school development zone). The first component will contain the state-funded spaces (Academic Program and Dean's Administrative Office), and will be a three-story structure located to the south of the main entry. The second component is to be located directly to the north of the main entry and will contain the gift-funded spaces (Executive Education) in a four-story structure. The two components will be connected by a three-story atrium enabling the building to operate as a single community of students, faculty, staff, and visitors but also to be sectioned off into autonomous parts when necessary.

The design of the building will incorporate references to the architectural styles and iconography of the East Campus through the potential inclusion of materials such as UCR brick; the use of large amounts of glazing to maximize views; and the use of materials, massing, and design features to reference the "architecture of business." Both the design of the building and landscape will also draw on the history of the site as a citrus grove through the use of color, scale, and patterning.

The project schedule anticipates design to commence in 2003-04, working drawings to be produced in 2004-05, construction to begin in 2005-06, with occupancy in 2007-08. The total project cost, including soft costs is $28,440,000. Additional detail on the construction cost can be found in Section 7 of the Detailed Project Program (DPP).



View from Canyon Crest Drive



Aerial Photo of Site

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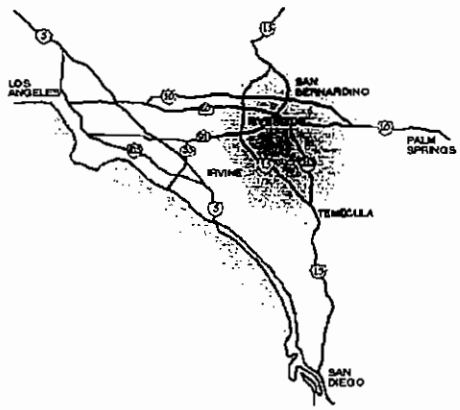
2.1 University of California, Riverside

The University of California, Riverside (UCR) is one of ten campuses of the University of California, one of the finest public university systems in the world. UCR is located on a 1,110-acre campus located at the foot of the Box Springs Mountains, three miles east of downtown Riverside in southern California's rapidly growing "Inland Empire." This region, which has a long history as a center for the citrus industry, has become one of the fastest growing areas of California in recent decades. As a result, Riverside County is enjoying an increasingly diverse and multi-cultural population. The mix of industry types, from banking to manufacturing, continues to diversify and grow as well.

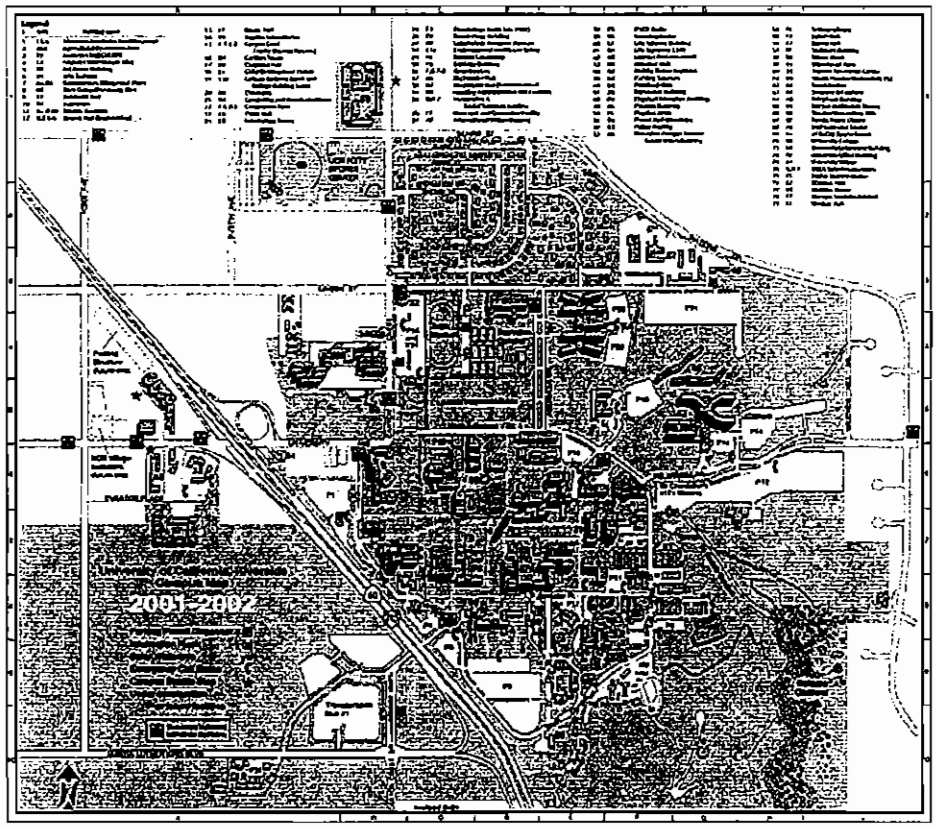


UCR traces its origins to the University of California's Citrus Experiment Station at Riverside, which dates back to 1907. In 1954, UCR's College of Letters and Sciences opened and, in 1959, UCR became a general campus by adding both graduate and professional studies. Today, UCR has two schools and three colleges, which serve undergraduate and graduate students, as well as the public at large:

- The A. Gary Anderson Graduate School of Management
- The Graduate School of Education
- The Bourns College of Engineering
- The College of Humanities, Arts and Social Sciences
- The College of Natural and Agricultural Sciences

Combined, these schools and colleges offer undergraduate majors, master's degree programs, Ph.D. programs, state teaching and administrative credentials, as well as extensive continuing education programs.

UCR is one of the most important educational and cultural resources in the region. The University is also one of the region's most significant employers with nearly 3,000 academic and non-academic staff positions. Currently, most academic activities occur within the 576.5-acre campus area just east of the I-215/SR-60 freeway, with the remaining 533.5 acres west of the freeway presently used for agricultural research, support programs, open space and parking. It is in this western portion of the campus that the new AGSM Building will be located.



University Growth – UCR has been experiencing significant growth in its student population. The student population is expected to grow from 12,800 full-time equivalent (FTE) students in 2001-02 to 19,900 by 2010-11. This enrollment growth will drive facility needs, which will necessitate the construction of new facilities.

2.2 A. Gary Anderson Graduate School of Management

UCR's Graduate School of Administration was founded in 1970. Its name was changed to the Graduate School of Management in 1982, and then to the A. Gary Anderson Graduate School of Management (AGSM) in 1994.

The Master of Business Administration (MBA) degree program was introduced in 1983. This was followed by the establishment of an undergraduate degree program in Business Administration in 1985. The undergraduate degree program is one of only two such degree programs in the University of California system. This program is jointly offered by AGSM and the College of Humanities, Arts and Social Sciences.

In 2001-02, the graduate program enrolled approximately 130 students in the MBA program and 890 in the undergraduate interdisciplinary major in Business Administration that is offered in conjunction with the College of Humanities, Arts and Social Sciences. The AGSM student growth is expected to increase at a consistent rate through 2010-11. By 2010-11, the MBA program is anticipated

to grow to 245 students, and the undergraduate program is projected to reach 1,092 full-time equivalent students.

The AGSM consists of not only the undergraduate and graduate degree programs but also the Executive Education programs and three research centers: the Heckmann International Center for Entrepreneurial Management, the UCR Forecasting Center, and the Electronic Economy Management Center. Each of these research centers has components of research, education, and community outreach.

The AGSM curriculum and approach to education is characterized by:

- A balanced approach of incorporating the "art and science" of business.
- A strong research tradition.
- A desire to provide the practical skills and experience necessary to succeed.
- A close connection to local, national, and global companies and executives.
- A focus on personalized teaching through small classes and accessible faculty.
- A commitment to consistently evaluate the tools and skills used in the business environment to ensure that AGSM's curriculum is relevant, far-reaching, and progressive.
- An active approach to provide continuing education and career advancement programs to alumni, business managers, and the public at large.

In addition to the principal location at the UCR campus, AGSM is developing a Center for Entrepreneurial Management in the City of Palm Desert which will serve as a "multi-function instruction, research, and distance learning facility." The project, known as the Heckmann Center, will include a first phase of approximately 12,403 assignable square feet (ASF) to be completed in 2003. A second phase, with approximately 17,660 ASF, is scheduled for completion in 2004.

The current location of the AGSM in the central and south wings of Anderson Hall comprises 19,021 ASF and does not provide sufficient space to house the AGSM program. The School is in a severe space deficit with all open spaces converted to house faculty, students, and staff. The AGSM facilities in Anderson Hall are consequently insufficiently sized to accommodate the anticipated student and faculty population growth or for new services to the student population. Therefore, a decision was made to develop a new, larger state-of-the-art facility which will be tailored to AGSM's academic and business requirements.

2.3 Long Range Development Plan

UCR's Long Range Development Plan (LRDP) is a comprehensive plan that serves as a guide for the future development of facilities and open space on the Riverside campus. The LRDP, approved by the Regents in 1990, identifies the physical development that is needed to achieve the academic goals of the campus through the year 2005-06 for a student population that was then projected at 18,050 (headcount) by 2005-06. The LRDP is currently being updated with a scheduled revision to be complete in the summer of 2002. New

enrollment targets are a student headcount of 21,000 by 2010-11, growing to a headcount of 25,000 in 2015.

UCR's LRDP and LRDP Environmental Impact Report provide a detailed account of both past planning, existing conditions, land uses, proposed land uses, and mitigation requirements/recommendations. One of the primary objectives of the LRDP update is to further define the proposed uses for the West Campus. Currently, the West Campus is evenly split between the "Agricultural Research Center/Agricultural Experiment Station" (agricultural, training and research fields proposed to remain in perpetuity south of Martin Luther King Boulevard), and a developable portion north of Martin Luther King Boulevard.

The first project to be built in the developable portion of the West Campus under the LRDP was the "Transportation Hub 1," a 1,500-space expansion of an existing parking lot, completed in 2000. Other proposed uses for the developable portion that are outlined in the LRDP update are student housing, student recreational facilities, academic buildings, administrative facilities, and additional parking facilities.

2.4 Planning and Design Guidelines

In addition to the LRDP, the AGSM building and its site must be designed in accordance with both the Campus Design Guidelines (1996), and the Campus Landscape Master Plan (1996).

2.5 Planning Process

The project planning process, which culminates in a Detailed Project Program (DPP), provided a series of opportunities to develop program requirements and compare alternative concepts and siting plans to help determine the most appropriate program and innovative concept for the new building.

The planning process for the AGSM Building DPP began in early December of 2001. The AGSM Program Committee and Gensler's design team held a kick-off meeting to discuss the overall project goals, schedule, AGSM's mission, and the vision for the new facility. During the visioning portion of the meeting, information was presented to reflect "best practices" of other business schools and corporate facilities across the nation.

A series of interviews were then conducted with key constituents within AGSM and UCR to gather information related to programmatic requirements and associated facility and campus requirements. Based upon these interviews, a proposed Program Space List was developed. This space list was then reviewed and approved by the AGSM Program Committee.

At a second work session, the AGSM Program Committee was presented with four proposed site locations along with issues and opportunities associated with each option. The Committee elected to proceed with an approximately 2-acre site on existing Parking Lot 30 at the southeast corner of the West Campus.

After the final draft of the space program was completed, room diagrams, space criteria data sheets, site locations, and site massing alternatives were further developed.

Development of the Final DPP was the result of an iterative process, which incorporated comments from the AGSM Program Committee and UCR staff.

2.6 Key Program Assumptions

Square Footage – The new AGSM facility has an assignable area of 55,370 ASF, based upon the programmatic requirements for the School. The program efficiency factor is 60%, for a total gross square footage of 92,283 GSF. The total project budget including building construction, development, and soft costs is estimated to be $28,440,000.

Utilities – The project will not bear the full financial burden of bringing utilities to the site due to it being the first facility on the West Campus. A separate budget has been established to provide for the development of the required utilities and the project budget will carry the amount required to tie into those utilities. This facility will be "self-sufficient" with regard to heating and chilled water, and will not be tied into the East Campus physical plant due to the extraordinary cost of overcoming the distance and freeway barrier.

2.7 Project Goals and Objectives

The new AGSM Building is being planned as a state-of-the art education facility that will pioneer a highly collaborative learning process that connects students to one another, to faculty, and to the world's business leaders.

To that end, the facility is being developed with the following objectives:

- Provide a welcoming environment for students, faculty, staff, the business community, and the public.
- Promote AGSM as a leading-edge management training facility.
- Establish an environment that prepares and acclimates students to corporate/business settings.
- Provide a supportive, collaborative, and nurturing environment for a diverse, multicultural population.
- Provide flexible spaces that can easily evolve and adapt to the changing curriculum and requirements.
- Encourage creative thinking through spaces that support collaboration and discourse.
- Provide a visible face for AGSM on the campus and to the public.
- Support opportunities to collaborate with other schools, departments, and programs.
- Mitigate concerns about safety and security.
- Provide the infrastructure to support the long-term technology requirements.
- Promote close interaction between students, faculty, and visiting business leaders.
- Balance the need for interaction with the requirement for focused study.

- Support student, faculty, and visitor social activities.
- Continue and maintain the architectural integrity and agricultural heritage of the campus.
- Mitigate environmental impact and promote energy and resource efficiency over the lifetime of the facility.
- Design facility using the LEED Green Building Rating System as a guideline for sustainable design.

2.8 Budget and Schedule

The initial goal with regard to the schedule is to commence construction by 2004-5, with occupancy in 2007-8. A graphic schedule is included in Section 8.2.

The total project budget including soft costs is $28,440,000. A detailed construction budget is included in Section 7.0.

3.1 Program Overview

A total of 55,370 assignable square feet (ASF) has been identified for the proposed AGSM Building. The total projected gross building area is 92,283 gross square feet (GSF) using an efficiency factor of 60%.

The AGSM space is allocated to three (3) program categories as follows:

Program Category	Assignable Square Footage
Academic Program	29,820
Dean's Administrative Office	9,202
Executive Education	16,348
Total	55,370

3.2 Program Space Types

This section of the DPP summarizes the assignable square feet (asf) by space types by program and provides the percentage breakdown of assignable square feet by space type.

The academic program assignable square footage is grouped into the following three space types:

1. **Instructional laboratories:** This category consists of all spaces whose primary function is to support instructional laboratories activities, including class laboratories, open laboratories, and associated laboratory support spaces. Scheduled class laboratories and their related support spaces are considered "standard" space because these facilities are covered by the State's space standards. Open laboratories and their related support spaces are considered "nonstandard" space because they are not covered by the State's space standards.
2. **Research and scholarly activity facilities:** This category includes all spaces whose primary function is to support basic and/or applied research.
3. **Office facilities:** This category includes offices for faculty, post-doctorate scholars, teaching assistants, and staff, as well as office support spaces such as conference rooms, open workrooms, copy/supply/mail rooms, and departmental storage.

The Dean's Office and Executive Education Program assignable square footage is grouped into office, support space, conference/assembly, and food service facilities.

Space Type	Academic Program		Dean's Office	Executive Education	Total ASF	Percent of Total
	Standard	Nonstandard				
Instructional Labs	2,500	6,560	0	0	9,060	16.4%
Research/Scholarly Activities	10,330	0	0	0	10,330	18.7%
Office Facilities	8,510	0	6,182	2,118	16,810	30.3%
Support Space	1,920	0	2,420	620	4,960	9.0%
Conference/Assembly	0	0	600	11,660	12,260	22.1%
Food Service Facilities	0	0	0	1,950	1,950	3.5%
Total ASF	23,260	6,560	9,202	16,348	55,370	100.0%
Percentage of Total	42.0%	11.8%	16.6%	29.5%	100.0%	--

3.3 Program Summary

	Qnty.	ASF	Subtotal
1.00 ACADEMIC PROGRAM			
A. Instructional Labs			
Class Lab (50 sta. @ 20 asf/sta.)	2	1,000	2,000
Open Lab (10 sta. @ 25 asf.sta.)	6	250	1,500
Computer Lab (50 sta. @ 45 asf/sta.)	1	2,250	2,250
Computer Lab (25 sta. @ 45 asf/sta.)	2	1,125	2,250
Class Lab Service	1	500	500
Computer Lab Service	1	560	560
Subtotal Instructional Labs			**9,060**
B. Office Facilities			
Faculty Office (1 sta. @ 139 asf/sta.)	50	139	6,950
Teaching Assistant Office (4 sta. @ 40 asf/sta.)	6	160	960
Interview Room	3	120	360
Interview Lounge	1	240	240
Subtotal Office Facilities			**8,510**
C. Office Support			
Reception	1	100	100
Security Room	1	140	140
Waiting Area	1	300	300
Information Kiosk	1	100	100
Media Production Room	1	400	400
Media Storage Room	1	400	400
Central Copy Room	1	240	240
Central Mail Room	1	120	120
Central Supply Room	1	120	120
Subtotal Office Support			**1,920**
D. Research Space			
Scholarly Activity (25 sta. @ 25 asf/sta.)	2	625	1,250
Scholarly Activity	1	800	800
Scholarly Activity (100 sta. @ 27 asf/sta.)	2	2,700	5,400
GSR Office (4 sta. @ 40 asf/sta.)	8	160	1,280
Faculty Lounge	1	400	400
GSR Lounge	3	400	1,200
Subtotal Research Space			**10,330**
TOTAL ACADEMIC PROGRAM			**29,820**

	Qnty.	ASF	Subtotal
2.00 DEAN'S ADMINISTRATIVE OFFICE			
A. Dean's Offices			
Dean's Office	1	240	240
Associate Dean	2	139	278
Administrative Assistant	2	100	200
Development Officer	1	139	139
Chief Financial Officer/Admin	1	139	139
Conference Room	1	300	300
Reception	1	240	240
Secure Records Room	1	240	240
Work Room	1	120	120
Subtotal Dean's Offices			**1,896**
B. Student Affairs			
Assistant Dean	2	139	278
Student Affairs Officer	6	139	834
Student Affairs Assistant	1	100	100
Career Management	2	120	240
MBA Admissions Director	1	139	139
MBA Student Affairs Officer	2	139	278
MBA Internship Director	1	139	139
Student Recruitment	2	120	240
MBA Admissions Assistant	2	100	200
Reception-Student Advising	1	240	240
Conference	1	300	300
Secure Records Room	2	240	480
Work Room	1	140	140
Reception-Career Management	1	240	240
Student Support	5	120	600
Subtotal Student Affairs			**4,448**
C. Financial & Accounting			
Accounting Assistant	2	120	240
Payroll Clerk	1	120	120
Facility Manager	1	120	120
Reception	1	240	240
Admin Assist for Faculty Support	2	100	200
Work Room	1	240	240
Secure Records Room	1	240	240
Facility Storage	1	240	240
Subtotal Financial & Accounting			**1,640**
D. Information Technology			
Director of IT	1	139	139
Assistant Director of IT	1	120	120
Low Value Storage/Work Room	1	240	240
High Value Storage	1	140	140
Server Room	1	240	240
Subtotal Information Technology			**879**
E. Academic Recruitment			
Director	1	139	139
Review Room	1	100	100
Administrative Assistant	1	100	100
Subtotal Dept. Admin Offices			**339**
TOTAL DEAN'S ADMINISTRATIVE OFFICE			**9,202**

	Qnty.	ASF	Subtotal
3.00 EXECUTIVE EDUCATION			
A. Assembly Area			
Assembly Space (299 sta. @ 18.06 asf/sta.)	1	5,400	5,400
Assembly Support	3	80	240
Assembly Space (75 sta. @ 27 asf/sta.)	2	2,025	4,050
Subtotal Assembly			**9,690**
B. Board Room and Catering			
Board Room (35 sta. @ 20 asf/sta.)	1	1,050	1,050
Catering Pantry	1	240	240
Catering Pantry Support	1	240	240
Subtotal Assembly Areas			**1,530**
C. Resource Center			
Resource Center Office	2	140	280
Resource Center Workstation	4	100	400
Conference Room	1	140	140
Work Room	1	140	140
Subtotal Resource Center			**960**
D. External Affairs			
Assistant Dean	1	139	139
Assistant	1	100	100
Assistant Director	1	120	120
Programs	2	120	240
Coordinator	1	120	120
Conference Room	1	300	300
Reception	1	240	240
Work Room	1	240	240
Subtotal External Affairs			**1,499**
E. Entrepreneurial Center			
Assistant Director	1	120	120
Administrative Assistant	1	100	100
Subtotal Entrepreneurial Ctr			**220**
F. Forecast Center			
Director	1	139	139
Assistant Director	1	120	120
Work Room	1	240	240
Subtotal Forecast Center			**499**
G. Cyber Café			
Café	1	800	800
Cyber Café Service	1	300	300
Pantry 850			
Cashier	1	50	50
Prep Space	1	250	250
Counter Area	1	150	150
Queue Space	1	100	100
Display Area	1	100	100
Clean-Up	1	100	100
Storage	1	100	100
Subtotal Cyber Café			**1,950**
TOTAL EXECUTIVE EDUCATION			**16,348**

Building Totals		
1.00	Academic Program	29,820
2.00	Dean's Administrative Office	9,202
3.00	Executive Education	16,348
	Total Building ASF	**55,370**
	Plus Circulation and Core Factor	**36,913**
	Total Building GSF	**92,283**
	(60% building efficiency ratio)	

3.4 Room Data Sheets

Specific information about each space type listed in the program (Section 3.3), as well as conceptual diagrams for all spaces, are provided on the Room Data Sheets which follow this page.

LEED Green Building Rating System References for Room Data Sheet sections "Architectural Finishes" and "Environment"

- Architectural Finishes
  - Materials & Resources
    - Credit 4 – Recycled Content
    - Credit 5 – Local / Regional Materials
    - Credit 6 – Rapidly Renewable Materials
    - Credit 7 – Certified Wood
  - Indoor Environmental Quality
    - Credit 4.2 – Low VOC Paint
    - Credit 4.3 – Low VOC Carpet
    -
- Environment
  - Energy & Atmosphere
    - Prerequisite 2 – Minimum Energy Performance
  - Indoor Environmental Quality
    - Credit 1 – Carbon Dioxide Monitoring
    - Credit 5 – Indoor Chemical & Pollutant Source Control
    - Credit 6 – Controllability of Systems
    - Credit 7 – Thermal Comfort

Class Lab

General Information

Assignable Area:	1,000 asf	50 seats/lab
Use or Function:	Multi-purpose room with modular tables/chairs or tablet arm lounge seating	
Adjacencies:	Class Lab Service	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy, 2 means of egress required	

Architectural Finishes / Accessories

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: None	Ceiling: Acoustic ceiling w/ drywall soffits
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Projection screen	
	Electronic whiteboard	
	Tackable and whiteboard wall surfaces	
	Window shades for light control	
	Battery operated wall clocks	
	Trash and recycling receptacles	
Remarks:	Floor/wall/ceiling surfaces should be acoustically absorptive for AV systems	
	Anti-static finishes	

Environment

HVAC:	74F / quiet and vibration free HVAC
Lighting:	Multiple switching with dimming capabilities and occupancy sensors
Light Level:	40 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	UPS for broadcast equipment
Plumbed Utilities:	None

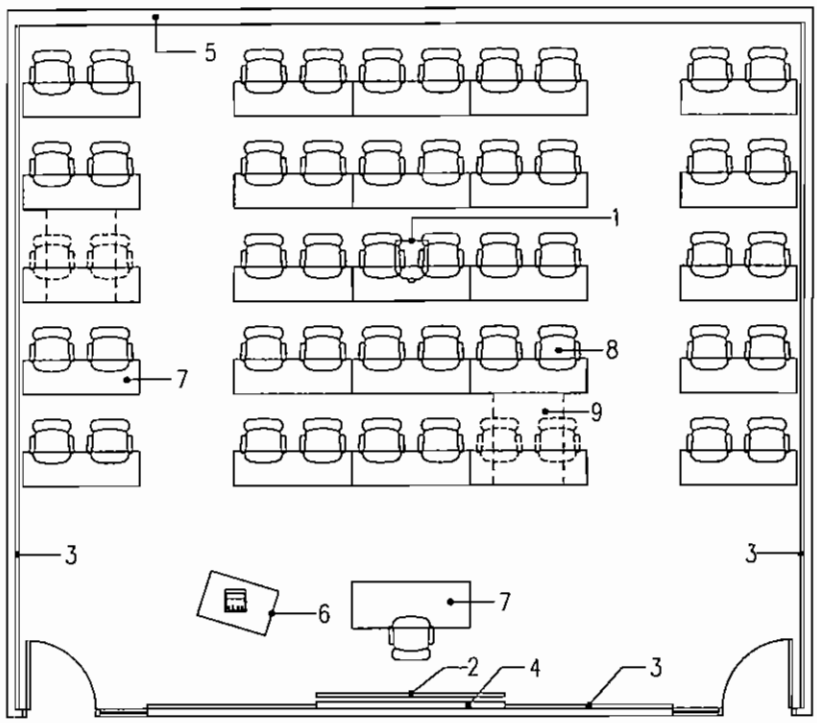
Technology/Communications

Phone Connection:	1 connection at podium, 1 connection at entry
Network Connection:	2 standard outlets plus 6 strands of fiber at podium
	1 outlet per 2 seats (25 outlets, 50 ports) located in floor
	12 standard outlets in perimeter wall
Dedicated Wireless:	Yes
Video/Data Display:	Ceiling mounted projector and power retractable screen
Video Sources:	Computer, document camera, campus video distribution, distance learning
Audio System:	Ceiling loud speakers, assistive listening system for hearing impaired
Audio Sources:	Computer, videoconferencing, wired & wireless microphones
Control Systems:	PC-based control at podium
Other Technologies:	Whiteboard, electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio/Visual Alarm Station

Class Lab



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Tackable and Whiteboard Wall Surface	4
4. Electronic White Board	1
5. Window Shades	As required
Moveable Items	
6. Podium	1
7. Table	26
8. Stacking Chair	51
Other	
9. Accessible Wheelchair Space	All tables able to accommodate wheelchair

Open Lab

General Information

Assignable Area:	250 asf	10 seats/lab
Use or Function:	Group study room with conference table and chairs	
Adjacencies:	Class Labs, Computer Labs and Assembly Spaces	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes / Accessories

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None required	
Accessories:	Flat panel display	
	Whiteboard	
	Tackable wall surface	
	Window shades for light control as required	
	Battery operated wall clock	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Levels:	40 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	No
Plumbed Utilities:	No

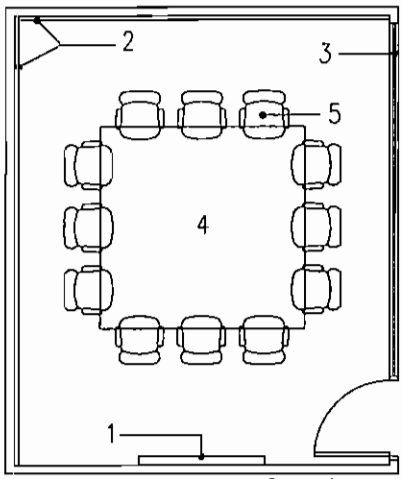
Technology/Communications

Phone Connection:	2 wall connections
Network Connection:	4 standard outlets per lab in perimeter wall
	2 standard outlets per lab in floor
Dedicated Wireless:	Yes
Video/Data Display:	Flat panel display
Video Sources:	Computer, campus video distribution, portable videoconference
Audio System:	None
Audio Sources:	None
Control Systems:	Wall box
Other Technologies:	Whiteboard

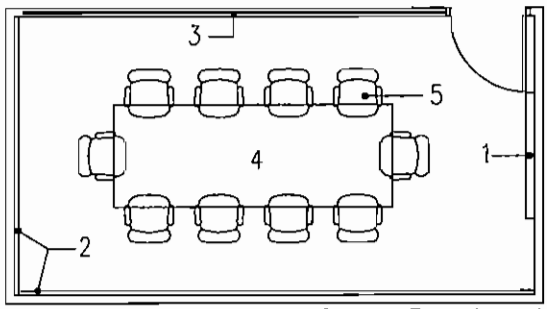
Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Open Lab



Third Floor Layout



Second Floor Layout

Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Flat Panel Display	1
2. Tackable and Whiteboard Wall Surface	2
3. Window Shades	As required
Moveable Items	
4. Table with Integral Power/Data	1
5. Chair	10 to 12

Computer Lab

General Information

Assignable Area:	2,250 asf	50 seats
Use or Function:	Computer lab with fixed tables and task seating	
Adjacencies:	Information Technology and elevator	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy, 2 means of egress required	

Architectural Finishes / Accessories

Finish Package:	Floor: Anti-static, resilient	Walls: Wainscot w/ painted drywall
	Base: None	Ceiling: Acoustic tile
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Projection screen	
	Electronic whiteboard	
	Tackable and whiteboard wall surfaces	
	Window shades for light control	
	Battery operated wall clock	
	Trash and recycling receptacles	
Remarks:	Anti-static finishes	

Environment

HVAC:	74F / High Internal Load
Lighting:	Multiple switching with occupancy sensors
Light Levels:	30 - 50 foot-candles (fc)

Utilities / Services

Power:	Provide two compartment steel surface raceways with one duplex receptacle for every two students
Emergency Power:	UPS for computers
Plumbed Utilities:	None

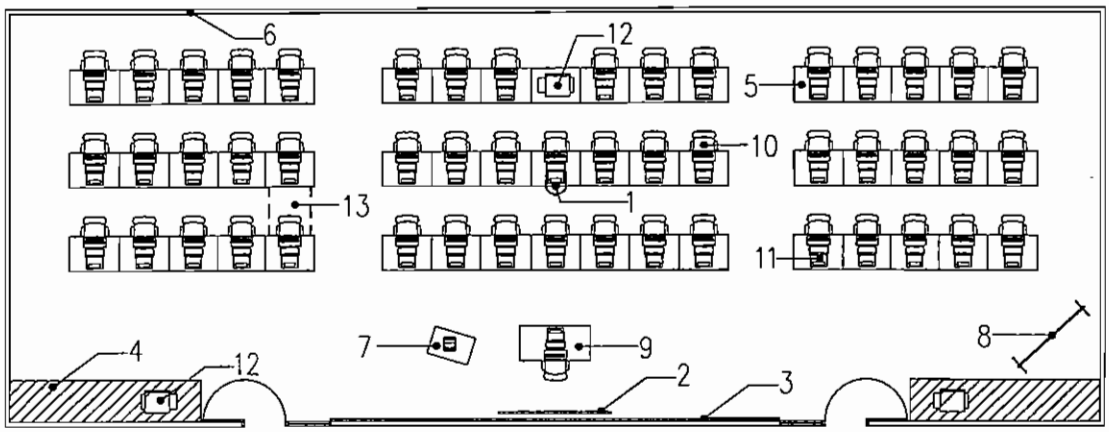
Technology/Communications

Phone Connection:	1 connection at podium, 1 connection at entry
Network Connection:	2 standard outlets plus 6 strands fiber at podium
	1 floor outlet per two seats, 25 outlets (50 ports)
	12 standard outlets in perimeter wall
Dedicated Wireless:	No
Video/Data Display:	Ceiling mounted projector, power retractable screen
Video Sources:	Computer, document camera, campus video distribution, distance learning
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Computer, videoconferencing, wired & wireless microphones
Control Systems:	PC-based control at podium
Other Technologies:	Whiteboard, electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Computer Lab



Scale: 1/16" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Tackable and Whiteboard Wall Surface	1
4. Millwork Cabinets/Countertop	2
5. Fixed Table with Power/Data	51
6. Window Shades	As required
Moveable Items	
7. Podium	1
8. Mobile Electronic Whiteboard	1
9. Table	1
10. Task Chair	51
11. Computer	51
12. Printer	3
Other	
13. Accessible Wheelchair Space	All tables able to accommodate wheelchair

Computer Lab

General Information

Assignable Area:	1,125 asf	25 seats/lab
Use or Function:	Computer labs with fixed tables and task seating	
Adjacencies:	Information Technology Offices and elevator	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy, 2 means of egress required	

Architectural Finishes / Accessories

Finish Package:	Floor: Resilient	Walls: Wainscot w/ painted drywall
	Base: None	Ceiling: Acoustic tile
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Projection screen	
	Electronic whiteboard	
	Tackable wall surfaces	
	Window shades for light control as necessary	
	Battery operated wall clock	
	Trash and recycling receptacles	
Remarks:	Anti-static finishes	

Environment

HVAC:	74F / High Internal Load
Lighting:	Multiple switching with occupancy sensors
Lighting Level:	30 – 50 foot-candles (fc)

Utilities / Services

Power:	Provide two compartment steel surface raceways with one duplex receptacle for every two students
Emergency Power:	UPS for computers
Plumbed Utilities:	None

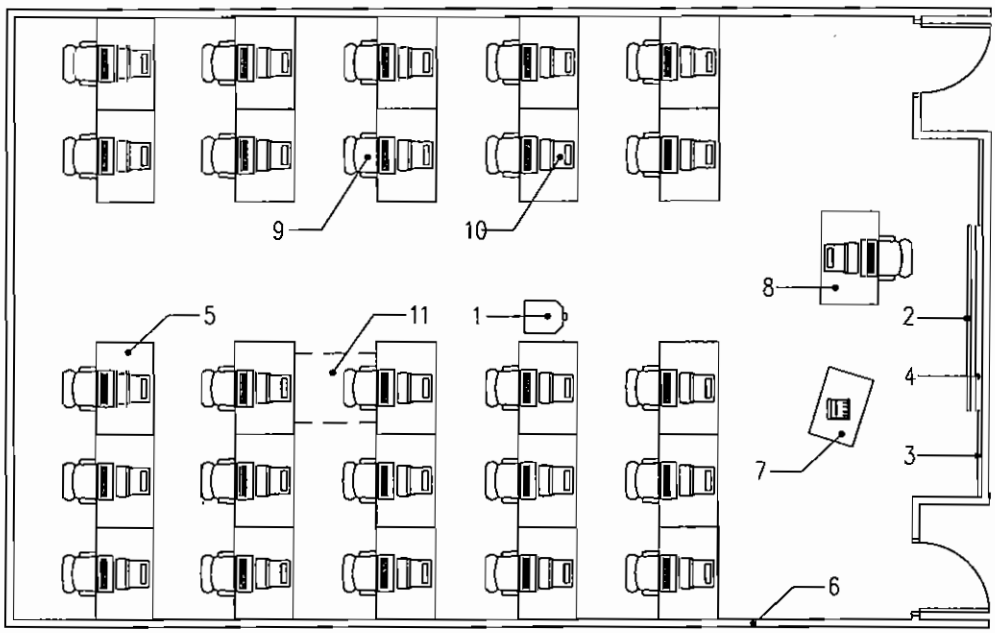
Technology/Communications

Phone Connection:	1 connection at podium, 1 connection at entry
Network Connection:	2 standard outlets plus 6 strands fiber at podium
	1 floor outlet per two seats, 13 outlets (26 ports)
	12 standard outlets in perimeter wall
Dedicated Wireless:	No
Video/Data Display:	Ceiling mounted projector, power retractable screen
Video Sources:	Computer, document camera, campus video distribution, distance learning
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Computer, video conferencing, wired and wireless microphones
Control Systems:	PC-based control at podium
Other Technologies:	Whiteboard, electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Computer Lab



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Tackable Wall Surface	2
4. Electronic Whiteboard	1
5. Fixed Table with Power/Data	25
6. Window Shades	As required
Moveable Items	
7. Podium	1
8. Table	1
9. Task Chair	26
10. Computer	26
Other	
11. Accessible Wheelchair Space	All tables to accommodate wheelchair

Class Lab Service

General Information

Assignable Area:	500 asf
Use or Function:	Storage for modular furniture
Adjacencies:	Class Labs
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	Maximum 83F
Lighting:	Single switching with occupancy sensors
Light Level:	20 - 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

Technology/Communications

Phone Connection:	1 standard outlet at entry
Network Connection:	None
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Smoke & Heat Detector

Class Lab Service

Scale: 1/8" = 1'-0"

Equipment / Furnishings List — **Quantity**

No equipment or furnishings required for this space.

Computer Lab Service

General Information

Assignable Area:	560 asf
Use or Function:	Group workrooms adjacent to computer lab
Adjacencies:	Computer Labs
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	40 - 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

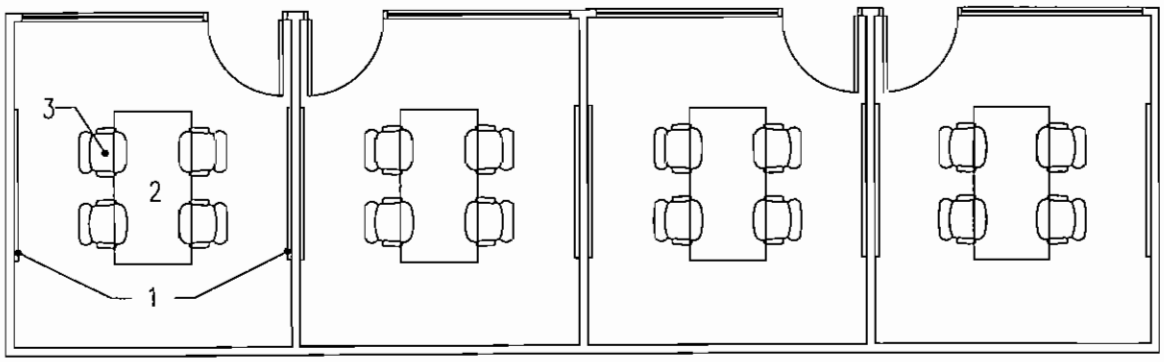
Technology/Communications

Phone Connection:	1 standard outlet in floor plus 2 standard outlets in wall per room
Network Connection:	1 standard outlet in floor plus 2 standard outlets in wall per room
Dedicated Wireless:	Yes
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Computer Lab Service



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Whiteboard	2
Moveable Items	
2. Table	1
3. Chair	4

Faculty Office

General Information

Assignable Area:	139 asf
Use or Function:	Faculty office
Adjacencies:	Graduate Student Researcher (GSR) Offices and Faculty Lounge
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Walls: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Window shades for light control	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	45-70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

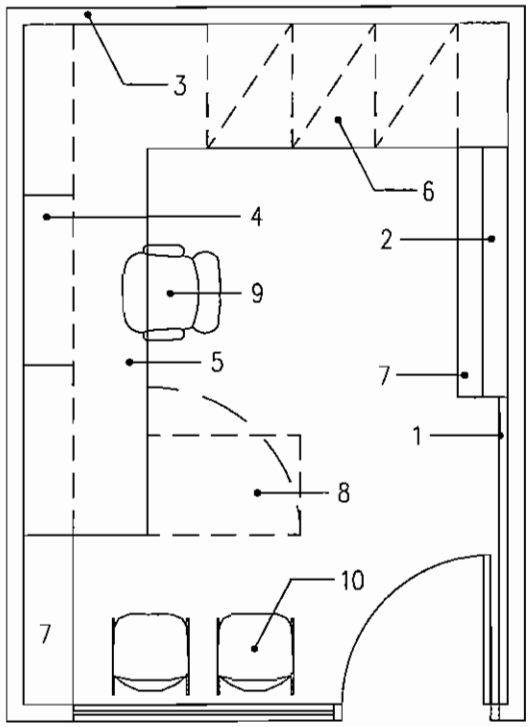
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	Yes
Video/Data Display:	Flat panel display
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Faculty Office



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Flat Panel Display	1
3. Window Shades	As required
4. Overhead Storage	1-3
Moveable Items	
5. Office Workstation	1
6. File Cabinet	3
7. Bookcase	2
8. Pull-Out Worksurface	1
9. Task Chair	1
10. Guest Chair	2

Teaching Assistant (TA) and Graduate Student Researcher (GSR) Shared Office

General Information

Assignable Area:	160 asf	4 seats / office
Use or Function:	Shared office space for 4 Teaching Assistants or Graduate Student Researchers	
Adjacencies:	GSR offices adjacent to Faculty Offices and GSR Lounge TA offices adjacent to Computer Labs	
Access / Door Width:	36" minimum with glass or glass sidelight	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surfaces Window shades for light control Trash and recycling receptacles	

Environment

HVAC:	75 F
Lighting:	Multiple switching with occupancy zones
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

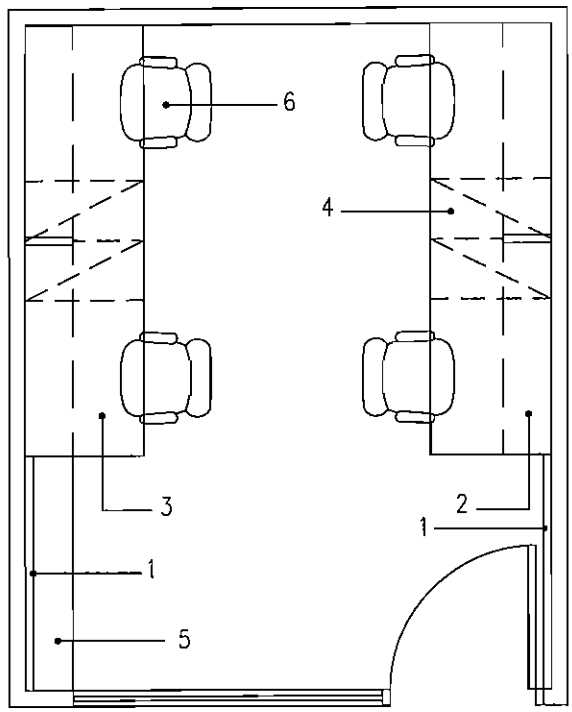
Technology/Communications

Phone/Network Connection:	1 standard outlet plus 1 standard outlet per person (5 outlets)
Dedicated Wireless:	Yes
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35

TA and GSR Shared Office



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surfaces	2
2. Overhead Storage	4
Moveable Items	
3. Office Workstation	4
4. File Cabinet	4
5. Bookcase	1
6. Task Chair	4

Interview Room

General Information

Assignable Area:	120 asf
Use or Function:	Interview room for outside businesses to interview students; small meeting rooms
Adjacencies:	Interview Lounge
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74 F
Lighting:	Multiple switching with occupancy sensors
Light Level :	40 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

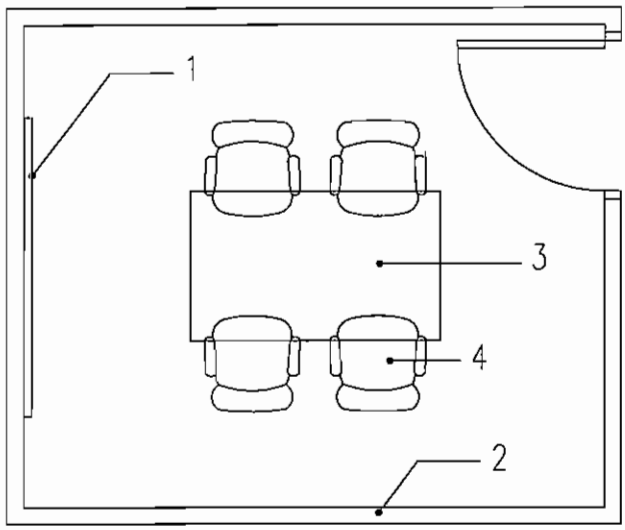
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Interview Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Whiteboard	1
2. Window Shades	As required
Moveable Items	
3. Table	1
4. Chair	4

Interview Lounge

General Information

Assignable Area:	240 asf
Use or Function:	Waiting space for business representatives and students prior to interview
Adjacencies:	Interview Rooms
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Battery operated wall clock	
	Tackable wall surfaces	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	20 – 25 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

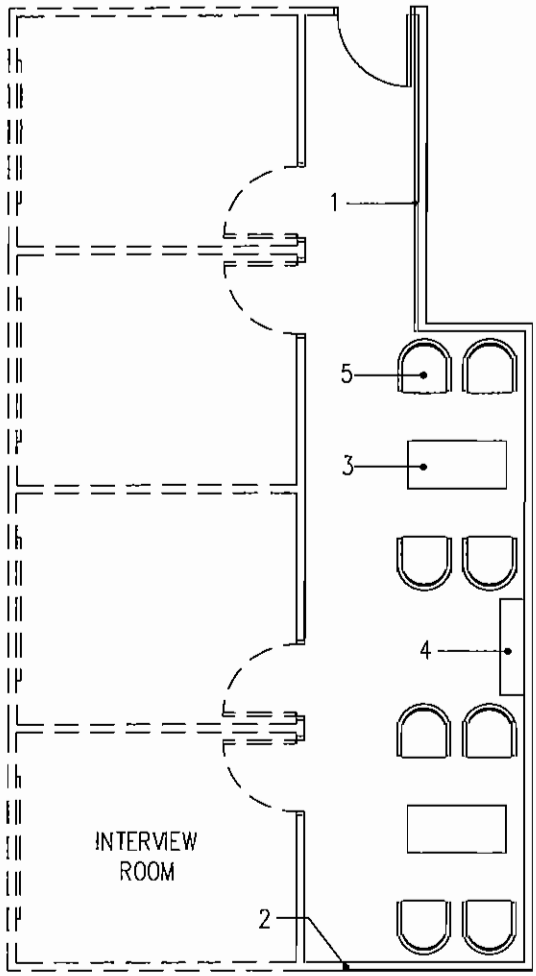
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Audio / Visual Alarm Station

Interview Lounge



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable Wall Surface	1
2. Window Shades	As required
Moveable Items	
3. Occasional Table	2
4. Bookcase	1
5. Lounge Chair	8

Reception - Desk Area

General Information

Assignable Area:	100 asf
Use or Function:	Building reception workstation
Adjacencies:	Building entry and Building Reception Waiting Area
Access / Door Width:	NA
Accessibility:	Workstation to have accessible transaction counter
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Combination/Carpet	Wall: NA
	Base: NA	Ceiling: NA
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Single switch for specialty lighting over reception desk
Light Level:	45 - 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None:

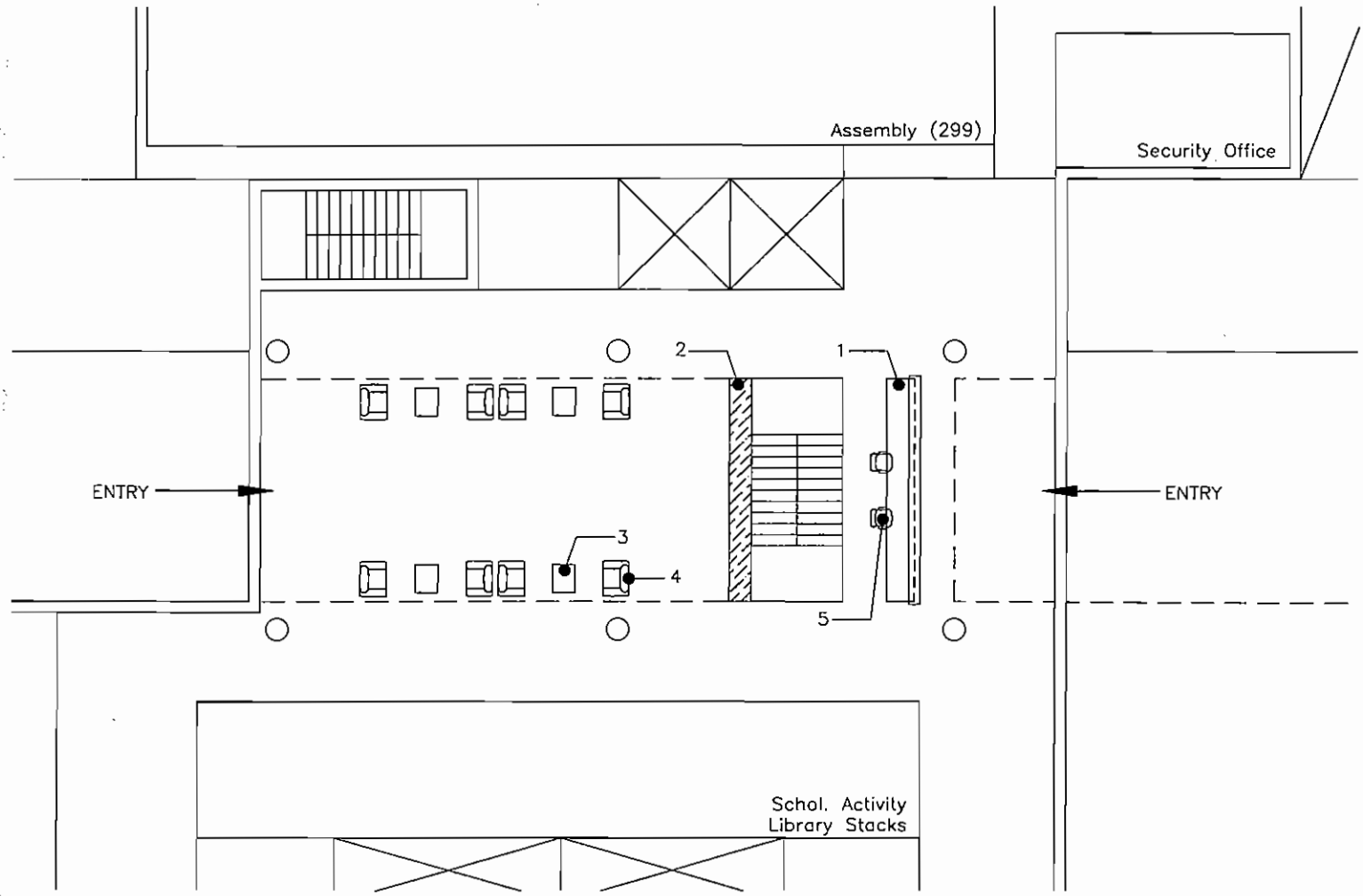
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	Yes
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40

Reception - Desk Area



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Custom Reception Desk	1
2. Custom Interactive Kiosk and Literature Display	1
Moveable Items	
3. Occasional Table	4
4. Lounge Chairs	8
5. Task Chair	2

Reception - Security Room

General Information

Assignable Area:	140 asf
Use or Function:	Security office includes workspace for one person and security monitors/equipment
Adjacencies:	Building Reception
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	NA	
Accessories:	Tackable and whiteboard wall surface	
	Battery operated wall clock	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	45 – 50 foot-candles (fc)
Remarks:	Provide individual task lighting at work area

Utilities / Services

Power:	Standard
Emergency Power:	UPS for security equipment
Plumbed Utilities:	None

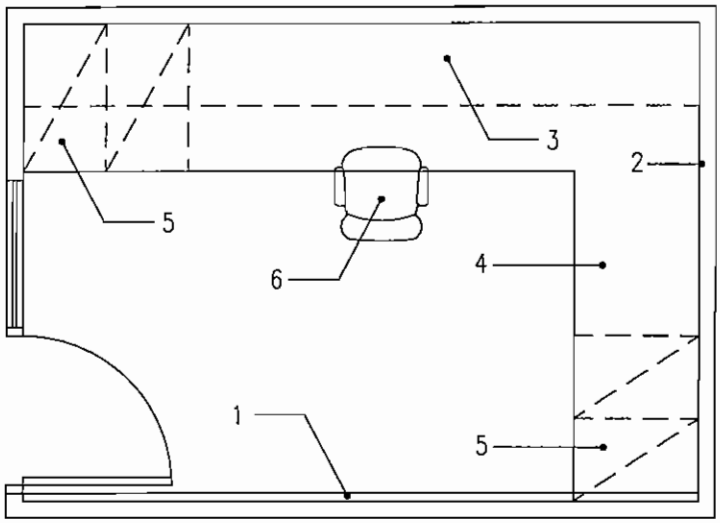
Technology/Communications

Phone/Network Connection:	2 standard outlets plus connections as required by security equipment
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	Per UCR security requirements
Audio System:	Per UCR security requirements
Audio Sources:	Per UCR security requirements
Control Systems:	Per UCR security requirements
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35
Security Equipment:	TBD by University of California Riverside

Security Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Window Shades	As required
3. Overhead Storage	Per furniture manufacturer
Moveable Items	
4. Office Workstation	1
5. File Cabinets	4
6. Chair	1
7. Security Equipment / Monitors	Per UCR Security Standards

Reception - Waiting Area

General Information

Assignable Area:	300 asf	8 seats / room
Use or Function:	Building reception and waiting area for 8	
Adjacencies:	Building Reception Desk Area	
Access / Door Width:	NA	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes

Finish Package:	Floor: Combination	Wall: Glass, drywall and/or specialty material
	Base: Varied dep. on wall finish	Ceiling: Open to structure, drywall
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching
Light Level:	20 - 70 foot-candles (fc)
Remarks:	Provide individual task light at reception desk

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

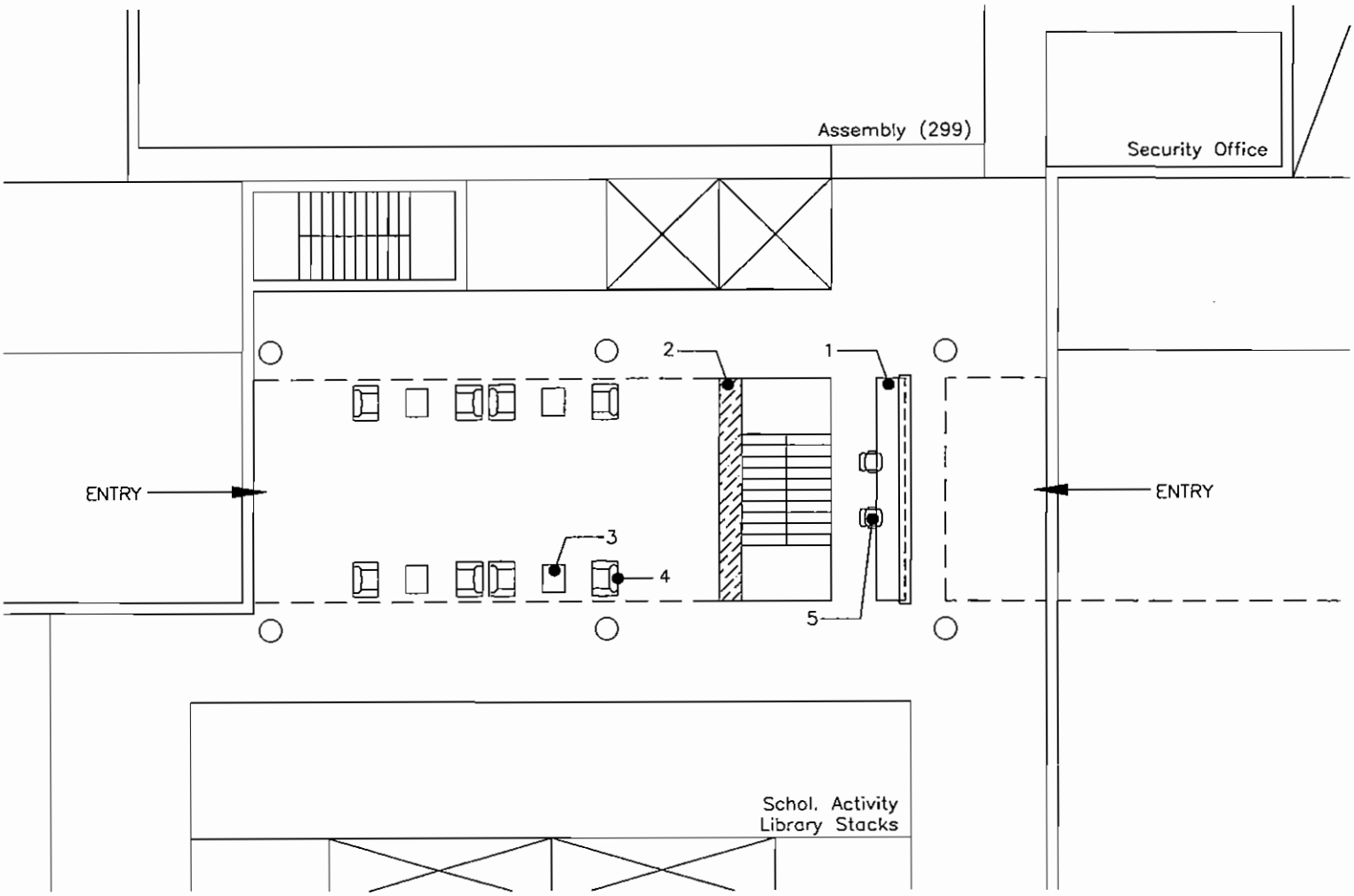
Technology/Communications

Phone/Network Connection:	2 standard outlets in floor
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector, Audio / Visual Alarm Station

Reception - Waiting Area



Scale: 1/16" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Custom Reception Desk	1
2. Custom Interactive Kiosk and Literature Display	1
Moveable Items	
3. Occasional Table	4
4. Lounge Chairs	8
5. Task Chair	2

Reception - Information Kiosk

General Information

Assignable Area:	100 asf
Use or Function:	Intelligent kiosk to display selectable aspects of AGSM's operation including promotional video, course information, faculty locations, scheduling, ongoing classes, etc.
Adjacencies:	Building entry and Building Reception Desk Area
Access / Door Width:	NA
Accessibility:	As required by code
Life Safety Issues:	NA

Architectural Finishes

Finish Package:	Floor: NA	Base: NA
	Wall: NA	Ceiling: NA
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	NA
Lighting:	NA
Light Level:	20 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

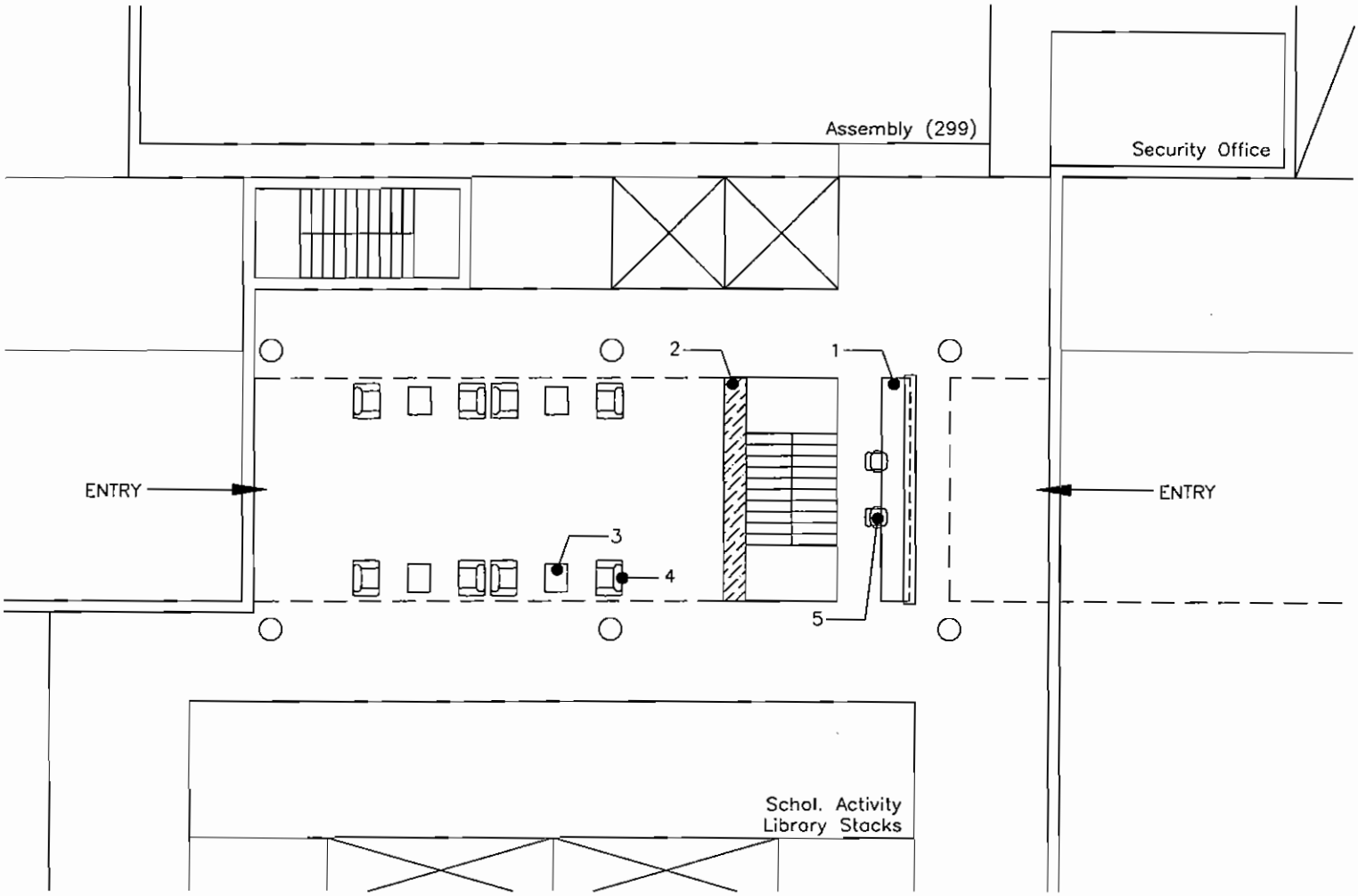
Technology/Communications

Phone/Network Connection:	2 standard outlets in floor
Dedicated Wireless:	No
Video/Data Display:	6 flat panel monitors with touch screen and keyboard
Video Sources:	Various
Audio System:	TBD
Audio Sources:	Various
Control Systems:	Touch screen and keyboard
Other Technologies:	None

Additional Requirements

NA

Reception - Information Kiosk



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Custom Reception Desk	1
2. Custom Interactive Kiosk and Literature Display	1
Moveable Items	
3. Occasional Table	4
4. Lounge Chairs	8
5. Task Chair	2

Media Production Room

General Information

Assignable Area:	400 asf
Use or Function:	Secure room to house termination, patching, switching and operation of video services throughout the building; media production, editing
Adjacencies:	Media Storage
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Anti-static resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Battery operated wall clock	
	Trash and recycling receptacles	

Environment

HVAC:	Dedicated 24-hour air conditioning
Lighting:	Multiple switching
Light Level:	30 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	Rack-mounted UPS system for data equipment
Plumbed Utilities:	None

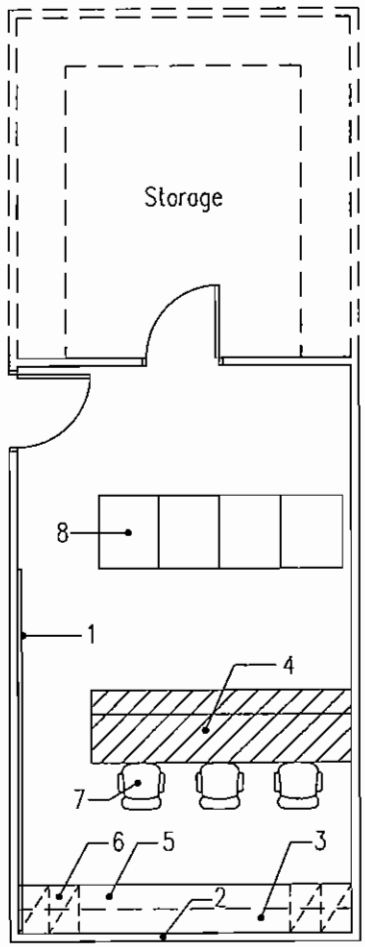
Technology/Communications

Phone/Network Connection:	2 standard outlets in floor plus 1 standard outlet per two persons in wall
Dedicated Wireless:	No
Video/Data Display:	TBD
Video Sources:	TBD
Audio System:	TBD
Audio Sources:	TBD
Control Systems:	TBD
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 40
Equipment:	TBD
Fire Alarm System:	Audio / Visual Alarm Station
Fire Protection:	Dry pipe dual action system with a manual hold off

Media Production Room



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Equipment / Furnishings List	Quantity
Fixed Items	
1 Tackable and Whiteboard Wall Surface	1
2 Blackout or Solar Shades	As required
3. Overhead Storage	3
Moveable Items	
4. Media Production Console	1
5. Worksurface	1
6. File Cabinets	4
7. Task Chair	3
8. Equipment Racks	4

Media Storage

General Information

Assignable Area:	400 asf
Use or Function:	Media and equipment storage room
Adjacencies:	Media Production Room
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	72F
Lighting:	Multiple switching
Light Level:	20 – 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

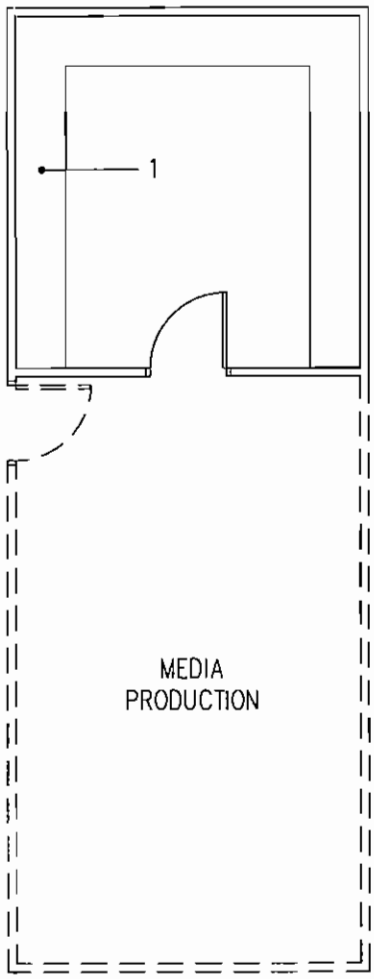
Technology/Communications

Phone/Network Connection:	1 standard outlet
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Equipment:	Specialized shelving for media and equipment storage
Fire Alarm System:	Smoke & Heat Detector

Media Storage



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Shelving for Media and Equipment	As required

Central Copy Room

General Information

Assignable Area:	240 asf
Use or Function:	Copy room for high-volume copying with operator workstation
Adjacencies:	Faculty Offices and Administrative Departments
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Battery operated wall clock	
	Trash and recycling receptacles	

Environment

HVAC:	72F
Lighting:	Multiple switches with occupancy switches
Light Level:	30 - 70 foot-candles (fc)
Remarks:	Provide individual task light at workstation

Utilities / Services

Power:	Standard with dedicated outlet for copier
Emergency Power:	None
Plumbed Utilities:	None

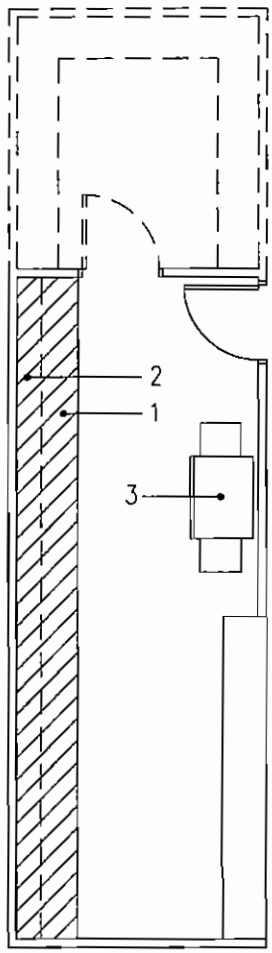
Technology/Communications

Phone/Network Connection:	1 standard outlets at copier / entry
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NA

Central Copy Room



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Millwork Counter and Cabinets, Standing Height	1
2. Overhead Storage / Shelving Unit	1
Moveable Items	
3. Copy Machine	1

Central Mail Room

General Information

Assignable Area:	120 asf
Use or Function:	Secure mail room for administrative staff, faculty, graduate student researchers, and teaching assistants
Adjacencies:	Central Copy Room
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Single switch with occupancy sensor
Light Level:	30 - 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

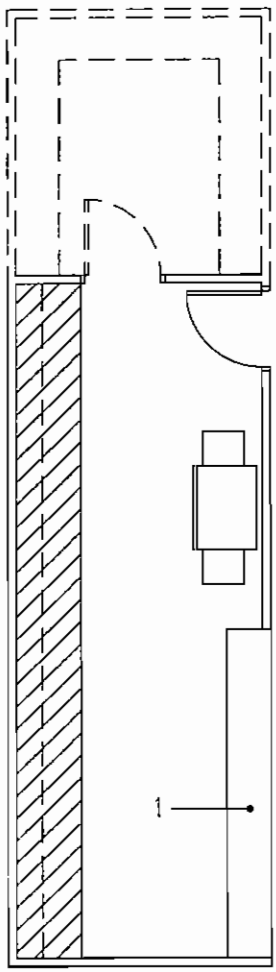
Technology/Communications

Phone/Network Connection:	1 standard outlet
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40

Central Mail Room



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Rear Loaded Mailboxes	155

Central Supply Room

General Information

Assignable Area:	120 asf
Use or Function:	Secure storage room for office supplies
Adjacencies:	Central Copy Room
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Single switch with occupancy sensor
Light Level:	20 – 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

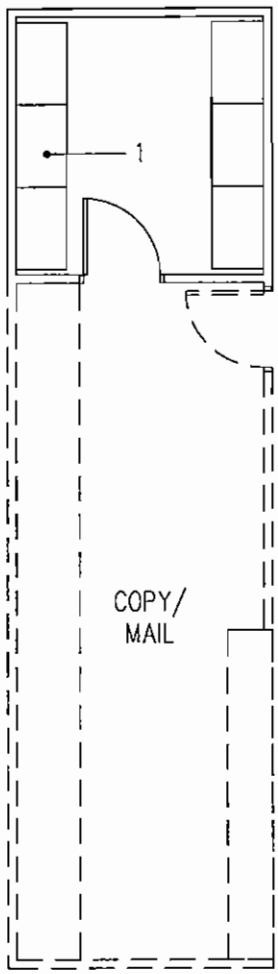
Technology/Communications

Phone/Network Connection:	1 standard outlet
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector

Central Supply Room



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Supply Shelving (24" X 36" units)	6

Scholarly Activity

General Information

Assignable Area:	625 asf	25 seats / room
Use or Function:	Multi-purpose room with modular tables/chairs or tablet arm lounge seating	
Adjacencies:	Assembly Spaces	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: None	Ceiling: Acoustic tile
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Projection screen	
	Electronic whiteboard	
	Tackable wall surface	
	Window shades for light control	
	Battery operated wall clock	
	Trash and recycling receptacles	
Remarks:	Anti-static finishes	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	40 - 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

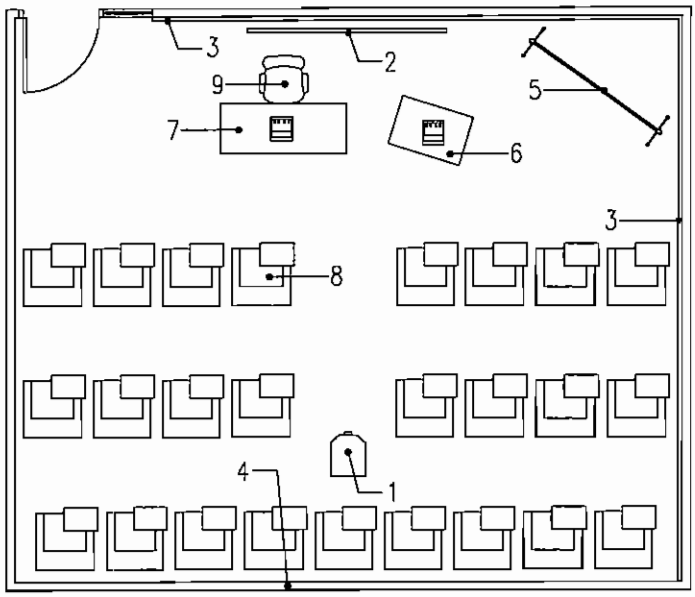
Technology/Communications

Phone Connection:	1 connection at podium, 1 connection at entry
Network Connection:	2 standard outlets at podium
	1 floor outlet per seat, 13 outlets (26 ports)
	8 standard outlets in perimeter wall
Dedicated Wireless:	Yes
Video/Data Display:	Flat panel display or ceiling mounted projector/power retractable screen
Video Sources:	Computer, document camera, campus video distribution, distance learning
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Computer, videoconferencing, wired & wireless microphones
Control Systems:	PC-based control at Podium
Other Technologies:	Electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Scholarly Activity



Scale: 1/8" = 1'-0"

Equipment / Furnishing List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Tackable and Whiteboard Wall Surfaces	2
4. Window Shades	As required
Moveable Items	
5. Mobile Electronic Whiteboard	1
6. Podium	1
7. Table	1
8. Tablet Arm Lounge Seating	25
9. Chair	1

Scholarly Activity

General Information

Assignable Area:	800 asf
Use or Function:	Journal reference library with shelving units and seating for 8
Adjacencies:	Building Reception
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy, 2 means of egress required

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	45 - 70 foot-candles (fc)
Remarks:	Provide task lights at tables

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

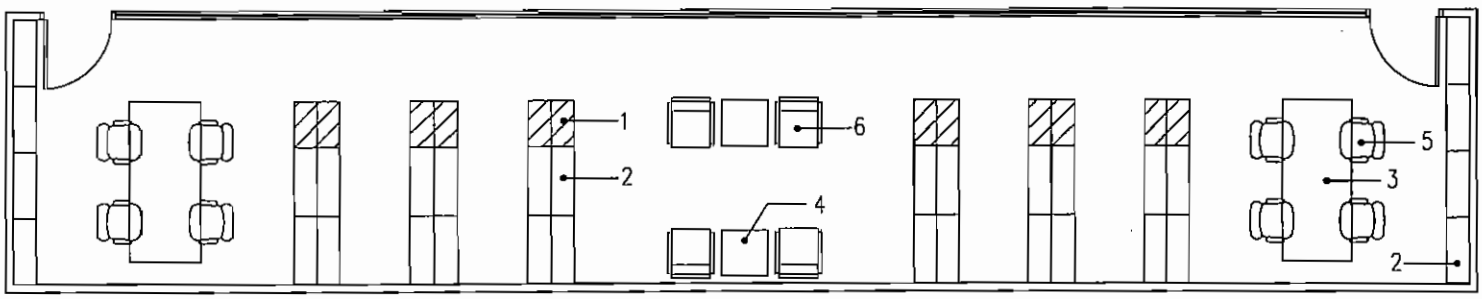
Technology/Communications

Phone Connection:	1 standard floor outlet per table
Network Connection:	1 standard floor outlet per table
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Scholarly Activity



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Equipment / Furnishings List	Quantity
Fixed Items	
1. 3 to 4-high Shelving Unit with Millwork Countertop	12
2. 5 to 7-high Shelving Unit	32
Moveable Items	
3. Table with Power/Data	2
4. Occasional Table	2
5. Chair	8
6. Lounge Chair	4

Scholarly Activity

General Information

Assignable Area:	2,700 asf	100 seats / room
Use or Function:	Case study room with fixed seating and stepped floor	
Adjacencies:	Building Entry	
Access / Door Width:	36" minimum	
Accessibility:	Provide 4 accessible wheelchair spaces	
Life Safety Issues:	A-occupancy, 2 means of egress required	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: NA	Ceiling: Acoustic ceiling w/ drywall soffits
Wall Protection:	Durable wainscot material to 42" above finished floor	
Accessories:	Window shades for light control as necessary	
	Battery operated wall clock	
	Trash and recycling receptacles	
Remarks:	Floor/wall/ceiling surfaces should be acoustically absorptive for AV system	
	Anti-static finishes	

Environment

HVAC:	74F
Lighting:	Dimming controls
Light Level:	40 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	UPS for broadcast equipment
Plumbed Utilities:	None

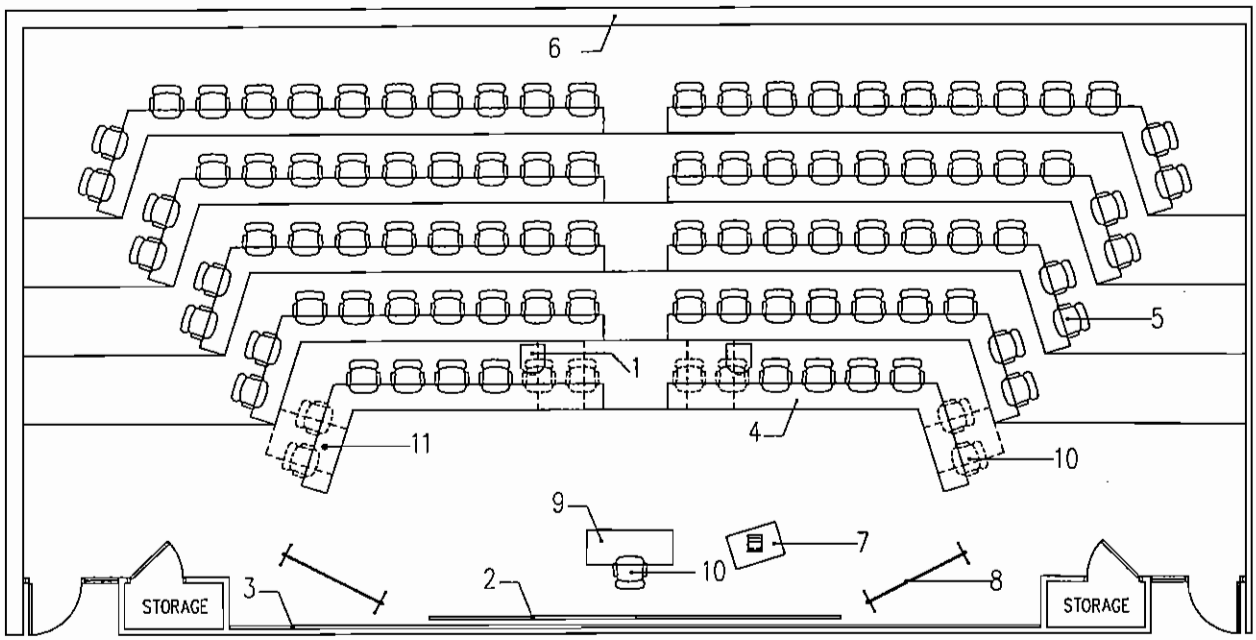
Technology/Communications

Phone Connection:	1 standard connection at podium, 1 standard connection at each entrance
Network Connection:	1 standard outlet plus 6 strands fiber at podium
	Empty conduit to each row of seating
	4 standard outlets at front wall
Dedicated Wireless:	Yes – 2 ceiling mounted wireless access points
Video/Data Display:	Dual screen front projection/power retractable screens, ceiling projectors, front-end monitors, 2 flat panels at front wall, 1 flat panel integrated into the podium
Video Sources:	VHS, DVD, computer, document camera, campus video distribution, distance learning
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Video, CD, cassette, computer, wired & wireless microphones
Control Systems:	Switching, scaling and integrated touch panel control system at podium
Other Technologies:	Distance learning (program origination) with technician control console, 2 podium cameras and 2 audience cameras
	Dual side-by-side 35mm slide projectors - located at rear of room, whiteboard, and electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Scholarly Activity



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	2
2. Power Retractable Screen	2
3. Tackable and Whiteboard Wall Surface	1
4. Fixed Tables with Power/Data	10 Continuous Surfaces
5. Fixed Chair	92
6. Window Shades	As required
Moveable Items	
7. Podium	1
8. Mobile Electronic Whiteboard	2
9. Table	1
10. Chair	9
Other	
11. Accessible Wheelchair Space	4

Faculty and Graduate Student Researcher (GSR) Lounge

General Information

Assignable Area:	400 asf
Use or Function:	Informal meeting and lounge area for Faculty and Graduate Student Researchers
Adjacencies:	Faculty Offices and Graduate Student Researcher (GSR) Offices
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile and drywall
Wall Protection:	None	
Accessories:	Window shades for light control as necessary	
	Battery operated wall clock	
	Tackable wall surface	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	30 - 50 foot-candles (fc)

Utilities / Services

Power:	Standard with GFI outlet adjacent to sink
Emergency Power:	None
Plumbed Utilities:	Sink, refrigerator, icemaker

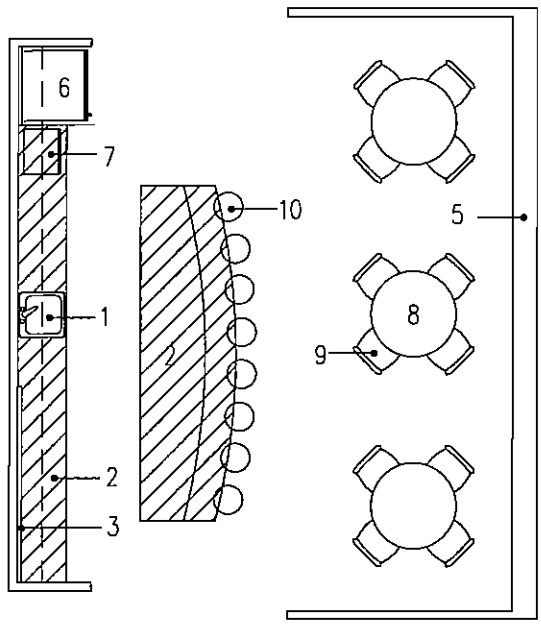
Technology/Communications

Phone/Network Connection:	1 standard outlet per two persons in wall
Dedicated Wireless:	Yes
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

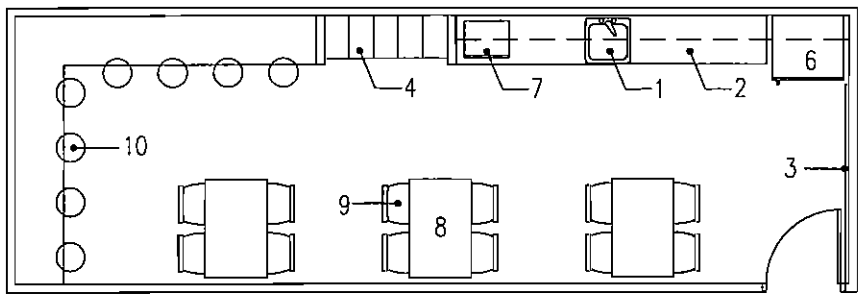
Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Audio / Visual Alarm Station

Faculty and Graduate Student Researcher (GSR) Lounge



A: Lounge Open to Main Circulation



B: Enclosed Lounge

Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity A	Quantity B
Fixed Items		
1. Sink	1	1
2. Millwork Cabinets / Counter	1	1
3. Tackable Wall Surface	1	1
4. 3-tier Locker (12"w x 21"d x 72" h)	NA	5
5. Window Shades	As required	NA
Moveable Items		
6. Refrigerator	1	1
7. Microwave	1	1
8. Table	3	3
9. Chair	12	12
10. Stool	8	8

Dean's Office

General Information

Assignable Area:	240 asf
Use or Function:	Office and small conference room for the Dean
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Window shades for light control	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

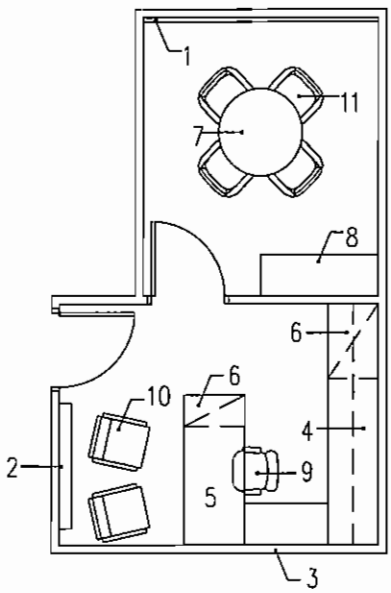
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	Yes
Video/Data Display:	Flat Panel Display
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Dean's Office



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Flat Panel Display	1
3. Window Shades	As required
4. Overhead Storage	3
Moveable Items	
5. Desk, Return and Credenza Worksurface	1
6. File Cabinets	2
7. Table	1
8. Credenza	1
9. Task Chair	1
10. Guest Chair	2
11. Conference Chair	4

Associate / Assistant Dean Office

General Information

Assignable Area:	139 asf
Use or Function:	Individual office
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surfaces	
	Window shades for light control	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

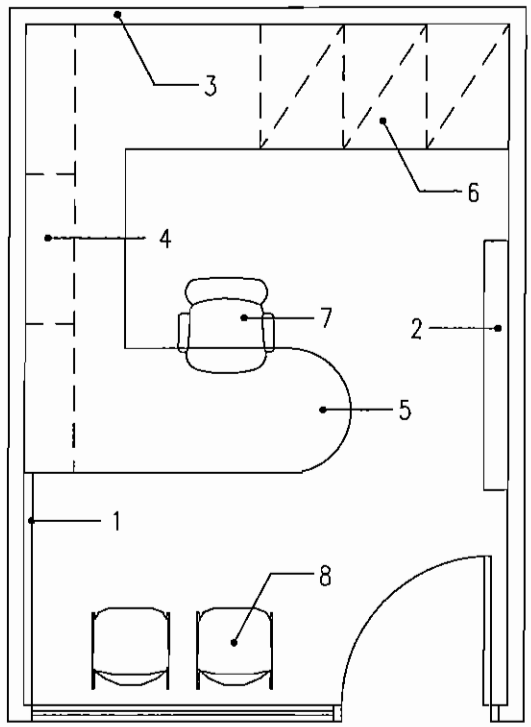
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	Yes
Video/Data Display:	Flat Panel Display
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Associate / Assistant Dean Office



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Flat Panel Display	1
3. Window Shades	As required
4. Overhead Storage	3
Moveable Items	
5. Office Workstation	1
6. File Cabinets	3
7. Task Chair	1
8. Guest Chair	2

Administrative Assistant Workstation

General Information

Assignable Area:	100 asf
Use or Function:	Administrative Assistant workstation
Adjacencies:	Administrative Departments
Access / Door Width:	NA
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: NA
	Base: NA	Ceiling: NA
Wall Protection:	None	
Accessories:	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	NA
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

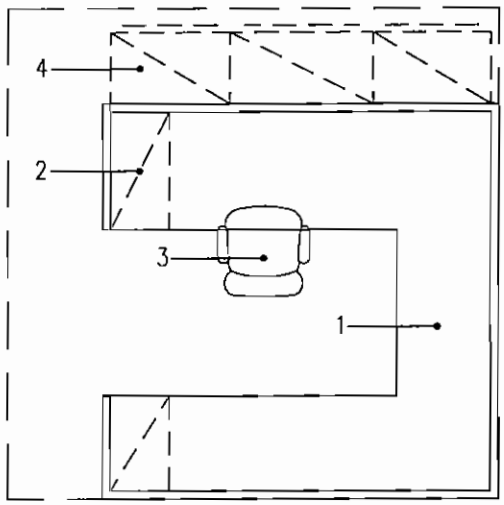
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35

Administrative Assistant



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Moveable Items	
1. U-Shaped Workstation Worksurface / Panels	1
2. File Cabinets within Workstation	2
3. Task Chair	1
4. Lateral Files	As required

Officer Office
(Development Officer, Chief Financial Officer, Student Affairs Officer, MBA Student Affairs Officer)

General Information

Assignable Area:	139 asf
Use or Function:	Individual office
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Window shades for light control	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Single switch with occupancy sensor
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

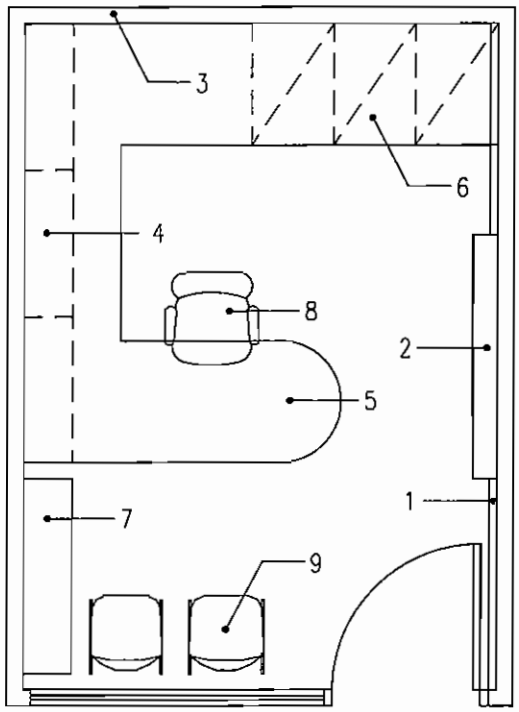
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	Yes
Video/Data Display:	Flat Panel Display
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Officer Office
(Development Officer, Chief Financial Officer, Student Affairs Officer, MBA Student Affairs Officer)



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Flat Panel Display	1
3. Window Shades	As required
4. Overhead Storage	3
Moveable Items	
5. Office Workstation	1
6. File Cabinets	3
7. Bookshelf	1
8. Task Chair	1
9. Guest Chair	2

Conference Room

General Information

Assignable Area:	300 asf	10-12 seats / room
Use or Function:	Meeting room	
Adjacencies:	Administrative Departments	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: NA	Ceiling: Acoustic tile/drywall
Wall Protection:	Specialty wainscot up to 42" above finished floor	
Accessories:	Projection screen	
	Tackable and whiteboard wall surface	
	Window shades for light control	
	Battery operated wall clock	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switches with occupancy sensors; dimming capability
Light Level:	40 - 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

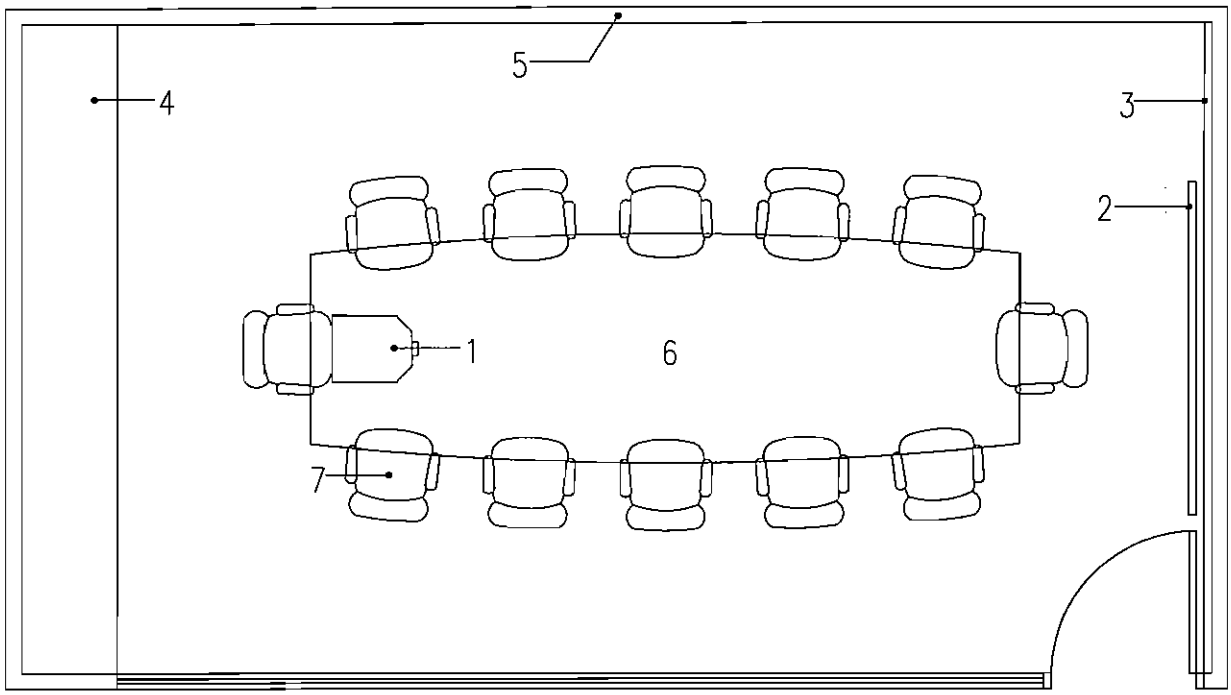
Technology/Communications

Phone Connection:	1 standard outlet in floor for table, 2 standard outlets in perimeter wall
Network Connection:	1 standard outlet in floor for table, 4 standard outlets in perimeter wall
Dedicated Wireless:	No
Video/Data Display:	Ceiling mounted projector and power retractable screen
Video Sources:	Computer, document camera, slide projector and mobile projection equipment
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Conference Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Tackable and Whiteboard Wall Surface	1
4. Credenza	1
5 Window Shades	As required
Moveable Items	
6. Table with Power/Data	1
7. Conference Chair	12

Reception (For Dean's Office, Student Affairs Advising, Career Management, Financial & Accounting and Executive Education)

General Information

Assignable Area:	240 asf
Use or Function:	Reception workstation and waiting area for 4 - 6
Adjacencies:	Dean's Office, Student Affairs Advising, Career Management, Financial & Accounting and Executive Education
Access / Door Width:	NA
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile / drywall
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting at reception workstation

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

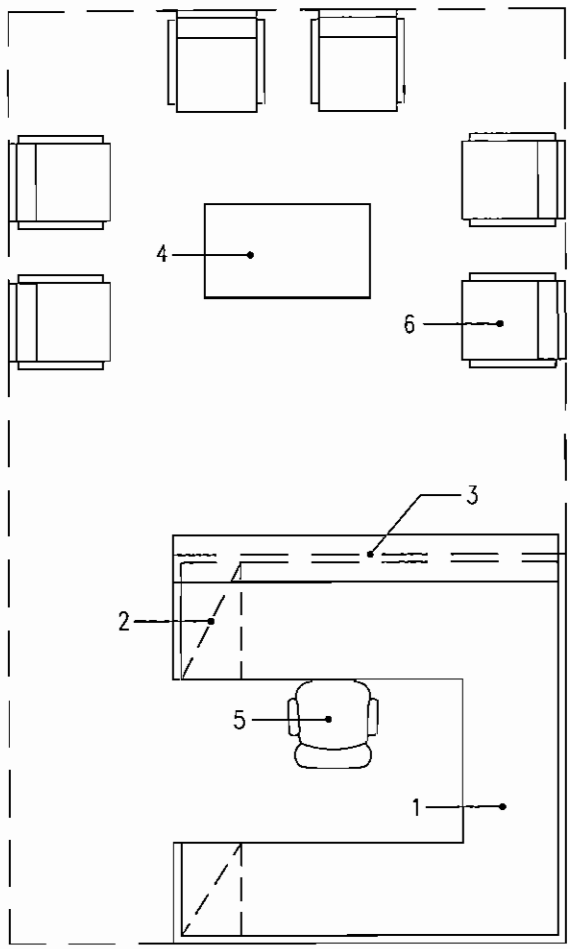
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35

Reception (For Dean's Office, Student Affairs Advising, Career Management, Financial & Accounting and Executive Education)



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Moveable Items	
1. Office Workstation	1
2. File Cabinets	2
3. Transaction Counter	1
4. Occasional Table	1
5. Task Chair	1
6. Lounge Chair	6

Secure Records Room

General Information

Assignable Area:	240 asf
Use or Function:	Secure room for confidential records
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	20 – 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

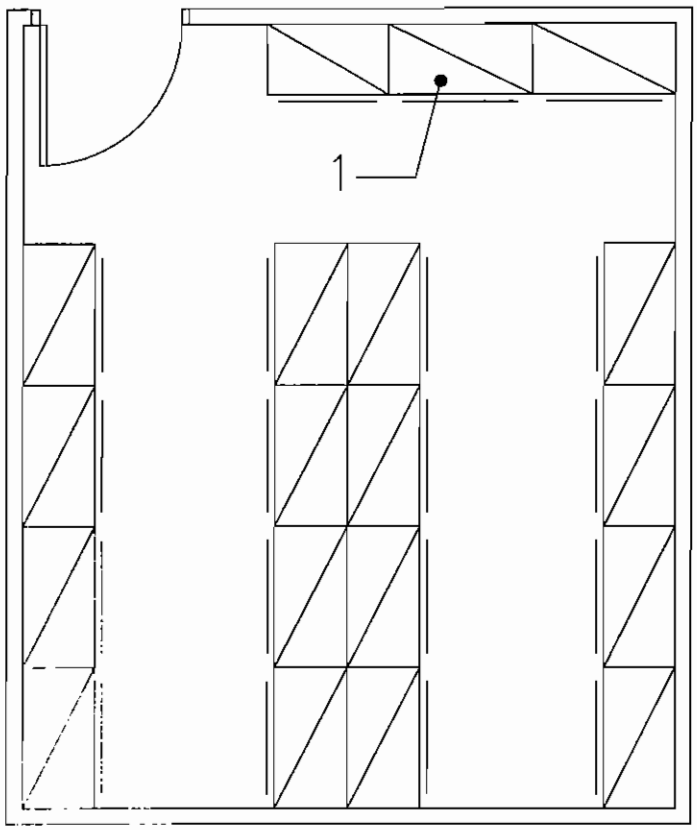
Technology/Communications

Phone Connection:	None
Network Connection:	None
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector

Secure Records Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Moveable Items	
1. File Cabinets	19

Work Room

General Information

Assignable Area:	120 asf and 140 asf
Use or Function:	Coffee, copy, fax, and printing functions and workspace for two student workers
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Trash and recycling receptacles	
	Tackable wall surface	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	40 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

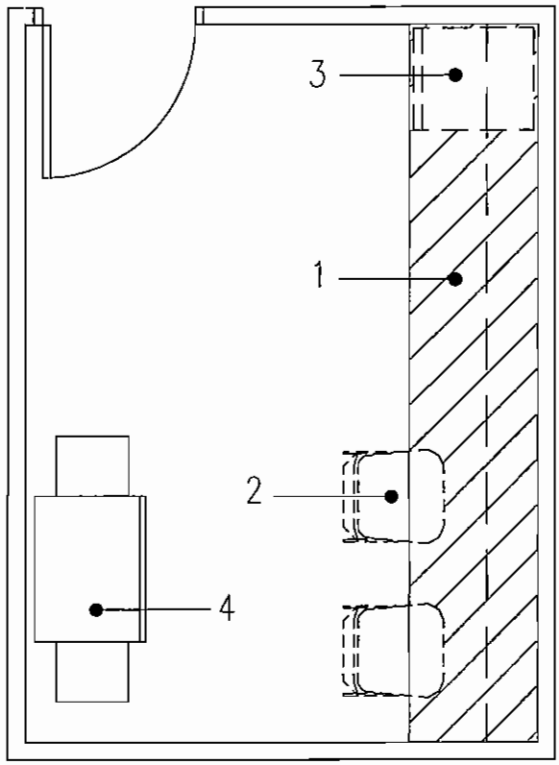
Technology/Communications

Phone/Network Connection:	1 standard outlet per person
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 40

Work Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Millwork Worksurface/Cabinets with Overhead Cabinets	1
Moveable Items	
2. Stacking Chair	2
3. Under-Counter Refrigerator	1
4. Copy Machine	1

Work Room

General Information

Assignable Area:	240 asf
Use or Function:	Coffee, copy, fax, and printing functions and workspace for four student workers
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Trash and recycling receptacles	
	Tackable wall surface	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	40 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

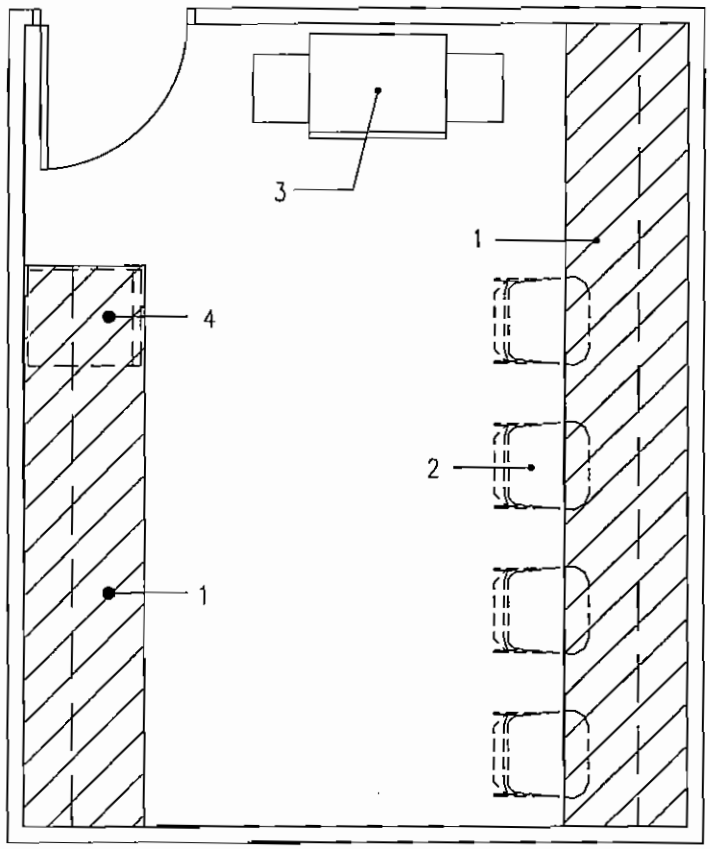
Technology/Communications

Phone/Network Connection:	1 standard outlet per person
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 40

Work Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Millwork Worksurface/Cabinets with Overhead Cabinets	1
Moveable Items	
2. Stacking Chair	4
3. Copy Machine	1
4. Under-Counter Refrigerator	1

Assistant Director / Administrative Office

General Information

Assignable Area:	120 asf
Use or Function:	Individual office
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

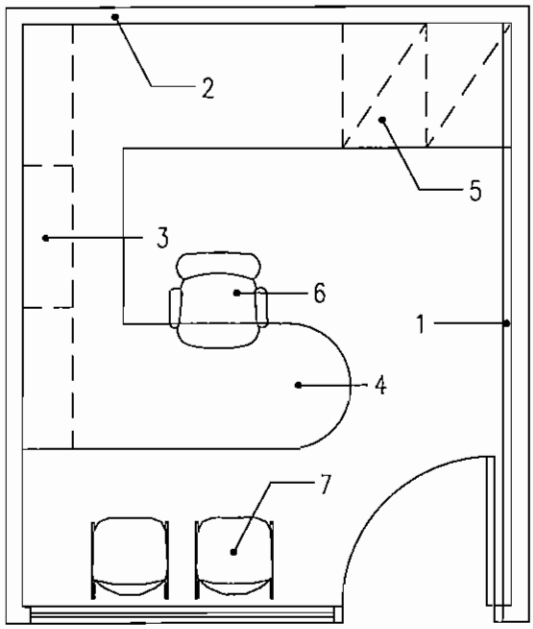
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35

Assistant Director / Administrative Office



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Window Shades	As required
3. Overhead Storage	3
Moveable Items	
4. Office Workstation	1
5. File Cabinets	2
6. Task Chair	1
7. Guest Chair	2

Director Office

General Information

Assignable Area:	139 asf
Use or Function:	Individual office
Adjacencies:	Administrative Departments
Access / Door Width:	36" minimum with glass or glass sidelight
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Window shades for light control	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

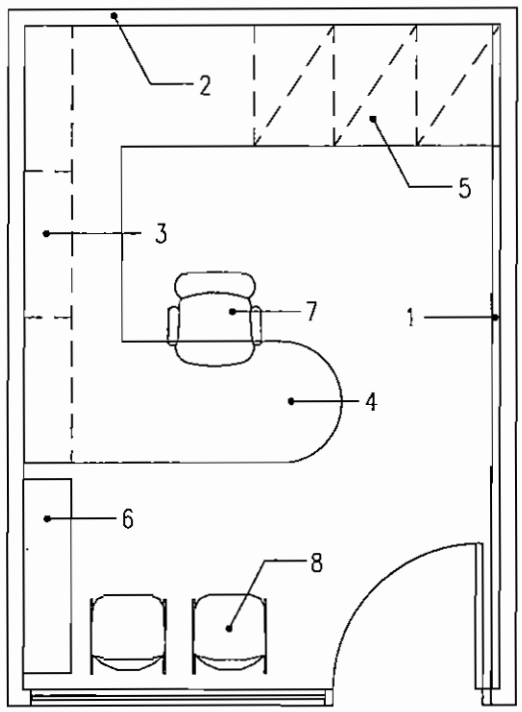
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35

Director Office



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
2. Window Shades	As required
3. Overhead Storage	3
Moveable Items	
4. Office Workstation	1
5. File Cabinets	3
6. Bookshelf	1
7. Task Chair	1
8. Guest Chair	2

Student Support

General Information

Assignable Area:	600 asf
Use or Function:	Assembly space for student organizations; space may be subdivided into 5 rooms @ 120 asf each.
Adjacencies:	NA
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Walls: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Window shades for light control	
	Battery operated wall clock	
	Trash and recycling receptacles	
	Tackable and whiteboard wall surfaces	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	40 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

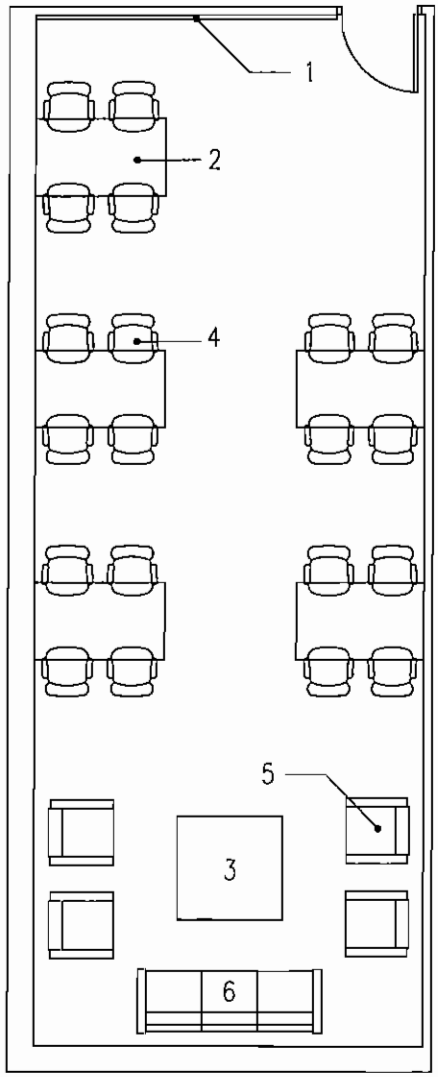
Technology/Communications

Phone/Network Connection:	1 standard outlet per 2 persons
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Student Support



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
Moveable Items	
2. Table	5
3. Occasional Table	1
4. Chair	20
5. Lounge Chair / Sofa	4
6. Sofa	1

Facility Storage

General Information

Assignable Area:	240 asf
Use or Function:	Secure storage room for equipment and furnishings
Adjacencies:	Administrative Department
Access / Door Width:	36" minimum, double door
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	20 – 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

Technology/Communications

Phone Connection:	None
Network Connection:	None
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector

Facility Storage

Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity

No equipment or furnishings required for this space.

Low Value Storage / Work Room

General Information

Assignable Area:	240 asf
Use or Function:	Secure storage room for computer equipment and workspace for 2 to 4 student workers
Adjacencies:	Information Technology Office and High Value Storage
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Tackable and whiteboard wall surface	
	Trash and recycling receptacles	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	20 – 50 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

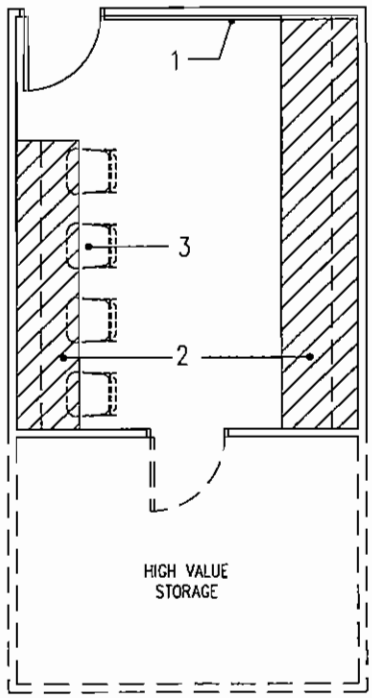
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 40

Low Value Storage / Work Room



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Tackable and Whiteboard Wall Surface	1
Moveable Items	
2. Millwork Cabinets / Countertop with Overhead Storage	2
3. Stacking Chair	4

High Value Storage

General Information

Assignable Area:	140 asf
Use or Function:	Secure storage for computer equipment
Adjacencies:	Information Technology Offices and Low Value Storage/Work Room
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	72F
Lighting:	Single switch with occupancy sensor
Light Level:	20 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

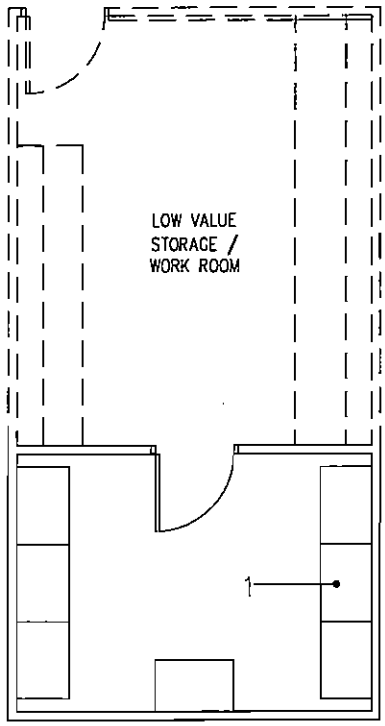
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector

High Value Storage



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Moveable Items	
1. Shelving for High-Value Equipment (24"d x 36"w)	7

Server Room

General Information

Assignable Area:	240 asf
Use or Function:	Secure room to house servers and network equipment
Adjacencies:	Information Technology Offices
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Anti-static resilient	Wall: Painted drywall
	Base: 4" topset	Ceiling: Not required
Wall Protection:	None	
Accessories:	Equipment racks, server power and ladder rack cable distribution	
	Battery operated wall clock	

Environment

HVAC:	Dedicated 24-hour air conditioning
Lighting:	Multiple switching with occupancy sensor
Light Level:	20 - 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	UPS for data equipment
Plumbed Utilities:	None

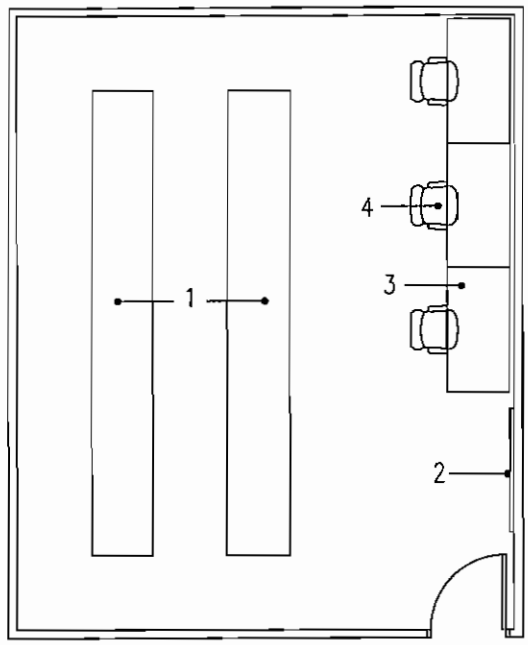
Technology/Communications

Phone Connection:	1 standard outlet at entry
Network Connection:	12 fiber ports, 48 copper ports
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector
Fire Protection:	Dry pipe dual action system with manual hold off

Server Room



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Server Racks	As required
2. Whiteboard	1
Moveable Items	
3. Table	3
4. Chair	3

Review Room

General Information

Assignable Area:	100 asf
Use or Function:	Secure room for Director of Academic Recruitment to review confidential records
Adjacencies:	Director of Academic Recruitment office
Access / Door Width:	Access to room from Director's office – 36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Window shades for light control as necessary	
	Battery operated wall clock	

Environment

HVAC:	74F
Lighting:	Single switch with occupancy sensor
Light Level:	45 – 50 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

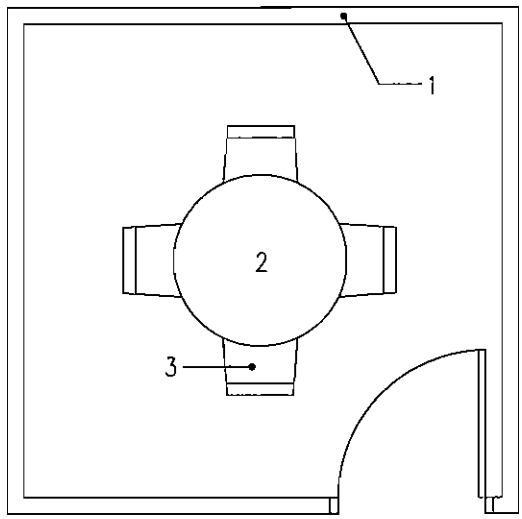
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35

Review Room



Scale: 1/4" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Window Shades	As required
Moveable Items	
2. Table	1
3. Chair	4

Executive Education Assembly Space

General Information

Assignable Area:	5,400 asf	299 seats
Use or Function:	Assembly space for case-study presentations, conferences and lectures	
Adjacencies:	Assembly Support and Assembly Service	
Access / Door Width:	36" minimum	
Accessibility:	Provide 4 ADA accessible wheel chair spaces for seating and 4 companion seats	
Life Safety Issues:	A-occupancy, 299 occupants maximum	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: NA	Ceiling: Acoustic tile / drywall
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Projection screen	
	Tackable and whiteboard wall surfaces	
	Battery operated wall clock	
	Trash and recycling receptacles	
Remarks:	Floor/wall/ceiling surfaces should be acoustically absorptive for AV systems	

Environment

HVAC:	74F / High load, quiet and vibration free HVAC
Lighting:	Lighting to be dimmable from Control Room
	Interconnect dimming controls to the AV system
Light Level:	40 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	Telecommunication interface equipment – UPS for broadcast equipment
Plumbed Utilities:	None

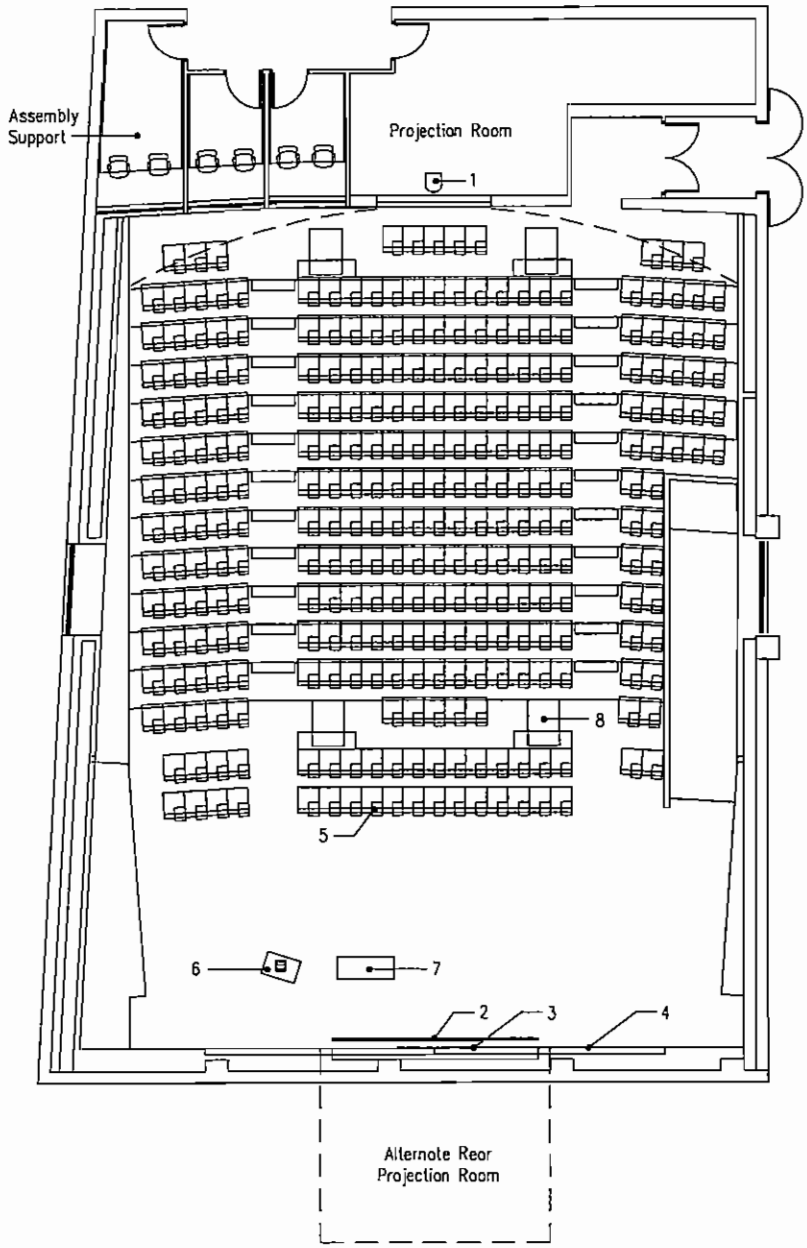
Technology/Communications

Phone Connection:	1 connection at podium, 1 connection at each entry
Network Connection:	2 standard outlets plus 6 strands fiber at podium, 4 standard outlets along front wall, empty conduit to each row of seating
Dedicated Wireless:	Yes – ceiling mounted wireless access points at 1 per 80 users (4 ports total)
Video/Data Display:	Dual screen front projection/power retractable screens, ceiling mounted projectors, far end monitors, 2 flat panels at front wall, and 1 flat panel integrated into podium
Video Sources:	VHS, DVD, computer, doc. camera, campus video distribution, distance learning
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired, simultaneous translation system (299 users)
Audio Sources:	Video, CD, cassette, computer, wired and wireless microphones
Control Systems:	Podium control with integrated touch panel control system; technician control from control booth at rear of the room
Other Technologies:	Dual side by side projectors
	Distance learning (program origination) with technician control console, switching and scaling located in control booth, 2 podium cameras and 2 audience cameras
	Whiteboard, electronic whiteboard

Additional Requirements

Noise Criteria:	NC 25
Fire Alarm System:	Audio / Visual Alarm Station

Executive Education Assembly Space



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Equipment / Furnishings List	Quantity	Equipment / Furnishing List	Quantity
Fixed Items		*Moveable Items*	
1. Projector	2	6. Podium	1
2. Power Retractable Screen	2	7. Table	1
3. Flat Panel Display	2	*Other*	
4. Electronic Whiteboard	2	8. Accessible Wheelchair Spaces	4
5. Fixed Chair with Tablet Arm	295		

Executive Education Assembly Support

General Information

Assignable Area:	80 asf	2 seats / room
Use or Function:	Translation rooms for up to 2 people	
Adjacencies:	Assembly Space	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Single switch with occupancy sensor
Light Level :	45 – 70 foot-candles (fc)
Remarks:	Provide individual task lighting

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

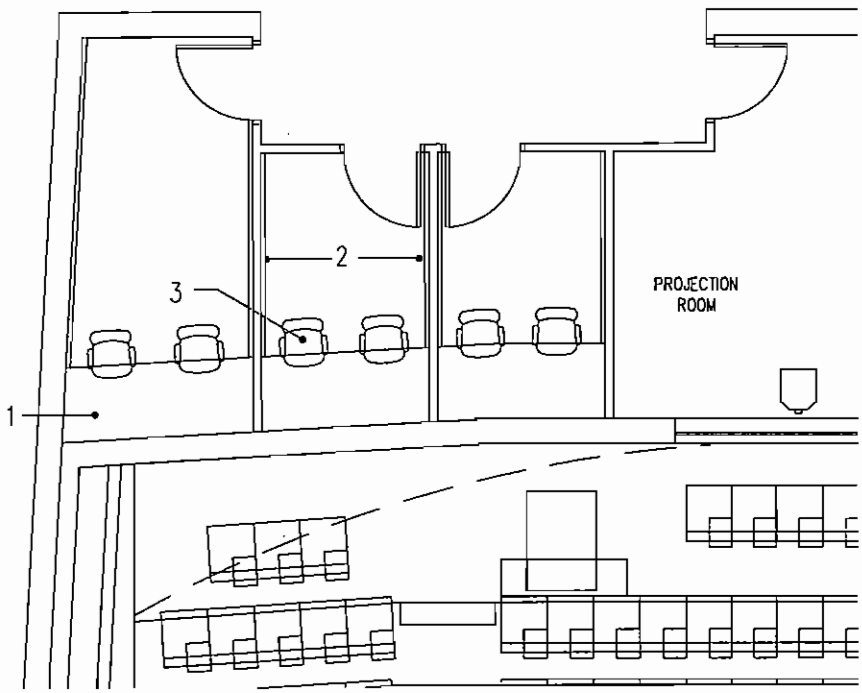
Technology/Communications

Phone/Network Connection:	2 standard outlets
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35
Equipment:	Audio equipment

Executive Education Assembly Support



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Equipment / Furnishings List	Quantity
Fixed Items	
1. Millwork Countertop	1
2. Tackable and Whiteboard Wall Surface	2
Moveable Items	
3. Task Chair	2
4. Audio Equipment	As required

Executive Education Assembly Space

General Information

Assignable Area:	2,025 asf	75 seats / room
Use or Function:	Presentation room with fixed seating	
Adjacencies:	Open Lab	
Access / Door Width:	36" minimum	
Accessibility:	Provide 4 accessible wheelchair spaces	
Life Safety Issues:	A-occupancy, 2 means of egress required	

Architectural Finishes

Finish Package:	Floor: Carpet	Wall: Wainscot w/ painted drywall
	Base: None	Ceiling: Acoustic tile / drywall
Wall Protection:	Durable surface wainscot to 42" above finished floor	
Accessories:	Window shades for light control	
	Battery operated wall clock	
	Trash and recycling receptacles	
	Tackable and whiteboard wall surfaces	
Remarks:	Floor/wall/ceiling surfaces should be acoustically absorptive for AV systems	

Environment

HVAC:	74F
Lighting:	Dimming controls
Light Level:	40 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	Telecommunications interface equipment – UPS for broadcast equipment
Plumbed Utilities:	None

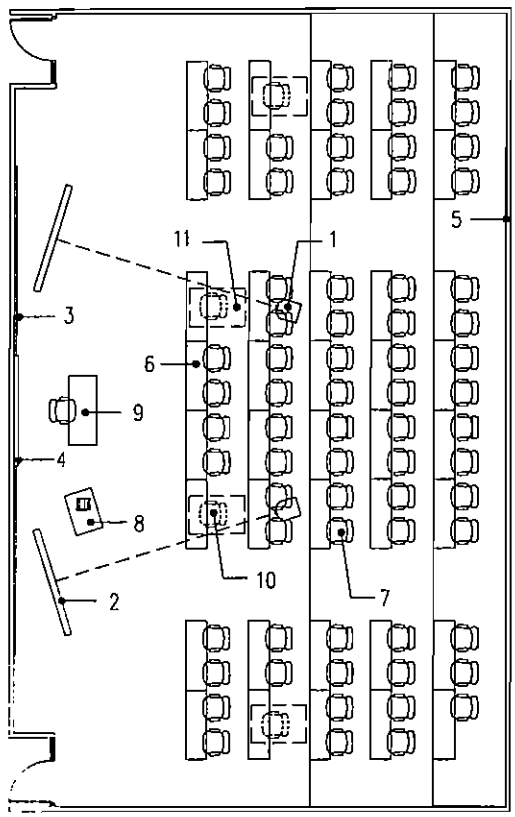
Technology/Communications

Phone Connection:	1 standard connection at podium, 1 connection at each entrance
Network Connection:	2 standard outlets plus 6 strands fiber at podium
	4 standard outlets along front wall
	Empty conduit to each row of seating
Dedicated Wireless:	Yes – ceiling mounted wireless access points (2 total)
Video/Data Display:	Dual screen front projection/power retractable screens, ceiling mounted projectors
	2 flat panels at front wall
	1 flat panel integrated into the podium
Video Sources:	VHS, DVD, computer, document camera, campus video distribution, distance learning, and dual side-by-side 35mm slide projectors
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Video, CD, cassette, computer, wired & wireless microphones
Control Systems:	Integrated touch panel control at podium with switching and scaling
Other Technologies:	Distance learning (program origination) – technician control console, 2 podium cameras, and 2 audience cameras
	Whiteboard and electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Executive Education Assembly Space



Scale: 1/16" = 1'-0"

Equipment / Furnishing List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	2
2. Power Retractable Screen	2
3. Tackable Wall Surface	2
4. Electronic Whiteboard	1
5. Window Shades	As required
6. Fixed Table with Power/Data	40
7. Fixed Chair	71

Equipment / Furnishing List	Quantity
Moveable Items	
8. Podium	1
9. Table	1
10. Chair	5
Other	
11. Accessible Wheelchair Space	4

Executive Education Board Room

General Information

Assignable Area:	1,050 asf	35 seats / room
Use or Function:	Meeting room for AGSM Board and Executive Education	
Adjacencies:	Catering Kitchen and Catering Kitchen Support	
Access / Door Width:	36" minimum	
Accessibility:	As required by code	
Life Safety Issues:	B-occupancy	

Architectural Finishes / Accessories

Finish Package:	Floor: Carpet	Wall: Wood panels / painted drywall
	Base: Wood	Ceiling: Acoustic tile / drywall
Wall Protection:	None	
Accessories:	Electronic whiteboard	
	Tackable and whiteboard wall surfaces	
	Window shades for light control	
	Battery operated wall clock	
	Fabric wrapped, tackable wall surfaces	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Level:	40 – 50 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

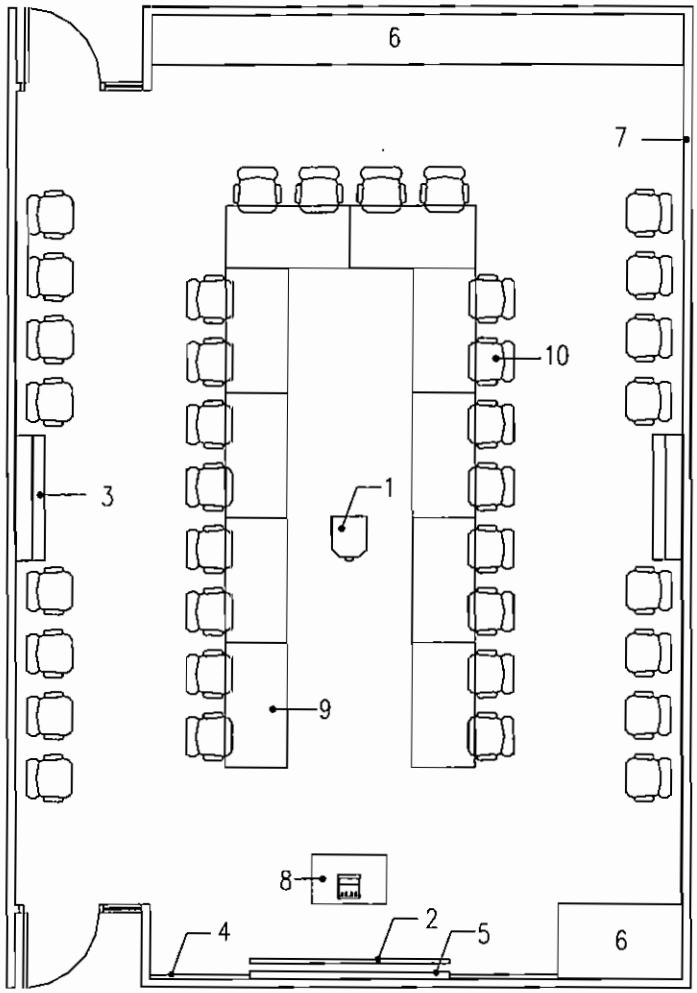
Technology/Communications

Phone Connection:	2 standard outlets in floor for table, 3 standard outlets in perimeter wall
Network Connection:	2 standard outlets in floor for table plus 1 outlet per 2 seats (18 outlets, 36 ports) 4 standard outlets in perimeter wall
Dedicated Wireless:	Yes – single WAP
Video/Data Display:	Dual screen flat panel (with ceiling mounted front projection an alternate): 2 flat panel far end monitors and 1 flat panel integrated into the podium, power retractable screens
Video Sources:	VHS, DVD, computer, document camera, campus video distribution, Videoconferencing, dual side-by-side 35mm slide projectors
Audio System:	Ceiling loudspeakers, assistive listening system for hearing impaired
Audio Sources:	Video, CD, cassette, computer
Control Systems:	Integrated touch panel control system at podium with switching and scaling
Other Technologies:	Whiteboard, electronic whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Executive Education Board Room



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Ceiling Mounted Projector	1
2. Power Retractable Screen	1
3. Flat Panel Display	2
4. Tackable Wall Surface	1
5. Electronic Whiteboard	1
6. Millwork Credenza	2
7. Window Shades	As required
Moveable Items	
8. Podium	1
9. Table with Power/Data	10
10. Chair	36

Executive Education Catering Pantry and Support

General Information

Assignable Area:	240 asf
Use or Function:	Warming and serving preparation pantry with storage
Adjacencies:	Boardroom
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Resilient	Wall: Resilient
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensor
Light Level:	45 – 55 foot-candles (fc)

Utilities / Services

Power:	Standard with GFI outlet adjacent to sink
Emergency Power:	None
Plumbed Utilities:	Sink w/ disposal, refrigerator, icemaker, and dishwasher

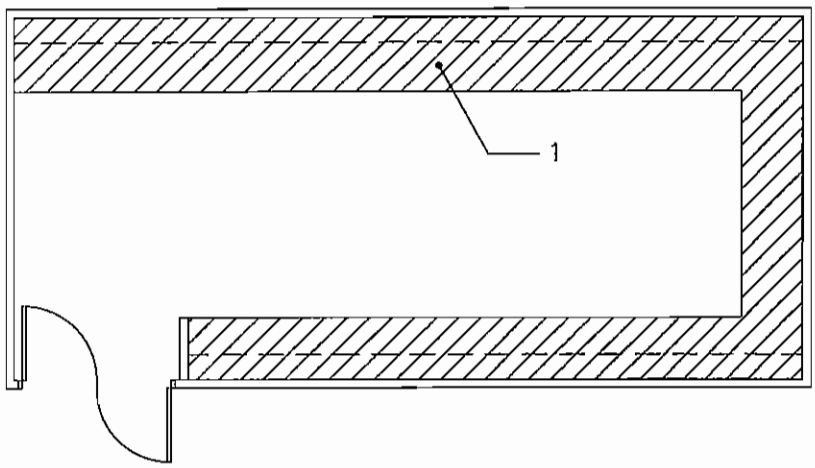
Technology/Communications

Phone Connection:	1 standard outlet at entry
Network Connection:	None
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Smoke & Heat Detector, Audio / Visual Alarm Station

Executive Education Catering Pantry and Support



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Millwork Cabinet/Countertop with Overhead Cabinets	Custom
Moveable Items	
2. Pantry Appliances (Refrigerator, Ice Maker, Dishwasher, Sink, Warming Oven, etc.)	Per Catering Pantry Consultant

Executive Education Resource Center

General Information

Assignable Area:	960 asf
Use or Function:	Office and conference center for visiting faculty and executives
Adjacencies:	NA
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes / Accessories

Finish Package:	Floor: Carpet	Wall: Painted drywall
	Base: 4" topset	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	Window shades for light control	
	Battery operated wall clock	
	Tackable and whiteboard wall surfaces	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors

Utilities / Services

Power:	Standard with GFI outlet adjacent to sink
Emergency Power:	None
Plumbed Utilities:	Small sink

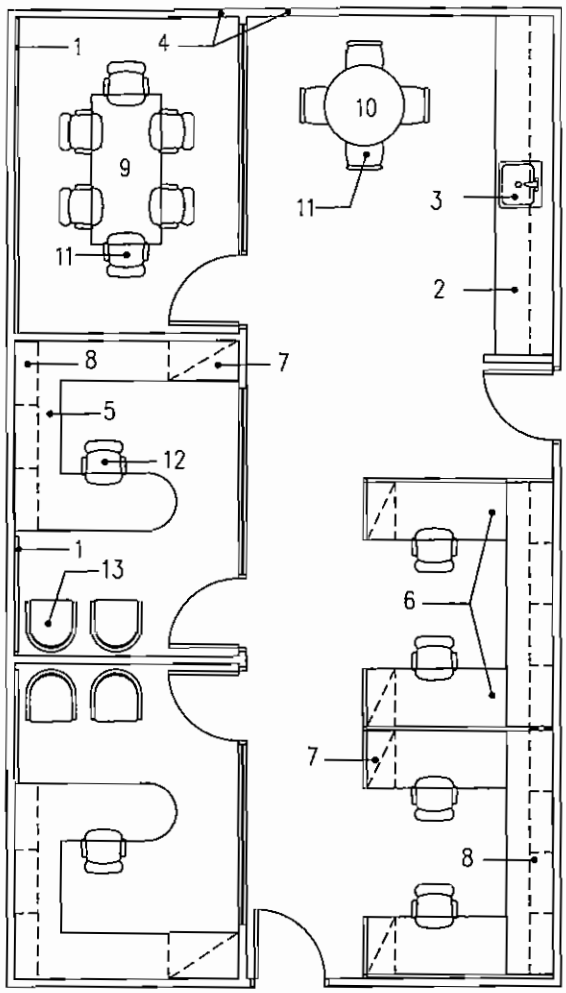
Technology/Communications

Phone Connection:	Offices: 2 standard outlets Open Office Area: 1 standard outlet in floor plus 1 standard outlet per two persons Conference Room: 1 standard outlet in floor for table, 2 standard outlets in perimeter wall
Network Connection:	Offices: 2 standard outlets Open Office Area: 1 standard outlet in floor plus 1 standard outlet per two persons Conference Room: 1 standard outlet in floor for table, 4 standard outlets in perimeter wall
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	Whiteboard

Additional Requirements

Noise Criteria:	NC 35
Fire Alarm System:	Audio / Visual Alarm Station

Executive Education Resource Center



Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Whiteboard	3
2. Millwork Cabinets / Countertop with Overhead Cabinets	1
3. Sink	1
4. Window Shades	As Required
Moveable Items	
5. Office Workstation	2
6. Open Workstations with Panels	4
7. File Cabinets	6
8. Overhead Storage	3 per office workstation, 2 per open office workstation
9. Table with Power/Data	1
10. Table	1
11. Chair	10
12. Task Chair	6
13. Guest Chair	4

Executive Education Cyber Café

General Information

Assignable Area:	800 asf
Use or Function:	Cyber Café seating area for 50 inside and 50 outside
Adjacencies:	Cyber Café Service and Pantry
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Polished concrete	Wall: Glazing, painted drywall, specialty material
	Base: Varied	Ceiling: Open to structure w/ floating acoustic ceiling
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	As appropriate per lighting design
Light Level:	20 – 30 foot-candles (fc)

Utilities / Services

Power:	Standard
Emergency Power:	None
Plumbed Utilities:	None

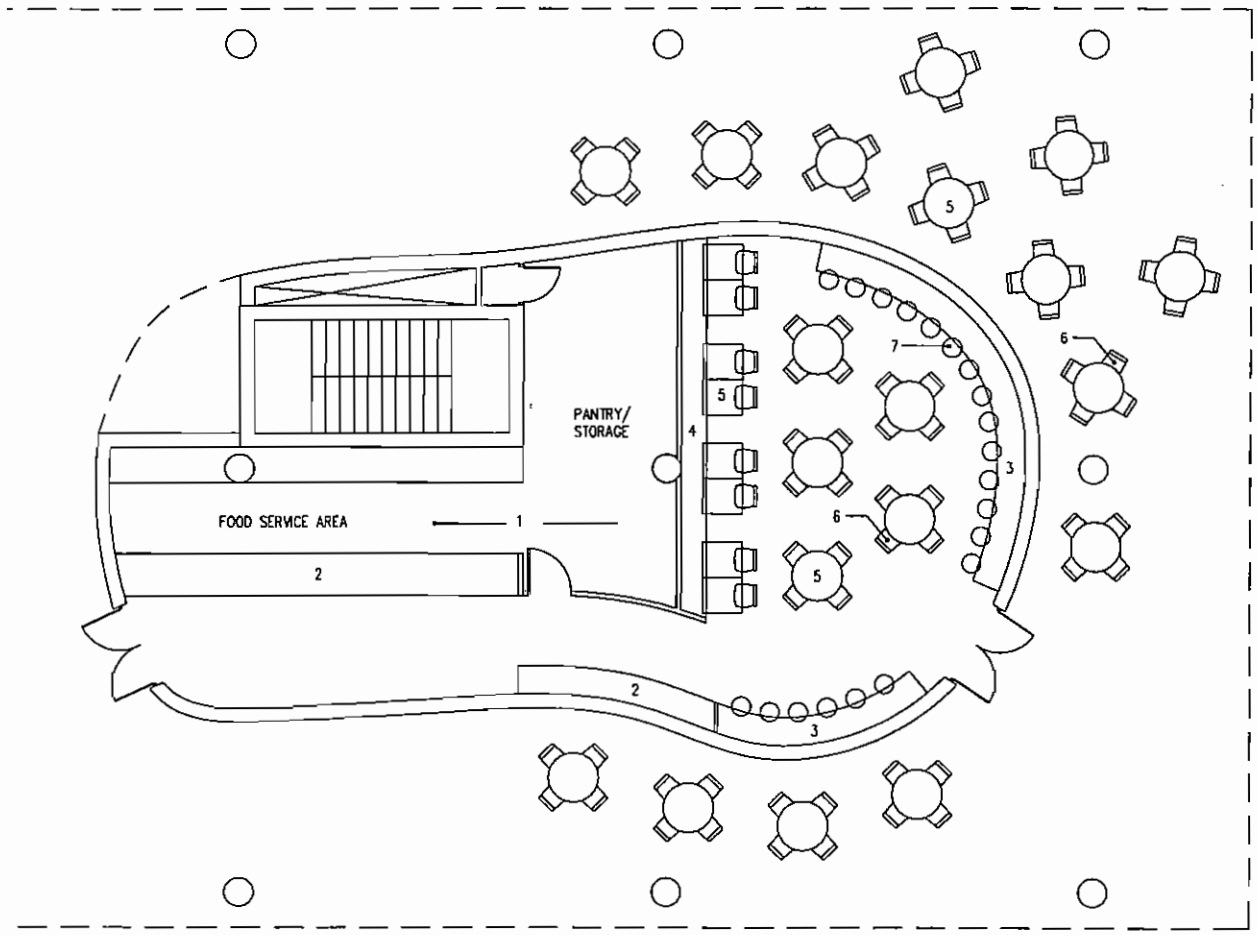
Technology/Communications

Phone Connection:	1 standard connection at entry within Service / Pantry area
Network Connection:	20 standard outlets in perimeter wall
Dedicated Wireless:	Yes – ceiling wireless access points provided both inside and outside
Video/Data Display:	4 to 6 flat panel monitors for TV/video news feed
Video Sources:	TV/campus video distribution
Audio System:	Local to monitors
Audio Sources:	TV/video distribution
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Audio / Visual Alarm Station

Executive Education Cyber Café



Scale: 1/16" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Service / Pantry Equipment	As required / specified by Food Service Consultant
2. Millwork Service Counter	Continuous surface
3. Millwork Counter	Continuous surface
4. Banquette Seating	8 seats
Moveable Items	
5. Table	27
6. Chair	84
7. Stool	20

Executive Education Cyber Café Pantry and Service

General Information

Assignable Area:	1,150 asf
Use or Function:	Food service and storage for Cyber Cafe
Adjacencies:	Cyber Café
Access / Door Width:	36" minimum
Accessibility:	As required by code
Life Safety Issues:	B-occupancy

Architectural Finishes

Finish Package:	Floor: Quarry tile	Walls: Resilient / painted drywall
	Base: Tile cove base	Ceiling: Acoustic tile
Wall Protection:	None	
Accessories:	None	

Environment

HVAC:	74F
Lighting:	Multiple switching with occupancy sensors
Light Levels:	50 – 60 foot-candles (fc)

Utilities / Services

Power:	Standard with GFI outlet(s) adjacent to sink(s) and dedicated circuits for equipment as required
Emergency Power:	None
Plumbed Utilities:	Sink, icemaker, dishwasher, and refrigerator

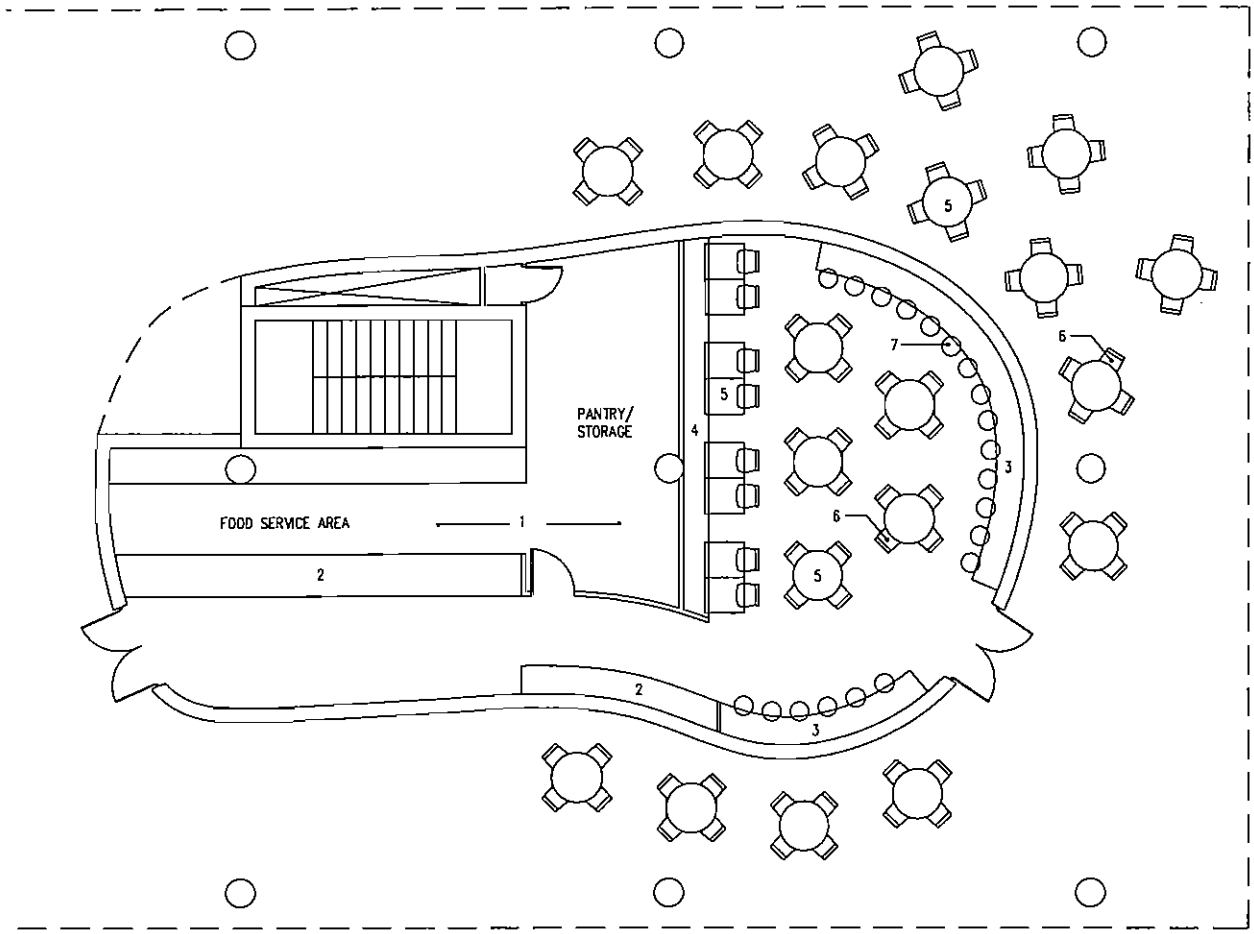
Technology/Communications

Phone Connection:	1 standard connection
Network Connection:	None
Dedicated Wireless:	No
Video/Data Display:	None
Video Sources:	None
Audio System:	None
Audio Sources:	None
Control Systems:	None
Other Technologies:	None

Additional Requirements

Noise Criteria:	NC 40
Fire Alarm System:	Smoke & Heat Detector, Audio / Visual Alarm Station

Executive Education Cyber Café Service and Pantry

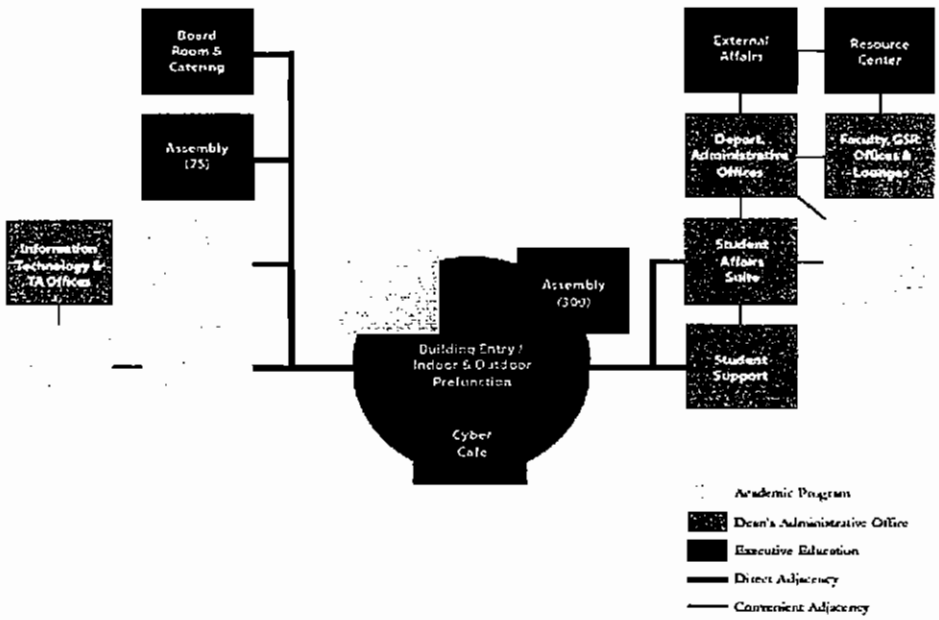


Scale: 1/8" = 1'-0"

Equipment / Furnishings List	Quantity
Fixed Items	
1. Service / Pantry Equipment	As required / specified by Food Service Consultant
2. Millwork Service Counter	Continuous surface
3. Millwork Counter	Continuous surface
4. Banquette Seating	8 seats
Moveable Items	
5. Table	27
6. Chair	84
7. Stool	20

3.5 Functional Relationships

The following diagram illustrates the relationships between the major space types that comprise the program. The primary objective is to both depict the direct adjacencies, which require "side-by-side" locations, and the convenient adjacencies, which benefit from proximity but do not necessarily need to be contiguous.



The functional relationships between spaces have been primarily defined based on the objectives outlined during the planning process: creating a space that maximizes intra-program and student/teacher/visitor **collaboration, formal and informal learning** opportunities, and **flexibility/modularity.**

The building has been programmed to provide increasing levels of privacy and concentration on the higher floors and conversely, higher levels of interactivity on the lower floors. Therefore, each of the three (3) space types outlined below roughly corresponds to one of the building's three floors, with the exception of the Executive Education wing, which is four stories.

Interactive and Highly Public – These spaces are areas of congregation primarily for students and faculty but also for visitors. They require ease of access, high visibility, and some degree of separation from areas where focused learning and office functions take place. They include the atrium, cyber café, building reception, computer labs, club spaces, and assembly spaces. The direct adjacency of these spaces provides a central area of interactivity where students and faculty can spend time between classes, work collaboratively, and enjoy the energy that results from a high degree of interaction and a dense population.

Focused Learning and Moderately Public – These spaces are areas where instructional and scholarly activities take place. They require acoustic and visual privacy, and thus can be grouped together, but benefit from separation from highly public spaces. Within these areas, spaces for focused activity such as

scheduled classes also benefit from close proximity to lab areas, where students and/or faculty continue to learn, experiment and teach before, after and at times interspersed with scheduled classes and lectures.

In addition to instructional and research spaces, close proximity is provided to those administrative offices that are frequently visited by students. Centralization of these offices which have a primary role of directly serving the student population provides ease of access and supports AGSM's goal of closely nurturing student growth.

Administrative and Minimally Public – These spaces are for AGSM's leadership and administrative functions and are primarily utilized by faculty and staff. By virtue of direct adjacency, these space types, primarily comprised of offices and workstations, are able to share common areas, such as copy rooms and meeting spaces. In shaping the curriculum and managing the AGSM's operations and growth, close proximity between faculty members supports the goals of enhanced information exchange, decision-making and collaboration between faculty. In addition, the focused nature of much of the work that takes place within these offices requires concentration, which would be diminished if positioned in close proximity to high activity areas.

A portion of the Executive Education wing, which is placed at higher levels in the current concept, also fits within this category as it primarily serves as gathering and work space for visiting business leaders, and for scheduled meetings. This is in contrast to the high degree of community involvement and outreach that will take place at lower levels of the Executive Education wing, where students, the public, and business professionals will frequently come together.

3.6 Program Drivers

During the course of the visioning session and subsequent programming interviews for the new AGSM Building, several consistent themes emerged. As a result of those discussions as well as benchmarking of recent business school building projects across the country, the following program drivers were derived and serve as a basis for the program elements.

Office

- Provide a flexible solution that allows individual and conferencing/group work to occur within the workplace.
- Create an environment that is visually open to encourage the exchange of information and ideas.
- Locate faculty offices directly adjacent to interaction areas to encourage knowledge sharing.
- Cluster administrative functions together while maintaining the distinct identities of each function.
- Locate offices and workstations to make natural light available to the maximum number of people. *(Reference LEED Indoor Environmental Quality Credit 8 – Daylight & Views)*

Assembly/Auditoria

- Utilize technology as an educational learning tool to enable and support the development of new business techniques and connect with off-site locations.
- Design facilities to allow the use of a variety of media and teaching styles.
- Support both plug-and-play and wireless connectivity.

Instructional Labs/Informal Learning Areas

- Utilize technology as an educational learning tool to enable and support the development of new business techniques and connect with off-site locations.
- Incorporate furniture solutions to maximize multi-purpose functions of instructional and scholarly activity spaces.
- Design facilities to allow the use of a variety of media and teaching styles.
- Support both plug-and-play and wireless connectivity.
- Provide areas for groups to meet informally to exchange ideas.
- Provide areas for impromptu meetings to occur.

Community Space

- Provide a multi-purpose facility to support research, education, campus and community outreach and community building activities.
- Promote community building by providing various sized spaces in which persons can interact and discuss relevant issues.
- Utilize technology to provide information and connectivity to off-site locations.
- Develop a reason for people to spend time in community spaces by providing access to food facilities, media and connectivity to both information and people.
- Provide an environment in which people can freely exchange ideas, obtain information, relax and connect.

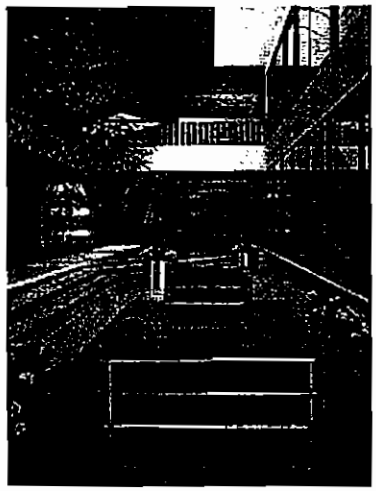
Heckmann Center Connection

- Promote synergy between AGSM and the Heckmann Center Complex in Palm Desert by creating an integrated learning community.
- Utilize technology to connect programs, activities, faculty, staff, students and executives between AGSM and Heckmann Center.

3.7 Spatial Design Concepts

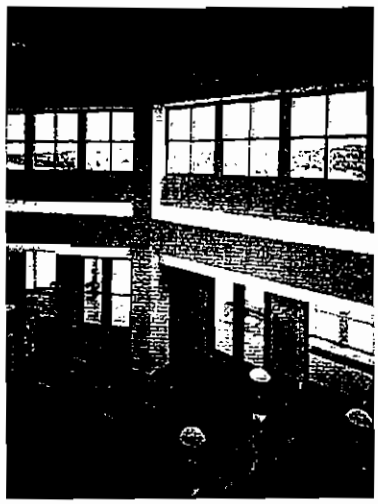
This section provides design concepts taken from best practices from both the educational and private sector. The images are provided to illustrate how interior spaces of the planned AGSM Building can be designed in accordance with the Program Drivers outlined in Section 3.6.

Building Entry/ Atrium



Incorporate seating and collaborative spaces into the main reception/ atrium.

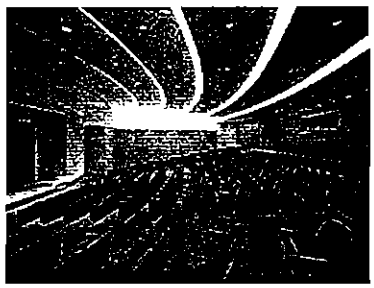
Provide clear circulation pathways that emanate from the main point of entry.



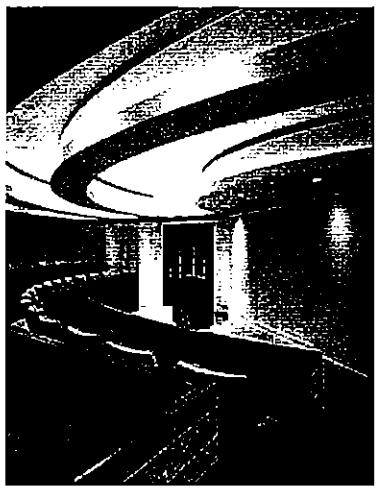
Position the building and design interior spaces to maximize light penetration.

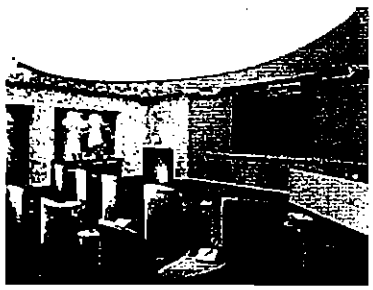
Provide visual access to the outdoors and natural light throughout the building.

Assembly Spaces

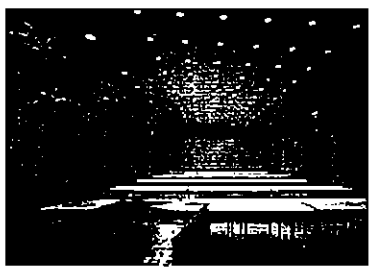


Utilize high quality finishes that contribute to a professional environment.



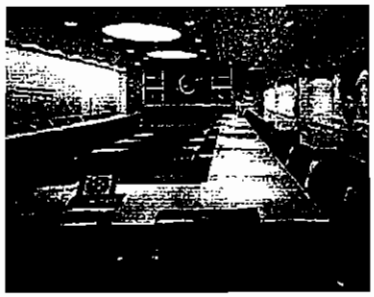


Incorporate flexible, ubiquitous and connective technology into all workspaces.



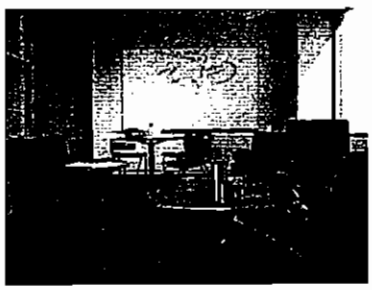
Utilize modular furniture in instructional settings to provide flexibility of use.

Board Room and Conference Rooms



Provide various sized, technology-equipped meeting rooms.

Circulation Spaces / Open Meeting Spaces



Incorporate tackable and writeable boards and walls into teaming areas.

Provide for "plug-and-play" and wireless connectivity throughout the facility.

Utilize furniture that can be configured to meet the needs of various user groups.

Provide active spaces for congregation in and around lobbies and off of corridors.

Cyber Café

Make every space a "work space" by providing full-connectivity.

Provide comfortable group and individual seating that can be configured to meet user needs.

Maximize views from interior spaces and the penetration of natural light.

4.1 Campus Planning Context

The University of California at Riverside is located in one of Southern California's fastest growing regions, the Inland Empire. The region was historically one of the nation's largest agricultural production centers from the late 1880s through the turn of the century. The agrarian landscape is still present today in the area west of the I-215 freeway encompassing 533.5 acres of the 1,110 acre campus and used primarily for agricultural research and support programs. The remaining 576.5 acre campus lies east of the freeway and has experienced a more traditional pattern of growth consisting of buildings clustered around plazas and pedestrian malls with outlying parking lots and perimeter vehicular circulation.

Aerial Photo of Site and Context

The proposed 2-acre site for the planned AGSM Building is located at the eastern portion of the West Campus, north of Martin Luther King Boulevard at Canyon Crest Drive. This is a prominent site, which will afford the building with a high level of visibility from the surrounding road systems, most notably the I-215 freeway, as well as from the East Campus. While the site itself has recently been paved to serve as a surface parking lot, it is surrounded by extensive undeveloped citrus groves immediately to the west, by Martin Luther King Boulevard to the south, and Canyon Crest Drive and the I-215 freeway to the east.

The proposed AGSM Building will be the first academic instructional and research facility and professional school on the West Campus and will serve as a catalyst for future development due to its pivotal and significant placement. The site is south of the proposed West Campus Mall (2002 LRDP) and west of the Canyon Crest underpass linking the East Campus. The building's footprint, roughly 300 feet by 80 feet in size, will fall along a north/south axis, forming an east/north-facing plaza off of Canyon Crest Drive and the West Campus Mall. The main thrust of the landscape concept supporting the DPP is strongly influenced and inspired by the region's citrus and agricultural heritage, suggesting an agrarian geometry and scale that will inform the design framework for the future development patterns of the West Campus.

In addition, as the "pioneer" on the West Campus, the AGSM Building and its site should be designed to encourage a high concentration of activity both inside and around the facility to help animate the West Campus, and provide an inviting setting for AGSM students, outside visitors, and for the UCR undergraduate student body, which is centered on the East Campus.

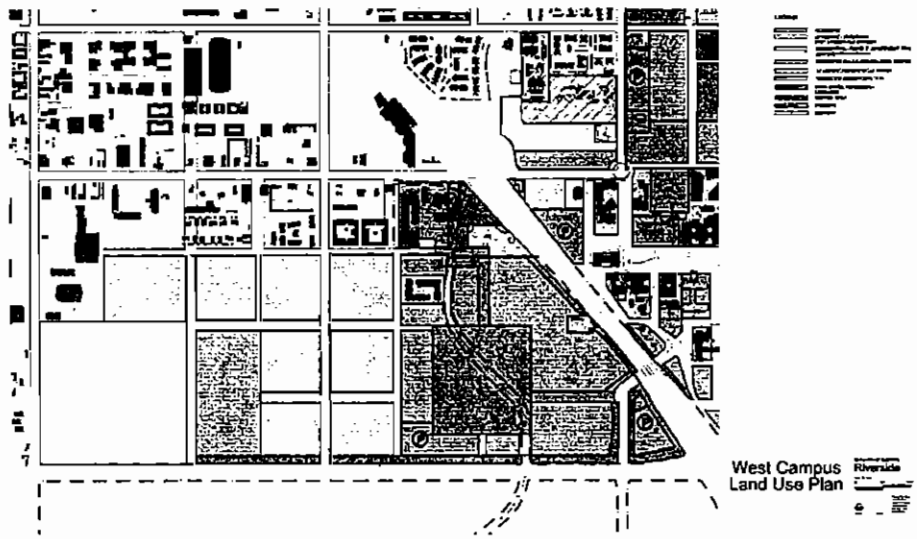
4.2 Long Range Development Plan Goals (LRDP)

The site selected for the planned AGSM facility complies with the 1990 LRDP in that it is in accordance with the designation of the West Campus as a professional and graduate school zone.

The existing LRDP is currently being updated by UCR staff and will not be adopted until after this DPP is complete. In addition, UCR is currently preparing an area plan for the West Campus with BMS Design Group of San Francisco, which is scheduled for completion in Summer 2002. As such, this DPP has been developed in concert with many of the precepts of the 1990 LRDP, and in furtherance of the evolving LRDP update and West Campus Area Plan. While certain aspects of the planned AGSM Building and surrounding landscape may need to be updated as the LRDP is revised and the area plan is developed, this DPP adheres to the following:

- Project density will be maintained at a minimum 1.0 Floor Area Ratio (FAR).
- Existing parking that is removed from Parking Lot 30 during the project will be replaced at a nearby location, to be determined in consultation with UCRs Transportation and Parking Services Unit (TAPS).

- The building will include highly active outdoor areas, to be located near major intersections such as entries, which will encourage congregation. These outdoor spaces should also mitigate seasonal temperature fluctuations through the inclusion of shaded areas. *(Reference LEED Sustainable Sites Credit 7.1 – Landscape and Exterior Design to Reduce Heat Islands: provide shade on 30% of site.)*
- The building will be designed both to tie in with the East Campus, possibly though the use of "UCR brick" or similarly colored or textured materials, and also to highlight the professional nature of its function through the utilization of private sector architectural idioms.
- The planned facility should be sited to provide maximum land use efficiency and to provide adequate circulation and gathering spaces and contextual landscaping.
- The footprint of the building should maintain a 20-foot minimum setback from the existing landscape buffer along Canyon Crest Drive, and preserve a 100-foot landscape buffer zone from Martin Luther King Boulevard.
- The project should comply with the West Campus Area Plan, once completed, and should be designed to both integrate the West and East Campuses, and link to future development to the north and west of the site.



4.3 Site Planning Issues

During the programming process a number of key site planning issues related to the selection and development of the site *(reference LEED Sustainable Sites Credit 5 – Reduced Site Disturbance)* were defined, as follows:

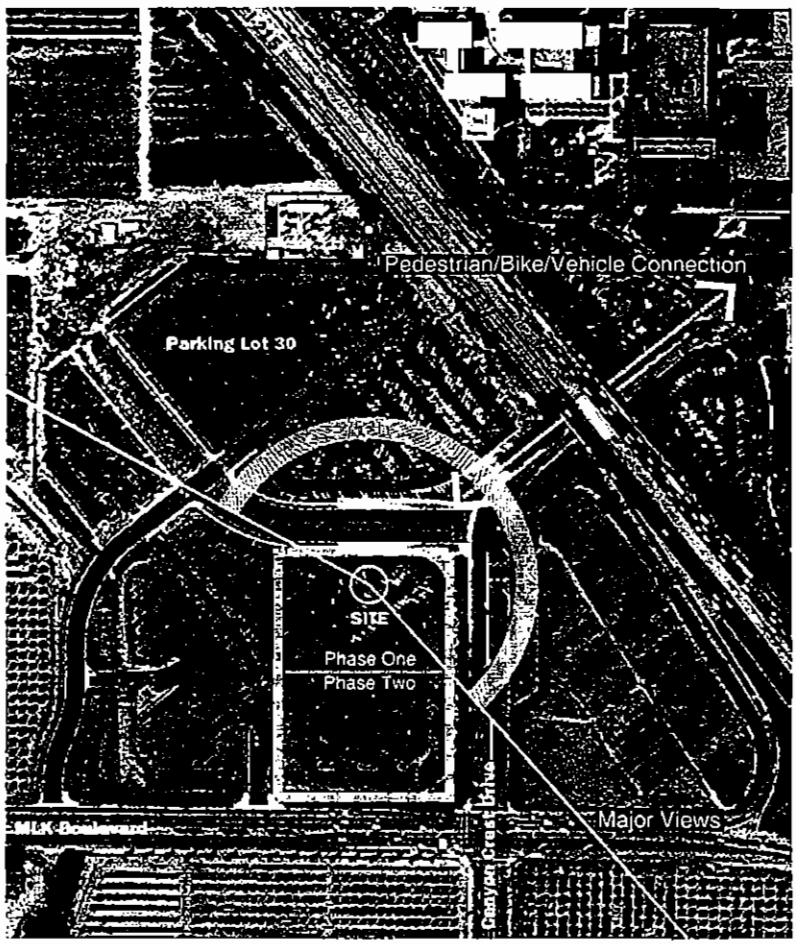
Visibility

The planned AGSM Building, when completed, will be the first and only professional school on the West Campus for some time, and therefore runs the risk of being perceived as isolated or difficult to locate/navigate for students,

faculty, and visitors used to the density of the East Campus. To mitigate this, the architecture, siting and landscaping of the building will all be designed to ensure that it is a highly visible facility from the East Campus, the Canyon Crest Drive underpass, from the I-215 freeway, and from surrounding surface roads. View corridors will be maximized and signage and wayfinding will need to be clear and comprehensive.

A core objective of the project is also for the building to help AGSM raise its visibility and stature both within and beyond the campus boundaries, and thereby help to advance its recruitment of high caliber teachers and students. The site has therefore been selected and will be developed to ensure that it is in clear view of the hundreds of thousands of people driving by annually on surrounding roadways. This level of visibility may also help AGSM as it raises funds for the development of the building and subsequent phases from private sources.

Finally, the first phase of the planned building should be positioned at a direct axis from the Canyon Crest Drive underpass, leaving an additional portion of the existing Parking Lot 30 to the south for additional gift-funded building expansion opportunities.



Aerial Photo of Site, Indicating Phasing and Primary Circulation Corridor

Accessibility
Students from the East Campus will be able to easily access the planned AGSM Building, primarily by way of the Canyon Crest underpass, which will provide pedestrian and bicycle pathways as well as vehicular access.

In addition, the site will be developed in full accordance with accessibility standards, including the Americans for Disabilities Act's guidelines. Large assembly areas have been located on the ground floor to ensure ease of access, and circulation routes have been reduced between major site and building components.

Utilities
Given the undeveloped nature of the West Campus, water and gas lines, sewers, storm drains, and other utility lines will need to be extended onto the site. The connections are diagrammed in the Utility Plans (see Section 4.10), prepared by Crosby Mead Benton & Associates.

The cost of the extensions, which will serve both the AGSM and the West Campus in general as it is developed, is significant and may be partially paid for through a separate West Campus infrastructure capital improvement project, as opposed to the AGSM project budget, outlined in detail in Section 7.

Parking
Parking that is displaced as a result of the construction of the AGSM Building will be replaced at a location to be determined in consultation with UCR's TAPS. The cost for replacement of said parking is included in the planned AGSM Building budget, defined in detail in Section 7. A drop-off area for parking for special events may also be provided at the planned facility, but automobiles will, in general, by restricted from the area immediately around the building. The preferred building concept will take out between 350 and 400 parking spaces in Lot 30. *(Reference Sustainable Sites Credit 4.1 – Alternate Fuel Parking and Credit 4.4 – Minimum by Code or No New Parking)*

Noise
Road noise from the I-215 freeway and Martin Luther King Blvd. will be mitigated through various construction methods as well as the use of trees and plantings on the site. In addition, the planned Caltrans roadway improvements are expected to include a sound wall, which will further reduce noise in the interior and exterior spaces of the AGSM Complex.

Views
The view corridor across the I-215 freeway, afforded as a result of a break in the noise barriers and the low grade of the highway, will be retained and landscaping will further strengthen the visual connection between the East and West Campuses, as well as future West Campus development.

Similarly, the siting of the building and the landscaping that surrounds it will maximize the dramatic views east to the Box Spring Mountains and north to the San Bernardino Mountains.

Potential for Expansion
The design of the AGSM Building should maximize the potential expansion of the building to accommodate future growth in the programs and/or student, faculty and staff populations. The proposed first phase will therefore utilize the northern portion of the 2-acre site, leaving a parcel to the south for additional expansion at a future date.

Integration
The objective is for the East and West Campuses to be well integrated and to feel both physically, aesthetically, and culturally part of a single university. In keeping with the LRDP, UCR's boundaries should not be rigid, but rather should blend into the surrounding community to further its position as an integral part of Riverside. Physical barriers such as high walls, stands of large, uninterrupted trees, and long, continuous facades between the East and West Campuses and the surrounding community will be minimized.

Sustainability
The building should be designed in accordance with the LEED Green Building Rating System (Version 2.0). In addition, the design should be in conformity with the level of LEED certification (Silver, Gold or Platinum) recommended or required in the West Campus Area Plan, once completed.

4.4 Landscape

The proposed landscape for the AGSM Building will take its cue from the history of the site as a citrus grove and from the groves that still exist to the south and west of the site. Plants and trees may be selected that replicate the scale, rhythm and patterning, and color of citrus trees, and other indigenous foliage. In particular, the subtle seasonal hue and color changes that citrus groves undergo will be referenced so that the future landscape goes through a similar shift throughout the academic year and during the summer. The citrus and agricultural imagery should be continued in the materials and design of the building (See Section 5).

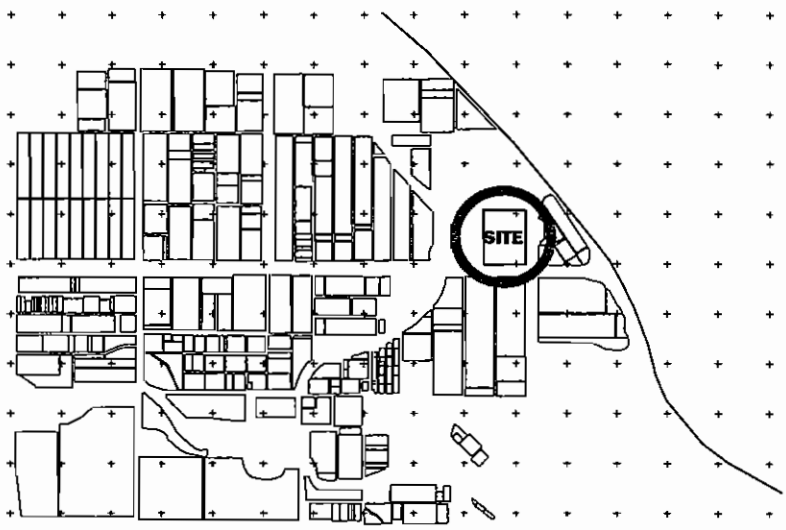


Diagram of Site and Surrounding Citrus Grove Parcels

The landscape will also balance the need for visual and acoustic privacy from Martin Luther King Boulevard and Canyon Crest Drive with the stated goal of positioning the planned AGSM Building to maximize its visibility from the East Campus and vehicular passersby. In furtherance of this goal, the siting and landscaping of the building will take advantage of natural contours in the site to enhance the view corridor across the freeway to/from the East Campus.

On the site's north side, earth berms could rise up to the building, forming a green plinth of lawn oriented to the proposed West Campus Mall, creating a terminus to the long axis extending northwest. The earth form could also provide for a visual focus from the Canyon Crest underpass that ties directly into the new AGSM Complex. To the east and south, along Canyon Crest Drive and abutting Martin Luther King Boulevard, an outdoor plaza could provide the principal space for outdoor activities, relating not only to the lobby/atrium and Cyber Cafe, but slip through the ground floor space to the east, completing the agrarian grid of planting and paving elements.

The landscaped outdoor rooms that will be provided around the building will address sustainability issues through the appropriate selection of new plants and possible salvaging of existing plant materials located in the West Campus. *(Reference LEED Sustainable Sites Credit 5 – Reduced Site Disturbance, Credit 6 – Stormwater Management, and Credit 7 – Landscape & Exterior Design to Reduce Heat Islands and Water Efficiency Credit 1 – Water Efficient Landscaping)* Adopting the citrus and agricultural heritage theme relates to the use and the context of the new campus. Shade, texture, color, scent and scale will be provided through the use of drought tolerant palms, trees, shrubs, groundcovers, and grasses.

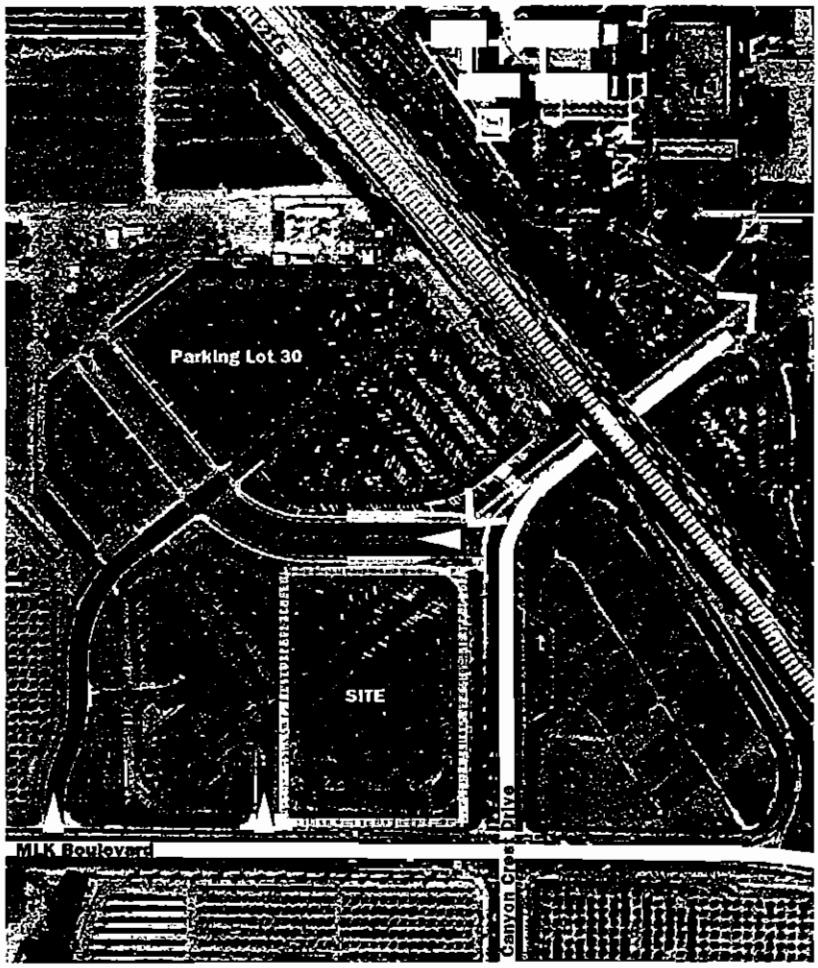
4.5 Vehicular and Pedestrian Circulation

Circulation patterns on the West Campus, in accordance with the 2002 LRDP, are expected to be developed in order to give priority to pedestrians and bicycles, and to separate automobiles from the core of the campus. Initially, automobile and service vehicle traffic will access the West Campus by way of entrances along Martin Luther King Boulevard to the west of the site, and off of Canyon Crest Drive just to the north of the site (see diagram on the following page). In the future, vehicular circulation patterns may be reconfigured, pursuant to the West Campus Area Plan, in order to further separate vehicular traffic from pedestrian and bicycle routes, and potentially to provide designated entry points and roads for service vehicles. Parking will be provided on the remaining portion of Parking Lot 30, but may also be relocated to peripheral and remote lots at a later date in accordance with the 2002 LRDP and the West Campus Area Plan.

The two primary access points from the East Campus to the West Campus for pedestrians and bicyclists will be the University Avenue and Canyon Crest Drive underpasses. The Canyon Crest Drive underpass, in particular, will serve as the principal thoroughfare between the East and West Campuses. A planned upgrade to this underpass by Caltrans, scheduled for completion in 2004-5, will provide for both automobile traffic and separate lanes for pedestrians and bicycles. The location of the planned AGSM Building is in the direct path of site for pedestrians and bicyclists as they enter the West Campus by way of the Canyon Crest Drive underpass and will therefore provide the first orienting

landmark to the West Campus for those arriving by foot and bicycle.

The character of the walkways leading to and from the AGSM Building will provide for safe, convenient and comfortable circulation, through the inclusion of shaded areas, seating, lighting and emergency call boxes. Secure bicycle parking *(reference LEED Sustainable Sites Credit 4.2 – Bike Storage)* will be provided at or near all buildings on the West Campus, including the new AGSM facility. An expanded campus transit (shuttle) system *(reference LEED Sustainable Sites Credit 4.1 – Public Transit)* will also circulate through the campus with a stop either at or near the current site of Transportation Hub #1.



Aerial Photo of Site, Indicating Primary Vehicular and Pedestrian Access Points and Circulation Paths

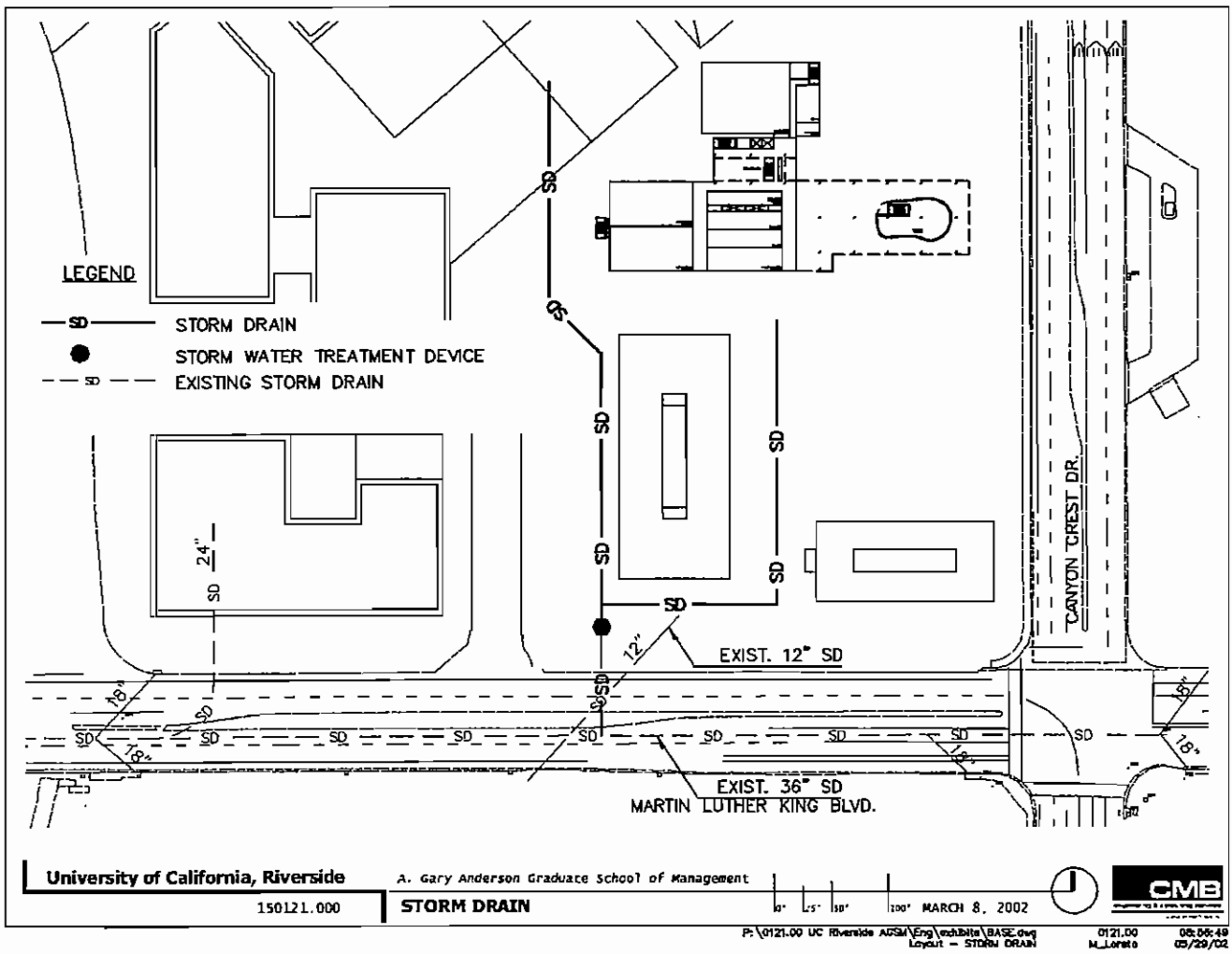
	Site Barrier	Interstate 215
	Primary Vehicular Access Roads	Canyon Crest Drive, MLK Boulevard
	Primary Vehicular Access Points	Parking Lot 30 Entries
	Primary Pedestrian Access Path	Canyon Crest Underpass

4.6 Site Utilities

The undeveloped West Campus is currently devoid of nearly all types of utilities and will therefore require significant infrastructure construction and/or extension of lines, which will service the entire West Campus not just the new AGSM Building. Initially the building should be designed to be stand-alone, with systems that are dedicated exclusively for its use. However, the AGSM Building should also be designed with the capability to tie into a central plant or building loop system if and when warranted by the West Campus development.

Storm Drain

There is a 36" storm drain in Martin Luther King Blvd. that is about 9' deep. The storm drain plan indicates a drainage pattern that does not directly include this site. The site drainage is from east to west parallel to Martin Luther King Blvd. The drainage flows into two detention basins west of the existing parking lot. There is a 24" lateral 62 feet west of Canyon Crest Drive. This 24" lateral is an overflow pipe for the detention basins and discharges it to the 36" storm drain in Martin Luther King Blvd.

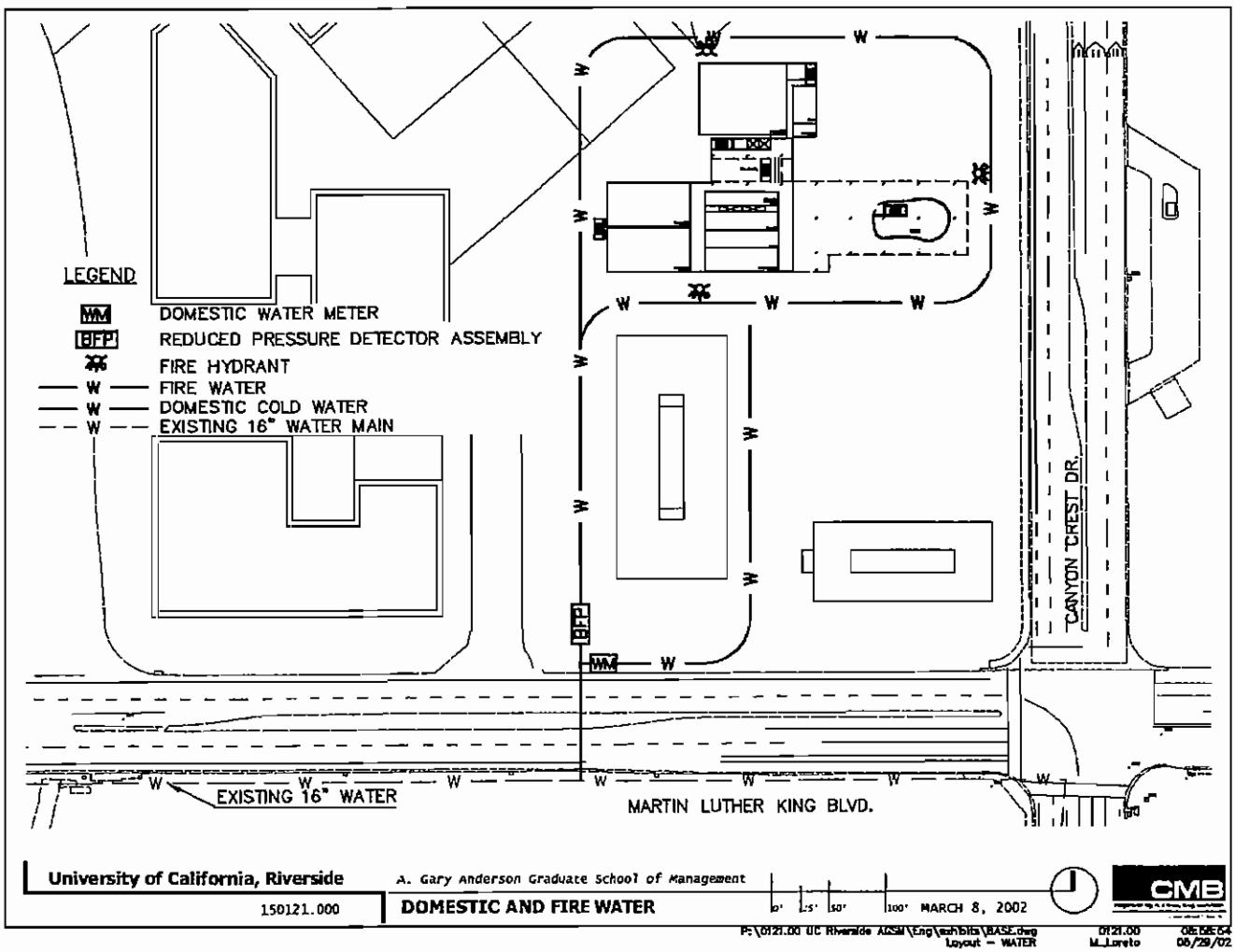


The current drainage National Pollution Discharge Elimination System (NPDES) requires the detention or treatment of the first 0.57" of rainfall. The Best Management practices also apply.

For the AGSM Building, it is recommended that an on-site storm drain be installed to collect and deliver the drainage to the Martin Luther King Blvd. storm drain. The relative elevations will permit the use of a storm water treatment device for the treatment of runoff, and compliance with the NPDES requirements.

Domestic and Fire Water

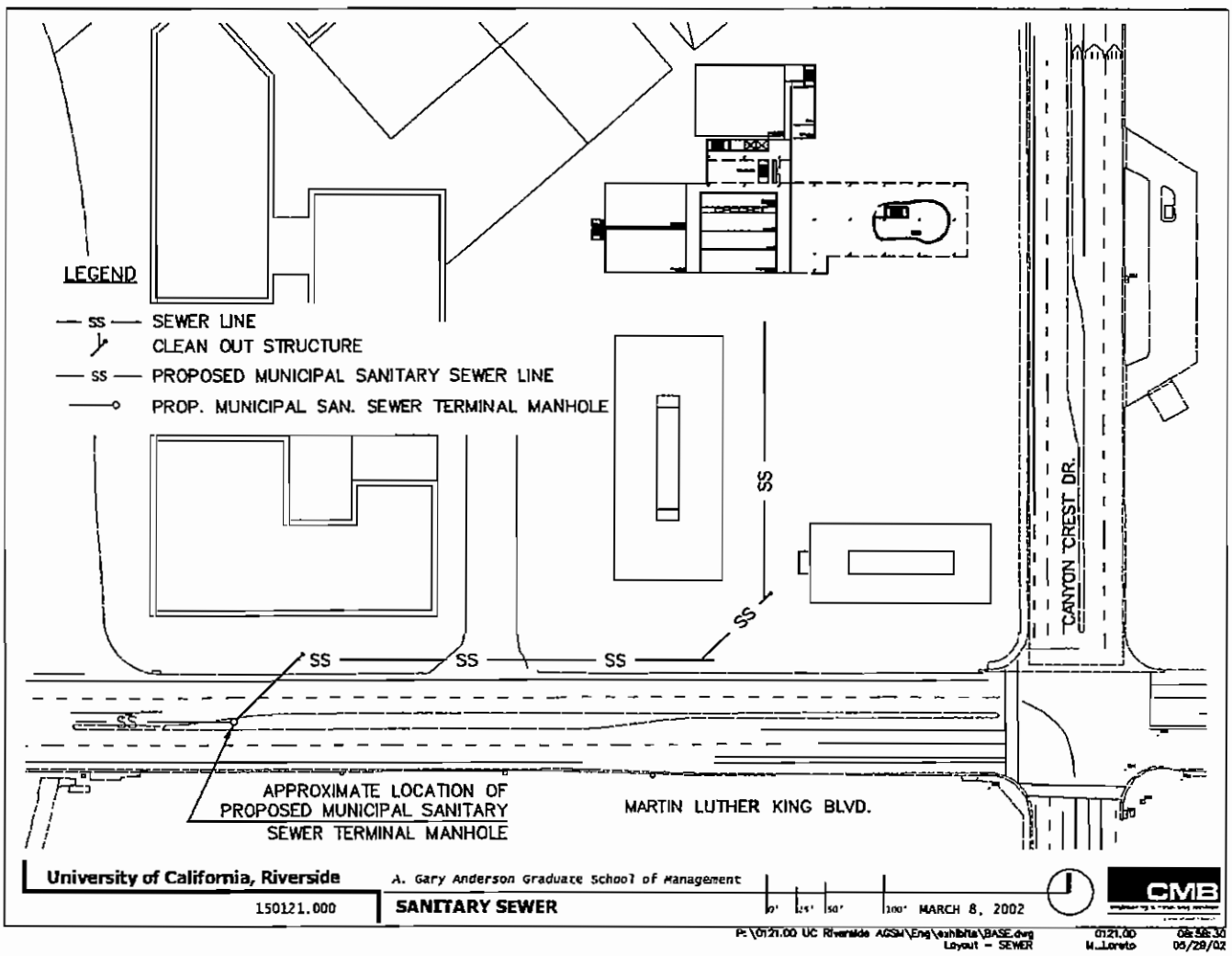
Water is served to the site by a 16" water main on the south side of Martin Luther King Blvd. Per information received from the City of Riverside Public Works Utility Section, the static pressure at the elevation of 1030 is calculated as being 73.6 psi.



The site plan includes fire and domestic connections to the main in Martin Luther King Blvd. The on-site system is proposed to have a domestic meter and a combined reduced pressure backflow preventer and detector assembly near Martin Luther King Blvd. The fire line is a loop around the proposed building, and provides three (3) on-site fire hydrants. This plan could be added to the master planned network at a later date.

Sanitary Sewer

An existing trunk line exists in University Avenue north of the project site; this sanitary sewer may not be used due to capacity issues. A municipal sanitary sewer line is planned for Martin Luther King Blvd. to the westerly portion of the site, and is intended to be in place prior to the commencement of this project. The natural gradient should allow for an on-site lateral connecting to the easterly terminus of the sewer.

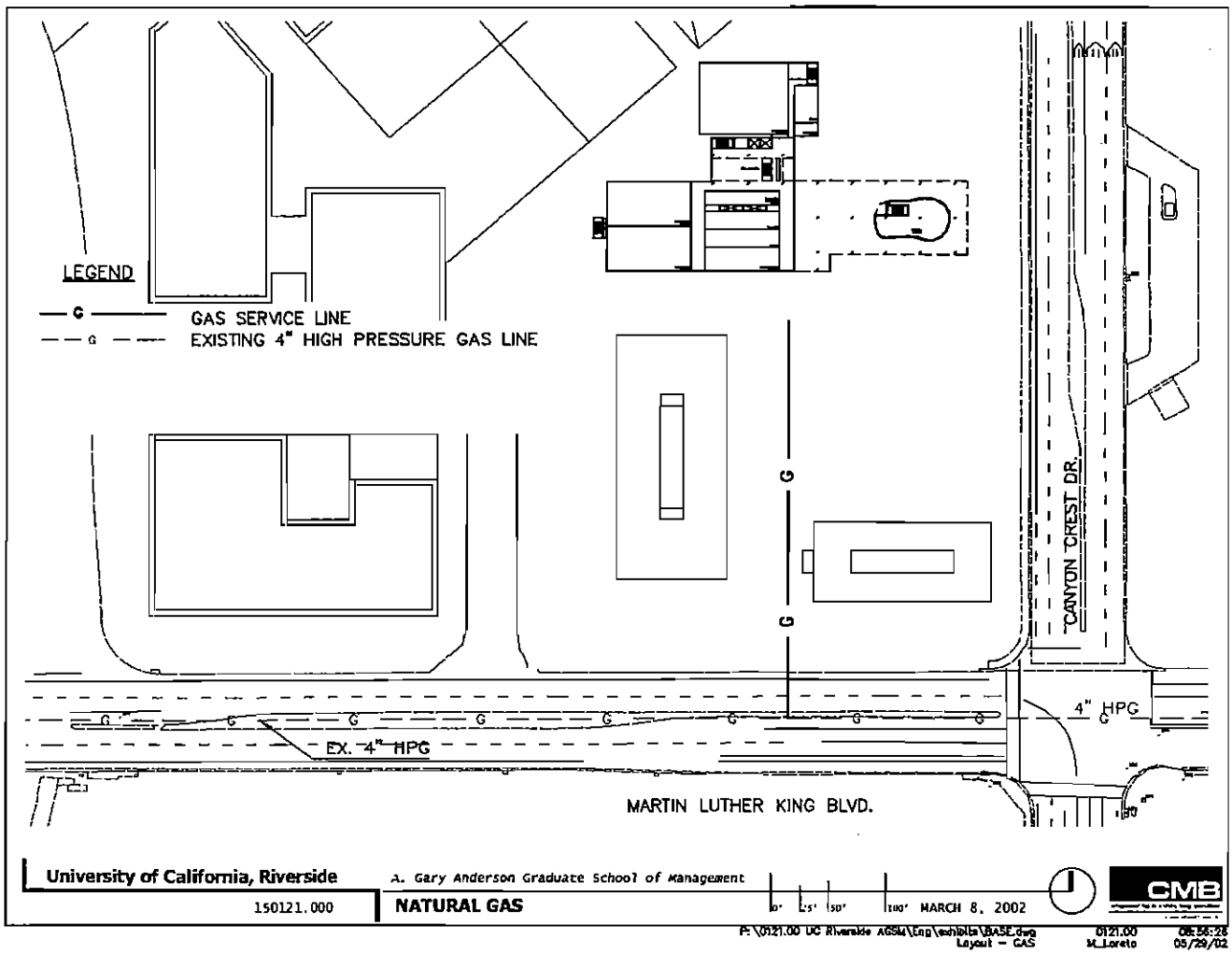


Natural Gas

Natural gas is provided to the site by the Southern California Gas Company (SCG). Three high-pressure connections are currently available on the west campus. A main incomer at South Campus Drive connects to the central plant and is distributed to various buildings on the west campus.

There is an existing 4" High Pressure Gas (HPS) line in Martin Luther King Blvd. It is recommended that an on-site gas line be installed and connected to the 4" HPS on Martin Luther King Blvd. for service.

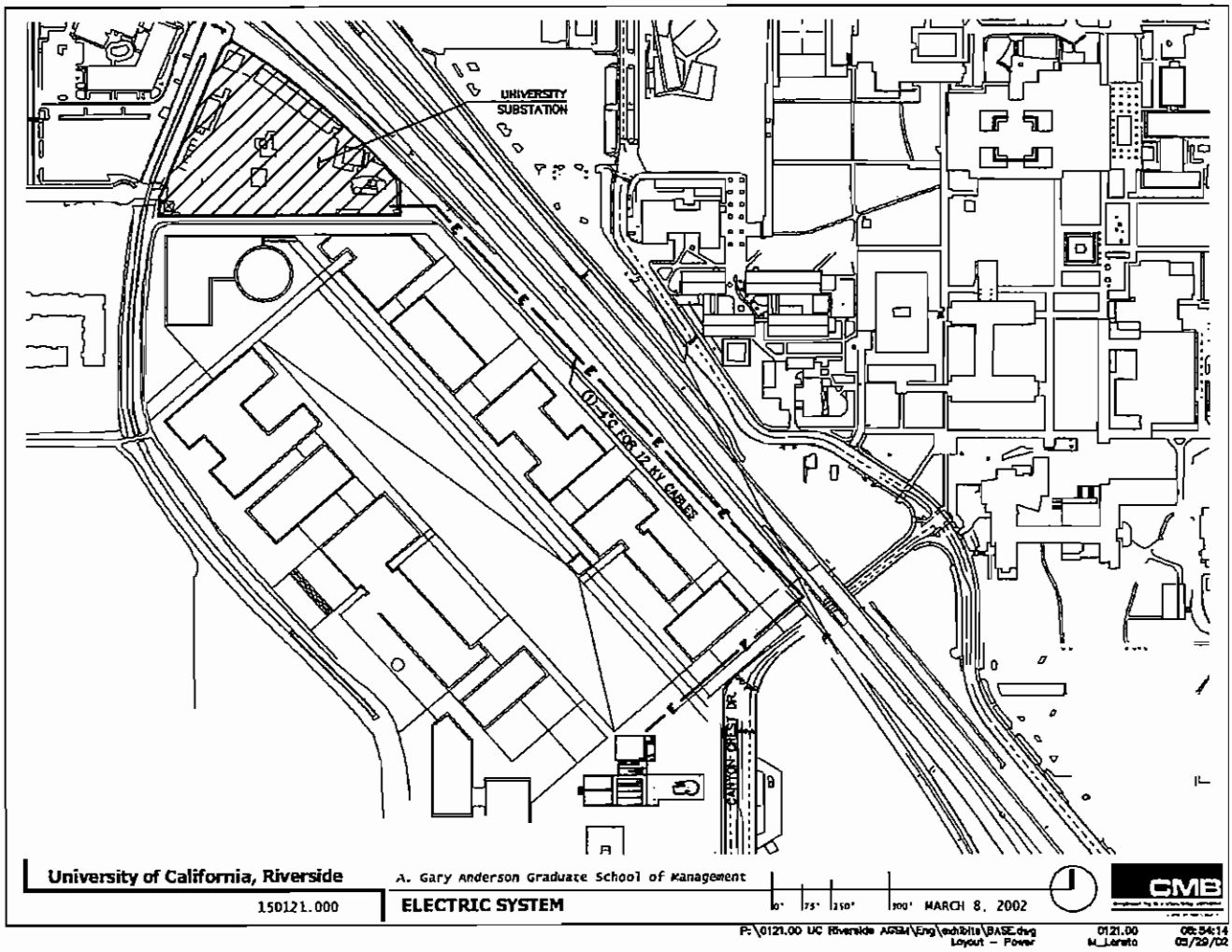
SCG has indicated that they have sufficient gas supplies to serve both East and West Campus's full build out; additional points of connections will be required.



Electric System

The university electrical distribution system is currently a combination of two systems. Two 27MVA transformers and associated switchgear located at the substation west of the freeway distribute power to the campus at 12.47 KV.

The west campus currently has no infrastructure. Additional distribution circuits will need to be routed in the west campus area as it develops. The proposed routing of the circuits is shown below. The proposed west side infrastructure is shown as a dual-radial distribution with both feeders enclosed in the same duct bank, identical to the existing distribution scheme of the east side. Having dual feeders provides redundancy to the ease of one failing.

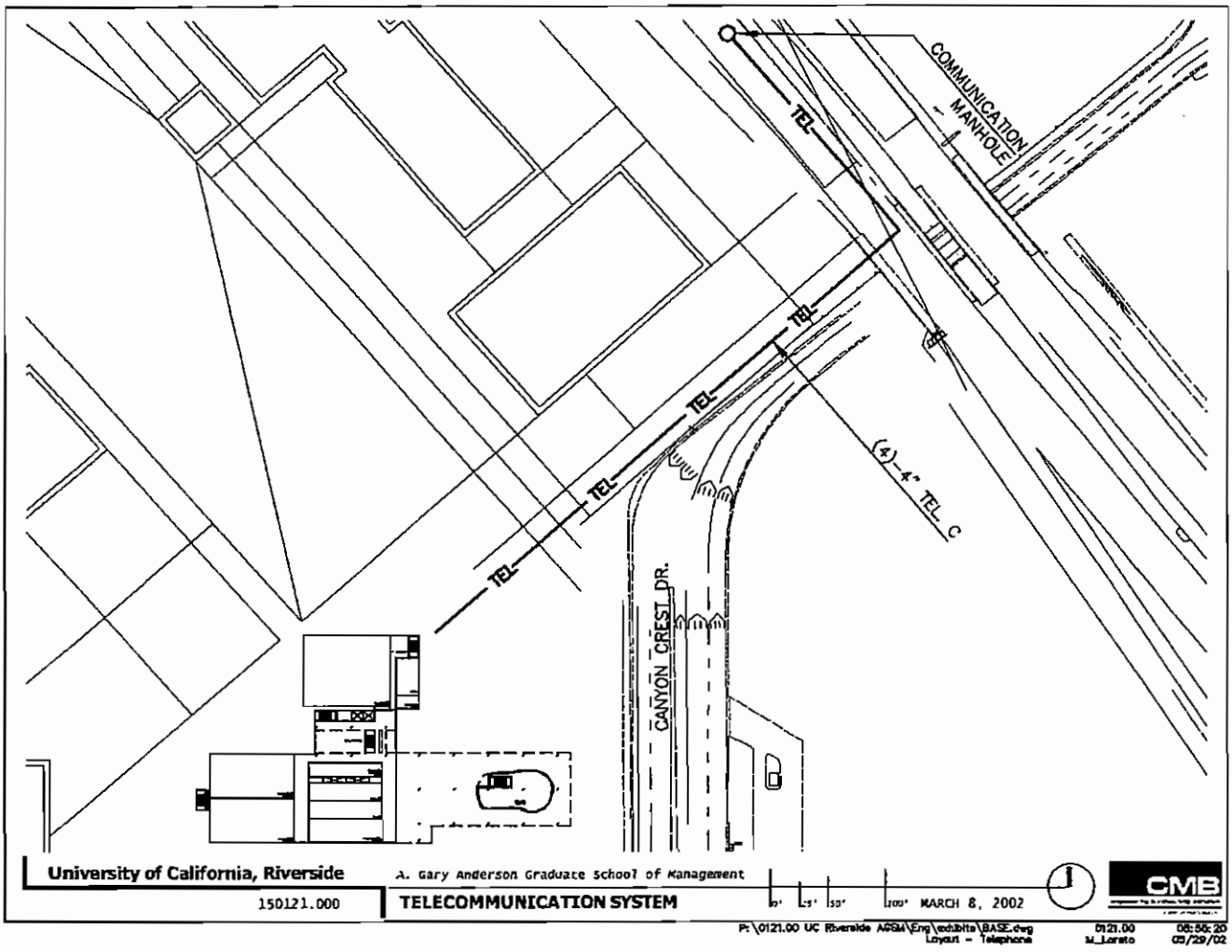


Telecommunication Systems

There are currently no telecommunications systems in place on site to serve the ASGM Building.

The figure below indicates the proposed layout of four (4) – 4" conduits from a telecommunication manhole on the west side of the freeway to the main telecommunications room in the building.

These conduits shall be used for incoming cables and fibers.



Chilled Water

The University is served by a central chilled water system consisting of a central chiller plant, a 2,000,000-gallon thermal energy storage (TES) tank, and a distribution network pumping chilled water to the East Campus. The central chiller plant houses five electric centrifugal chillers (N+1) with a total capacity of 5,950 tons.

Following an agreement with the City of Riverside Public Utilities (CRPU) the TES plant will operate in full storage after 2002. During peak electrical hours (6 hours) the electric chillers and the campus' demand for chilled water will be turned off. During this period the campus' demand for chilled water will be fed entirely from the TES tank.

The AGSM Building will not be connected to the campus' central chilled water system. Instead, it will utilize stand-alone HVAC systems until such time that the West Campus development warrants a central plant or building cluster loop system on the west side.

Steam System

The west campus academic buildings are of low energy intensity and no wet labs are envisioned. There is no requirement for process steam. High efficiency gas boilers supplying individual buildings or clusters of buildings in a sector can best meet the sites space-heating requirement. No heating infrastructure apart from the gas service is foreseen for the west Campus.

The avoidance of a central steam plant on the west campus will relieve the University from the code requirement of a manned plant room.

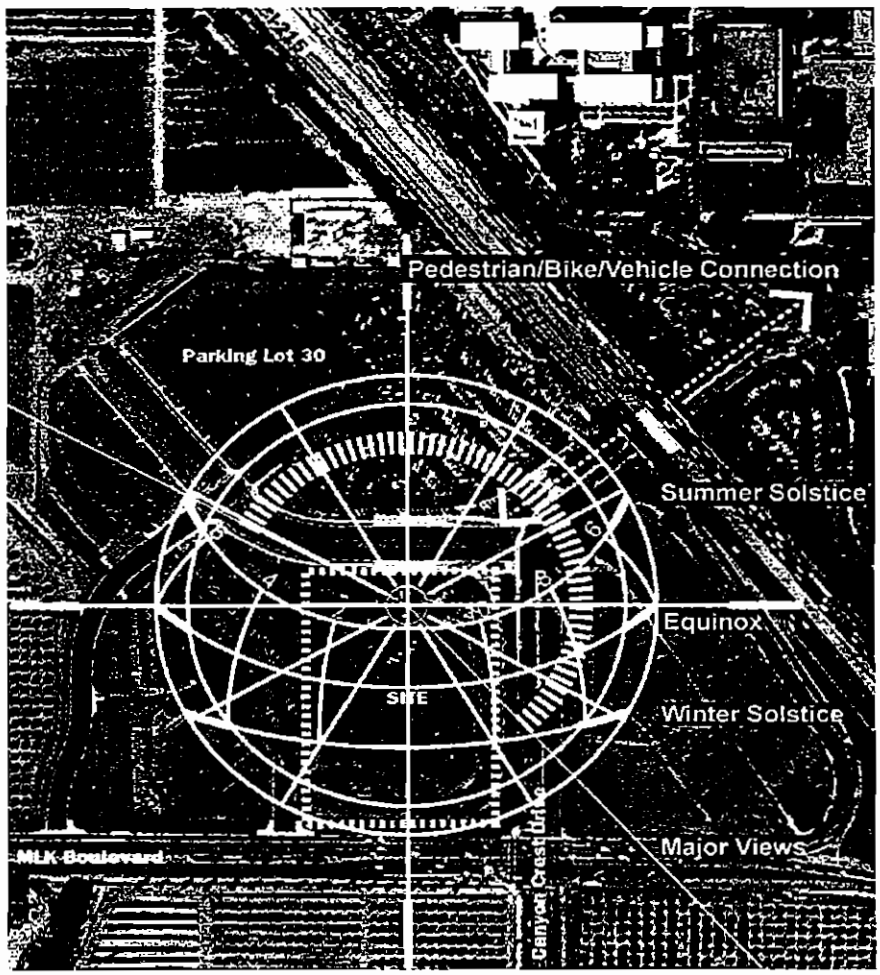
In the eventuality that a wet lab requiring steam is located on the site, individual gas fired steam generators can be used.

4.7 Soils and Grading

The soils data will be included when the soils report is received and has been reviewed. The site slopes from Canyon Crest Drive westerly from approximately an elevation 35 to elevation 25, a 2.3% slope. The parking lot does not drain to Martin Luther King Blvd. *(Reference LEED Sustainable Sites Prerequisite 1 – Erosion & Sedimentation Control)*

4.8 Existing Site Analysis

The following outlines the existing conditions, primary views, and access points for the proposed 2-acre AGSM Building site. In addition, the graphic below diagrams the sun angles for three times during the year in order to evaluate the shade and shadows that the planned building will cast on the surrounding landscape and on potential additional buildings, and also light penetration into the building.



Aerial Photograph of Site

Views:	San Bernadino Mountains to the north and Box Springs Mountains to the east Campus icons to the east (Carillon Tower, H&SS 1 Bldg.) Citrus Groves to the south and west
Access:	Vehicles and bicycles via Canyon Crest Drive and Martin Luther King Boulevard Pedestrians and bicycles via Canyon Crest Underpass
Existing Conditions:	Surface parking lot on site and to the north and west

4.9 Site Selection

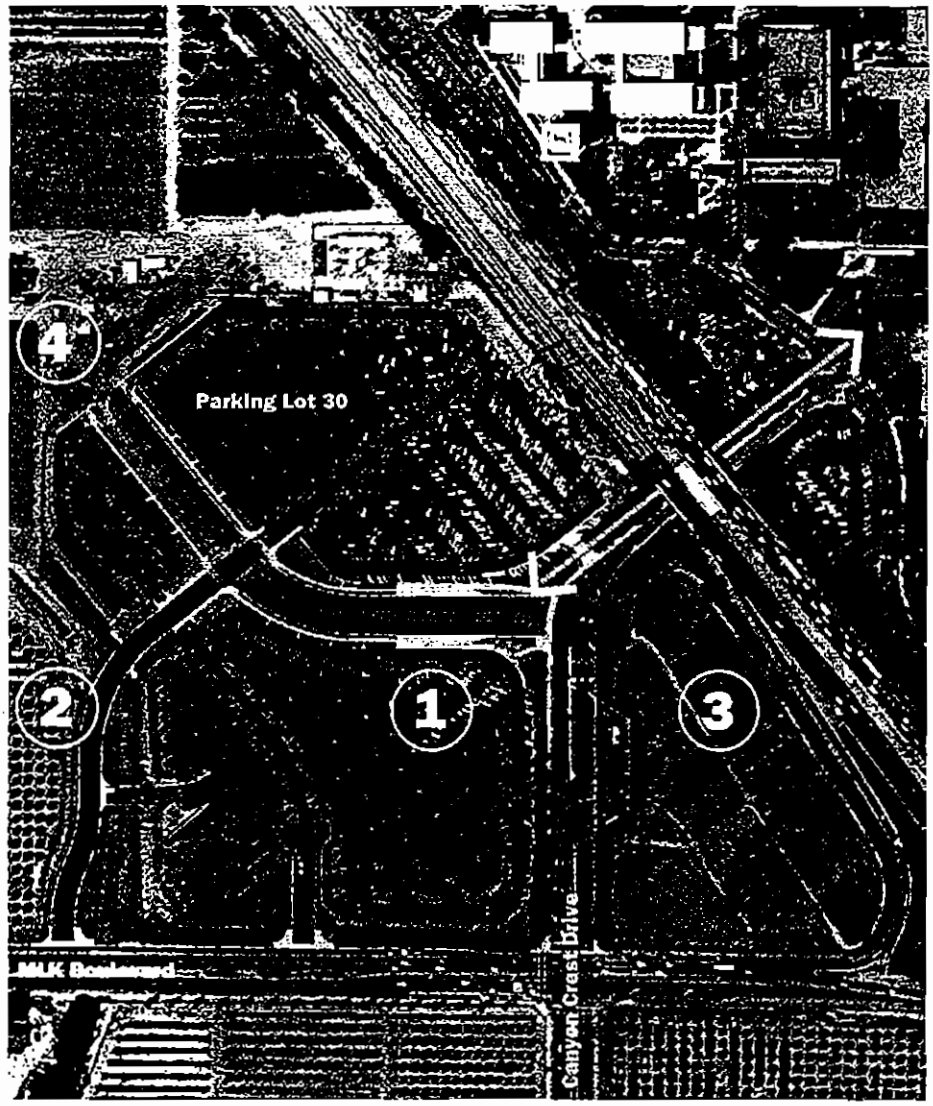
During the programming process a number of prospective sites were discussed and evaluated. The following diagram indicates the four sites, which were assessed and the benefits and limitations of each site with regard to five principal criteria. A map indicating the locations of each of the sites can be found on the following page (4.13).

	Visibility	Access	Adjacent Expansion Potential	Available Utilities	Proximity to East Campus
Site 1	Excellent	Easy	Adequate	Limited	Excellent
Site 2	Good	Easy	Adequate	Limited	Poor
Site 3	Good	Easy	Limited	Limited	Excellent
Site 4	Poor	Limited	Adequate	Yes	Poor

The portion of lower Parking Lot 30, defined as Site 1, was ultimately selected as the planned site and met the selection criteria outlined in the Site Planning Issues (4.3) by providing:

- Excellent visibility both to and from the East Campus and surrounding roadways,
- Ease of access and a "front door location" directly across from the Canyon Crest Drive underpass, and
- Sufficient land area for the initial phase and successive development phases.

Site 1 issues that were discussed were limited access to available utilities and moderate levels of road noise. It is expected that theses issues will be mitigated as utility lines are extended as part of the development of the West Campus, and a combination of construction methodology and landscaping provides sound attenuation from vehicular traffic. *(Reference LEED Sustainable Sites Credit 1 – Site Selection)*



Aerial Photo of Site, indicating Four Potential Sites

5.1 Project Vision

The development of the AGSM Building presents an enormous opportunity for AGSM to use space to dramatically advance its impact on students, and architecture to celebrate and support its place within the University and in the larger academic community. In addition, the building itself has the potential to help the AGSM attract the involvement of business leaders, both through donations of time and funding.

The AGSM seeks to increase its student population significantly, attract highly desirable teachers, and raise its ranking within the University of California system and national and international graduate school registers. The planned building will provide innovative, highly collaborative, and technologically enabled spaces to mirror the attributes of corporate facilities, all within the context of a university setting. In so doing, it will support a community of students, faculty and business professionals, learning from one another in an environment suitable for a world-class management and business school.

5.2 Building Design Principles

The following building design planning principles build on the Project Vision (Section 5.1), and were defined by the AGSM Programming Committee during the project process:

1. **Create a building that is an icon for AGSM both within the UCR campus and beyond.** Use height and massing to increase the building's visibility. The goal is for the building itself to promote the AGSM to qualified, potential students, faculty and the business community. Possible naming opportunities for the four-story Executive Education wing may also help to encourage private-sector gift funding.

2. **Separate highly public and non-public uses from one another** to balance the need for focused academic and administrative work with the goal of having highly active congregation spaces. Provide adequate separation by programming the building to be increasingly private as one ascends.

3. **Encourage high levels of activity in the congregation areas by centralizing interactive spaces,** such as the Cyber Café, Computer Lab and Assembly and Reception in a "hub" on the ground floor.

4. **Use contextual design elements to reference the East Campus, but incorporate new design idioms to differentiate the professional nature of the School and West Campus.** Utilize such elements as glass and steel in the curtain wall to draw on corporate architecture and to clearly identify the AGSM as a setting to prepare students for entry into the business community.

5. **Blur the boundaries between interior and exterior by incorporating a variety of "outdoor rooms"** that draw students, faculty, staff and visitors to the landscape to work and socialize. **The outdoor spaces have a dual purpose of enlivening the buildings exterior and promoting the image of the AGSM,** as well as the West Campus as vibrant and inviting.

6. **Design and position internal circulation paths (i.e., stairways, hallways) to encourage informal collaboration and knowledge sharing.** Stairways and corridors should be wide and visible to allow users to stop and talk without interrupting the flow of traffic. Corridors, lobbies and staging areas should also be furnished with seating and tables, where appropriate, to foster informal group work and socializing between classes.

7. **Develop faculty and staff offices that provide spaces for both interactivity and solitary work/study** and an open environment that affords natural light to all work areas. These spaces should be developed to support functional needs not hierarchy. *(Reference LEED Indoor Environmental Quality Credit 6 – Controllability of Systems and Credit 8 – Daylight & Views)*

8. **Provide "staging areas" around instructional areas, offices, and assembly spaces for students to utilize in between instructional sessions, meetings or events.** These areas can be incorporated into wide corridors with the ability for students to "plug-in" via power/data connections.

9. **Program the building around a central "Hub",** where activity is focused, and from which circulation paths emanate. This concentrated area of interaction will include or be adjacent to the large assembly, computer labs, reception, and Cyber Café.

10. Support **future development** by providing a main entry that is flexible enough to both serve those approaching from the East Campus, as well from the north and west, where successive new development is planned to occur. In addition, design the building to provide adequate land within the proposed 2-acre site for an integrated, Phase 2 expansion of the AGSM Complex to the south.

5.3 Site Planning Principles

The following site planning principles were defined by the AGSM Programming Committee during the project process. They have been used to plan for a new building that both activates the currently undeveloped West Campus, fully serves AGSM's functional needs, and supports its image and identity goals.

The site planning principles are:

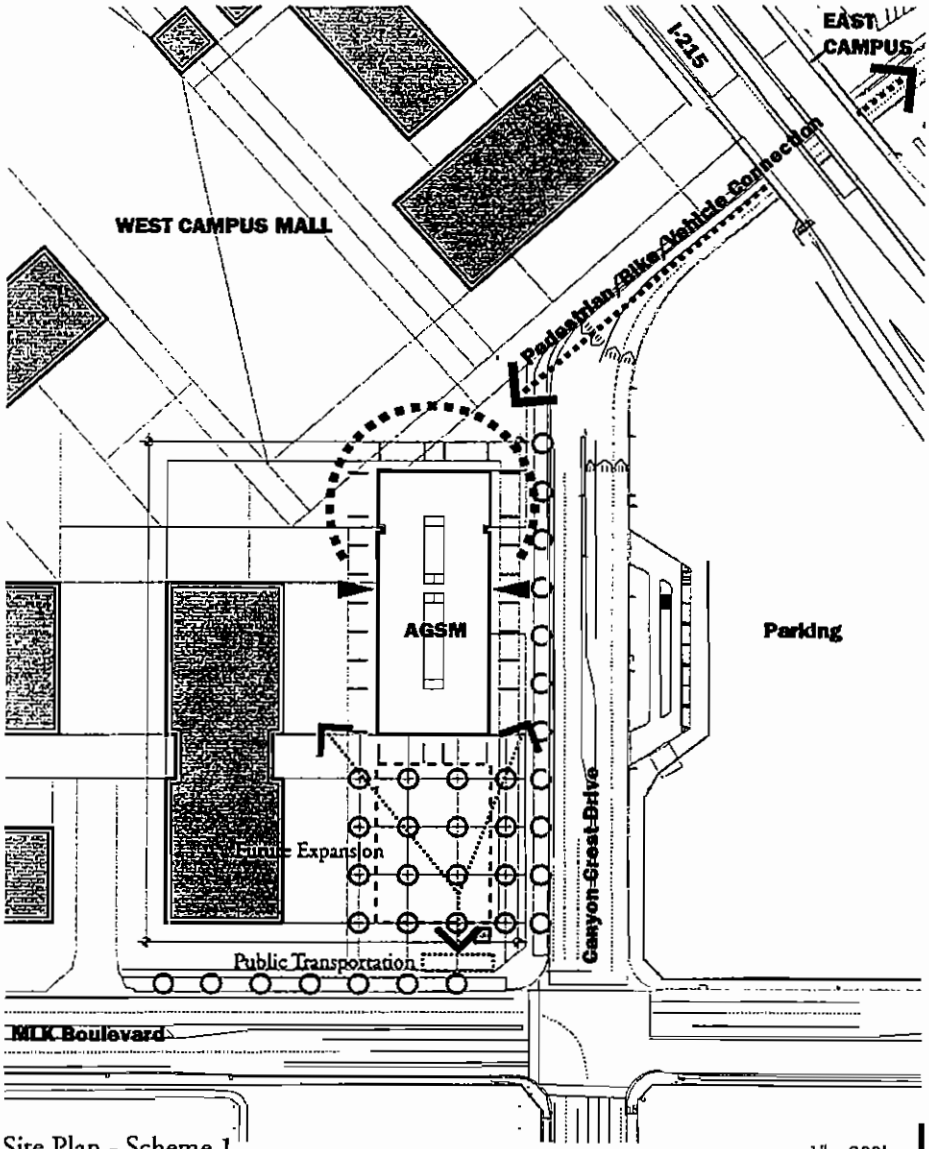
- Position the building to be prominent and serve as an icon for AGSM.
- Orient the building to draw students, faculty, staff and visitors from the East Campus.
- Design the site landscape to be contextual and reference the region's citrus growing heritage and the quality of the East Campus built environment.
- Position the building to easily accommodate future, contiguous growth to the AGSM, and to tie into future West Campus professional and graduate schools to be developed.

- Provide pathways for pedestrian and bicycle circulation around the AGSM Complex.
- Incorporate numerous outdoor "rooms" around the AGSM Building where various types of collaboration and socializing can occur year round. Use these exterior spaces to enliven the new West Campus, particularly as a draw during the early stages of its development.
- Balance the need for acoustic and visual privacy through buffers, with a desire to have minimal barriers with neighboring communities and between campuses.
- Take advantage of prominent views, particularly of the Box Springs Mountains to the east and the San Bernardino Mountains to the north, and maximize light penetration.
- Integrate sustainable planning practices into the landscaping and site development process, including the reuse of existing citrus trees.

LEED References:

- *Sustainable Sites*
  - *Credit 1 – Site Selection*
  - *Credit 2 – Urban Redevelopment*
  - *Credit 3 – Brownfield Redevelopment*
  - *Credit 4 – Alternative Transportation*
  - *Credit 5 – Reduced Site Disturbance*
  - *Credit 6 – Stormwater Management*
  - *Credit 7 – Landscape & Exterior Design to Reduce Heat Islands*
  - *Credit 8 – Light Pollution Reductions*
- *Water Efficiency*
  - *Credit 1 – Water Efficient Landscaping*
  - *Credit 2 – Innovative Wastewater Technologies*
- *Innovation & Design Process*
  - *Credit 1 – Innovation in Design: Reuse of existing, mature citrus trees*

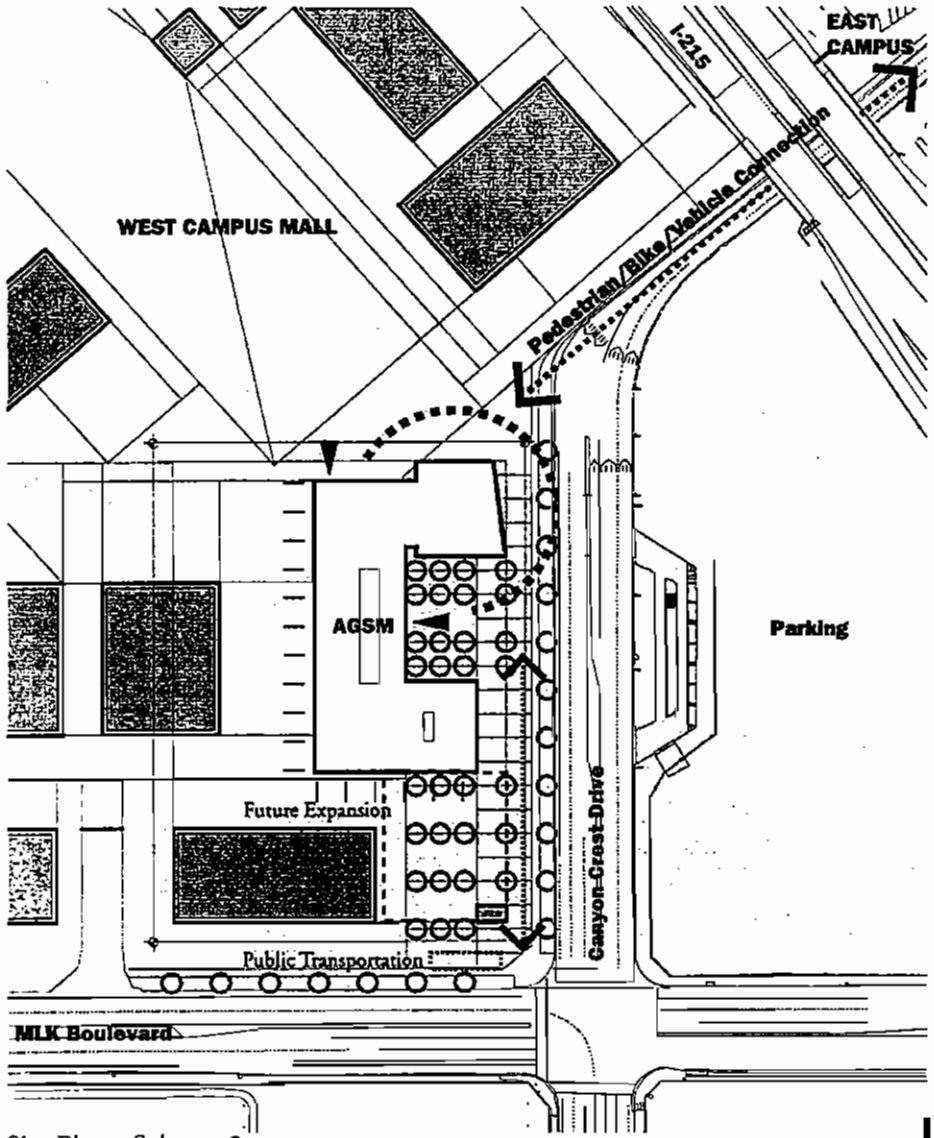
5.4 Concepts



Site Plan - Scheme 1

1" = 200'

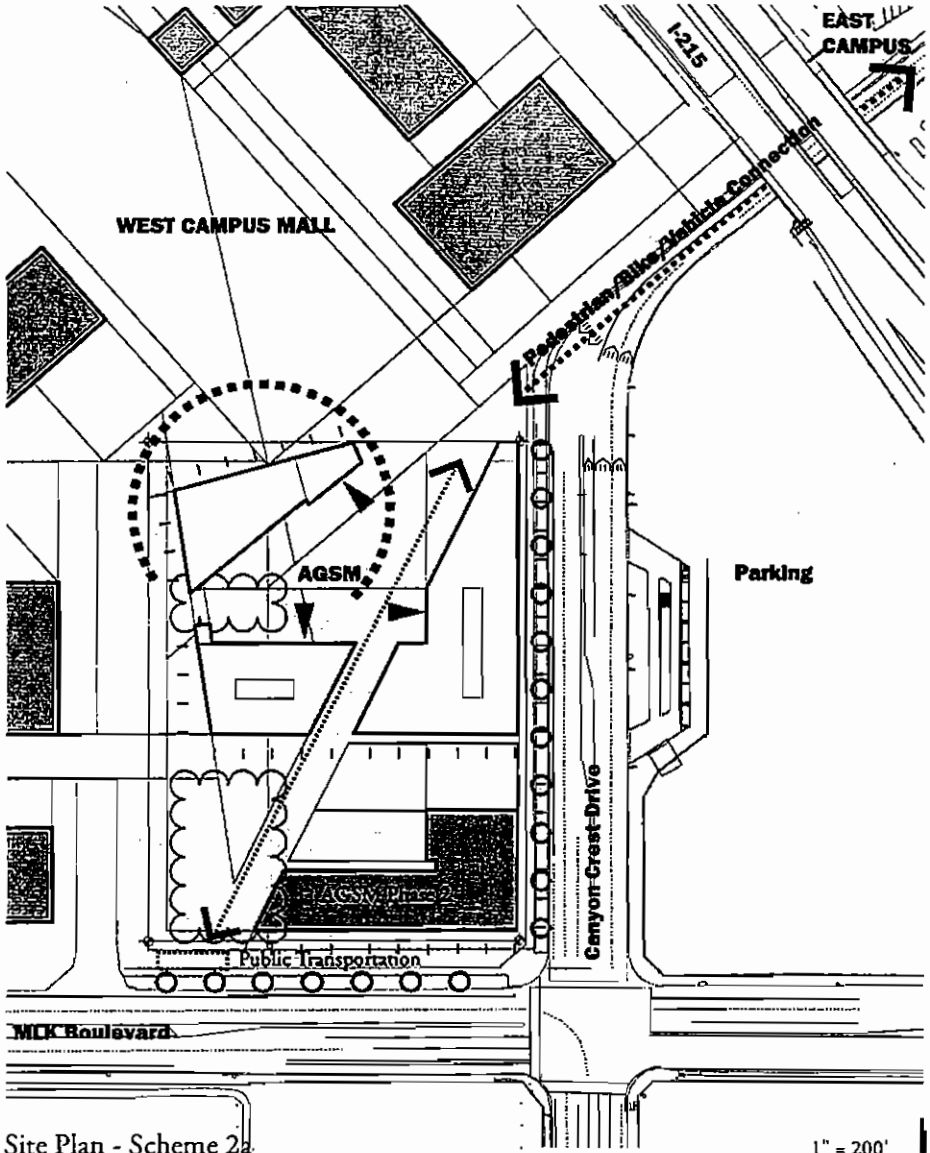
- 3 story building.
- Efficient exterior skin to floor area ratio.
- Building as icon.
- Available site area to the south for future expansion.
- All departments and groups are organized through vertical adjacencies related to the central core.
- Dean's office is centrally located on the second floor.



Site Plan - Scheme 2

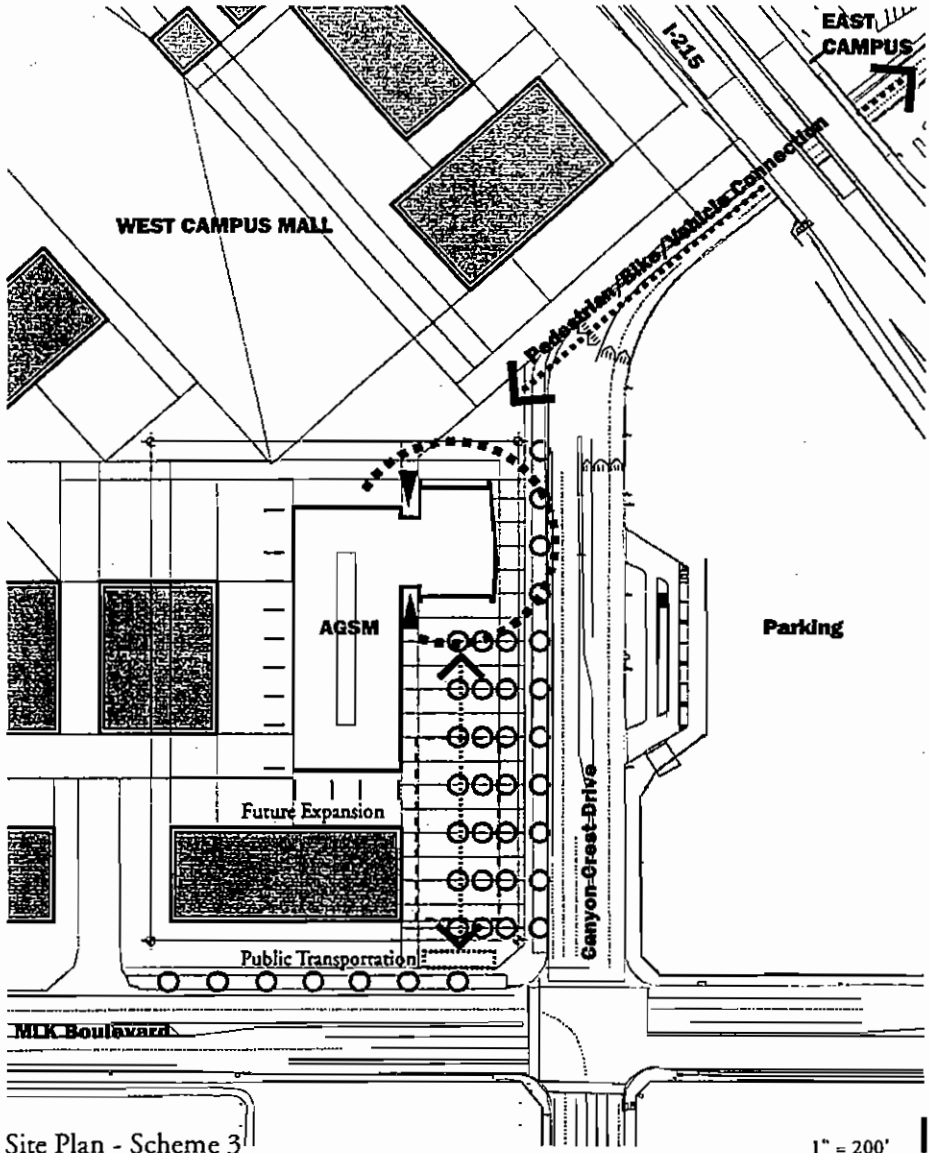
1" = 200'

- 2 story courtyard building.
- Large assembly hall becomes the icon for the building.
- Courtyard space becomes a pre-function space for the large assembly hall.
- Multiple entries relate ro different pedestrian connections. Courtyard facing Canyon Crest Drive relates to the public while the north entry relates ro the West campus Mall.
- Available site area to the south for future expansion.
- Departments and groups organized through horizontal adjacencies and focus on the courtyard.



Site Plan - Scheme 2a

- 2 story courtyard buildings form a central courtyard.
- Large assembly hall becomes the icon for the West Campus Mall, pedestrian connection to the East Campus, and to the freeway.
- Courtyard space becomes a pre-function space for the latge assembly hall and the organizer for multiple entries. The courtyard becomes the terminus to the pedestrian connection to the East Campus.
- The collection of buildings can exist and sustain itself until other buildings of the West Campus are built.
- Depattments and groups organized through horizontal adjacencies and focus on the courtyard.
- Available site area to the south for future expansion.

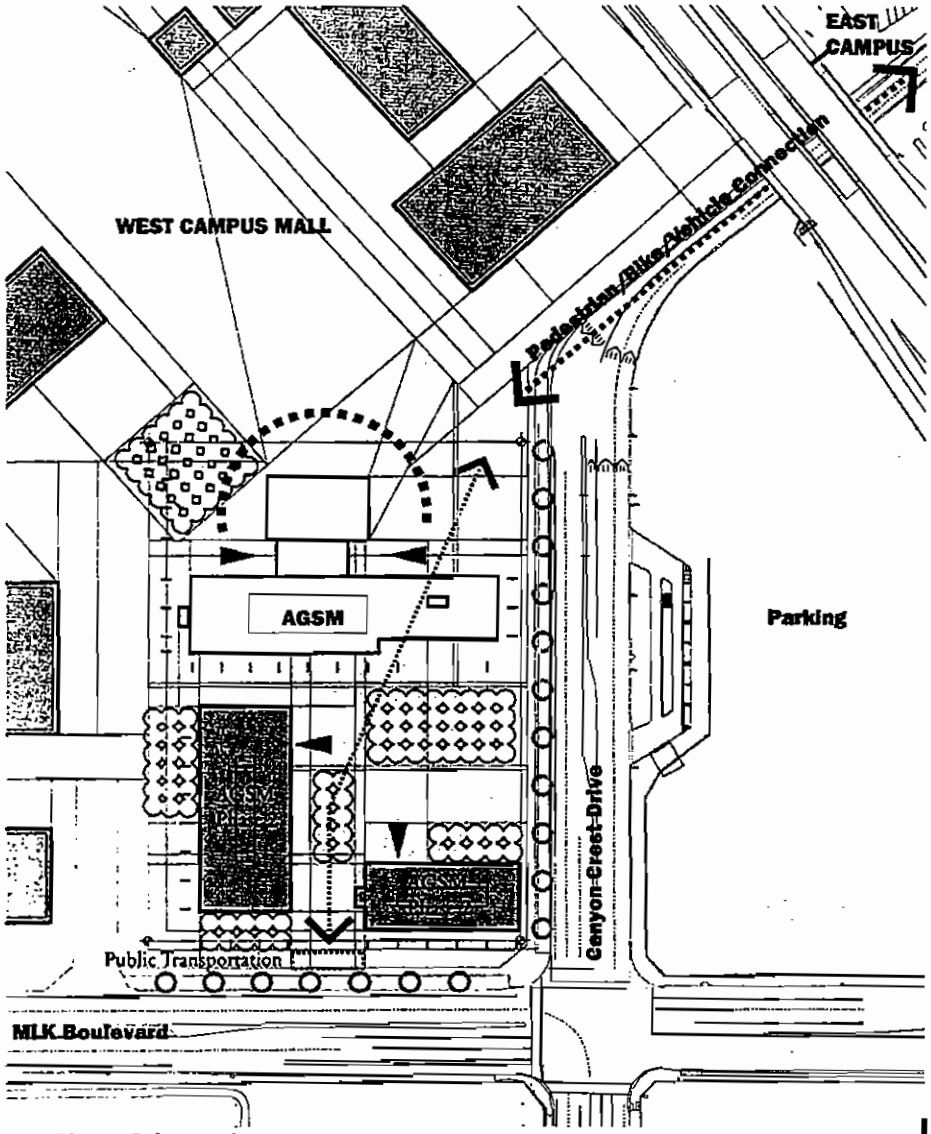


Site Plan - Scheme 3

1" = 200'

- 2 and 3 story building.
- Executive Education (gift-funded) and Academic Programs (state-funded) are joined by a common lobby.
- Common lobby and circulation joining the two programs encourage interaction between students, faculty, and guests.
- The state-funded building is efficient and the gift-funded building is expressive. The Executive Education wing becomes the icon for the building.
- Multiple entries relate to the West Campus Mall and public plaza.
- Available site area to the south for future expansion.

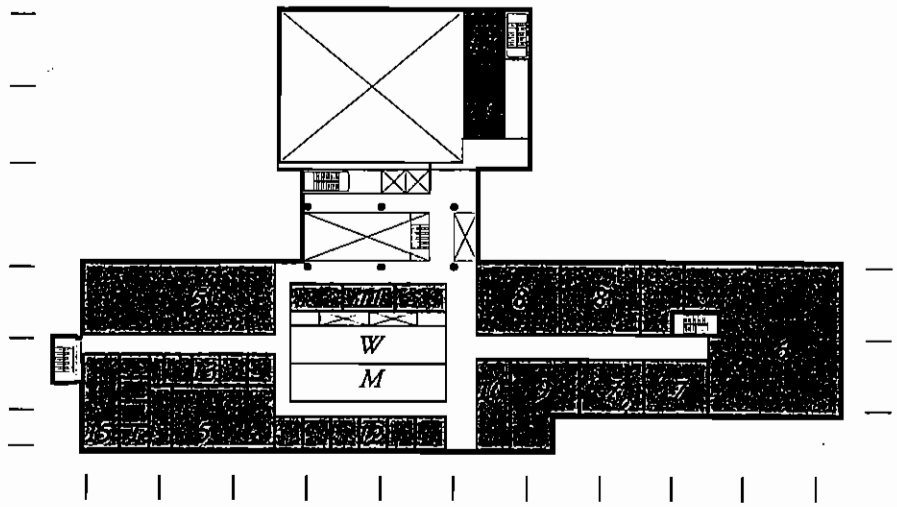
5.5 Preferred Scheme



Site Plan - Scheme 4 1" = 200'

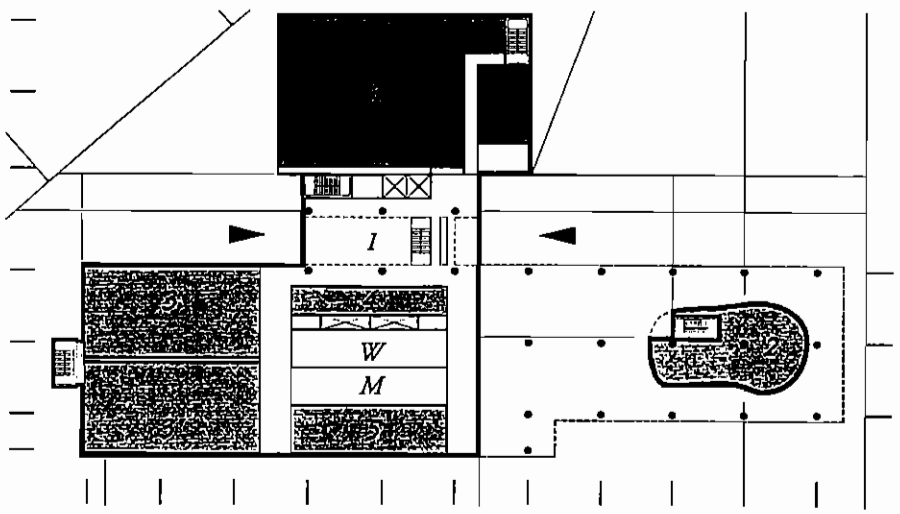
- 3 and 4 story building.
- Executive Education (gift-funded) and Academic Programs (state-funded) are joined by a common lobby.
- Common lobby and circulation joining the two programs encourage interaction between students, faculty, and guests.
- The Executive Education wing becomes the icon for the building. It becomes the focus for the West Campus Mall and pedestrian connection to the East Campus.
- Open ground level allows easy pedestrian circulation and a highly visible and highly active public space.
- Available site area to the south for future expansion.

5.6 Plan Organization

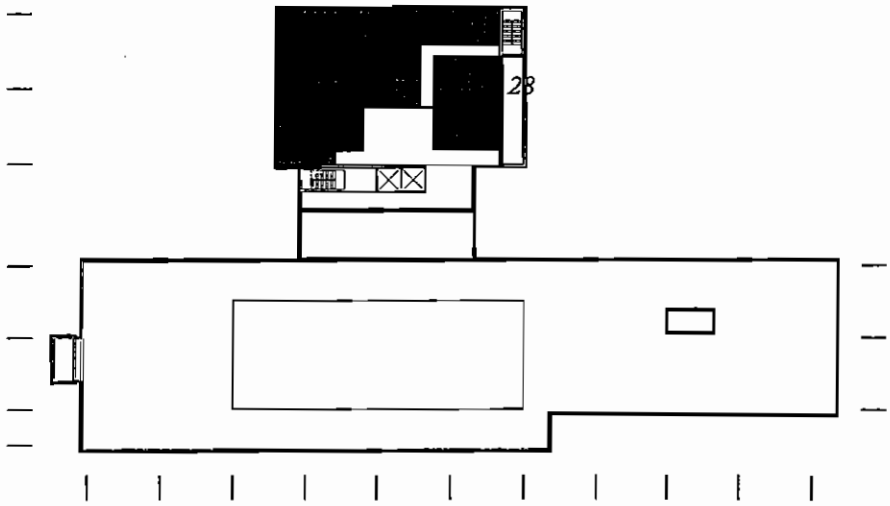


Second Floor Plan 1" = 100'

1 Lobby
2 Cyber Cafe
3 Assembly Spaces
4 Scholarly Activity/ Library
5 Computer Lab
6 Student Affairs
7 Scholarly Activity
8 Class Lab
9 IT Department
10 Media Control
11 Open Lab
12 TA Offices
13 Computer Lab Service
14 Interview Room
15 Club Space
16 Projection Room
17 Assembly Support



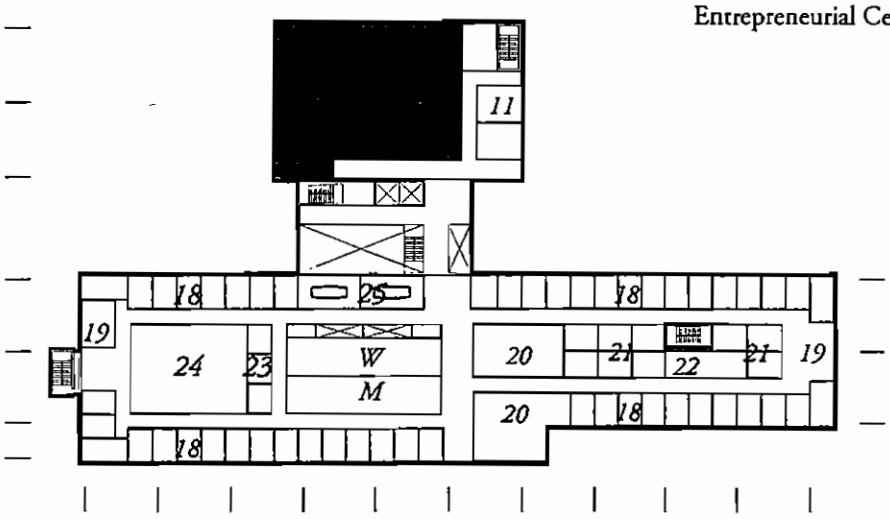
Ground Floor Plan 1" = 100'



Fourth Floor Plan

1" = 100'

1	Lobby	*11*	Open Lab	*21*	GSR Office
2	Cyber Cafe	*12*	TA Offices	*22*	GSR Lounge
3	Assembly Spaces	*13*	Computer Lab Service	*23*	Copy, Mail, Supply
4	Scholarly Activity/ Library	*14*	Interview Room	*24*	Finance/Recruiting
5	Computer Lab	*15*	Club Space	*25*	Conference Room
6	Student Affairs	*16*	Projection Room	*26*	Board Room
7	Scholarly Activity	*17*	Assembly Support	*27*	Board Room Support
8	Class Lab	*18*	Faculty Office	*28*	Terrace
9	IT Department	*19*	Faculty Lounge	*29*	Resource Center
10	Media Control	*20*	Dean's Office	*30*	External Affairs, Forecast, Entrepreneurial Center

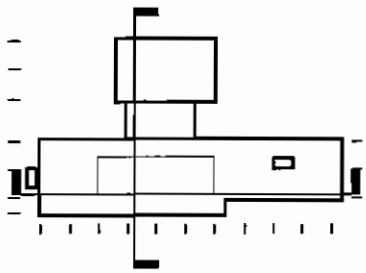


Third Floor Plan

1" = 100'

5.7 Vertical Organization

Longitudinal Section 1" = 150'



Offices - Private Zone

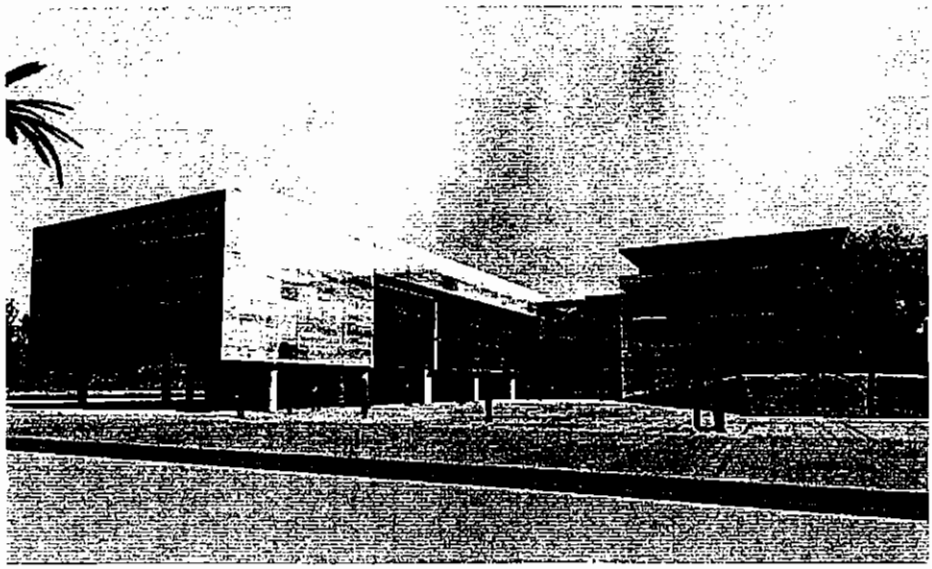
Academic - Public Zone

Executive Education - Public Zone

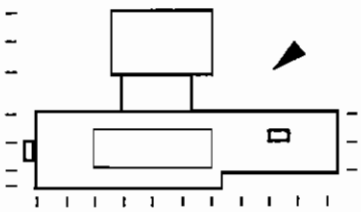
1 Lobby
2 Cyber Cafe
3 Assembly Spaces
4 Student Activities
5 Dean's Offices
6 Faculty Offices
7 Executive Education:
External Affairs, Forecast, Entrepreneurial Center

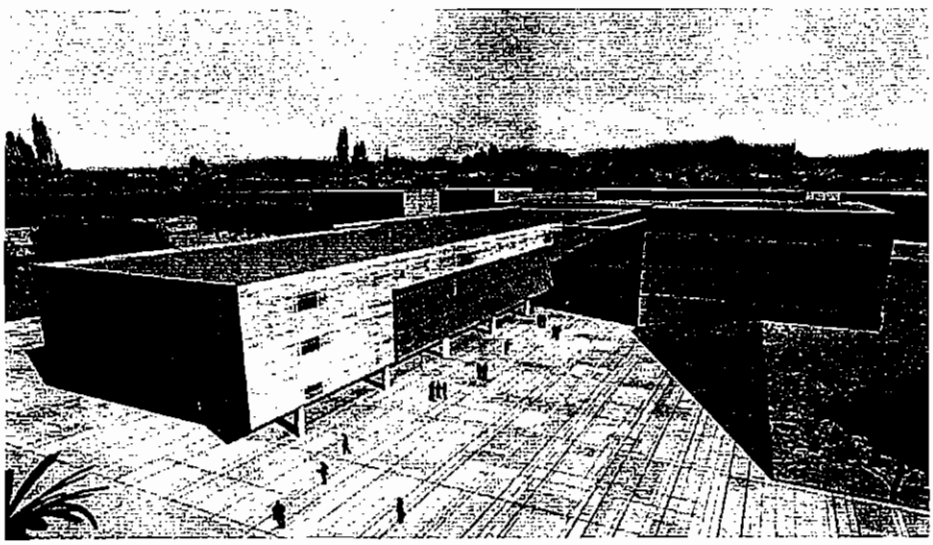
Transverse Section 1" = 150'

5.8 Computer Images

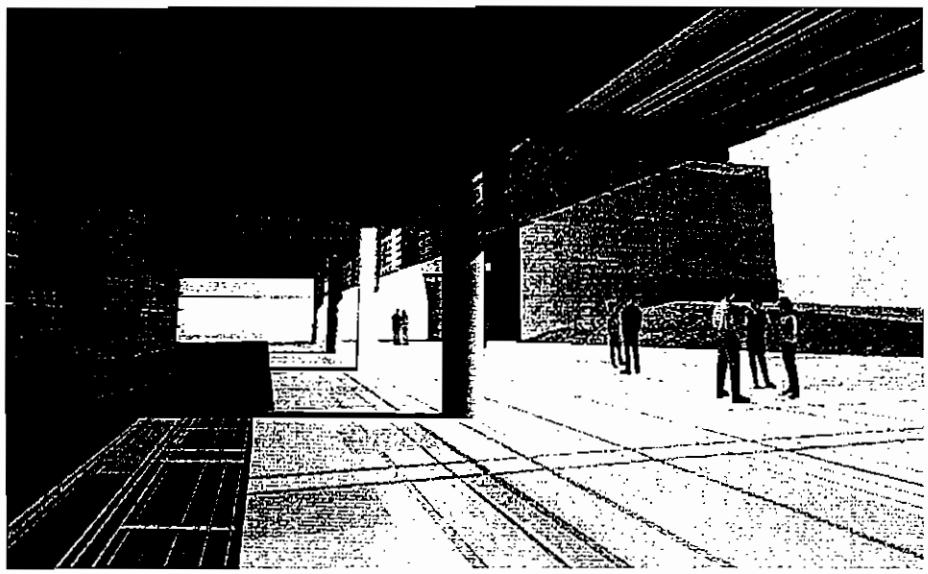


Street Level View from Canyon Crest Drive

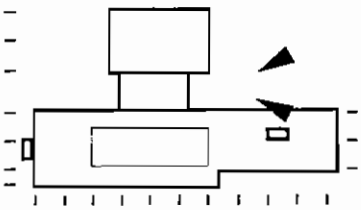


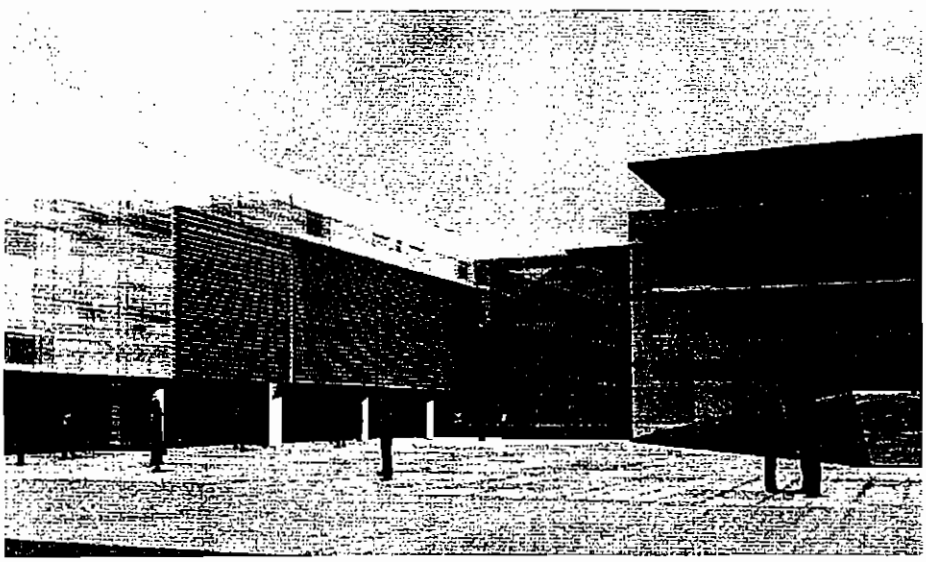


Elevated View from Canyon Crest Boulevard

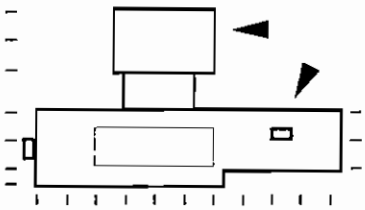


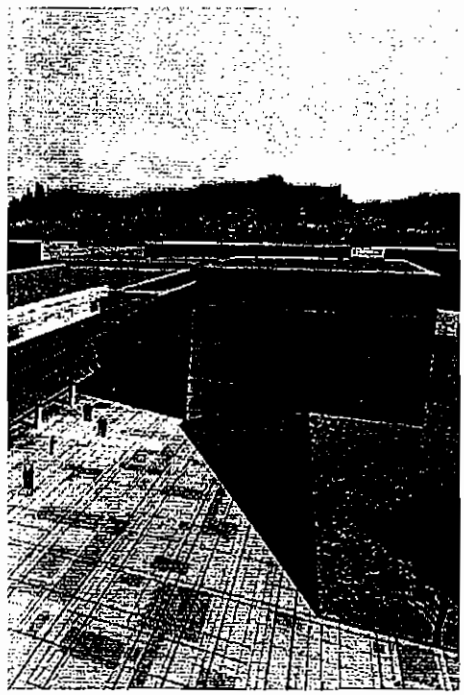
View from Cyber Cafe



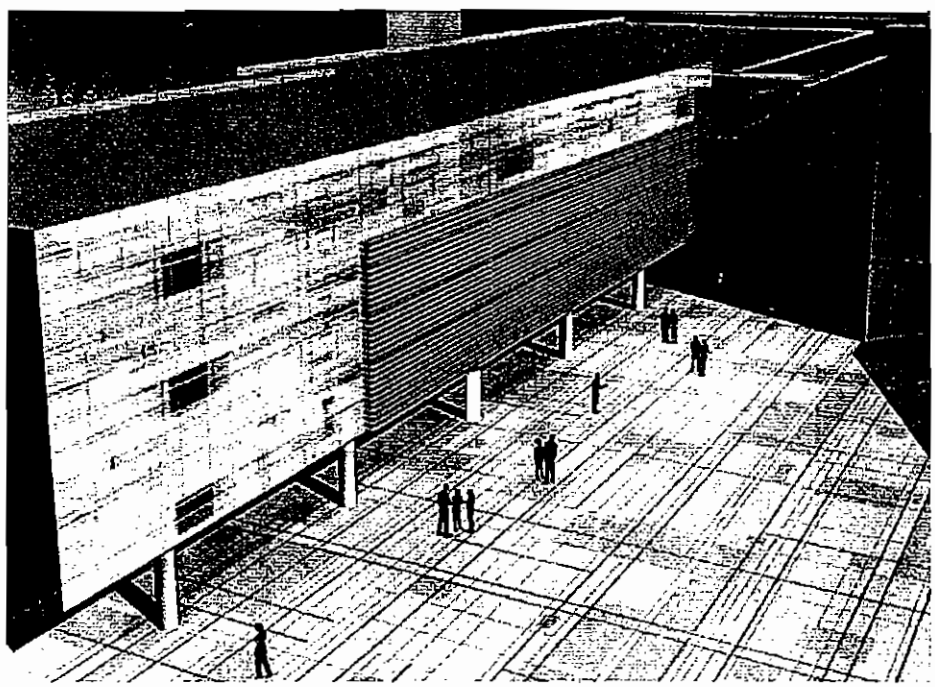


View of Entry Lobby





View of Executive Education Wing



Patterned Glass Facade

6.1 Applicable Codes and Guidelines

The codes review presented below is intended only to highlight currently applicable code issues and should not be construed as a complete review of all the codes. The Architect is responsible for verifying code issues to ensure compliance with all relevant aspects of the code, since regulations are subject to change.

1. California Building Code (1998)
2. Title 24 California State Energy Code (1998)
3. California State Mechanical Code (1998)
4. California State Fire Code (1998)
5. National Electrical Code
6. NFPA 45, 90 90A, or most recent edition
7. UCR Campus Design Guidelines – Vol. 1 & 2 (1996)
8. UCR Campus Master Landscape Plan
9. UCR Long Range Development Plan (1990)
10. UCR LRDP EIR (1990)
11. California Environmental Quality Act
12. UCR Environmental Health and Safety Design Guide (1999)
13. ANSI Standards
14. ASME Guidelines and Standards
15. ASHRAE Design Guidelines
16. SMACNA Design Guidelines
17. AIHA Guidelines and Standards
18. CAL/OSHA, current regulations
19. Uniform Plumbing Code, [UPC} current edition
20. Uniform Mechanical Code, [UMC] current edition
21. Americans with Disabilities Act
22. LEED Green Building Rating System (version 2.0)
23. IESNA Exterior Lighting Standard (Reference LEED Sustainable Sites, Credit 8)

All University of California, Riverside standards and other local and state codes shall be adhered to where applicable and available.

6.2 Occupancy Designation

The building is proposed as a business occupancy "B" for the use as an office and I & R (Instructional & Research) facility. The program for the building includes instructional spaces, scholarly activity rooms, meeting & conference rooms, faculty & administrative offices and support space. The large assembly space will fall within the assembly occupancy classification Group A-3 which is defined as: "any building or portion of a building having an assembly room with an occupant load of less than 300 without a legitimate stage, including such buildings used for educational purposes and not classified as a Group E or Group B Occupancy." Each of these designations should follow standards for construction materials, allowable floor area, building height, fire rating for occupancy separations, the protection of penetrations between spaces and exiting requirements.

6.3 Architectural Criteria

The following list contributed to the evaluation of the architectural criteria:

1. Applicable building codes
2. UCR planning standards
3. Campus group issues
4. Specific site planning criteria
5. Specific building concept criteria

Accessibility
All occupancies shall be fully accessible as required by the California Building Code [CBC], Chapter 11. All building designs will conform to the Uniform Federal Accessibility Standards, #795, April 1, 1998.

Accessible sanitation facilities in all occupancies shall be provided as required in Chapter 11 of the CBC and the Division of the State Architect/Access Compliance Requirements of the California Plumbing Code.

Entrances, ramps, stairs, corridors, sidewalks and walks shall provide accessibility as specified in Chapter 11 of the CBC.

6.4 Structural System Criteria

Codes
1998 California Building Code and 1997 Edition of Uniform Building Code

Design Live Loads

Instructional/Laboratories	100 psf, reducible per Code
Offices	100 psf, reducible per Code
Assembly Area	100 psf, reducible per Code
Circulation Areas	100 psf, non-reducible
General Storage	125 psf, non-reducible

Wind Loads (Per Division III Wind Design Chapter 16)

Basic Wind Speed	75 mph
Exposure	C
Design Coefficients Ce, Cq, qs	per Code
Importance Factor	1.00

Earthquake Design (Per Division IV Earthquake Design Chapter 16)
The site is approximately 5.5 miles from San Jacinto Fault (A Source Fault) and may expect to experience large ground acceleration. Appropriate seismic factors listed in Chapter 16 of the Code shall be used.

Soil Profile Type	S_D
Near Source Factor Na	1.02
Near Source Factor Nv	1.23
Seismic Coefficient Ca	0.449
Seismic Coefficient Cv	0.787
Occupancy Importance Factor	1.00
R	Depends on type of Lateral Loads Resisting system used

Structural System Description
The structural design for the AGSM Building should provide a building system

that will integrate the programming, functional and the architectural requirements.

The structural framing system will likely consist of metal deck with lightweight concrete fill supported by steel beams, girders and columns. Special concentric or eccentric braced frame will provide lateral load resisting system. The exterior of the building will be either curtain wall system supported by structural members or metal studs supported by perimeter spandrel beams. Primary connections shall be field bolted with high-tensile fasteners. Beam and girder designs shall incorporate shear studs fusion welded through the metal decking onto the top flanges to provide full composite behavior. Roof assemblies shall consist of light gauge, ribbed metal decking spanning between beams, and filled with insulating concrete and Styrofoam.
There will be a seismic separation between the Executive Education Wing and the Academic I & R Wing.

Foundation Design
Foundation design shall be based on Geotechnical Investigation, "Proposed Anderson Graduate School of Management Building, Martin Luther King Boulevard and Canyon Crest Drive, University of California Riverside, California" prepared by C.H.J. Incorporated, Job No. 02220-2, dated March 14, 2002.

Soil Type:	Controlled compacted fill
Footings:	Typical spread footings and continuous footings with grade beams under braced frames
Design Bearing Pressure:	1,800 pounds per square foot (psf) with increase of 300 psf and 600 psf for each additional foot of width and depth, respectively, to a maximum of 5,500 psf (DL + LL)
Lateral Loading:	Passive pressure: 400 psf/foot of depts. Base friction coefficient: 0.40
Footings:	Footings shall be established on a minimum 24" of controlled compacted fill
Slabs on Grade:	Average loading is anticipated for grade slabs. Standard deformed bars will be used to reinforce all such slabs.

Quality Control

- Primary quality control for structural elements shall be performed by:
  - Independent testing laboratory of record employed by the owner
  - Geotechnical engineer of record

- Special inspections, sampling and testing per 1998 California Building Code shall be required for:
  - Cast-in-place concrete
  - Field welding of reinforcement
  - Structural steel welding
  - High-strength bolt installation
  - Stud welding
  - Metal deck welding

- Material Properties and Stresses: Concrete
  - o Normal Weight Concrete — ASTM A 33f'c = 3000
  - o Light-weight Concrete — ASTM A 330f'c = 3000
  - o Reinforcing Steel — ASTM A 615 Grades 40 & 60
  - o Structural Steel — ASTM A 36, Fy = 36000 psi
  - o High Strength Steel — ASTM A 572(Grade 50), Fy = 50000 psi
  - o Fasteners — ASTM A 307 & A 325
  - o Metal Deck — ASTM A 446 & A 525, Fy = 60000 psi
  - o Structural Tubing — ASTM A 500, Grade B, Fy = 42000 psi
  - o Structural Pipe — ASTM A 53, Grade B, Fy = 35000 psi

Concrete Reinforcement (Section 03200)

- **Scope**
  - o Provide reinforcement for concrete work of all classifications. Use sufficient skilled workmen thoroughly trained to perform this work.
  - o Comply with pertinent provisions of ACI 318 and the CRSI Manual of Standard Practice. Submit shop drawings showing details of bar, anchors and speeial items.

- Materials
  - o Reinforcing Steel — ASTM A 615, Grades 40 & 60
  - o Steel Wire — ASTM A 82
  - o Welded Wire Fabric — ASTM A 185
  - o Recycled Content Steel *(Reference LEED Materials & Resources, Credit 4 – Recycled Content)* — BOF Steel = 31.4% recycled content; EAF Steel = 98% recycled content

- Provide bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.

- Fabricate bars to conform to required shapes and dimensions within tolerances which will satisfy UBC, ACI and CRSI limitations.

- Quality control program will include testing of identifiable and non-identifiable material on a predetermined tonnage basis.

- Continuous inspection as defined in UBC Section 306 will be required for all structural concrete.

Cast-in-Place Concrete (Section 03300)

- **Scope**
  - Provide cast-in-place concrete where shown and as specified and as needed for a complete and proper installation.
  - Comply with the following ACI Standards: 301, 305, 306 and 318

- **Material Specifications**

o Normal weight aggregates	ASTM C 33
Portland cement	ASTM C 150, Type II, Low Alkali
o Water from potable source	ASTM C 494
Admixtures	
o Strengths =	(General)f'c = 3,000 – 4,000 psi

Mix designs shall be prepared and signed by a California Registered Civil Engineer for the testing laboratory of record. Provide or arrange for all field tests required to satisfy quality control requirements mandated by code or local authorities. Each load of concrete shall be accompanied by a certified Weighmaster's delivery ticket.

Composite Insulating Concrete (Section 03342)

- **Scope**
  Provide insulating concrete roof fill as indicated and as specified as needed for a complete installation.

- **Material Specifications**

o Portland Cement	ASTM C 150 Type I, II or III Low Alkali
o Lightweight aggregate	Vermiculite or Perlite Type ASTM C332 Group 1
o Insulation Board	Expanded Polystyrene board type **with perforation**
o Reinforcing Mesh	Keydeck 2160-2-1619 mesh

Install composite insulating concrete to provide 2-hour fire rated roof deck system.

Structural Steel (Section 05120)

- **Scope**
  - Provide structural steel as shown on drawings, specified herein and required for a complete installation. Fabrication and erection shall be performed by a firm which has demonstrated the capability to perform this work within the schedules and quality control limits as established.

- **Product**
  Materials shall comply with the following specifications:

Steel angles and plates	ASTM A 36
Wide Flange Shapes	ASTM A992
High strength steel	ASTM A 572 Grade 50

Pipe	ASTM A 53, Grade B
Tubing	ASTM A 500, Grade B
Unfinished threaded fasteners	ASTM A 307
High strength fasteners	ASTM A 325
Electrodes for welding	AWS A 5.1, E 70XX

Fabrication and erection shall conform to AISC Specification for the Design, Fabrication and Erection of Structural Steel for Building, and AISC Code of Standard Practice. Fabricator shall qualify and be registered as an Approved Fabricator as defined in Section 306, UBC.

Testing and inspection will be performed by the Laboratory of Record. Full penetration butt welds shall be continuously inspected and ultrasonically tested. All field welds require continuous inspection.

Metal Decking Section 05300)

- **Scope**
  Provide metal decking where shown, as specified herein, and as needed for a complete installation. Submit data verifying currently valid ICBO and Underwriter's Laboratory approvals for use of decking as part of a fire rated assembly, together with evidence of assigned seismic diaphragm values.

- **Product**
  Design of metal decking shall conform to AISI Specification for the design of Light Gage Cold-Formed Steel Structural Members, with appropriate steel fiber stresses and maximum load defection limitations. Decking design shall provide for composite behavior between the structural concrete fill and decking.

  Provide fusion weld shear studs of sizes and numbers specified on all beams and girders. Weld decking to supports with puddle welds in pattern as shown on the drawings.

  Major decking applications include:
  - Standard configuration for normal floors and roof.

  Sequence metal deck erection to comply with all OSHA safety regulations.

Miscellaneous Steel (Section 05500)

- **Scope**
  Provide miscellaneous metal work shown, as specified herein, and as needed for a complete installation.

- **Product**
  Materials shall comply with the following specifications and standards:

Steel angles, plates and bars	ASTM A 36
Steel plates to be bent or cold-formed	ASTM A 283,Grade C
Wide Flange Shapes	ASTM A992
Steel tubing	ASTM A 500,Grade A or B
Bar-size shapes	ASTM A 306, Grade 65

Cold-finished steel bars	ASTM A 108
Cold-rolled carbon steel sheets	ASTM A 336
Galvanized carbon steel sheets	ASTM A 526,G90 coating
Stainless steel sheets	AISI Type 302 or 304
Gray iron castings	ASTM A 48,Class 10
Malleable iron castings	ASTM A 47
Steel pipe	ASTM A 53,Grade A

Prime with 10-99 Enamel Primer, Rustoleum No. 5769 Primer or equivalent. Galvanize items where specified or where permanently exposed to weather.

Metal Stairs (Section 05510)

- **Scope**
  Provide metal stairs where shown, as specified herein, and as needed for a complete installation.

- **Product**
  Materials shall comply with the following minimum standards:

Structural steel	ASTM A 36
Metal pans (risers and subtreads)	ASTM A 526,10 Gauge
Sheet steel (galvanized)	ASTM A 526,& A525 G90
Sheet steel (landings)	ASTM A 366,10 Gauge
Wire fabric, 2" x 2" / #12 + #12	ASTM A 185
Newel posts, steel tube	ASTM A 53,Grade B
Steel pipe	ASTM A 53,Grade B

Shop fabricate stairs in as large sections as practicable, and in accordance with shop drawings. Coordinate installation with other trades to assure proper interface with their work. Install stairs immediately following erection of structural steel to provide vertical access for construction personnel.

6.5 Mechanical System Criteria

General Requirements

- The intent is to integrate Sustainable Design Measures for the building design with the design of the HVAC systems. The mechanical design will take into account the energy efficient design of the façade to ensure that comfort control *(reference LEED Indoor Environmental Quality, Credit 7 – Thermal Comfort)* is achieved while minimizing the air conditioning system capacity *(reference LEED Energy & Atmosphere, Prerequisite 2 – Minimum Energy Performance and Credit 1 – Fundamental Building Systems Commissioning).*

- Quality: The system design and materials will be based on an overall level of quality and maintainability commensurate with a University of California facility. The designs will incorporate proven technology and equipment.

- As the basis of design, the building shall use chilled water air handlers

with a local chiller and air-cooled condenser. Provisions should be included to allow for connection to a future west campus central chiller plant, should campus expansions in the future make this desirable. It is not the intent to design for a campus central plant at this time and only minimal costs that will result in potential future cost savings should a plant be added in the future should be included. Gas fired heating hot water boilers will be provided at the building. Air handling units will be provided in locations that minimize the duct runs. Each classroom, assembly space and computer laboratory will be provided with its own zone control. The offices will be provided with zone control based on orientation and use. *(Reference LEED Indoor Environmental Quality, Credit 5 – Controllability of Systems and Energy & Atmosphere, Prerequisite 3 – CFC Reduction in HVAC&R Equipment.)*

- Reliability/Redundancy – Designs are to utilize systems and products that are:
  - Straight forward and can be manually "hand" operated
  - Off the shelf readily available products
  - Maintainable
  - Readily available spare parts and materials
  - Incorporate multiple equipment elements in key systems to provide reduced capacity operation when portions are down for maintenance or failure.

- The system design will provide flexibility in terms of operation and renovation. Ensure that all components and equipment are easily accessible for maintenance and replacement.

- The building will be provided with sustainable design measures to minimize the building effects of the environment. In addition to the use of energy efficient glazing *(reference LEED Indoor Environmental Quality, Credit 1 – Carbon Dioxide Monitoring)* and high thermal resistance *(reference LEED Energy & Atmosphere, Credit 5 – Measurement & Verification)* for the exterior walls the following shall be considered for the project:
  - Heavy mass walls to offset the exterior heat gains to periods of time when the building is unoccupied.
  - Overhangs and fins on the exterior glazing. Note that overhangs on the southeast and southwest sides will be appropriate for minimizing heat gains in the summer and allow for winter passive heating.
  - Provide interior circulation zones that act as buffers between the exterior and the classrooms, offices.
  - Maximize the use of day lighting in all areas to minimize the use of artificial lighting. *(Reference LEED Indoor Environmental Quality, Credit 8 – Daylight & Views)*
  - Use low VOC building materials to minimize the quantity of indoor air contaminants. *(Reference LEED Indoor Environmental Quality, Credit 4 – Low-Emitting Materials)*

- Provide recycling facilities within the building. In addition encourage the contractor to participate in the sustainable measures. One example would be to provide on-site recycling pans. *(Reference LEED Materials & Resources, Prerequisite 1 – Storage & Collection of Recyclables)*
- Consider the use of evaporative cooling in the air conditioning systems for café only.
- Natural ventilation would be appropriate in the mid seasons. Consider operable windows and the use of nighttime cooling cycles (night flushing). *(Reference LEED Indoor Environmental Quality, Credit 2 – Ventilation Effectiveness and Credit 6.1 – Operable Windows)*
- Provide a training manual to assist the building occupants in achieving the operation of a sustainable building. The manual will consider the energy efficient operation of all the building systems and will instruct the users when natural ventilation is appropriate and how to maximize its benefits. *(Reference LEED Energy & Atmosphere, Prerequisite 1 – Fundamental Building Systems Commissioning and Credit 3 – Additional Commissioning)*

Codes and Standards

The HVAC systems will be designed using the most stringent of the following codes and standards:

- ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers
  - Standard 90 A, B, C, Energy Conservation in New Building Design
- ASTM American Society for Testing and Materials
- AWWA American Water Works Association
- CISPI Cast iron Soil Pipe Institute
- NEC National Electrical Code
- NEMA National Electrical Manufacturer's Association
- NFPA National Fire Protection Association
  - Section 34
  - Section 54
  - Section 90
  - Section 91
- OSHA Occupational Safety and Health Administration
- SMACNA Sheet Metal and Air Conditioning Contractor's National Association
- UL Underwriters Laboratories, Inc
- ANSI American National Standards Institute
- AABC Associated Air Balance Association
- EPA Environmental Protection Agency
- CBC California Building Code
- CMC California Mechanical Code
- CFC California Fire Code
- CEC California Energy Code
- SFM State Fire Marshal

Design Criteria

- Climatic Design Parameters

Location	Riverside, California
Latitude	33° 70'
Elevation	200 Feet
Climate Zone	15
Outside Design Wet Bulb	74°F
Outside Design Dry Bulb and coincidental Web Bulb	Summer Design 112°F Dry bulb and 73°F wet bulb
Winter Design	26°F
Indoor Design Summer	75°F & 50% RH
Indoor Design Winter:	72°F

  - Other Areas (e.g. Toilets, corridors, enclosed stairwells) indoor design temperatures will be 78°F for Summer and 68° F for Winter.
  - Mechanical Rooms will be designed to maintain a maximum of 10° F above outside ambient, where possible use building transfer air to maintain a maximum temperature if 90° F.
  - Electrical Rooms will be conditioned as required to offset heat rejection of equipment and maintain room below 90° F.
  - Elevator Machine Room will be maintained below a maximum of 80°F, sufficient capacity shall be included for any elevator equipment heat exchange required.
  - Telecommunication Spaces will be maintained below a maximum of 78°F.
  - Indoor Relative Humidity: the cooling systems will be designed to ensure the summer humidity is maintained below 60% RH during part load conditions. In winter the humidity will be maintained between 35% and 65%. In general, humidity will not be controlled. *(Reference LEED Indoor Environmental Quality, Credit 7,2 – Permanent Temperature and Humidity Monitoring System)*

- Building Hours of Operation
  The AGSM Building is an instructional and research facility that allows staff 24-hour availability to the building. HVAC systems will be designed with the option to be operational at all times. However, it should be noted that the proposed operation hours are from 6:00 AM to 10:00 PM. This will be taken into account when providing an integrated sustainable design approach to the façade and mechanical system design.

- Occupancy

Space	Basis	Heat gain sensible/ latent
Instructional, Assembly, Meeting, Conference Spaces	20 ft²/person	350/300 Btuh
Offices	100 ft²/person	350/300 Btuh
Lobbies, foyers	200 ft²/person	350/300 Btuh

- Lighting Loads

Space	Room #	Basis
Instructional, Assembly, Meeting and Conference Spaces		2.0
Offices		1.8
Lobbies, foyers		1.1

  - These are lighting budget numbers only, actual heat gain from lighting will be determined during the design

- Miscellaneous Internal Heat Gains
  The equipment heat gain listed in the project program shall be the basis of design. Calculations will include air handling unit's fan motor heat if motor is in air stream. At a minimum the following equipment loads will be utilized:

Equipment	Equipment load	Demand Factor
Personal computers	5.0 watts/ft²	0.8
Task Lighting	0.3 watts/ft²	0.6
Shared Copiers	3.0 watts/ft²	0.8
Miscellaneous Equipment	3.0 watts/ft²	0.8
Shared Printers	0.5 watts/ft²	0.8

- Ventilation Requirements
  - Offices and Support Areas, Conferences
    Offices and similar areas will be provided with 20-cfm/person outdoor ventilation air. Supply total air to meet the maximum cooling load. Occupancy will be based on block load amount and not individual occupant room total.

- Storage and equipment areas
  - Storage rooms: three air changes exhaust per hour minimum.
  - Telephone equipment rooms: three air changes exhaust per hour unless room has electronic equipment.
  - Electric rooms will be ventilated to cool transformer.
- Toilets and Janitor rooms
  - Fifteen air changes per hour exhaust for toilets.
  - Eight air changes per hour exhaust for janitor rooms. *(Reference LEED Indoor Environmental Quality, Credit 5 – Indoor Chemical & Pollutant Source Control)*
- Miscellaneous Exhaust
  - Copy machine rooms 110% of maximum supply air shall be exhausted. *(Reference LEED Indoor Environmental Quality, Credit 5 – Indoor Chemical & Pollutant Source Control)*
  - Kitchen/break/lunch rooms 110% of maximum supply air shall be exhausted.

- Future Capacity and Diversity
  - The design will include an additional 15% capacity for future use on all the building systems, including but not limited to all of the air systems and the chilled water and heating hot water systems. All equipment, ducting and piping will meet this requirement.
  - Ductwork air leakage and heat loss factors may be added to suit design conditions and actual installation. Include the heat gains for ductwork exposed on roof or installed in unconditioned spaces for all ducting systems. Include infiltration factors in the design calculations.
  - Morning warm-up shall be included.
  - Building Calculations: The equipment size will be determined based on the highest cfm obtained from computer generated heat gain calculations to offset each room's load at the time of the building's peak block load. Utilize computer generated heat gain and loss calculation software recognized by the industry.

- Energy Conservation: A goal of the project is to pursue an energy conscious design and beat the current California Energy Code maximum energy usage by 10%. *(Reference LEED Energy & Atmosphere, Prerequisite 2 – Minimum Energy Performance and Credit 1 – Optimize Energy Performance)* This can be accomplished in many ways including the following:
  - Control of minimum outside air for office AHU with CO2 sensors that will provide outside air based on actual number of occupants present in the building.
  - Pipe and duct insulation minimum thickness will exceed Title 24 by 30% minimum.
  - Building Envelope: Thermal insulation of a performance up to 30% greater than the minimum required meeting Title 24.
  - Fenestration: Low-E solar heat gain coefficient (SHGC) glazing, and internal blinds and/or external sun control or shades will be an integral part of the design.

- The most energy saving premium efficient motors will be provided for equipment.
- Variable volume air systems will be used.
- Variable speed drives rather than inlet guide vanes will be used.

- Noise Criteria
  The following noise criteria levels will be achieved. It should be noted that these levels address the mechanical systems only. Mitigation of traffic noise and air traffic noise will utilize the building fabric to ensure the interior spaces are not affected.
  - Enclosed Offices NC 35
  - Open Plan Offices NC 40
  - Support Areas NC 25 to NC 30
  - Conference Rooms NC 25 to NC 30
  - Instructional Areas NC 30 to NC 35
  - Computer Areas NC 35 to NC 40
  - Corridors NC 35 to NC 40
  - Mechanical Areas NC 60

- Equipment Efficiency: All major HVAC equipment and driving motor efficiency will be selected to minimize effective operating cost. Where equipment operates in excess of 500 hours a year, a cost analysis shall be performed to determine which level of energy efficiency is most appropriate for the project. California Energy Commissions Standards will be used to determine the minimum acceptable level of efficiency for analysis.

HVAC Systems Description

- General
  - The offices and the office support areas, assembly spaces, meeting rooms and conference rooms will be served by variable air volume systems.
  - The conditioned air will be provided by air conditioning equipment located at the roof or in equipment rooms as appropriate to budget and design.
  - The location of the mechanical rooms will take into account the wind direction around the building and will ensure that the intake louvers are located to avoid the entrainment of noxious pollutants. *(Reference LEED Indoor Environmental Quality, Prerequisite 1 – Minimum IAQ Performance)*
  - Dedicated cooling only systems will be provided for central computer server rooms, elevator machine rooms and electrical and data rooms as required to maintain the design conditions. Units shall be separate from main chilled water system for 24-hour operation.

- Any equipment piping or ductwork exposed on the roof shall take into account potential impacts on future adjacent buildings. Basis of Air Handling Units (or Packaged Unit) Design
  - Air handling units will be double wall custom manufactured,

Temtrol or equal.

- The air-handling units will supply air in a draw-throw arrangement. System will have the following minimum components; supply air fan, return fan, outside air economizer section, chilled water cooling coil, hot water heating coil (for single zone systems), pre-filter and after filter section, sound attenuators and vibration isolators.
- The maximum face velocity over the cooling coils and filters will be 450 fpm.
- The numbers of the air-handling units will be determined based on the zoning of the building. The designer will ensure that the determination of the number of air handling units provides comfort control in perimeter and internal zones.
- Where air-handling unit size is greater than 25,000 cfm, the system shall be designed to allow for easy partial operation of a portion of the areas served for off hour's operation. In no case shall an area larger than 25,000 square feet be required to operate in a partial occupancy mode.
- Size air handler cooling coils for a minimum 20-degree temperature difference between supply and return water (to be compatible with a potential central campus system).

- Air Filtration
  30% Pre-filters
  85% Filters
  - Filters will be rated per ASHRAE 52 – 76 Standard Test Method.
  - The filter housing and all air-handling components downstream will not be internally lined with fibrous insulation.
  - The filter media will be fabricated so that fibrous shedding does not exceed the levels prescribed by ASHRAE 52.

- General Exhaust
  - Each toilet room will be exhausted to atmosphere through an exhaust fan, at roof level.
  - A dedicated exhaust fan will ventilate telecommunication and secondary electrical rooms if the cooling requirement can be satisfied. Otherwise utilize dedicated cooling systems. *(Reference LEED Indoor Environmental Quality Credit 5 – Indoor Chemical & Pollutant Source Control)*

- Ductwork Classification
  All ductwork will be designed in accordance with SMACNA Design manuals and ASHRAE Handbook of fundamentals, Duct Design Chapter. Note that the selection of the duct sizes will ensure that the duct pressure is minimized, in addition to selecting ducting at velocities that do not generate noise (breakout or airside).
  - Duct systems will be designed to obtain lowest cost-beneficial pressure loss by limiting certain duct velocities, avoiding dynamic loss components where possible and utilization of low dynamic loss components. High-loss fittings, such as mitered elbows,

abrupt transitions, and takeoffs and internal obstructions will be avoided.

- Distribution system pressure losses will be determined by total pressure. The use of the "static regain" is encouraged as design methods. However, other methods are acceptable provided it can be demonstrated that the results are comparable to the above specific procedures.
- It is an objective to design the pressure distribution duct (between the AHU and the rooms for pressure drops to 2.0 inches WG or less. Long duct runs will be designed with special consideration of pressure loss since the maximum loss for any run will be imposed upon the entire fan system.
- Horizontal duct distribution will be routed to maximize long, straight runs without multiple penetrations through fire and/or smoke partitions. Multiple horizontal mains will be of comparable length and configuration to equalize pressure losses. The overall object is to route ducts that will avoid or minimize architecturally induced dynamic losses.
- Sheet metal gages will be minimum 22 gage and in accordance with CMC, not SMACNA. Construction of ductwork, except for gage thickness, will be in accordance with SMACNA 1995-second edition for the appropriate duct pressure classification. Provide variations in duct size, and additional duct fittings as required to clear obstructions and maintain clearances.
- Provide drive slip or equivalent flat seams for ducts exposed in the conditioned space or where necessary due to space limitations. Longitudinal seams will use Pittsburgh lock. Button punch snap lock will not be used on campus. On ducts over 48" wide, provide standard reinforcing on inside of duct. Run outs to grilles, registers or diffusers on exposed ductwork will be the same size as the flange outer perimeter on the grille, register, or diffuser.
- Return air system will be ducted in shafts and non-conditioned spaces, where required by code.
- Friction Losses and Minimum Duct Sizes:
  - Supply air ducts from cooling unit's discharge up to the floor plenum will be sized for friction losses between 0.15 to 0.25 WG/100 feet but not exceeding a velocity of 1500 fpm/. Note: Constant volume systems will be designed for the low end of the friction range and variable volume systems to the high end of the range for the full cfm without diversity. Minimum size duct to the terminal units will be eight inches in diameter but not less than terminal inlet size.

- Ductwork Insulation

  Supply air ductwork, return ductwork exposed to unconditioned spaces, chilled water supply and return piping, heating water supply and return piping and equipment will be insulated. The insulation thickness as a minimum will be as listed in the 1998 California Energy Code plus 30% additional thickness rounded up to the next nominal thickness.

Cooling Systems

- General
  - Chilled water will be provided from a local packaged water chiller with air-cooled condenser. Provide sufficient components to allow for 60% of capacity with one refrigeration section out. A small chiller to handle anticipated nighttime loads shall be included. *(Reference LEED Energy & Atmosphere Prerequisite 3 – CFC Reduction in HVAC&R Equipment)*
  - The chilled water system will have temperature differential supply water temperature to maximize efficiency and cost benefits. Minimum temperature differential shall be 20 degrees. *(Reference LEED Energy & Atmosphere Credit 4 – Ozone Depletion)*

- Chilled water pumps
  Pumps will be centrifugal type and shall generally be selected to operate at 1750 rpm. Both full and partial loads must fall on the pump curve.

- Piping
  - Chilled water pipe sizing within the building will be sized as follows:
    - Friction loss of 1.0 to 3.0 feet H2O/100 feet.
    - Minimum pipe size of ¾ inch, except for gage or control piping.
    - Maximum velocity of 6 fps for 2 ½" pipe size and larger.
    - Maximum velocity of 4 fps for 2 pipe size and smaller.
    - Maximum pr4essure drop of 4 ft/100 ft for any size, and
    - Minimum velocity of 2 fps.
  - Two pipe systems utilizing separate piping for chilled water will be used.
  - Valves will be provided for isolation of major areas, at inlet and outlet of each piece of equipment, on all branches serving more than one piece of equipment, for shutoff of mains on equipment drains and on each strainer. Drains will be extended to an indirect waste receptor unless otherwise directed. Valves for drains and vents will be ball type.

Heating Hot Water System

- General
  - A low temperature hot water system will be provided. The maximum working pressure will be 30 psi and the temperature limitation will be 180 degrees F. Select small VAV terminal coils for a maximum of 140 degrees F.
  - The use of electric resistance and/or electric boilers as the primary heating source for the building is prohibited.
  - The layout and design of the heating hot water system will follow principles outlined in the latest edition of the ASHRAE Systems and Equipment Handbook.
  - The maximum total temperature drop shall not exceed 40 degrees F. The supply temperature shall be 140 degrees F. Care shall be take in selection of water temperatures and drops to avoid laminar

flow conditions in coils.

- Boilers
  - The boilers will be low pressure, with a working pressure and maximum temperature outlines by the system as outlined above.
  - The boilers will be installed in a dedicated mechanical room or in a dedicated roof space. All provisions for breaching, flue stack and combustion air will be included. Install catch basins or floor sinks around boilers, minimum 4" size.
  - The burner control will be return water temperature actuated and control sequences, such as modulated burner control and outside air rest, will be utilized to maximum efficiency and performance.
  - The boiler gas trains will be in accordance with International Insurance (IRI) standards.
  - Ensure that the boilers meet the requirements of both the South Coast Air Quality Management District and Environmental Protection Agency requirements.
  - The boilers will be natural gas-fired.

- Heating Hot Water Pumps
  Pumps will be centrifugal type and will generally be selected to operate at 1750 rpm. Both full and partial loads must fall on the pump curve. Run and standby pumps will be provided.

- Piping
  - Heating Hot Water pipe sizing within the building will be sized as follows:
    - Friction loss of 1.0 to 3.0 feet H2O/100 feet.
    - Minimum pipe size of ¾ inch, except for gage or control piping.
    - Maximum velocity of 6 fps for 2½" pipe size and larger
    - Maximum velocity of 4 fps for 2 pipe size and smaller.
    - Maximum pressure drop of 4 ft/100 ft for any pipe size, and
    - Minimum velocity of 2 fps.
  - Two pipe systems utilizing separate piping for the heating hot water system will be used.
  - Valves will be provided for isolation of major areas, at inlet and outlet of each piece of equipment, on all branches serving more than one piece of equipment, for shutoff of mains on equipment drains and on each strainer. Drains will be extended to an indirect waste receptor unless otherwise directed. Valves for drains and vents will be ball type.

Controls

- General
  - A modular direct digital control (DDC) system will be provided for the HVAC system. Stand-alone modules will control air handlers, pumps, etc. A common data highway will link the modular controllers. Valves and damper actuators will be electric. Controls selection will be as directed by campus standards.

- Provide a central personal computer and printer in the building. Full color graphics, monitoring, trending, set point, and sequence modification will be available at the building.
- Connection to the existing campus Johnson-Metasys system will be provided though dial up modem.
- Thermostats for terminal units, reheat coils and air valves will be wall mounted. All control components shall be electronic.
- DDC system will also be used for alarms for sump pumps, domestic water heaters, emergency generator, smoke detectors, etc.

System Start-Up, Testing, Adjusting & Balancing
The work includes system start-up, test, adjust, and balance (TAB) of HVAC air and water distribution systems including equipment, ducts, and piping. Include sound testing and vibration recordings for HVAC equipment.

Commissioning
Provide the services of a qualified Commissioning Engineer to supervise the systems start-up. The commissioning engineer will be responsible for producing a detailed commissioning procedures manual. The commissioning engineer will be involved in the project from the earliest stages of design. *(Reference LEED Energy & Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning and Credit 3 – Additional Commissioning)*

Energy
The systems will be designed to minimize the use of depletable energy sources:

- Building Design: The shape and orientation of the building will be designed to maximize energy saving without hindering building functionality.

- Equipment and System Efficiency: the selection of the HVAC systems will include a cost analysis of key components coupled with minimal consumption of depletable energy sources. *(Reference LEED Energy & Atmosphere Prerequisite 2 – Minimum Energy Performance and Credit 1 – Optimize Energy Performance)* Typical systems that should be incorporated include:
  - Variable Speed Drives
  - High Efficiency and Premium Efficiency Motors
  - Additional Insulation
  - Equipment sizing to maintain efficiency at actual operating points
  - Improved control system accuracy and performance
  - Building Control and Automation Systems
  - System commissioning *(Reference LEED Energy & Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning and Credit 3 – Additional Commissioning)*

- Contact the local Utility Companies to obtain the maximum incentive funding available for the project. Incorporate all programs that provide a payback period of less than 10 years.

Vibration and Noise

- Vibrations generated by plumbing and piping systems may be minimized by several means: judicious equipment selection, limitation of fluid flow velocities, and isolation of key mechanical and piping systems.
  - Vibration isolation systems will be provided on rotating mechanical equipment greater that ½ hp located within the critical area, greater than 5hp elsewhere in the building, and greater than 10 hp outside the building within 200 feet of the building. Reciprocating equipment (other than emergency equipment) will not be used.
  - Concrete inertia bases will be used where appropriate with rotating mechanical handling liquids (e.g. pumps) and with compressors. Flexible pipe connectors (e.g., twin-sphere connectors) shall be used on piping connecting to isolated equipment and where piping exists the mechanical room.
  - Passive piping is that piping which is at a great distance from its energy source and which has low flow rates and / or infrequent use, such as city water, sprinkler water, gases, waste water, etc. Conversely, active piping is close to energy source (e.g., a pump), has continuous or frequent use, with high flow rate of velocity of air or liquid. Active piping can be a major source of vibration, and isolation is required in some instances.
  - Whenever possible, flow velocities in significant active piping will be sized for maximum flow velocities of 6 ft/second. Systems that require higher velocities for proper function call for more stringent isolation.
  - In summary, the following guidelines apply for piping that is supported from the structure within the critical area:
    - Passive piping (waste water, cold and soft water, etc.) need not be isolated unless it is racked with piping requiring isolation.
    - Active piping of diameter 2 inches to 6 inches will be supported using spring supports sized to a static deflection of 1 inch.
    - Active piping of diameter exceeding 6 inches will be supported using spring supports sized to a static deflection of 1 inch.

6.6 Plumbing System Criteria

General

- Design a complete system for the proposed AGSM Facility.

- All areas inside the building will be provided with the following piped services.
  - Domestic cold water.
  - Sanitary waste and vent.
  - Areas subject to rainwater will be provided with a primary and secondary drainage system.
  - All design will meet requirements of California Plumbing Code as a minimum.
  - Fuel gas as required for mechanical or kitchen systems.

Water Systems

- Domestic water service will be brought to the building from the nearest point of connection. The domestic water service will be separate from the fire water service to the building. Meters, vaults and service size and location will be as directed by the utility company and campus standards.

- The domestic water service will be provided with a pressure reducing valve (PRV) assembly if the city pressure exceeds 80 psi, and a reduced pressure backflow prevention device assembly as required by code.
- A booster pump will be required if city pressure is inadequate to reach the most remote fixture.

- Potable water will be supplied at low flow plumbing fixtures. *(Reference LEED Water Efficiency Credit 3 – Water Use Reduction)*

- Domestic hot water will be provided by electric storage type hot water heaters located above janitor/service sinks in the building, and maintained with a circulation pump system.

- The residual pressure at the most remote water closet will be 35 psi.

- The residual pressure to sinks and lavatories will be minimum of 15 psi.

- Water velocity in all piping will not exceed 6 ft/sec.

- Minimum pipe size for public lavatories will be ½-inch with a maximum flow of 0.5 gpm and ¾-inch for sinks and shower with a maximum flow of 2.5 gpm.

- All fixtures utilizing non-potable (industrial) water will have a sign stating "Non-Potable Water."

- Non-potable (industrial) cold water (NPC) systems will be connected to mechanical equipment. NPC shall connect to the domestic water system through an approved reduced pressure type backflow preventer (RPBP).

- As a minimum, a RPBP shall be provided for:
  - Domestic water service to the building.
  - Irrigation systems. *(Reference LEED Water Efficiency Credit 1 – Water Efficient Landscaping and Credit 2 – Innovative Wastewater Technologies)*
  - Water softening.
  - HVAC make-up water.

Soft Water

- Soft water will be supplied from a centralized duplex soft water system. The soft water system will feed the heating hot water make-up. The soft water piping distribution system will be sized for maximum 6-

ft/sec-water velocity.

Sanitary Waste and Vent System

- Sanitary waste and vent system will be designed to provide connection to each plumbing fixture. The sanitary drain pipe(s) shall connect to the on-site sewer for conveyance to the city sewer system.

Storm Drainage System

- The storm drainage system will be designed with connections to the on-site storm drainage system. The overflow drains will terminate at 12" maximum above grade outside the building. Do not terminate overflow drains in an area that would affect occupants or lead to water entering the building. The storm system will be designed for 2-inch rainfall per hour. *(Reference LEED Sustainable Sites Credit 6 – Stormwater Management)*

Vibration and Noise

- Vibrations generated by plumbing and piping systems may be minimized by several means: judicious equipment selection, limitation of fluid flow velocities, and isolation of key mechanieal and piping systems.
  - Vibration isolation systems will be provided on mechanical equipment in the building.
  - Concrete inertia bases will be used with mechanical equipment handling liquids (e.g. pumps). Flexible pipe connectors shall be used on piping connecting to equipment and where piping exits the mechanical room.
  - Passive piping is that piping which is at a great distance from its energy source and which has low flow rates and/ or infrequent use, such as city water, sprinkler water, gases, waste water, etc.
  - Conversely, active piping is close to energy source (e.g. a pump), has continuous or frequent use, with high flow rate or velocity of air or liquid. Active piping can be a major source of vibration and isolation is required in some instances.
  - Flow velocities in significant active piping will be sized for maximum flow velocities of 6 ft/ second.
  - In summary, the following guidelines apply for piping that is supported from the structure within the critical area:
    - Passive piping (waste water, cold and soft water, etc.) need not be isolated unless it is racked with piping requiring isolation.
    - Active piping of diameter 2 inches to 6 inches will be supported using spring supports sized to a static deflection of 1 inch.
    - Active piping of diameter exceeding 6 inches will be supported using spring supports to a static deflection of 1 inch.

Drains and Wastes

- Provide floor drains with trap primers in each public toilet room.

- Provide floor sinks for each piece or group of mechanical equipment

requiring drains.

- Provide indirect wastes where required for equipment.

- Provide gravity drain condensate or pumped when gravity not possible.

Additional Issues

- All piping components subject to sweating or heat loss will be insulated with appropriate thickness of insulation and fire-retardant jacket.

- Each area should have easy access to all services and will be isolated to allow any department to be shut down for repair or emergencies without affecting other departments.

- A complete set of piped services will be stubbed out and valved for each floor even though all services may not be initially required. This will increase flexibility and minimize remodel and retrofit costs as assigned use change.

- Piping design for back to back toilets will require extra piping to provide separate isolation valves for each toilet room. Maintenance work in one toilet will not require the other toilet to be unusable.

- Gas service to have an earthquake valve outside of building.

Commissioning

- Provide the services of a qualified Commissioning Engineer to supervise the systems start-up, as well as reviewing the proposed design for conformance with the design intent, as described in these documents and the associated specifications. Include all plumbing systems, including each system's control systems. *(Reference LEED Energy & Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning)*

6.7 Electrical System Criteria

General

- Provide design, engineering, installation, and start-up of a complete and operational electrical system. Review the complete documents and comply with their requirements. Report any conflicts to the University of California Riverside for resolution.

Power Service

(Reference LEED Energy & Atmosphere Credit 2 – Renewable Energy and Credit 6 – Green Power)

- The base bid shall include routing from the University substation assigned to service this building. Service feeder will be installed in PVC Schedule 40 conduits encased in red concrete for underground installation and in PVC coated rigid conduits under the building.

- The 12 kV feeders will be terminated at the main service switchboard for the building in the main electrical room. Provide unit substation with step-down transformer to obtain voltage at 480Y/277V, 3 phase, 4 wire.

Building Voltage Distribution

- The building/facility distribution voltage shall be at 480Y/277V, and 120/208V, 3 phase, 4 wire via feeders in conduit and shall be distributed as follows:
  - 480V, 3 phase, 3 wire for all motor loads ½ horsepower and larger.
  - 277V, single phase for fluorescent lighting and HID fixtures.
  - 208V, single phase or 3 phase for special equipment.
  - 120V, single phase for receptacle outlets and motors smaller than ½ horsepower.

Building Power Distribution

- A main electrical room shall be located preferably at the first floor level, containing main incoming high and low voltage switchboards, step-down transformers, Automatic Transfer Switches (ATS), and distribution equipment. Secondary electrical rooms shall be located throughout the building.

- The unit substation shall consist of a 1500 kva transformer (12kV – 480Y/277V) and a 2500A – 480Y/277V, 3 phase, 4 wire, switchboard.

- All over-current protective devices shall be circuit breakers with coordinated trip settings.

- 480V, 3 phase and 208V, 3 phase, normal and emergency electrical power shall be distributed from the main electrical room to secondary electrical rooms.

- 277/480V distribution boards and feeders shall be provided for elevators, pump rooms, lighting panel boards and motor control centers.

- A 480Y/277V, 3 phase, 4 wire lighting panel board shall be provided in each electrical room of the building.

- 120/208V, 3 phase, 4 wire distribution boards shall be provided to serve general receptacles, selected lighting fixtures (incandescent), 120V and 208V equipment.

- K-rated step down transformers 480V – 208Y/120V, and 208Y/120V, 3 phase, 4 wire distribution systems with oversized neutral (200%) shall be provided in each electrical room.

- 42 pole, 208Y/120V, 3 phase, 4 wire, 200% rates neutral bus panels boards shall be provided throughout the electrical rooms to supply

power to all computer outlets throughout the building.

- Motor control centers and elevators, 480V, 3 phase and/or distribution boards for mechanical equipment shall be provided in each main mechanical room.

- All conductors shall be copper in conduit.

- All equipment shall be seismically braced.

Building Distribution/Circuiting Requirements

- Circuiting requirements shall be as follows:
  - Convenience outlets in corridors and in finished spaces (which per NEC are calculated at 180W each) – maximum eight (8) per circuit, except as noted below.
  - Electric water cooler, if applicable – one per circuit.
  - Lighting circuits loaded to maximum of 14 amps.
  - Outlets in Corridor/Storage/Utility Areas/ Toilets, etc. shall be on dedicated circuits and separate from all other circuits.
  - In Computer Lab, provide two compartment steel surface raceways with one duplex receptacle for every two students, along with one tel/data outlet with jacks for plugging in two student computers.

- Each outlet in toilets and within six feet of a sink, faucet or other wet areas shall be individually GFCI type. All receptacles to be grounding type.

- Each 480Y/277V panelboards shall be 42 circuit, 225A copper bus, and main breaker 225A frame (circuit breaker ampacity can be adjusted according to the load).

- Additional space requirements for panelboards shall be as follows:
  Panelboards – 25% additional space.
  Minimum six (6) spare 20A circuit breakers shall be provided in each panelboard.

- Switchboards and distribution panelboards shall be provided with approximately 30% additional space and contain a minimum of two spare 225 amp circuit breaker.

- Motor control center shall be provided with 25% additional equipped space and contain a minimum of one (1) spare 30A circuit breaker and one (1) NEMA size "1" starter. Each motor starter shall have an individual control transformer, Hand-Off-Automatic Switch, two auxiliary contacts, (3) indicator lights.

- The following equipment will not be loaded to more than 85% of connected-design loads:
  Unit substation transformer.
  Generator.

- Transformers shall be sized based on the connected load plus 15% spare capacity.

- Diversity factors as described in NEC Article 220-13 could be used to reduce branch circuit, feeder, and equipment, where applicable.

- NEC Chapter 9, Tables: 1-5 shall be used as the basis for conduit sizing.

- A maximum of three (3) circuits shall be combined in each home run conduit to avoid derating of the conductors. 120/208 volt homeruns shall carry oversized neutral conductors to avoid harmonic overheating problems.

- Additional junction boxes shall be provided as required to minimize the number of incoming wires to the box to less than 15.

- Provide (5) spare circuit breakers per panelboard, similar to type installed in each branch circuit panelboard.

- All conductors, bussing and windings shall be copper.

Design Loads

- The building electrical power shall be based on calculations similar to that shown in the following table.

- Allow 15% extra capacity in the system to accommodate future expansion.

- Building Gross Square Foot = 90,000.

Lighting:	2va/sq. ft.
Receptacle Office Power:	4va/sq. ft.
HVAC units (Packaged Unit):	5va/sq. ft.
HVAC Jans & pumps:	2va/sq. ft.
Plumbing:	0.5va/sq. ft.
Misc. (Fire Alarm, Communication, Security):	0.5va/sq. ft.
Total	14va/ sq. ft.

- Estimated load = 90,000 x 14/1000 + elevator = 1260 kva + 30kva = 1290 kva

- Total estimated load = 1290 + (.15) 1260 = 1484 kva.

Emergency Power

- One emergency diesel generator, sized to carry approximately 125% of the emergency load shall be provided for this project. In addition to the one day tank per generator, an underground fuel tank shall be

provided that will store an adequate quantity of diesel fuel for a minimum of 8 hour emergency services at 100% of the rated load capacity of the generation system.

- Emergency generator shall be connected to a distribution switchboard via the automatic transfer switch (ATS) located in the main electrical room. The emergency power will be distributed throughout the facility.

- One 480/277V emergency lighting panelboard will be installed on each level to provide egress lighting throughout the whole building.

- One 208/120V emergency panelboard shall be provided on each floor to serve the fire alarm system, telecommunications system, selected equipment and receptacles.

- Emergency power shall be provided for all code required loads and designated areas. This includes, but is not limited to, the loads listed below:
  - Exit signs, egress and path lighting.
  - Fire alarm and life safety systems.
  - Limited HVAC and air exhaust systems (for telecom Room).
  - Telecommunications MDF/IDF and user data Uninterruptible Power Supply (UPS) units.
  - Security system.
  - Dedicated 24-hour air conditioning systems for the MDF/IDF rooms.
  - Combination fire/smoke dampers.
  - Elevators (if any).
  - Fire pump (if any).
  - Other equipment required by the University of California at Riverside.

Grounding System

- A central grounding system shall be provided for all switchboards. All grounded buses from switchboards, transformers, and panel boards shall be connected at a central ground bus in the main electrical room. The central grounding system shall be extended to each electrical room by means of vertical riser ground wire.

- A separate green ground wire shall be provided for each feeder and branch circuit.

Lighting

- The lighting levels shall be designed in accordance with the recommendations of the Illuminating Engineers Society (IES), and the lighting power density shall be in accordance with California Energy Title 24 Code. In office spaces, lighting density shall be designed to 1.2 VA/SF. The following lighting levels shall be provided.

Area	Maintained Lighting Level at the Workplace (foot candles)
Corridors	15-20
Lounges, Lobbies, Stairs	20-25
Storage, Toilets, Elevators, Elec. & Mech. Rooms	20-30
Computer Rooms	30-50
Conference Rooms	40-50
Offices	45-50
Writing Areas with Task Light	50-70
Case Study & Instructional Labs	40-60
Telecom Equipment Rooms	40-50
Exterior Parking Areas*	2
Exterior Pedestrian Walkways*	4

**(Reference LEED Sustainable Sites Credit 8 – Light Pollution Reduction)*

- A centralized programmable, lighting control panel with override switches and low voltage lighting relay cabinets adjacent tot each lighting panel in each electrical room shall be provided to control the lights automatically in the code required spaces.

- All fluorescent light fixtures shall have electronic ballast with radio frequency suppressor, 4100°K, T-8 lamps are an acceptable substitute.

- Circuit lighting for dual circuiting, as well as interface with occupancy sensors, to save energy. *(Reference LEED Energy & Atmosphere Prerequisite 2 – Minimum Energy Performance)*

- For interior computer labs, lighting shall be designed using pendant mounted direct/indirect fixtures.

- For interior general offices, conference rooms, and classrooms, lighting shall be designed with recessed parabolic fluorescent fixtures.

- Areas located at the perimeter of the building shall be provided with day lighting controls with multiple switching per Code. Controls shall interface with lighting circuiting to provide uniform lighting levels throughout the floors.

- Occupancy sensing devices shall be utilized to interface with lighting controls (in addition to mandated California Title 24 requirements), to provide maximum energy efficiency. All rooms to be equipped with ultrasonic occupancy sensors and switchpacks.

- Assembly areas shall be provided with special lighting and controlled by dimming system.

- Exterior lighting shall be primarily High Pressure Sodium (HPS) or Metal Halide (MH) and shall be controlled by photocells and time clock.

- Lighting circuiting shall be made horizontally, except for vertical runs to the emergency lighting panel that shall be made through the electrical room.

- All lighting to be controlled by the lighting control system.

- Exit signs will be LED type.

- Emergency lighting where switched, shall have automatic bypass transfer relay at each switch.

Telecommunications Raceway Systems

- Four (4) – 4" empty conduits shall be provided from site telecommunications manhole to the main telecommunications room in the building for incoming cables and fibers.

- Telecommunication closets shall be provided per UCR telecommunication service requirements. Backboards, ground bars, and receptacles shall be provided.

- Two (2) – 4" empty conduits shall be provided from the main telecommunications room to all other telecommunications closets.

- Cable trays will be provided for horizontal distribution cabling.

- Outlet box with empty conduit and pull cord up into accessible ceiling will be provided for each communication outlet.

- Include equipment racks, terminations, patch panels, horizontal and backbone data network cabling as described under Telecommunications Systems Criteria.

Security System

- Door contacts, card key access and alarms in a central panel will be provided for the Security system.

- All wiring will be in a separate security conduit system.

- The security alarm will be connected to the UCR campus security department via a dial-up modem.

- The security system equipment will match the existing UCR campus security system.

- Closed circuit TV cameras, monitors, and surveillance sensors including

wiring will be designed and installed by the building occupant. Cost of conduits should be included in the project budget.

Fire Alarm System

- An addressable (multiplex system) fire alarm system will be provided and will consist of the following:
  - o A main fire alarm control panel will be located in the electrical room, with its own back-up battery and charger, event and history logger, remote test, and sensitivity adjusting features.
  - o An annunciation panel will be located at the firefighter entrance. (Exact location is to be determined).
  - o Ceiling mounted smoke and heat detectors will be provided in all the electrical and mechanical rooms, storage, lobbies, elevator lobbies and shafts, and along all the major corridors and in air ducts, as required by code.
  - o Audio/visual alarm stations will be provided along all egress routes, toilet areas, lobbies and other assembly areas.
  - o Pull stations will be provided along egress routes.
  - o The fire alarm system shall be linked with elevators for return to a predetermined floor and mechanical air supply system for shut down in the event of fire alarm signal.
  - o The fire alarm system shall also be linked to the sprinkler flow switches and valve monitors.
  - o The fire alarm system shall have automatic dialer and be connected to the University Campus fire alarm system through telephone interface. All devices shall be addressable and all wiring shall be in conduit. Device boxes shall be painted red and conduit with paint stripe every five feet.

Audio/Visual System

- Empty conduits with pull wires will be provided for the audio/visual systems in the auditorium and meeting / conference rooms.

6.8 Fire Suppression System Criteria

System Criteria

- Design a complete hydraulically designed fire sprinkler and standpipe system for the building. Combined wet standpipes will be installed in every building exit stair and will be combined with the automatic sprinkler demand for the building. The system will be designed in conformance with the latest adopted California Building Codes, NFPA-13, 14, and the State's requirements.

- The building shall be Light Hazard for offices and Ordinary Hazard (Group 1) for classrooms and mechanical rooms.

- Use the water flow data at 80% of available pressure for the basis of the design. The final design of the system will include the underground piping and the riser piping, approved by all authorities having jurisdiction.

- Branches to individual sprinkler systems will be provided with monitored control valves and water flow switches, as well as a system drain/test connection. All control valves and water flow switches will be annunciated at the safety control panel.

- All isolating and sectionalizing valves on the fire protections system will be provided with tamper switches that will an annunciated at the life safety control panel.

- The system will have a central control panel with digital read-out and an emergency power source. The system will be installed so that it may be connected to an automation system. A remote graphic or digital panel will be located at the firefighter's entrance. The location of the panel will be reviewed and coordinated with the State Fire Marshal.

- The system components will include the following:
  - An alarm electric bell will be outside the building.
  - A double detector check backflow preventer with a list indicating OS&Y gate valves check valve and fire department pumper connection will be provided outside the building.
  - Valve and water-flow switch monitoring.
  - Audible sprinkler flow alarms on the exterior and interior of the building.
  - Detectors and alarms as required in electrical section.
  - Hand-held fire extinguishers will also be provided to comply with Title 19 CCR Division 1, Chapter 3.
  - Tamper devices on all control valves.

Water Supply

- A fire main will be connected to the site underground water system. Refer to the site utility drawing. A minimum water pressure requirement of 500 gpm at 100 psi will be provided at the roof fire department connection.

Design Criteria

- Piping will be concealed above ceilings and within walls, except for non-public equipment rooms without ceilings.

- Sprinkler heads will be spaced for symmetry with ceiling features. Basis of head location shall be:
  - Equal distance between lights.
  - Equal distance between lights and wall.
  - Equal distance between lights and air inlets and outlets.
  - Equal distance between wall, lights, and air inlets and outlets.
  - Locate in center of ceiling tiles.
  - Provide sprinkler coverage for rooms, void spaces, and overhangs as required by code.

- Provide sprinkler coverage for all exterior building projections 48 inches or more from the exterior wall.

6.9 Audiovisual and Telecommunications Systems Criteria

Vision for Technology

- The UC Riverside Anderson Graduate School of Management will train students to operate in a business environment dominated by technology. As part of this mission, the School will encourage extensive use of technology in every aspect of its operation.

- Technology will enhance the learning environment by providing real time information access, collaboration and organization tools; by permitting online access to learning materials for asynchronous study; and by facilitating access to outside experts and opinion through Internet access, distance learning, videoconferencing and tele-presence.

- Technology will provide administrative efficiencies through automated and "self service" processes and through consolidation of student transcripts, current status etc into a secure central student record.

- The planning of the building will ensure the flexibility and adaptability required to integrate the most appropriate technology systems at time of initial occupation, and to accommodate multiple future generations of technology with a minimum of cost and disruption.

- A single structured cable network will provide ubiquitous high bandwidth access to voice, data and media distribution systems throughout the facility with an additional, very high bandwidth (fiber optic) connection to each of the assembly spaces and computer labs. The network design will anticipate a shift (over the next few years) from the majority of users who depend on hardwired access to the voice, data and media distribution network, to a majority who use and depend on wireless connections.

Building Systems Criteria

- Data Network and Cable Plant, Including Wireless Network Overlay
  - The data network to be installed in the building at time of opening will be an integrated cabled and wireless system providing access throughout the building. Network infrastructure provided within the building includes the structured cabling system comprising copper and fiber cable plant, patch panels, outlets, equipment racks and terminations and provision for wireless access points (WAPs).
  - Authoritative guidelines on the latest requirements and practices on campus are provided in the draft Campus Network Standards entitled:

- Interim Communications Infrastructure Planning Standards

- Published (and updated periodically) by University of California, Riverside
- Computing and Communications
- The data network backbone provides connectivity from the location of the incoming services via the Main Distribution Frame (MDF) Room to one or more Intermediate Distribution Frame (IDF) Rooms on each floor. The data network backbone will support very high-speed networking (for example, based on current day technology, Gigabit or 10Gigabit Ethernet) over trunked fiber optic cables. Fiber optic cabling will comprise combined multimode and singlemode fiber.
- Horizontal cabling provides connectivity from the IDF closet on each floor to each individual outlet on that floor. Horizontal cabling will comprise copper and/or fiber optic cabling. The current campus standard for copper cabling is Category 5E. The Campus will soon adopt Category 6 (or better) as the campus standard.
- Each standard outlet in the building will comprise three copper cables (one of which is used for voice) OR three copper cables and one (un-terminated) fiber. The ports are housed in a standard 6 module faceplate. In some rooms specific operational requirements will demand special outlet configurations incorporating additional cables and ports.
- Throughout the building "general purpose" wireless access with the highest practical bandwidth (802.11b or 802.11a based on current technology) will be provided. Current campus standards recommend Wireless Access Points (WAPs) located at approximately 300ft centers throughout the building.
- Additional wireless access points "dedicated" to the users of the room will be provided in each Assembly Room (and in other specified rooms).
- Wireless access points will be provided on the perimeter of the building to serve accessible outdoor areas within about 200 feet of the building.

- Phone System
  - The phone system on campus currently comprises a distributed system linked by fiber optic cables. Current campus standards would provide a 6-strand multimode fiber service to the building, fed from the Statistics Computer Building. The building will also be provided with 100 conventional copper pairs for payphones, emergency phones, escort phones, measured business lines, security and possibly ATM machines.
  - This approach will be kept under review as a result of plans to update the campus phone system.
  - At the time of project completion it is likely that the data and voice networks could be fully integrated using Voice over IP (VoIP) technology. The benefits of this approach should be kept under review for integration into the projects at the appropriate stage of development of the VoIP technology.

- Audiovisual Systems
  - The School will make extensive use of audiovisual systems in Assembly Rooms, Class Labs, Computer Rooms and Scholarly Activity Rooms. Audiovisual systems will be used for presentations, collaboration, videoconferencing and distance learning applications utilizing one or more screens in each room.
  - Display devices will be selected from the most appropriate technologies available at the time of installation, with the aim of optimizing screen size, resolution, brightness, contrast, lifespan and reliability at reasonable cost. Based on the state of the technology at the time of programming. Front projection, rear projection and flat panels displays are considered appropriate technologies for various applications throughout the school. (See room data sheets).
  - In addition, several rooms are designated for origination of distance learning program material. Origination of distance learning program material requires cameras and lighting and additional display devices for far end viewing. In addition, a production control system is required (to control camera panning and switching). In the 300-seat Assembly Space, operator control over the production is provided at a permanent technician console located in the control booth. In all other very simple control is provided at the podium, and more advanced operator control over the production when required is provided at a temporary technician console located within the room.
  - The 299-seat Assembly Space includes a wireless simultaneous translation system to provide up to 6 simultaneous languages to 299 delegates.

- Technology Infrastructure – Rooms and Cable Containment
  - Main Distribution Frame (MDF) / Intermediate Distribution Frame (IDF) Rooms
    - Specific facilities required to support campus network technology include a series of dedicated, secure, highly serviced rooms, and a containment system to distribute network cabling throughout the building.
    - A dedicated and secure MDF/IDF room of approximately 250 sq. ft. is required at the first floor level to accommodate incoming services and patch panels, routers, switches and station-cable patch panels. A cost allowance for the active network electronics housed in the MDF and IDF rooms throughout the building is included in the project budget costs.
    - The location should provide a short and straight connection for the incoming services. The building will incorporate at least three 4 inch conduits for incoming services. The combined MDF/IDF room on the first floor should occupy a central location within the floor plate to minimize the horizontal distribution distances. The maximum distance from the MDF room to the furthest outlet is 300 feet. The relationship of the MDF/IDF on the first floor and the IDF

rooms on the second floor and above should provide a straight vertical distribution route to the IDF rooms on the upper floors. A riser containing a number of riser grade four-inch diameter sleeves will be provided running vertically up through the IDF stack.

- One or more dedicated and secure IDF rooms of 80 to 100 sq. ft., with a minimum internal dimension of 8 feet, is required on each floor to accommodate switches and station-cable patch panels. The IDF closets should be stacked vertically above the MDF room. The location of the IDF closet(s) must be within 300 feet cable distance from the most distant outlet on the floor.
- An exterior rooftop location is required for satellite dish, microwave and wireless antennas. A short and direct route with a number of 4-inch diameter steel conduits is required from the IDF closet on the highest level to the rooftop location.
- Dedicated 24-hour air conditioning will be provided in each of the rooms.
- Rack-mounted units, not a central building UPS system, will provide UPS. The building generator will provide emergency power backup for the network services and associated essential air-conditioning systems.

o Horizontal Cabling Containment

- Horizontal cabling extending from the IDF closet to the station outlets will be supported on ladder type cable trays routed above accessible corridor ceilings on each floor.
- Each typical voice/data outlet will comprise a 4-11/16inch deep-recessed box with a single gang mud ring. A single 1 1/4 inch diameter metal conduit with pull cord is required from the wall outlet box to the nearest cable tray in the adjacent ceiling space.
- Open plan areas, and technology rich rooms (particularly those requiring flexible furniture layouts) will utilize a regular grid of floor outlets, achieved using low profile access floor or flush "poke thru" connections.

o Data Center / Server Room

- Specific facilities required to support user network technology include a dedicated, secure, highly serviced data center/server room to house servers and network equipment provided and maintained by the users. The servers and active network electronics housed in the data center/server room are user specific and are NOT included in the project budget costs. Note that this differentiates them from the active campus network electronics housed in the MDF/IDF rooms, which ARE included in the project budget costs.
- Dedicated 24-hour air conditioning will be provided in the server room.

- Rack-mounted units, not a central building UPS system, will provide UPS. In the event of a power outage, the UPS will allow the servers to shut down gracefully. No generator back up is provided.
- Horizontal cabling within the server room will be supported on ladder type cable trays routed above the equipment. A minimum clear height of 8' 6" is required below beams, ductwork, sprinkler pipework etc. A lay-in ceiling is not required.
- Fire protection will utilize a dry pipe dual action system with a manual hold off.

o Audiovisual Head End Room

- Specific facilities required to support user audiovisual technology include a dedicated, secure, highly serviced audiovisual system head end room to house termination, patching, switching and operation of video systems throughout the building. Equipment is provided and maintained by the users.
- Dedicated 24-hour air conditioning will be provided in the audiovisual head end room.
- Rack-mounted units, not a central building UPS system, will provide UPS. In the event of a power outage, the UPS will allow the servers to shut down gracefully. No generator back up is provided.
- Horizontal cabling within the audiovisual head end room will be supported on ladder type cable trays routed above the equipment. A minimum clear height of 8' 6" is required below beams, ductwork, sprinkler pipework etc. An acoustic ceiling is required.
- Fire protection will utilize a dry pipe dual action system with a manual hold off.
- A console with three operator positions is required within the room.
- Audiovisual systems will be provided with dedicated cable containment, comprising two 2-inch conduits homed to the head end room, from each provided with audiovisual equipment.
- Preliminary estimates of the total numbers of voice and data outlets for the building are estimated as follows:

	Campus Minimum Standards	Recommended Allocation
Voice	210	255
Data	797	956
Fiber	13	21
Wireless	20	48

- Specific room-by-room recommendations are included in the room data sheets.

- External Infrastructure
  - The building is located to the west of the freeway and the current campus network infrastructure will have to be upgraded to serve the AGSM Building and other projects proposed for the West Campus Area.
  - Typical campus infrastructure provision for the building would provide, at least:
    - 6 strands of multimode fiber optic cable to support the distributed telephone system.
    - 6 strands of single mode fiber optie cable to support the data network.
    - 100 pairs of copper cable.
  - The fiber will be contained in an air blown fiber tube with not less than seven cells
  - The building will provide not less than three 4-inch conduits to accommodate incoming services.
  - The location of the voice and data network services to which the building will be connected will be a new freeway crossing adjacent to the current electrical conduits, at the South end of the West Campus as located on the site plan. [Refer to Page 6-42] (Note that there may be some impact on this route resulting from the future freeway-widening project).

7.0 Detailed Project Program Cost Plan

This section includes the Detailed Project Program Cost Plan for the AGSM Building.

CUMMING
LLC

Detailed Project Program Cost Plan
for
AGSM Building

University of California, Riverside

May 22, 2002

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INTRODUCTION

1. Basis Of Cost Plan

This statement has been prepared with the following documentation received February 25, 2002 along with verbal direction from the architect and engineer.

A Architectural drawings including floor plans, roof plan, sections, site plan and an elevation (looking from Northeast)
B Space requirements plan.

The information listed above is considered conceptual design level for estimating purposes.

General conditions are based upon a start date of May, 2006 and a 26 month construction period.

Our pricing is based upon a prevailing wage, non phased project with full access to the site at all hours.

We have not allowed for any small business set aside requirements.

The statement reflects probable construction costs obtainable in a competitive and stable bidding market. This estimate is a based upon a minimum of four 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.

2. Inclusions

The new Anderson Graduate School of Management (AGSM) Building consists of three-story and four-story buildings (connected) totaling approximately 92,283 GSF (55,370 ASF). Its intended use is for assembly spaces, faculty and administrative offices, scholarly activity areas, lounges, central services, and Dean's suites, student affairs suites, finance and accounting areas, information technology and academic recruitment areas.

Assumptions for the cost plan are as shown below.

Shell

Foundations
Soil conditions - mildly expansive sandy clay loam to support grade beams and spread footings.
Site conditions - open space with very little restrictions to affect construction methods.
Foundation drains are assumed.
Foundations are conventional load bearing pad and strip footings with grade beams.

Vertical Structure
Three stories above grade with rectangular floor plates and a 14 feet floor to floor height.
Four stories above grade at the Executive Education wing.
Lateral resistance system would consist of steel brace frames.
Support system to consist of structural steel columns.

Horizontal Structure
Floor loading assumed to be a live load of 100 psf.
Slab on grade is 5 inch thick reinforced concrete over visqueen on a permeable section on 95% compacted subgrade.
Upper floors are suspended concrete filled metal deck with a structural steel beam superstructure.
Roof level consists of a suspended concrete filled metal deck with a structural steel beam superstructure.

Exterior Cladding
The building will be 3 stories above grade with rectangular floor plates and a floor to floor height of 14 feet.
Four stories above grade at the Executive Education wing.
The exterior is assumed to to be 65% hard surface (material to be determined) and 35% glazed.

INTRODUCTION

Roof screens will be needed to enclose roof mounted mechanical equipment (material to be determined).
Glazing system assumed to be window wall with aluminum mullions and 1" clear insulated glass.
Sunshade for south and west facing elevations (material to be determined).

Roofing and Waterproofing
Roofing system assumed to be a 4 ply built up (20 year life) over rigid insulation.
Sheetmetal flashings are assumed to be galvanized where covered.
Prefinished metal flashings assumed where exposed to sight.

Interior Partitions, Doors and Glazing
Assume metal studs with 5/8' drywall at ordinary areas, type X at all fire rated areas and shaft wall where necessary.
Assumed wood doors in metal frames with institutional grade finished hardware (fire rated where required).
Assumed glazed sidelights / transoms at corridor doors.

Floors, Wall and Ceiling Finishes
All materials to be determined.

Function Equipment and Specialties
Casework-allowance of $194,586.
Fume hoods - none anticipated.
Lab outlets - none anticipated.
Window coverings assumed at all glazed openings except at public areas.
Marker and tackboards are assumed at all teaching rooms.

Functional equipment includes phenolic toilet partitions, toilet accessories, wall and corner guards, bulletin boards, marker boards, projection screens, directories, signage. Casework includes non-lab wood cabinets. An allowance for AV systems is included..

Vertical Transportation
Elevators are 3 stop hydros, 3500 lb capacity, 150 fpm for passengers and a 5000 lb larger platform freight elevator.
Elevators are 4 stop hydros, passenger, same capacity at the Executive Education wing.

Mechanical and Electrical

Plumbing
Extent of piping runs - Piping and waste to serve restroom areas. Stubs into the café area. Roof drainage system.
Process systems - none anticipated.
Acid waste systems- none anticipated.
Building plumbing including roof drainage, water, sewer, gas, condensate, lavatories, water closets, urinals, drinking fountains, water heaters.

HVAC
Building type - Variable air volume (VAV) system utilizing chilled water air handlers, local chiller and condenser, evaporative condenser and gas fired heating hot water boilers located at the building. Sheetmetal ducting, for supply and return air, DDC controls and each office shall have its own zone control. Exhausts for restrooms.
Fume hoods - none anticipated.
Quality / durability - Temtrol or equal units with predicted life of 30 years.
Zone size - 1000 - 2000 square feet.
Control complexity - Direct Digital Controls, proprietary.
Central plant - System to be a local system with future provisions for connection to future central plant loop.

Electrical
Emergency power- diesel generator with underground fuel tank to power code required loads.
Indirect lighting - natural light used where possible through use of clerestories, sidelights and exterior glazing.
Common raceways - none anticipateed
Phone/data hubs - project to include wireless technology and also wired phone / data hubs.

Lighting controls - occupancy sensors at all rooms, all lighting controlled by lighting control system.
Fire alarm system - included and connected to University Campus system.

Fire Protection
Special systems - Dry pipe dual action system with a manual hold off in AV, server and computer areas.
Special problems - none
Wet pipe system including standpipes.

Site Preparation and Demolition
This section includes clearing, grubbing, rough grading, finish grading, overexcavation and compaction.
Site clearance - Normal site clearance and soil conditioning to accept new foundations.
Special requirements - None assumed.

Site Paving, Structures and Landscaping
This section contains general site paving, steps, site walls, landscape and irrigation, site lighting, and site drainage.
Grass/misc. landscaping - Trees, shrubs and turf are assumed with an irrigation system.
Paved surfaces - Enhanced concrete at ground level pedestrian areas, asphalt surfaces at roads and parking areas, city type sidewalks at street.
Special development requirements - None assumed.

Utilities on Site
This section contains underground main utilities including sewer, water, electrical and telephone / data systems.
All utilities are assumed to be connected to the closet existing service with substantial extensions.

Assumptions regarding General Conditions, Overhead and Profit.
Current market conditions are 8% general conditions and 4% overhead and profit.

3. **Exclusions (Items Not Included Within Cost Plan)**

The following cost items are excluded from this cost plan.

A Professional fees, inspections and testing.
B Escalation beyond midpoint of construction, (June 2007)
C Plan check fees and building permit fees.
D Furnishings, fixtures and equipment (FF&E), except built-in cabinets, counters and other casework indicated.
E Major site and building structures demolition unless noted in body of estimate.
F Costs of hazardous material surveys, abatements, and disposals unless noted in estimate.
G Costs of offsite construction unless noted in estimate.
H UPS by owner.
I Construction contingency costs.
J Clock system.
K Commissioning costs.

4. Notes

We recommend that the client review this statement, and that any interpretations contrary to those intended by the design documents be fully addressed. The statement is based upon a detailed measurement of quantities, when possible, and reasonable allowances for items not clearly defined in the documents.

COST PLAN SUMMARY

Element	Area	Cost/SF	Total
Base Estimate			
A State Funded - Building	65,036 SF	$186.00	$12,097,015
B State Funded - Sitework	43,560 SF	$36.81	$1,603,463
C Privately Funded - Building	27,247 SF	$304.11	$8,286,068
D Privately Funded - Sitework	43,560 SF	$39.34	$1,713,817
TOTAL CONSTRUCTION COST	92,283 SF	$256.82	$23,700,364

AGSM Building
University of California, Riverside
Detailed Project Program Cost Plan

Date: 22-May-02
Budget Year: 2003
CCCI of Budget Year: 4019

Total Project **(State Funded + Private Funded)** **OGSF:** 92,283

Element		$/OGSF	Cost ($x1,000)
1 Foundations		2.08	$192
2 Vertical Structure		4.00	$369
3 Floor & Roof Structures		22.45	$2,072
4 Exterior Cladding		29.53	$2,725
5 Roofing and Waterproofing		3.50	$323
A) Shell (1-5)		***61.56***	***$5,681***
6 Interior Partitions, Doors and Glazing		14.18	$1,309
7 Floor, Wall and Ceiling Finishes		9.85	$909
B) Interiors (6-7)		***24.03***	***$2,218***
8 Function Equipment and Specialties		22.25	$2,054
9 Stairs and Vertical Transportation		2.86	$264
C) Equipment and Vertical Transportation (8-9)		***25.11***	***$2,318***
10 Plumbing Systems		2.89	$267
11 Heating, Ventilation and Air Conditioning		21.51	$1,985
12 Electrical Lighting, Power and Communications		28.72	$2,650
13 Fire Protection Systems		2.30	$212
D) Mechanical and Electrical (10-13)		***55.42***	***$5,114***
Total Building Construction (1-13)		166.13	$15,331
14 Site Preparation and Demolition		3.60	$332
15 Site Paving, Structures and Landscaping		13.48	$1,244
16 Utilities on Site		9.96	$919
Total Site Construction (14-16)		27.04	$2,495
TOTAL BUILDING & SITE (1-16)		193.16	$17,826
General Conditions	8.0%	15.45	$1,426
Contractor's Fee	4.0%	8.34	$770
Base budget as of date of estimate April, 2002		216.96	$20,022
Design Contingency	9.1%	19.74	$1,822
Escalation to midpoint of construction (June 2007)	8.5%	20.12	$1,857
(4.25 years at 2% per year)			
Escalated budget to midpoint of construction (June 2007)		256.82	$23,700

AGSM Building
Detailed Project Program Cost Plan **Date: 5/22/02**

AREAS & CONTROL QUANTITIES

State Funded **TOTAL GROSS AREA (ogsf)** **65,036 SF**

Schedule of Areas	SF	SF
Enclosed Areas		
First Floor	15,878	
Second Floor	22,680	
Third Floor	22,680	
Subtotal, Enclosed Areas		**61,238**
Unenclosed Areas		
First Floor	7,595	
Second Floor	0	
Third Floor	0	
Fourth Floor	0	
Subtotal, Unenclosed Areas	**7,595**	
Unenclosed Areas@ 50%		**3,798**
Total Gross Floor Area		**65,036**

Control Quantities (State Funded Only)	Qty		Ratio to Gross Area
Number of stories	3	ea	0.046
Gross Area	65,036	sf	1.000
Enclosed Area	61,238	sf	0.942
Covered - Unenclosed Area	7,595	sf	0.117
Footprint Area	21,679	sf	0.333
Volume	857,332	cf	13.183
Crawl Space Volume	-	cf	
Gross Wall Area	27,748	sf	0.427
Retaining Wall Area	-	sf	0.000
Finished Wall Area	27,748	sf	0.427
Interstitial Floor Area	-	sf	
Exterior Windows or Glazing Area	9,712	sf	0.149
Roof Area - Flat	21,422	sf	0.329
Roof Area - Curved / Sloping	-	sf	0.000
Roof Area - Total	21,979	sf	0.338
Roof Glazing Area	-	sf	
Interior Partition Length	4,344	lf	
Finished Area	45,015	sf	0.692
Fume Hoods	-	ea	
Laboratory Casework (Base, Wall, Standing)	-	lf	
Elevators	1	ea	0.154
Plumbing Fixtures	TBD	ea	
Electrical Load (includes elevator loads)	1,445	kw	22.219
Total Site Area	43,560	sf	0.670
Finished Site Area	21,881	sf	0.336

AGSM Building
University of California, Riverside
State Funded - Building

Date:	22-May-02
Budget Year:	2003
CCCI of Budget Year:	4019
Gross Area	65,036

State Funded

Element		$/OGSF	Cost ($x1,000)
1 Foundations		2.00	$130
2 Vertical Structure		3.98	$259
3 Floor & Roof Structures		19.90	$1,294
4 Exterior Cladding		22.93	$1,491
5 Roofing and Waterproofing		3.49	$227
A) Shell (1-5)		***52.29***	***$3,401***
6 Interior Partitions, Doors and Glazing		12.33	$802
7 Floor, Wall and Ceiling Finishes		8.86	$576
B) Interiors (6-7)		***21.19***	***$1,378***
8 Function Equipment and Specialties		12.97	$843
9 Stairs and Vertical Transportation		1.80	$117
C) Equipment and Vertical Transportation (8-9)		***14.77***	***$960***
10 Plumbing Systems		2.84	$185
11 Heating, Ventilation and Air Conditioning		21.45	$1,395
12 Electrical Lighting, Power and Communications		25.06	$1,630
13 Fire Protection Systems		2.29	$149
D) Mechanical and Electrical (10-13)		***51.65***	***$3,359***
Total Building Construction (1-13)		**139.90**	**$9,098**
14 Site Preparation and Demolition		0.00	$0
15 Site Paving, Structures and Landscaping		0.00	$0
16 Utilities on Site		0.00	$0
Total Site Construction (14-16)		**0.00**	**$0**
TOTAL BUILDING & SITE (1-16)		**139.90**	**$9,098**
General Conditions	8.0%	11.19	$728
Contractor's Fee	4.0%	6.04	$393
Base budget as of date of estimate April, 2002		**157.13**	**$10,219**
Design Contingency	9.1%	14.30	$930
Escalation to midpoint of construction (June 2007)	8.5%	14.57	$948
(4.25 years at 2% per year)			
Escalated budget to midpoint of construction (June 2007)		**186.00**	**$12,097**

AGSM Building
University of California, Riverside

Date:	**22-May-02**
Budget Year:	**2003**
CCCI of Budget Year:	**01-Jan-11**

STATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
1 Foundations				
Conventional spread footings, pad footings, grade beams	65,036	sf	$2.00	$130,000
Total - 1 Foundations				***$130,000***
2 Vertical Structure				
Structural steel columns / internal shear wall system	65,036	sf	$3.99	$259,000
Total - 2 Vertical Structure				***$259,000***
3 Floor & Roof Structures				
Slab on grade	21,679	sf	$4.35	$94,000
Suspended floors- Structural steel beams, metal deck, concrete fill	43,357	sf	$18.47	$801,000
Roof deck-Structural steel beams, metal deck, concrete fill	21,621	sf	$18.47	$399,000
Total - 3 Floor & Roof Structures				***$1,294,000***
4 Exterior Cladding				
External wall systems	27,748	sf	$38.00	$1,054,000
Glazed area	9,712	sf	$45.00	$437,000
Total - 4 Exterior Cladding				***$1,491,000***
5 Roofing and Waterproofing				
Built up roofing incl rigid insulation, sheet metal flashings, walk pads	65,036	sf	$3.49	$227,000
Total - 5 Roofing and Waterproofing				***$227,000***
6 Interior Partitions, Doors and Glazing				
Interior partitions				
Rated walls	34,159	sf	$5.35	$183,000
Shaft walls	12,828	sf	$5.65	$72,000
Standard walls	26,655	sf	$4.35	$116,000

STATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
Interior doors	169	ea	$1,150.00	$194,000
Interior glazing	8,450	sf	$28.00	$237,000
Total - 6 Interior Partitions, Doors and Glazing				***$802,000***
7 Floor, Wall and Ceiling Finishes				
Floor finishes	65,036	sf	$3.00	$195,000
Wall finishes	65,036	sf	$2.86	$186,000
Ceiling finishes	65,036	sf	$3.00	$195,000
Total - 7 Floor, Wall and Ceiling Finishes				***$576,000***
8 Function Equipment and Specialties				
Window coverings	9,712	sf	$4.00	$38,848
Toilet accessories (allowance)	6	ea	$5,000.00	$30,000
Toilet partitions (allowance)	6	ea	$5,000.00	$30,000
Misc rough carpentry	65,036	sf	$0.24	$15,609
Finish carpentry allowance	65,036	sf	$0.24	$15,609
Millwork allowance	65,036	sf	$1.92	$124,869
Fire specialties	65,036	sf	$0.02	$1,301
Telephone enclosures	2	ea	$1,250.00	$2,500
Directories	2	ea	$994.50	$1,989
Graphics & signage	1	ls	$14,400.00	$14,400
Mailboxes	1	ls	$4,453.00	$4,453
Marker & tackboards	65,036	sf	$1.35	$87,799
Projection screens	65,036	sf	$0.75	$48,777
Fixed tables	469	lf	$150.00	$70,350
Computer floors	450	sf	$15.00	$6,750
AV requirements (assembly)	1	ls	$25,000.00	$25,000
AV requirements (classrooms)	65,036	sf	$5.00	$325,180
Total - 8 Function Equipment and Specialties				***$843,434***
9 Stairs and Vertical Transportation				
Elevator (one ea. for state funded portion - 3 stops required)	3	stop	$22,000.00	$66,000
Stairs	6	flts	$8,450.00	$51,000
Total - 9 Stairs and Vertical Transportation				***$117,000***

AGSM Building
University of California, Riverside

Date:	**22-May-02**
Budget Year:	**2003**
CCCI of Budget Year:	**01-Jan-11**

STATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
10 Plumbing Systems				
Building plumbing including roof drainage, water, sewer, gas, condensate, lavatories, water closets, urinals, drinking fountains, water heaters	65,036	sf	$2.85	$185,000
Total - 10 Plumbing Systems				***$185,000***
11 Heating, Ventilation and Air Conditioning				
4 pipe variable air volume, using fan coil units, DDC controls, local chiller, exhaust systems per code	65,036	sf	$21.45	$1,395,000
Total - 11 Heating, Ventilation and Air Conditioning				***$1,395,000***
12 Electrical Lighting, Power and Communications				
2500 amp service 480/277v, 3 phase, 4 wire, subpanels and distribution	65,036	sf	$3.25	$211,000
Lighting	65,036	sf	$7.25	$472,000
Devices	65,036	sf	$2.95	$192,000
Equipment connection	65,036	sf	$1.75	$114,000
Fire alarm system	65,036	sf	$2.42	$157,000
Telephone Data systems (raceways only)	65,036	sf	$6.45	$419,000
Security	65,036	sf	$0.50	$32,000
Sound system	65,036	sf	$0.50	$33,000
Total - 12 Electrical Lighting, Power and Communications				***$1,630,000***
13 Fire Protection Systems				
Wet pipe system	65,036	sf	$2.29	$149,000
Total - 13 Fire Protection Systems				***$149,000***

AGSM Building
University of California, Riverside
State Funded - Sitework

Date: 22-May-02
Budget Year: 2003
CCCI of Budget Year: 4019

State Funded Sitework

Gross Area 43,560

Element		$/OGSF	Cost ($x1,000)
1 Foundations		0.00	$0
2 Vertical Structure		0.00	$0
3 Floor & Roof Structures		0.00	$0
4 Exterior Cladding		0.00	$0
5 Roofing and Waterproofing		0.00	$0
A) Shell (1-5)		***0.00***	***$0***
6 Interior Partitions, Doors and Glazing		0.00	$0
7 Floor, Wall and Ceiling Finishes		0.00	$0
B) Interiors (6-7)		***0.00***	***$0***
8 Function Equipment and Specialties		0.00	$0
9 Stairs and Vertical Transportation		0.00	$0
C) Equipment and Vertical Transportation (8-9)		***0.00***	***$0***
10 Plumbing Systems		0.00	$0
11 Heating, Ventilation and Air Conditioning		0.00	$0
12 Electrical Lighting, Power and Communications		0.00	$0
13 Fire Protection Systems		0.00	$0
D) Mechanical and Electrical (10-13)		***0.00***	***$0***
Total Building Construction (1-13)		**0.00**	**$0**
14 Site Preparation and Demolition		1.33	$58
15 Site Paving, Structures and Landscaping		12.81	$558
16 Utilities on Site		13.54	$590
Total Site Construction (14-16)		27.69	$1,206
TOTAL BUILDING & SITE (1-16)		27.69	$1,206
General Conditions	8.0%	2.21	$96
Contractor's Fee	4.0%	1.20	$52
Base budget as of date of estimate April, 2002		**31.10**	**$1,355**
Design Contingency	9.1%	2.83	$123
Escalation to midpoint of construction (June 2007)	8.5%	2.88	$126
(4.25 years at 2% per year)			
Escalated budget to midpoint of construction (June 2007)		**36.81**	**$1,603**

STATE FUNDED SITEWORK DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Allowance	43,560	sf	$1.33	$58,000
Total - 14 Site Preparation and Demolition				***$58,000***
15 Site Paving, Structures and Landscaping				
Allowance	43,560	sf	$12.80	$558,000
Total - 15 Site Paving, Structures and Landscaping				***$558,000***
16 Utilities on Site				
Allowance	43,560	sf	$13.55	$590,000
Total - 16 Utilities on Site				***$590,000***

AGSM Building | **Plant Account #:** xxxx
Detailed Project Program Cost Plan | **Date:** 5/22/02

AREAS & CONTROL QUANTITIES

Privately Funded | **TOTAL GROSS AREA (ogsf)** | **27,247 SF**

Schedule of Areas	SF	SF
Enclosed Areas		
First Floor	9,083	
Second Floor	9,082	
Third Floor	9,082	
Fourth Floor		
Fifth Floor		
Subtotal, Enclosed Areas		27,247
Unenclosed Areas		
First Floor	0	
Second Floor	0	
Third Floor	0	
Fourth Floor	0	
Subtotal, Unenclosed Areas	0	
Unenclosed Areas@ 50%		0
Total Gross Floor Area		27,247

Control Quantities (Private Funded Only)	Qty		Ratio to Gross Area
Number of stories	4	ea	0.147
Gross Area	27,247	sf	1.000
Enclosed Area	27,247	sf	1.000
Covered - Unenclosed Area	-	sf	0.000
Footprint Area	9,083	sf	0.333
Gross Wall Area	16,176	sf	0.594
Retaining Wall Area	-	sf	0.000
Finished Wall Area	16,176	sf	0.594
Interstitial Floor Area	-	sf	
Exterior Windows or Glazing Area	5,662	sf	0.208
Roof Area - Flat	9,140	sf	0.335
Roof Area - Curved / Sloping	-	sf	0.000
Roof Area - Total	9,140	sf	0.335
Roof Glazing Area	-	sf	
Interior Partition Length	1,327	lf	
Finished Area	27,421	sf	1.006
Fume Hoods	-	ea	
Laboratory Casework (Base, Wall, Standing)	-	lf	
Elevators	1	ea	0.367
Plumbing Fixtures		ea	0.000
Electrical Load	1,000	kw	36.701
Total Site Area	43,560	sf	1.599
Finished Site Area	34,477	sf	1.265

AGSM Building
University of California, Riverside
Privately Funded - Building

Date:	22-May-02
Budget Year:	2003
CCCI of Budget Year:	4019
Gross Area	27,247

Privately Funded

Element		$/OGSF	Cost ($x1,000)
1 Foundations		2.28	$62
2 Vertical Structure		4.04	$110
3 Floor & Roof Structures		28.55	$778
4 Exterior Cladding		45.29	$1,234
5 Roofing and Waterproofing		3.52	$96
A) Shell (1-5)		83.68	***$2,280***
6 Interior Partitions, Doors and Glazing		18.61	$507
7 Floor, Wall and Ceiling Finishes		12.22	$333
B) Interiors (6-7)		30.83	***$840***
8 Function Equipment and Specialties		44.41	$1,210
9 Stairs and Vertical Transportation		5.40	$147
C) Equipment and Vertical Transportation (8-9)		49.81	***$1,357***
10 Plumbing Systems		3.01	$82
11 Heating, Ventilation and Air Conditioning		21.65	$590
12 Electrical Lighting, Power and Communications		37.44	$1,020
13 Fire Protection Systems		2.31	$63
D) Mechanical and Electrical (10-13)		64.41	***$1,755***
Total Building Construction (1-13)		228.73	$6,232
14 Site Preparation and Demolition		0.00	$0
15 Site Paving, Structures and Landscaping		0.00	$0
16 Utilities on Site		0.00	$0
Total Site Construction (14-16)		0.00	$0
TOTAL BUILDING & SITE (1-16)		228.73	$6,232
General Conditions	8.0%	18.30	$499
Contractor's Fee	4.0%	9.88	$269
Base budget as of date of estimate April, 2002		256.91	$7,000
Design Contingency	9.1%	23.38	$637
Escalation to midpoint of construction (June 2007) (4.25 years at 2% per year)	8.5%	23.82	$649
Escalated budget to midpoint of construction (June 2007)		304.11	$8,286

AGSM Building
University of California, Riverside

Date: 22-May-02
Budget Year: 2003
CCCI of Budget Year: 01-Jan-11

PRIVATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
1 Foundations				
Conventional spread footings, pad footings, grade beams	27,247	sf	$2.26	$62,000
Total - 1 Foundations				***$62,000***
2 Vertical Structure				
Structural steel columns / Internal shear wall system	27,247	sf	$4.05	$110,000
Total - 2 Vertical Structure				***$110,000***
3 Floor & Roof Structures				
Slab on grade	9,082	sf	$4.35	$40,000
Suspended floors- Structural steel beams, metal deck, concrete fill	18,165	sf	$18.60	$338,000
Roof deck-Structural steel beams, metal deck, concrete fill	21,621	sf	$18.50	$400,000
Total - 3 Floor & Roof Structures				***$778,000***
4 Exterior Cladding				
External wall systems	27,247	sf	$45.28	$1,234,000
Total - 4 Exterior Cladding				***$1,234,000***
5 Roofing and Waterproofing				
Built up roofing incl rigid insulation, sheet metal flashings, walk pads	27,247	sf	$3.54	$96,000
Total - 5 Roofing and Waterproofing				***$96,000***
6 Interior Partitions, Doors and Glazing				
Interior partitions	27,247	sf	$12.05	$328,000
Interior doors	27,247	sf	$5.05	$138,000
Interior glazing	27,247	sf	$1.50	$41,000

PRIVATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
Total - 6 Interior Partitions, Doors and Glazing				***$507,000***
7 Floor, Wall and Ceiling Finishes				
Floor finishes	27,247	sf	$5.15	$140,000
Wall finishes	27,247	sf	$3.07	$84,000
Ceiling finishes	27,247	sf	$4.00	$109,000
Total - 7 Floor, Wall and Ceiling Finishes				***$333,000***
8 Function Equipment and Specialties				
Window coverings	27,247	sf	$3.95	$107,626
Toilet accessories (allowance)	8	ea	$5,000.00	$40,000
Toilet partitions (allowance)	8	ea	$5,000.00	$40,000
Misc rough carpentry	27,247	sf	$0.35	$9,536
Finish carpentry allowance	27,247	sf	$2.00	$54,494
Millwork allowance	27,247	sf	$4.50	$122,612
Fire specialties	27,247	sf	$0.05	$1,276
Telephone enclosures	3	ea	$1,250.00	$3,750
Directories	3	ea	$1,500.00	$4,500
Graphics & signage	3	ls	$20,000.00	$60,000
Mailboxes	1	ls	$8,078.00	$8,078
Marker & tackboards	27,247	sf	$2.00	$54,494
Projection screens	27,247	sf	$1.00	$27,247
Computer floors	450	sf	$25.00	$11,250
Fixed tables, chairs	195	lf	$150.00	$29,250
Fixed chairs with arm	366	ea	$300.00	$109,800
AV requirements (assembly)	1	ls	$281,000.00	$281,000
AV requirements (classrooms)	27,247	sf	$9.00	$245,223
Total - 8 Function Equipment and Specialties				***$1,210,136***
9 Stairs and Vertical Transportation				
Passenger elevator	3	stop	$25,000.00	$75,000
Stairs	6	flts	$12,000.00	$72,000
Total - 9 Stairs and Vertical Transportation				***$147,000***
10 Plumbing Systems				

PRIVATE FUNDED BUILDING DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
Building plumbing including roof drainage, water, sewer, gas, condensate, lavatories, water closets, urinals, drinking fountains, water heaters	27,247	sf	$3.00	$82,000
Total - 10 Plumbing Systems				***$82,000***
11 Heating, Ventilation and Air Conditioning				
4 pipe variable air volume, using fan coil units, DDC controls, tied into existing central plant piping, exhaust systems per code	27,247	sf	$21.65	$590,000
Total - 11 Heating, Ventilation and Air Conditioning				***$590,000***
12 Electrical Lighting, Power and Communications				
2500 amp service 480/277v, 3 phase, 4 wire, subpanels and distribution	27,247	sf	$3.25	$89,000
Lighting	27,247	sf	$10.00	$272,000
Devices	27,247	sf	$4.00	$109,000
Equipment connection	27,247	sf	$2.00	$54,000
Fire alarm system	27,247	sf	$2.94	$80,000
Telephone Data systems	27,247	sf	$10.29	$280,000
Security	27,247	sf	$3.00	$82,000
Sound system	27,247	sf	$2.00	$54,000
Total - 12 Electrical Lighting, Power and Communications				***$1,020,000***
13 Fire Protection Systems				
Wet pipe system	27,247	sf	$2.30	$63,000
Total - 13 Fire Protection Systems				***$63,000***

AGSM Building
University of California, Riverside
Privately Funded - Sitework

Date: 22-May-02
Budget Year: 2003
CCCI of Budget Year: 4019

Privately Funded Sitework

Gross Area 43,560

Element		$/OGSF	Cost ($x1,000)
1 Foundations		0.00	$0
2 Vertical Structure		0.00	$0
3 Floor & Roof Structures		0.00	$0
4 Exterior Cladding		0.00	$0
5 Roofing and Waterproofing		0.00	$0
A) Shell (1-5)		0.00	***$0***
6 Interior Partitions, Doors and Glazing		0.00	$0
7 Floor, Wall and Ceiling Finishes		0.00	$0
B) Interiors (6-7)		0.00	***$0***
8 Function Equipment and Specialties		0.00	$0
9 Stairs and Vertical Transportation		0.00	$0
C) Equipment and Vertical Transportation (8-9)		0.00	***$0***
10 Plumbing Systems		0.00	$0
11 Heating, Ventilation and Air Conditioning		0.00	$0
12 Electrical Lighting, Power and Communications		0.00	$0
13 Fire Protection Systems		0.00	$0
D) Mechanical and Electrical (10-13)		0.00	***$0***
Total Building Construction (1-13)		0.00	$0
14 Site Preparation and Demolition		6.29	$274
15 Site Paving, Structures and Landscaping		15.75	$686
16 Utilities on Site		7.55	$329
Total Site Construction (14-16)		29.59	$1,289
TOTAL BUILDING & SITE (1-16)		29.59	$1,289
General Conditions	8.0%	2.37	$103
Contractor's Fee	4.0%	1.28	$56
Base budget as of date of estimate April, 2002		33.24	$1,448
Design Contingency	9.1%	3.02	$132
Escalation to midpoint of construction (June 2007)	8.5%	3.08	$134
(4.25 years at 2% per year)			
Escalated budget to midpoint of construction (June 2007)		39.34	$1,714

AGSM Building
University of California, Riverside

Date: 22-May-02
Budget Year: 2003
CCCI of Budget Year: 01-Jan-11

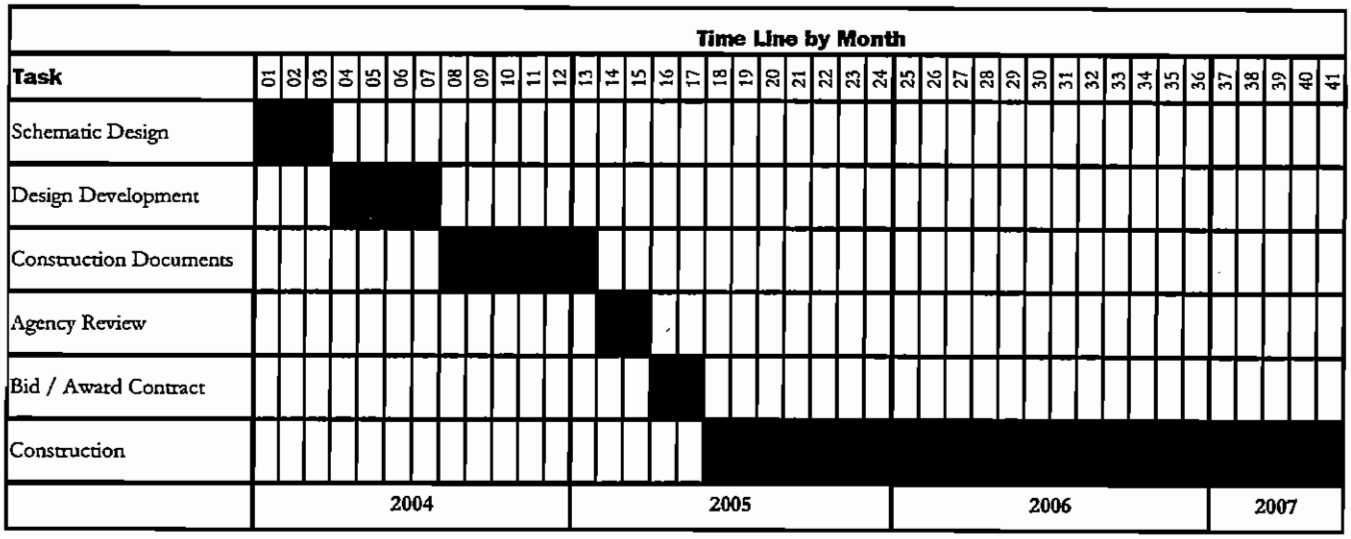
PRIVATE FUNDED SITEWORK DETAIL ELEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Allowance	43,560	sf	$6.30	$274,000
Total - 14 Site Preparation and Demolition				***$274,000***
15 Site Paving, Structures and Landscaping				
Allowance	43,560	sf	$15.75	$686,000
Total - 15 Site Paving, Structures and Landscaping				***$686,000***
16 Utilities on Site				
Allowance	43,560	sf	$7.55	$329,000
Total - 16 Utilities on Site				***$329,000***

8.1 Overview

This section outlines the project schedule from the start of design through construction. The graphic schedule shown illustrates the various phases and any overlap of the phases.

8.2 Graphic Schedule



9.0 Appendix

This section includes the "Geotechnical Investigation, Proposed Anderson Graduate School of Management Building," by C.H. J. Incorporated.

C·M·J·

GEOTECHNICAL INVESTIGATION
PROPOSED ANDERSON GRADUATE SCHOOL OF MANAGEMENT BUILDING
MARTIN LUTHER KING BOULEVARD AND CANYON CREST DRIVE
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA
PREPARED FOR
UNIVERSITY OF CALIFORNIA
JOB NO. 02220-3

C•H•J• INCORPORATED

P.O. Box 231, Colton, CA 92324-0231 • 1355 E. Cooley Dr., Colton, CA 92324-3954 • Phone (909) 824-7210 • Fax (909) 824-7209

March 20, 2002

University of California
Office of Design and Construction
3615A Canyon Crest Drive
Riverside, California 92507
Attention: Mr. Ted Chiu

Job No. 02220-3

Dear Mr. Chiu:

Attached herewith is the Geotechnical Investigation report, prepared for the proposed Anderson Graduate School of Management building to be constructed on the campus of the University of California, Riverside, California.

We appreciate this opportunity to provide geotechnical services for this project. If you have questions or comments concerning this report, please contact this firm at your convenience.

Respectfully submitted,
C.H.J., INCORPORATED

Jay J. Martin, E.G.
Senior Geologist

JJM/RJJ:jm/sra

Distribution: University of California (6)

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GEOTECHNICAL INVESTIGATION
PROPOSED ANDERSON GRADUATE
SCHOOL OF MANAGEMENT BUILDING
MARTIN LUTHER KING BOULEVARD
AND CANYON CREST DRIVE
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA
PREPARED FOR
UNIVERSITY OF CALIFORNIA
JOB NO. 02220-3

INTRODUCTION

During March of 2002, a geotechnical investigation for the proposed Anderson Graduate School of Management building, to be located at the northwest corner of Martin Luther King Boulevard and Canyon Crest Drive on the University of California, Riverside (UCR) campus, was performed by this firm. The purpose of this investigation was to explore and evaluate the geotechnical conditions within the proposed structure area and to provide appropriate geotechnical engineering recommendations for design and construction of the proposed structure.

To orient our investigation at the site, a photocopy of an approximately 250-scale Site Plan and a photocopy of an approximately 50-scale Ground Floor Plan, prepared by Gensler, dated February 25, 2002 were furnished for our use. The Ground Floor Plan indicated the requested locations of exploratory borings. We also utilized the current topographic mapping of the campus. The approximate location of the site is shown on the attached Index Map (Enclosure "A-1").

The results of our investigation, together with our conclusions and recommendations, are presented in this report.

SCOPE OF SERVICES

The scope of services provided during this geotechnical investigation included the following:

- Review of pertinent geotechnical literature and maps
- Review and analysis of stereoscopic aerial photographs flown in 1931, 1957, 1974, 1990, 1995, and 2001
- A geologic field reconnaissance of the site and surrounding area
- Placement of six exploratory borings on the site
- Logging and sampling of the exploratory borings for testing and evaluation
- Laboratory testing on selected samples

- Evaluation of the geotechnical data to develop site-specific recommendations for site grading, foundation design, and mitigation of potential geotechnical constraints.

PROJECT CONSIDERATIONS

It is our understanding that the site will be developed with a three- and four-story building of steel frame or similar type construction. The foundation configuration and loads are not known at this time. The proposed elevation of the structure is not known at this time; however, it is anticipated that the structure will be constructed within 2 to 3 feet of the existing grade.

SITE DESCRIPTION

The site is located northwest of the intersection of Martin Luther King Boulevard and Canyon Crest Drive on the UCR campus in Riverside, California. The site is located within Parking Lot No. 30. As such, the site is covered with asphalt concrete pavement, landscape areas, and light poles. The site is nearly planar and slopes downward at a slight angle to the west. Evidence of underground utilities was noted in areas of the subject site.

Review of stereoscopic aerial photographs dating back to 1931 indicates that the site has been previously utilized for agricultural purposes (groves).

FIELD INVESTIGATION

The soil conditions underlying the subject site were explored by means of six exploratory borings drilled to a maximum depth of 51.5 feet below the existing ground surface with a truck-mounted CME 55 Drill Rig equipped for soil sampling. The approximate locations of our exploratory borings are indicated on the attached Plat (Enclosure "A-2").

Continuous logs of the subsurface conditions, as encountered within the exploratory borings, were recorded at the time of drilling by a staff geologist from this firm. Relatively undisturbed samples were obtained by driving a split spoon ring sampler ahead of the borings at selected levels. After the required seating of the sampler, the number of hammer blows required to advance the sampler a total of 12 inches was converted to equivalent SPT-N_{60} data and recorded on the boring logs. Undisturbed as well as bulk samples of typical soil types obtained were returned to the laboratory in sealed containers for testing and evaluation.

Our exploratory boring logs, together with our equivalent SPT data, are presented in Appendix "B". The stratification lines presented on the boring logs represent approximate boundaries between soil types, which may include gradual transitions.

LABORATORY INVESTIGATION

Included in our laboratory testing program were field moisture content determinations on all samples returned to the laboratory and field dry densities on all undisturbed samples. The results are included on the boring logs. An optimum moisture content - maximum dry density relationship was established for a typical soil type. Direct shear and consolidation tests were performed on selected samples in order to provide shear strength and consolidation parameters for bearing capacity, earth pressure, and settlement evaluations. A selected sample of material was delivered to Del Mar Analytical Laboratory for soluble sulfate analysis.

Our laboratory test results are presented in Appendix "C".

SITE GEOLOGY AND SUBSURFACE SOIL CONDITIONS

The site is located on the Perris Block, a portion of the Peninsular Ranges Geomorphic Province. The Perris Block is a fault-bounded region of relative tectonic stability, a mass of relatively high land composed of crystalline bedrock thinly and discontinuously mantled by sedimentary material (Woodford and others, 1971). A Geologic Index Map (Morton and Cox, 1994) is included as Enclosure "A-3".

The site is located on an alluvial fan emanating from the Box Springs Mountains located east and south of the site. The alluvial fan is characterized by a slightly elevated and incised geomorphic surface. The native materials associated with this surface consist of reddish-brown silty sands and sands with minor amounts of clay. The clay-bearing soils result from a long period of exposure and weathering. Based on the degree of soil development, the reddish-brown alluvium is considered to be at least late Pleistocene in age (greater than approximately 11,000 years). As such, the native materials at the site are designated as older alluvium in this report. Based upon our equivalent SPT blow counts and density data, the older alluvium encountered is generally in place in a medium dense to very dense state.

Based upon our exploratory boring data, beneath the existing asphalt concrete pavement the soil profile at the site is typically comprised of relatively shallow undocumented fills underlain by Pleistocene older

alluvium. Both the fills and native soils encountered were typically comprised of fine to medium grained silty sands.

The fill depths encountered were variable, ranging from 0 to 3.5± feet below the existing ground surface. Our equivalent SPT-N_{60} and density data indicate that the fills encountered are in place in a medium dense state.

The upper native soils appear to have been disturbed from the previous citrus groves.

The depth to competent native materials encountered ranged between 5± and 10± feet below the existing ground surface.

Free groundwater or bedrock were not encountered within any of our exploratory borings to the maximum depths attained. Refusal was not experienced within any of our exploratory borings to the maximum depths explored.

Consolidation testing performed on selected samples from the 7.5 and 10.5 foot levels indicated that the soils tested are slightly compressive and have a moderate potential for hydroconsolidation (collapse) upon application of a surcharge load and inundation with water.

All borings experienced slight caving upon removal of the augers.

The soils encountered were generally granular and considered to be non-critically expansive.

Results of soluble sulfate testing indicate a "negligible" anticipated exposure to sulfate attack.

A more detailed description of the subsurface soil conditions encountered within our exploratory borings is presented on the attached boring logs (Appendix "B").

FAULTING

The tectonics of the Southern California area are dominated by the interaction of the North American Plate and the Pacific Plate, which are apparently sliding past each other in a transform motion. Although some of the motion may be accommodated by rotation of crustal blocks such as the western Transverse Ranges (Dickinson, 1996), the San Andreas fault zone is thought to represent the major

surface expression of the tectonic boundary and to be accommodating most of the transform motion between the Pacific Plate and the North American Plate. However, some of the plate motion is apparently also partitioned out to the other northwest-trending strike-slip faults that are thought to be related to the San Andreas system, such as the San Jacinto fault and the Elsinore fault. Local compressional or extensional strain resulting from the transform motion along this boundary is accommodated by left-lateral, reverse, and normal faults such as the Cucamonga fault, the Crafton Hills fault zone, and the blind thrust faults of the Los Angeles Basin (Matti and others, 1992; Morton and Matti, 1993).

The Box Springs fault is shown by Rogers (1966) as a buried trace beneath Pleistocene-age alluvium approximately 1 1/2 miles northeast of the site. Although this fault is readily visible as a bedrock feature southeast of the site, it is considered to be inactive.

The San Jacinto fault zone, a system of northwest-trending, right-lateral, strike-slip faults, is present across the San Jacinto Valley and through the San Timoteo Badlands, approximately 6 miles northeast of the site. The San Jacinto fault is the closest known active fault to the site and is considered to be the most important fault to the site with respect to the hazard of seismic shaking. More large historic earthquakes have occurred on the San Jacinto fault than any other fault in Southern California (Working Group on California Earthquake Probabilities, 1988).

Based on the data of Matti and others (1992), the portion of the San Jacinto fault adjacent to the site may be accommodating much of the motion between the Pacific Plate and the North American Plate in this area. Matti and others (1992) suggest this motion is transferred to the San Andreas fault in the Cajon Pass region by "stepping over" to parallel fault strands which include the Glen Helen fault. The Working Group on California Earthquake Probabilities (1995) tentatively assigned a 43 percent (±17 percent) probability of a major earthquake on the San Jacinto Valley segment of the San Jacinto fault for the 30 year interval from 1994 to 2024.

The San Andreas fault zone is located along the southwest margin of the San Bernardino Mountains, approximately 15 miles northeast of the site. The toe of the mountain front in the San Bernardino area roughly demarcates the presently active trace of the San Andreas fault, which is characterized by youthful fault scarps, vegetational lineaments, springs, and offset drainages. The Working Group on California Earthquake Probabilities (1995) tentatively assigned a 28 percent (±13 percent) probability to a major earthquake occurring on the San Bernardino Mountains segment of the San Andreas fault between 1994 and 2024.

The southern margin of the San Gabriel Mountains is coincident with a series of east-west trending, predominantly reverse and thrust faults known as the Transverse Ranges frontal fault system. The San Fernando fault of this system ruptured during the 1971 magnitude (**M**) 6.7 San Fernando earthquake. The Cucamonga fault of this system is located at the base of the San Gabriel Mountains, approximately 16 miles northwest of the site. Evidence of recent activity on this fault includes fresh scarps, sag ponds, and disrupted Holocene alluvium (Dutcher and Garrett, 1963; Yerkes, 1985; Morton and Yerkes, 1987).

The Elsinore fault zone is present approximately 17 1/2 miles southwest of the site. The Elsinore fault zone is composed of multiple *en echelon* and diverging fault traces and splays into the Whittier and Chino faults to the north. Although a zone of overall right-lateral deformation consistent with the regional plate tectonics, traces of the Elsinore fault zone form the graben of the Elsinore and Temecula Valleys. Holocene surface rupture events have been documented for several principal strands of the Elsinore fault zone (Saul, 1978; Rockwell and others, 1986; Wills, 1988).

HISTORICAL EARTHQUAKES

A map of recorded earthquake epicenters is included as Enclosure "A-4" (EPI Software, 2000). The epicenters and magnitudes that are shown are based on data from recording instruments in the CalTech database. This enclosure presents circles as epicenters of earthquakes with $\mathbf{M}_L$ equal to or greater than 4.0 that were recorded from 1977 through 2002.

The San Jacinto fault is the most seismically active fault in Southern California, although it has no record of producing great events comparable to those that occurred on the San Andreas fault during the Fort Tejon earthquake of 1857 and the San Francisco earthquake of 1906 (Working Group on California Earthquake Probabilities, 1988). Between 1899 and 1990, seven earthquakes of **M** 6 .0 or greater have occurred along the San Jacinto fault. Two of these earthquakes, an estimated **M** 6.7 1 in 1899 and a **M** 6.8 in 1918, took place in the San Jacinto Valley, east of the site. Two others, an estimated **M** 6.5 in 1899 and a **M** 6.2 in 1923, took place in the San Bernardino Valley, north of the site (Working Group on California Earthquake Probabilities, 1988).

The only large historical earthquake that can definitely be attributed to the Elsinore fault was a **M** 6.0 event in 1910 in the Temescal Valley area. This event caused damage to structures from Corona to Wildomar (Weber, 1977). Since 1932, four **M** 4.0+ earthquakes have occurred along the Elsinore fault zone in the Santiago Peak area (Weber, 1977).

No large earthquakes have occurred on the San Bernardino Mountains segment of the San Andreas fault within the regional historical time frame. Using dendrochronological evidence, Jacoby and others (1987) inferred that a great earthquake on December 8, 1812 ruptured the northern reaches of this segment. Recent trenching studies have revealed evidence of rupture on the San Andreas fault at Wrightwood occurred within this time frame (Fumal and others, 1993). Comparison of rupture events at the Wrightwood site and Pallett Creek and analysis of reported intensities at the coastal missions led Fumal and others (1993) to conclude that the December 8, 1812 event ruptured the San Bernardino Mountains segment of the San Andreas fault largely to the southeast of Wrightwood, possibly extending into the San Bernardino Valley.

Surface rupture occurred on the Mojave segment of the San Andreas fault in the great 1857 Fort Tejon earthquake. The Coachella Valley segment of the San Andreas fault was responsible for the 1948 **M** 6.5 earthquake in the Desert Hot Springs area and for the 1986 **M** 5.6 earthquake in the North Palm Springs area.

No significant historical earthquakes have been specifically attributed to the Box Springs fault or the Cucamonga fault in the general area of the site.

SEISMIC ANALYSIS

The precise relationship between magnitude and recurrence interval of large earthquakes for a given fault is not known due to the relatively short time span of recorded seismic activity. As a result, a number of assumptions must be made to quantify the ground shaking hazard at a particular site. Seismic hazard evaluations can be conducted from both a probabilistic and a deterministic standpoint. The probabilistic method is prescribed by current codes and was utilized to estimate the seismic hazard to the site during this investigation.

PROBABILISTIC HAZARD ANALYSIS:

The probabilistic analysis of seismic hazard is a statistical analysis of seismicity of all known regional faults attenuated to a particular geographic location. The results of a probabilistic seismic hazard analysis are presented as the annual probability of exceedance of a given strong motion parameter for a particular exposure time (Johnson and others, 1992).

For this report, the probabilistic analysis computer program FRISKSP (Blake, 2000) was used to analyze the location of the site under the criteria for NEHRP Type "D" sites by Boore and others (1997)

in relation to seismogenic faults within a 62-mile (100km) radius of the site. The fault database utilized is published by the California Division of Mines and Geology (Petersen and others, 1998). The FRISKSP program assumes that significant earthquakes occur on mappable faults and that the occurrence rate of earthquakes on a fault is proportional to the estimated slip rate of that fault. Potential earthquake magnitudes are correlated to expected fault rupture areas and the resultant maximum ground acceleration at the site is computed. From the summation of the accelerations from all the potential sources, the total average annual expected number of occurrences of an acceleration greater than each of the values requested is calculated (Blake, 2000). The resultant graph of probability of exceedance vs. acceleration (Enclosure "D-1") indicates that a peak ground acceleration of 0.65g has a 10 percent probability of exceedance in 50 years. This corresponds to the Design Basis Earthquake as defined in the California Building Code (1998) and has a statistical return period of 475 years.

SEISMIC ZONE:

Figure 16A-2 presented in the 1998 California Building Code places the portion of Riverside County west of 115° 30', which includes the site, within Seismic Zone 4. A Seismic Zone Factor "Z" of 0.40 is assigned to Seismic Zone 4.

SOIL PROFILE TYPE:

The appropriate classification for this site is S_D, stiff soil profile.

NEAR-SOURCE EFFECTS:

The seismic hazard to this site is dominated by the adjacent San Jacinto fault. For the purpose of near-source effect evaluation, maps of near-source zones in California including a classification table for the faults involved were prepared by the California Division of Mines and Geology to be used with the 1997 Uniform Building Code (International Conference of Building Officials, 1997). The adjacent San Jacinto segment of the San Jacinto fault is classified as a Type "B" fault by the California Division of Mines and Geology (Petersen and others, 1998). Due to the potential for cascading (multi-segment rupture), the San Jacinto fault is considered to be a Type "A" fault. The corresponding near-source acceleration factor N_A, as defined in the 1997 Uniform Building Code (UBC), is 1.02, and the near-source velocity factor N_V is 1.23.

GROUNDWATER AND LIQUEFACTION

Static or perched groundwater were not encountered within any of our exploratory borings drilled to a maximum depth of 51.5 feet below the ground surface. Based on review of depth to groundwater data

from a well located less than approximately 1/4 southeast mile of the site (State Well No. T2S/R4W 29M01) available from Western Municipal Water District (2001), the current depth to groundwater beneath the site is expected to be at least 60 feet. Groundwater contour mapping conducted by Carson and Matti (1982), utilizing data from the years spanning 1973 to 1979, indicates a minimum depth to groundwater of 50 to 75 feet below the ground surface.

Liquefaction is a process in which strong ground shaking causes saturated soils to lose their strength and behave as a fluid (Matti and Carson, 1991). Ground failure associated with liquefaction can result in severe damage to structures. The geologic conditions for increased susceptibility to liquefaction are: 1) shallow groundwater (less than 50 feet in depth), 2) presence of unconsolidated sandy alluvium, typically Holocene in age, and 3) strong ground shaking. All three of these conditions must be present for liquefaction to occur. Based upon the data reviewed during this evaluation, only one of the three geologic conditions for increased liquefaction susceptibility (strong ground shaking) is expected to exist on the site.

Based on the expected depth to groundwater, liquefaction and other shallow groundwater-related hazards are not anticipated.

FLOODING AND EROSION

No evidence of significant historic flooding of the site was observed during our geologic field reconnaissance or on the aerial photographs reviewed. The hazard of major flooding of the site appears minimal.

On-site materials are susceptible to erosion by running water. Finish graded areas should be protected from the effects of runoff.

CONCLUSIONS

On the basis of our field and laboratory investigations, it is the opinion of this firm that the proposed Anderson Graduate School of Management building is feasible from a geotechnical engineering standpoint, provided the recommendations contained in this report are implemented during grading and construction.

Based upon our field investigation and test data, it is our opinion that the existing fills and upper native soils will not, in their present condition, provide uniform or adequate support for the proposed structure.

The 3.5± feet of fill encountered was underlain by disturbed native soils. Competent older alluvium, Pleistocene in age, was encountered between 5± and 10± feet below the existing ground surface. Our equivalent SPT-N_{60} and density data indicate that the older alluvium is in place in medium dense to dense states.

No evidence of active faulting on or immediately adjacent to the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed.

Moderate to severe seismic shaking of the site can be expected during the lifetime of the proposed structure.

No evidence for landsliding on or immediately adjacent to the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed.

No evidence of recent significant flooding of the site or surrounding area was observed.

The anticipated depth of groundwater and the presence of dense, non-liquefiable soils of suspected Late Pleistocene age preclude liquefaction as a hazard at the site.

Based upon the conditions encountered, it appears that the proposed building could be safely founded on spread footings bearing entirely upon a uniform compacted fill mat. The building pad area will need to be subexcavated to remove all existing fills and unsuitable native soils. The actual subexcavation depths will depend upon the depths of footings with respect to the depths of unsuitable materials to be removed and recompacted.

RECOMMENDATIONS

SEISMIC DESIGN CONSIDERATIONS:

Moderate to severe seismic shaking of the site can be expected during the lifetime of the proposed structure. Therefore, the proposed structure should be designed accordingly.

The appropriate classification for this site is S_D, stiff soil profile.

The site is subject to the near-source effects of strong ground motion. The corresponding near-source acceleration factor N_A, as defined in the 1997 UBC, is 1.02 and the near-source velocity factor N_V is 1.23.

GENERAL SITE GRADING:

It is imperative that no clearing and/or grading operations be performed without the presence of a representative of the geotechnical engineer. An on-site pre-job meeting with the owner, the contractor and the geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusions of affected areas from the final compaction report for the project.

Grading of the subject site should be performed, at a minimum, in accordance with these recommendations and with applicable portions of the UBC. The following recommendations are presented for your assistance in establishing proper grading criteria.

INITIAL SITE PREPARATION:

After demolition of the existing parking lot improvements, all areas to be graded should be stripped of significant vegetation and other deleterious materials. These materials should be removed from the site for disposal.

At least the upper 3 feet of existing soils within the building area and 10 feet beyond should be completely removed, cleaned of significant deleterious materials, and may be reused as compacted fill. Deeper fills and/or deeper undisturbed native soils requiring complete removal are likely to exist and should be anticipated.

The bottom of this excavation should be observed by the Engineering Geologist to verify the complete removal of fill material and disturbed native soils, and then, following approval, should be scarified to a depth of approximately 12 inches, brought to between optimum moisture content and 3 percent above, and recompacted to at least 90 percent relative compaction (ASTM D 1557-91) prior to refilling the excavation to grade as properly compacted fill.

Cavities created by removal of subsurface obstructions, such as root stocks, utility lines, and structures, should be thoroughly cleaned of loose soil, organic matter, and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended for site fill.

PREPARATION OF FILL AREAS:

Prior to placing fill, and after the subexcavation bottom has been observed and approved, the surfaces of all areas to receive fill should be scarified to a depth of approximately 12 inches. The scarified soils should be brought to between optimum moisture and 3 percent above and recompacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557-91.

PREPARATION OF FOOTING AREAS:

All footings should rest upon at least 36 inches of properly compacted fill material. In areas where the required thickness of compacted fill is not accomplished by the 3-foot minimum mandatory removal or the removal and recompaction of unsuitable existing soils, the footing areas should be subexcavated to a depth of 36 inches or more below the proposed footing base grade, with the subexcavation extending at least 10 feet beyond the footing lines (where possible). The bottom of this excavation should then be scarified to a depth of at least 12 inches or more, brought to between optimum moisture content and 3 percent above, and recompacted to a minimum of 90 percent relative compaction in accordance with ASTM D 1557-91 prior to refilling the excavation to grade as properly compacted fill.

COMPACTED FILL:

Fill should be spread in near-horizontal layers, approximately 8 inches in thickness. Thicker lifts may be approved by the geotechnical engineer if testing indicates that the grading procedures are adequate to achieve the required compaction. Each lift shall be spread evenly, thoroughly mixed during spreading to attain uniformity of the material and moisture in each layer, brought to between optimum moisture content and 3 percent above, and compacted to a minimum relative compaction of 90 percent (ASTM D 1557-91).

To minimize potential settlements, fills and backfills deeper than 7 feet should be compacted to at least 95 percent relative compaction (ASTM D 1557).

The on-site soils should provide adequate quality fill material provided they are free from roots, other organic matter, and deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 3 inches should not be buried or placed in fills

Import fill, if required, should be inorganic, non-expansive granular soils free from rocks or lumps greater than 3 inches in maximum dimension. Sources for import fill should be observed and approved by the geotechnical engineer prior to their use.

SHRINKAGE AND SUBSIDENCE:

Based upon the relative compaction of the fill soils determined during this investigation and the relative compaction anticipated for compacted fill soils, we estimate a compaction shrinkage of approximately

5 to 10 percent. Therefore, 1.05 to 1.10 cubic yards of in-place soil material would be necessary to yield 1 cubic yard of properly compacted fill material. Based upon the existing parking lot improvements, we would anticipate negligible subsidence. These values are exclusive of losses due to demolition and stripping of the existing parking lot improvements, or the removal of subsurface obstructions, if encountered, and may vary due to differing conditions within the project boundaries and the limitations of this investigation.

Values presented for shrinkage and subsidence are estimates only. Final grades should be adjusted, and/or contingency plans to import or export material should be made to accommodate possible variations in actual quantities during site grading.

EXPANSIVE SOILS:

The materials encountered and tested during this investigation were generally granular and considered to be non-critically expansive. Therefore, special design and construction procedures to mitigate the effects of expansive soils do not appear necessary at this time. Additional evaluation of soils for expansion potential should be conducted by the geotechnical engineer during the grading operation.

SOLUBLE SULFATES:

Results of the soluble sulfate testing indicate a "negligible" anticipated exposure to sulfate attack, as per Table 4.3.1 of the American Concrete Institute Manual of Concrete Practice (2000). Therefore, special measures, such as specific cement types, water-cement ratios, etc., do not appear necessary at this time for this "negligible" exposure to sulfate attack. Additional soluble sulfate testing should be conducted on the actual soils encountered during grading.

FOOTING DESIGN:

If the site is prepared as recommended, the proposed structure may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing entirely on a minimum of 36 inches of compacted fill. Footings should be a minimum of 12 inches wide and should be established at a minimum depth of 12 inches below lowest adjacent final subgrade level. For the minimum width and depth, footings may be designed for a maximum safe soil bearing pressure of 2,000 psf for dead plus live loads. This allowable bearing pressure may be increased by 300 psf for each additional foot of width and by 600 psf for each additional foot of depth to a maximum safe soil bearing pressure of 6,000 psf for dead plus live loads. These bearing values may be increased by one-third for wind or seismic loading.

LATERAL LOADING:

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill or approved native soils, passive earth pressure may be considered to be developed at a rate of 400 pounds per square foot (psf) per foot of depth. Base friction may be computed at 0.40 times the normal load. Base friction and passive earth pressure may be combined without reduction.

Although not anticipated, for preliminary retaining wall or shoring design purposes, a lateral active earth pressure developed at a rate of 35 psf per foot of depth should be utilized for unrestrained conditions. For restrained conditions, an at rest earth pressure of 55 psf per foot of depth should be utilized. These values should be verified prior to construction when the backfill materials and conditions have been determined and are applicable only to level properly drained backfill with no additional surcharge loadings. If backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for walls on soils not subexcavated and recompacted, as described earlier under PREPARATION OF FOOTING AREAS, should not exceed UBC values.

Foundation concrete should be placed in neat excavations with vertical sides, or the concrete should be formed and the excavations properly backfilled as recommended for site fill.

SLABS-ON-GRADE:

To provide uniform support, concrete slabs-on-grade should bear on a minimum of 24 inches of properly compacted fill. The final pad surfaces should be rolled to provide a level, dense surface.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will help reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete.

CONSTRUCTION OBSERVATION:

All grading operations, including site clearing and stripping, should be observed by a representative of the geotechnical engineer. The presence of the geotechnical engineer's field representative will be for the purpose of providing observation and field testing, and will not include any supervising or directing of the actual work of the contractor, his employees, or agents. Neither the presence of the geotechnical engineer's field representative nor the observations and testing by the geotechnical engineer shall excuse the contractor in any way for defects discovered in his work. It is understood that the geotechnical

engineer will not be responsible for job or site safety on this project, which will be the sole responsibility of the contractor.

LIMITATIONS

C.H.J., Incorporated has striven to perform our services within the limits prescribed by our client, and in a manner consistent with the usual thoroughness and competence of reputable geotechnical engineers and engineering geologists practicing under similar circumstances. No other representation, express or implied, and no warranty or guarantee is included or intended by virtue of the services performed or reports, opinion, documents, or otherwise supplied.

This report reflects the testing conducted on the site as the site existed during the investigation, which is the subject of this report. However, changes in the conditions of a property can occur with the passage of time, due to natural processes or the works of man on this or adjacent properties. Changes in applicable or appropriate standards may also occur whether as a result of legislation, application, or the broadening of knowledge. Therefore, this report is indicative of only those conditions tested at the time of the subject investigation, and the findings of this report may be invalidated fully or partially by changes outside of the control of C.H.J., Incorporated. This report is therefore subject to review and should not be relied upon after a period of one year.

The conclusions and recommendations in this report are based upon observations performed and data collected at separate locations, and interpolation between these locations, carried out for the project and the scope of services described. It is assumed and expected that the conditions between locations observed and/or sampled are similar to those encountered at the individual locations where observation and sampling was performed. However, conditions between these locations may vary significantly. Should conditions be encountered in the field, by the client or any firm performing services for the client or the client's assign, that appear different than those described herein, this firm should be contacted immediately in order that we might evaluate their effect.

If this report or portions thereof are provided to contractors or included in specifications, it should be understood by all parties that they are provided for information only and should be used as such.

The report and its contents resulting from this investigation are not intended or represented to be suitable for reuse on extensions or modifications of the project, or for use on any other project.

CLOSURE

We appreciate this opportunity to be of service and trust this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,
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REFERENCES

American Concrete Institute, 2000, Manual of Concrete Practice, Part 3, Table 4.3.1.

Blake, T.F., 2000, FRISKSP: A computer program for the probabilistic estimation of peak acceleration and uniform hazard spectra using 3-D faults as earthquake sources: Version 4.00.

California, State of, 1993, California Code of Regulations, Title 8, Chapter 4, Subchapter 4; Construction Safety Orders: Article 16, Excavations, Section 1539-154, pp. 140-190.

Campbell, K.W., 1997, Empirical near-source attenuation relationships for horizontal and vertical components of peak ground acceleration, peak ground velocity, and pseudo-absolute acceleration response spectra: Seismological Research Letters, v. 68, no. 1, January/February 1997, p. 154-179.

Campbell, K.W., 2000, Erratum: Empirical near-source attenuation relationships for horizontal and vertical components of peak ground acceleration, peak ground velocity, and pseudo-absolute acceleration response spectra: Seismological Research Letters, v. 71, no. 3, May/June 2000, p. 352-354.

Carson, S.E., and Matti, J.C., 1982, Contour map showing minimum depth to groundwater, upper Santa Ana River Valley, California 1973-1979: U.S. Geological Survey Open File Report 82-1128.

Dickinson, W. R., 1996, Kinematics of transrotational tectonism in the California Transverse Ranges and its contribution to cumulative slip along the San Andreas transform fault system: Geological Society of America Special Paper 305.

Dutcher, L.C., and Garrett, A.A., 1963, Geologic and hydrologic features of the San Bernardino area, California, with reference to underflow across the San Jacinto fault: U.S. Geological Survey Water Supply Paper 1419.

Epi Software, 2000, Epicenter Plotting Program.

Fumal, T.E., Pezzopane, S.K., Weldon, R.J., and Schwartz, D.P., 1993, A 100-year average recurrence interval for the San Andreas fault at Wrightwood, California: Science, v. 259, p. 199-203.

International Conference of Building Officials, 1998, California Building Code; Whittier, California.

International Conference of Building Officials, 1997, Uniform Building Code; Whittier, California.

Jacoby, J.C., Sheppard, P.R., and Sieh, K.E., 1987, Irregular recurrence of large earthquakes along the San Andreas fault: Evidence from trees, *in* Earthquake geology, San Andreas fault system, Palm Springs to Palmdale: Association of Engineering Geologists, Southern California Section, 35th Annual Meeting, Guidebook and Reprint Volume.

Johnson, J.A., Blake, T.F., Schmid, B.L., and Slosson, J.E., 1992, Earthquake site analysis and critical facility siting: Short Course, Association of Engineering Geologists, Annual Meeting, October 2-9, 1992.

Matti, J.C., Morton, D.M., and Cox, B.F., 1992, The San Andreas fault system in the vicinity of the central Transverse Ranges province, Southern California: U.S. Geological Survey Open File Report 92-354.

REFERENCES

Mitchell, J.K. and Katti, R.I., 1981, Soil Improvement State of the Art Report, Proceedings, Tenth International Conference of Soil Mechanics and Foundation Engineering, Stockholm, General Reports, p. 264.

Morton, D.M. and Cox, B.F. 1994, Geologic map of the Riverside East Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 88-754. Scale: 1:24,000.

Morton, D.M. and Matti, J.C., 1993, Extension and contraction within an evolving divergent strike slip fault complex: The San Andreas and San Jacinto fault zones at their convergence in Southern California: *in* Powell, R.E. and others, The San Andreas Fault System: Palinspastic Reconstruction, and Geologic Evolution: Geological Society of America Memoir 178.

Morton, D.M., and Yerkes, R.F., 1987, Introduction to surface faulting in the Transverse Ranges, California, *in* Morton, D.M., and Yerkes, R.F., eds.: Recent reverse faulting in the Transverse Ranges, California: U.S. Geological Survey Professional Paper 1339, p. 1-5.

Petersen, M.D., Bryant, W.A., Cramer, C.H., Cao, T., Reichle, M.S., Frankel, A.D., Leinkaemper, J.J., McCrory, P.A., and Schwartz, D.P., 1996, Probabilistic seismic hazard assessment for the State of California: California Division of Mines and Geology Open-File Report 96-08.

Petersen, M., Toppozada, T., Cao, T., Cramer, C., Reichle, M., Maher, M., and Atchison, L., 1998, Determining distances from faults within and bordering the State of California for the 1997 Uniform Building Code: International Conference of Building Officials, Whittier, California.

Riverside County, 1976, Seismic safety and safety element to the general plan.

Rockwell, T.K., McElwain, R.S., Millman, D.E., and Lamar, D.L., 1986, Recurrent Late Holocene faulting on the Glen Ivy North strand of the Elsinore fault at Glen Ivy marsh, *in* Ehlig, P.L., ed., Neotectonics and Faulting in Southern California, Guidebook and Volume, 82nd Annual Meeting, Cordilleran Section, Geological Society of America.

Rogers, T.H., 1966, Geologic map of California, Olaf P. Jenkins edition, Santa Ana Sheet: California Division of Mines and Geology. Scale: 1:250,000.

Saul, R., 1978, Elsinore Fault Zone (South Riverside County Segment) with Description of the Murrieta Hot Springs Fault: California Division of Mines and Geology Fault Evaluation Report 76.

Weber, F.H., 1977, Seismic hazards related to geologic factors, Elsinore and Chino fault zones, northwestern Riverside County, California: California Division of Mines and Geology Open-File Report 77-04. Scale: 1:24,000.

Western Municipal Water District, 2001, Cooperative Well Measuring Program, Covering the Upper Santa Ana River Watershed, the San Jacinto Watershed and the Upper Santa Margarita Watershed.

Wills, C.J., 1988, Ground Cracks in Wolf and Temecula Valleys, Riverside County: California Division of Mines and Geology Fault Evaluation Report 195.

REFERENCES

Woodford, A.O., Shelton, F.S., Doehring, D.O., and Morton, R.K., 1971, Pliocene - Pleistocene history of the Perris block, southern California: Geological Society of America Bulletin, v. 82, p. 3421-3448.

Working Group on California Earthquake Probabilities, 1988, Probabilities of large earthquakes occurring in California on the San Andreas fault: U.S. Geological Survey Open-File Report 88-398.

Working Group on California Earthquake Probabilities, 1995, Seismic hazards in southern California: Probable earthquakes, 1994 to 2024: Bulletin of the Seismological Society of America, v. 85, no. 2, p. 379-439.

Yerkes, R.F., 1985, Earthquake and surface faulting sources - Geologic and seismologic setting, *in* Ziony, J.I., ed., Evaluating earthquake hazards in the Los Angeles region: U.S. Geological Survey Professional Paper 1360, p. 25-41.

AERIAL PHOTOGRAPHS REVIEWED

Aero Tech Surveys, February 15, 2001, Black and White Aerial Photograph Numbers 1-27 and 1-28.

Fairchild Camera, September, 1931, Black and White Aerial Photographs, Flight No. C-1740, Frame Nos. B:78 and B:79.

Riverside County Flood Control and Water Conservation District, December 20, 1957, Black and White Aerial Photograph Numbers 30 and 31.

Riverside County Flood Control and Water Conservation District, May 24, 1974, Black and White Aerial Photograph Numbers 86 and 87.

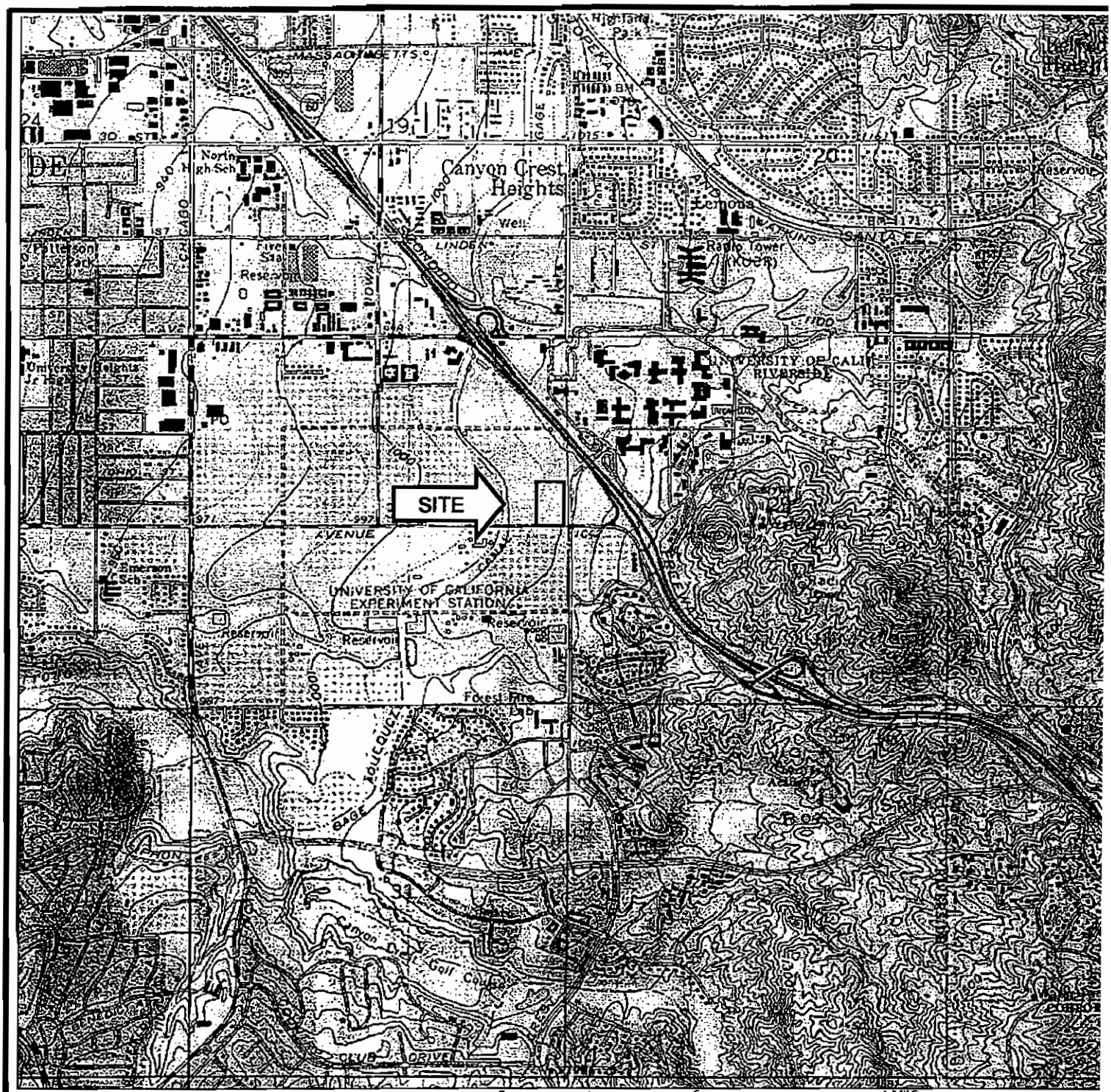
Riverside County Flood Control and Water Conservation District, January, 23, 1990, Black and White Aerial Photograph Numbers 3-15 and 3-16.

Riverside County Flood Control and Water Conservation District, February 1, 1995, Black and White Aerial Photograph Numbers 3-16 and 3-17.

C·M·J·

APPENDIX "A"

GEOTECHNICAL MAPS

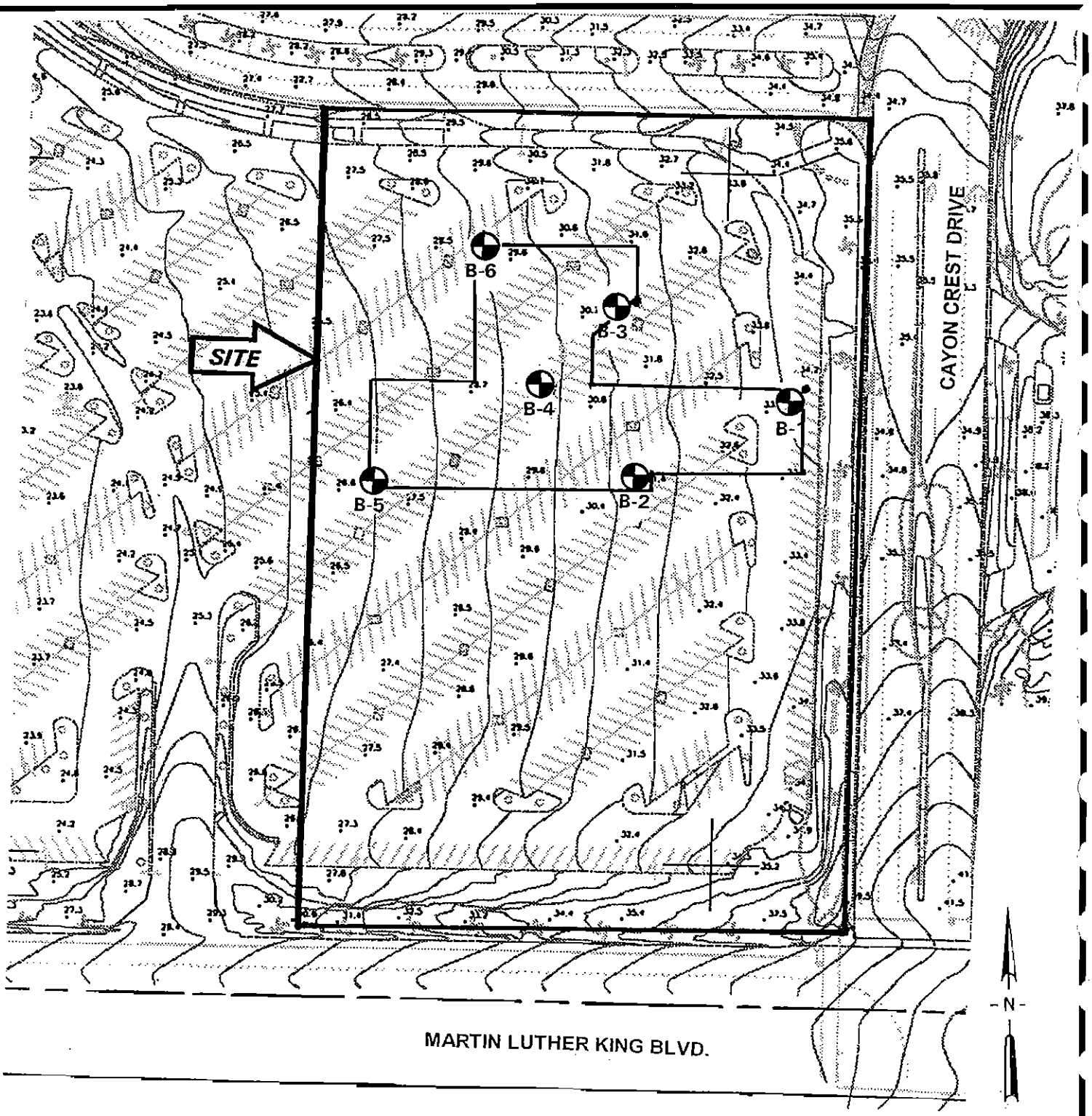


Map created with TOPO!® ©2001 National Geographic (www.nationalgeographic.com/topo)

INDEX MAP

FOR: **UNIVERSITY OF CALIFORNIA RIVERSIDE**	**ANDERSON GRADUATE SCHOOL OF MANAGEMENT BUILDING MARTIN LUTHER KING BOULEVARD AND CANYON CREST DRIVE UNIVERSITY OF CALIFORNIA RIVERSIDE, CALIFORNIA**	ENCLOSURE **"A-1"**
DATE: **MARCH 2002**		JOB NUMBER **02220-3**

C.H.J., INCORPORATED



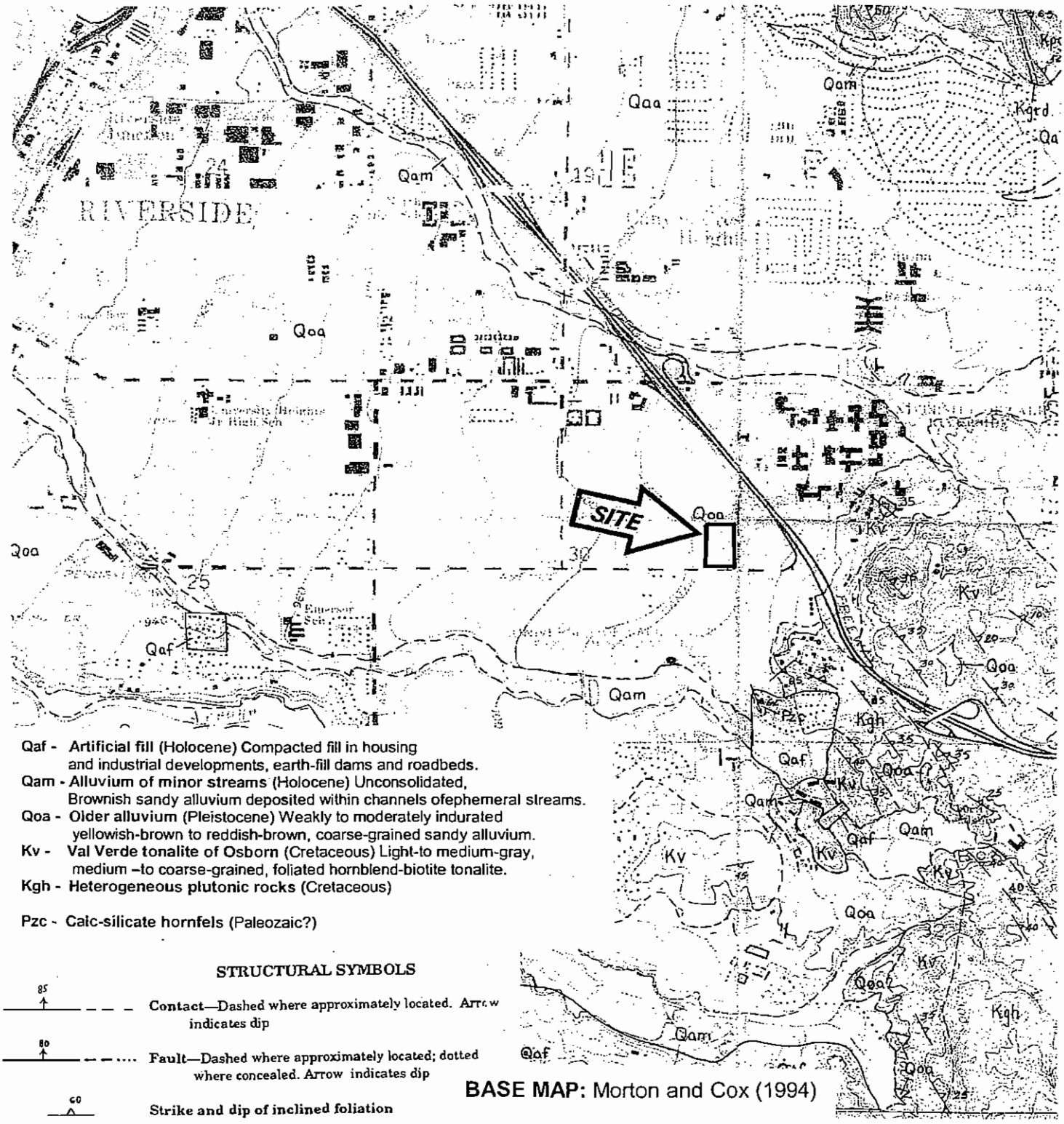
- Exploratory Boring Locations

SCALE 1" =100'

PLAT

FOR: UNIVERSITY OF CALIFORNIA RIVERSIDE	ANDERSON GRADUATE SCHOOL OF MANAGEMENT BUILDING MARTIN LUTHER KING BOULEVARD AND CANYON CREST DRIVE UNIVERSITY OF CALIFORNIA RIVERSIDE, CALIFORNIA	ENCLOSURE "A-2"
DATE: MARCH 2002		JOB NUMBER 02220-3

C.H.J., INCORPORATED



Qaf - Artificial fill (Holocene) Compacted fill in housing and industrial developments, earth-fill dams and roadbeds.

Qam - Alluvium of minor streams (Holocene) Unconsolidated, Brownish sandy alluvium deposited within channels ofephemeral streams.

Qoa - Older alluvium (Pleistocene) Weakly to moderately indurated yellowish-brown to reddish-brown, coarse-grained sandy alluvium.

Kv - Val Verde tonalite of Osborn (Cretaceous) Light-to medium-gray, medium –to coarse-grained, foliated hornblend-biotite tonalite.

Kgh - Heterogeneous plutonic rocks (Cretaceous)

Pzc - Calc-silicate hornfels (Paleozaic?)

STRUCTURAL SYMBOLS

85 — Contact—Dashed where approximately located. Arrow indicates dip

80 — Fault—Dashed where approximately located; dotted where concealed. Arrow indicates dip

60 — Strike and dip of inclined foliation

BASE MAP: Morton and Cox (1994)

GEOLOGIC INDEX MAP

FOR: **UNIVERSITY OF CALIFORNIA RIVERSIDE**

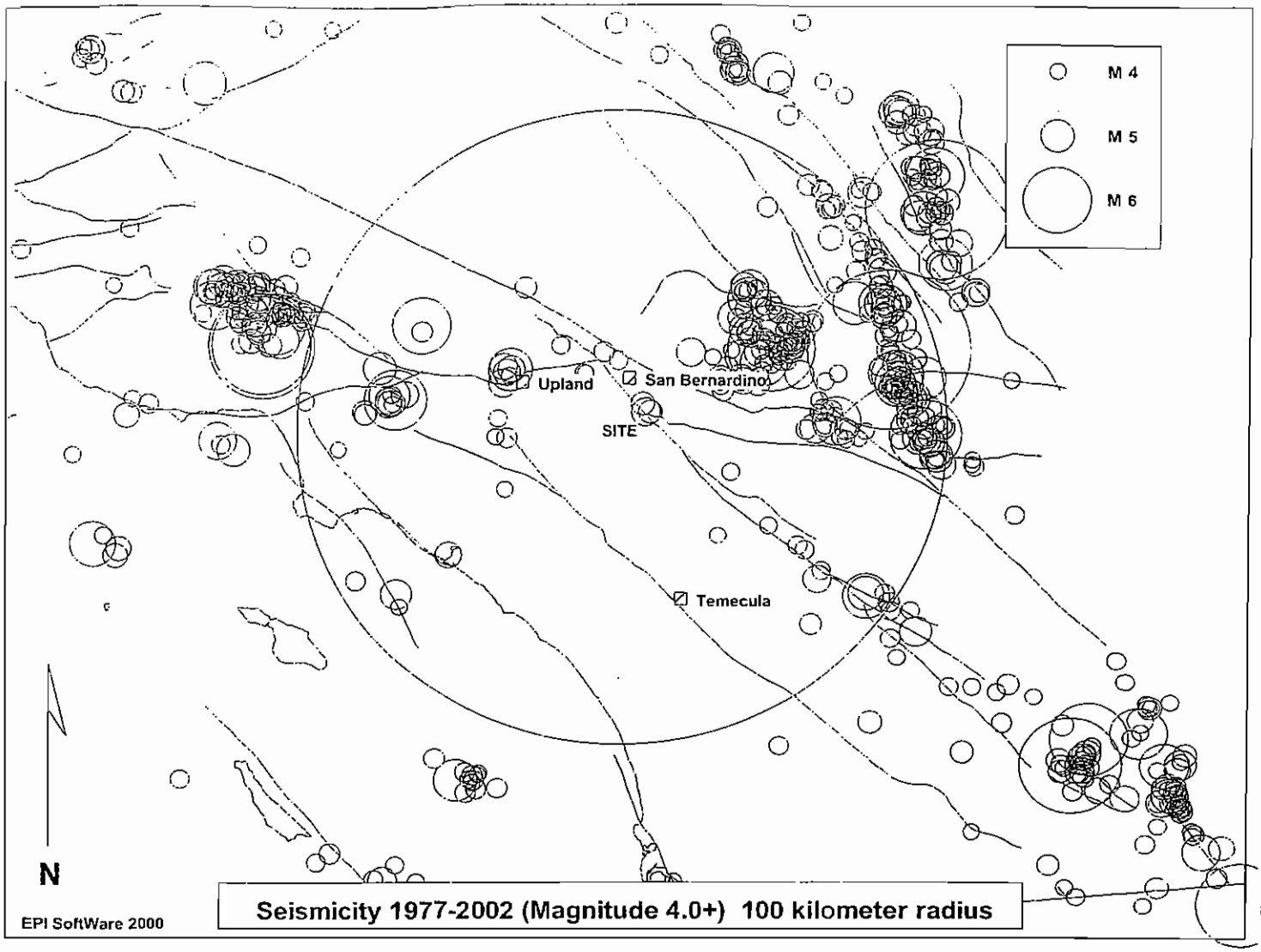
DATE: **MARCH 2002**

ANDERSON GRADUATE SCHOOL OF MANAGEMENT BUILDING
MARTIN LUTHER KING BOULEVARD AND CANYON CREST DRIVE
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA

ENCLOSURE **"A-3"**

JOB NUMBER **02220-3**

C.H.J., INCORPORATED



SITE LOCATION: 33.969 LAT. -117.332 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 566

TOTAL # OF EVENTS WITHIN SEARCH RADIUS 263

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0- 4.9 : 232
5.0- 5.9 : 28
6.0- 6.9 : 2
7.0- 7.9 : 1
8.0- 8.9 : 0

0 50 100
KILOMETERS

CLOSEST EVENT: 4.8 ON WEDNESDAY, OCTOBER 02, 198! LOCATED APPROX. 10 KILOMETERS NORTHEAST OF THE SITE

EARTHQUAKE EPICENTER MAP

FOR: UNIVERSITY OF CALIFORNIA RIVERSIDE	ANDERSON GRADUATE SCHOOL OF MANAGEMENT BUILDING MARTIN LUTHER KING BOULEVARD AND CANYON CREST DRIVE UNIVERSITY OF CALIFORNIA RIVERSIDE, CALIFORNIA	ENCLOSURE "A-4"
DATE: MARCH 2002		JOB NUMBER 02220-3

C.H.J., INCORPORATED

APPENDIX "B"

EXPLORATORY LOGS

KEY TO LOGS

LEGEND:

DS	Direct Shear Test (ASTM D 3080)
Consol.	Consolidation Test (ASTM D 2435)
MDC	Maximum Dry Density - Optimum Moisture Content Determination (ASTM D 1557)
Ring	Indicates Undisturbed Ring Sample. Undisturbed Ring Samples are obtained with a "California Sampler" (3.00" O.D. and 2.42" I.D.) driven by an automatic hammer with a 140-pound weight falling 30 inches. The blows per foot are converted to equivalent SPT-N_{60} values.
SS	Soluble Sulfate (EPA Method 300.0)

ENGINEERING PROPERTIES FROM SPT BLOWS

Relationship of Penetration Resistance to Relative Density for Cohesionless Soils*
(After Mitchell and Katti, 1981)

No. of SPT Blows ($N1_{60}$)	Descriptive Relative Density	Approx. Relative Density (%)
<4	Very Loose	0-15
4-10	Loose	15-35
10-30	Medium Dense	35-65
30-50	Dense	65-85
>50	Very Dense	85-100

* At an effective overburden pressure of 1 ton per square foot (100 kPa)

Our reported equivalent SPT-N_{60} blows have not been normalized for overburden pressure

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

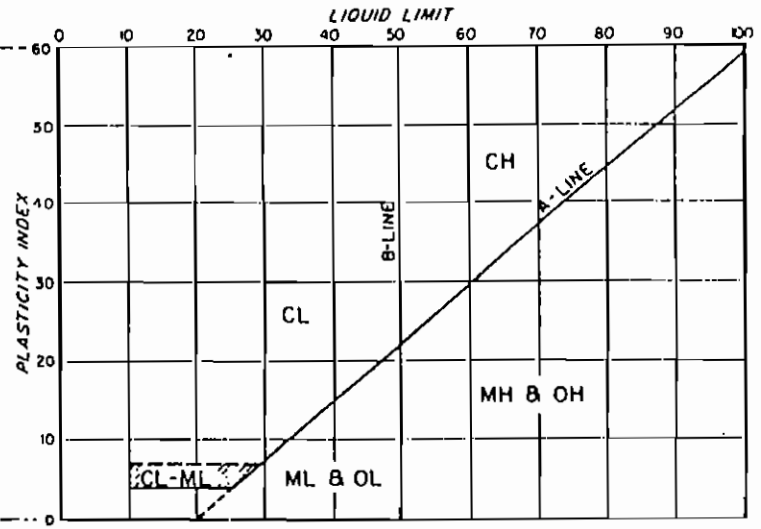
FOR LABORATORY CLASSIFICATION OF FINE-GRAINED SOILS

GRADATION CHART

MATERIAL SIZE		PARTICLE SIZE			
		LOWER LIMIT		UPPER LIMIT	
		MILLIMETERS	SIEVE SIZE	MILLIMETERS	SIEVE SIZE
SAND					
	FINE	.074	#200‡	0.42	#40‡
	MEDIUM	0.42	#40 ‡	2.00	#10 ‡
	COARSE	2.00	#10 ‡	4.76	#4 ‡
GRAVEL					
	FINE	4.76	#4 ‡	19.1	3/4"●
	COARSE	19.1	3/4"●	76.2	3"●
COBBLES		76.2	3"	304.8	12"
BOULDERS		304.8	12	914.4	36"

‡US STANDARD ● CLEAR SQUARE OPENINGS

PLASTICITY CHART



UNIFIED SOIL CLASSIFICATION SYSTEM

C·M·J· INCORPORATED

Enclosure "B" (2of2)
Job No. 02220-3

LOG OF BORING 1

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,034± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	6" of Asphalt Concrete, No Aggregate Base							
	(SM) Silty Sand, fine with medium, brown	Fill				6.1		MDC, DS, SS
			X		23	6.4	124	Ring
	(SM) Silty Sand, fine with medium, red brown	Native				6.6		
5			X		24	6.2	114	Ring
	(SM) Silty Sand, fine, light red brown					4.8		
10			X		52	5.2	119	Ring
15			X		40/6"	5.2	112	Ring
	(SM) Silty Sand, fine to medium, light red brown					2.7		
20			X		50	4.2	116	Ring
	(SP-SM) Sand, fine to medium with coarse and silt, red brown					2.5		
25			X		35	3.7	109	Ring
30			X		57	5.2	127	Ring
	(SM) Silty Sand, fine to medium, light red brown					5.6		

BORING_LOG_EQUIV_SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

C·H·J·

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-1a

LOG OF BORING 1

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,034± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium, light red brown		⊠		40/4"	6.6	102	Ring
40				⊠		40/6"	5.0	111	Ring
45				⊠		40/3.5"	4.1	112	Ring
50				⊠		64	3.4	121	Ring
		END OF BORING							
55									
60		NO BEDROCK NO REFUSAL FILL TO 3.5' SLIGHT CAVING NO FREE GROUNDWATER							
65									

BORING_LOG_EQUIV_SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

C·M·J·

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3

Enclosure B-1b

LOG OF BORING 2

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,031± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		3" of Asphalt Concrete over 5" of Aggregate Base							
		(SM) Silty Sand, fine with medium, light red brown	Native				4.8		
				X		13	7.5	100	Ring
5									
				X		43	4.0	125	Ring
10									
				X		40/6"	5.3	118	Ring
15									
				X		21	3.8	115	Ring
		(SM) Silty Sand, fine with medium, light red brown					3.7		
20									
				X		22	3.1	115	Ring
25									
				X		22	5.0	110	Ring
		END OF BORING							
30		NO BEDROCK NO REFUSAL NO FILL SLIGHT CAVING NO FREE GROUNDWATER							

BORING_LOG_EQUIV_SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

C·M·J·

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3

Enclosure B-2

LOG OF BORING 3

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,031± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	3" of Asphalt Concrete over 4" Aggregate Base							
	(SM) Silty Sand, fine with medium to coarse, brown	Fill		▨		6.8		
			☒		20	10.5	126	Ring
	(SM) Silty Sand, fine with medium and coarse, red brown	Native		▨		5.6		
5			☒		17	9.4	115	Ring
10			☒		14	7.7	115	Ring, Consol.
15			☒		31	7.7	118	Ring
20			☒		29	8.1	122	Ring
25			☒		30	12.9	111	Ring
30			☒		41	8.7	125	Ring
	END OF BORING NO BEDROCK, NO REFUSAL, FILL TO 3.5', SLIGHT CAVING, NO FREE GROUNDWATER							

BORING_LOG_EQUIV._SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-3

LOG OF BORING 4

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,030± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		3" of Asphalt Concrete over 5" Aggregate Base							
		(SM) Silty Sand, fine with medium, brown	Fill				6.6		
		(SM) Silty Sand, fine with medium, red brown	Native	X		13	10.9	116	Ring
							7.3		
5				X		11	7.0	109	Ring, Consol.
10				X		24	6.3	125	Ring
15				X		37	8.8	129	Ring
20				X		25	5.9	126	Ring
25				X		30	8.1	110	Ring
		END OF BORING							
30		NO BEDROCK NO REFUSAL FILL TO 2.5' SLIGHT CAVING NO FREE GROUNDWATER							

BORING_LOG_EQUIV_SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

C·M·J·

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-4

LOG OF BORING 5

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,027± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		3" of Asphalt Concrete over 5" of Aggregate Base							
		(SM) Silty Sand, fine with medium and clay, brown	Fill				6.6		
				X		24	10.1	130	Ring
		(SM) Silty Sand, fine with medium, red brown	Native				7.3		
5				X		27	7.8	108	Ring, DS
10				X		26	8.0	119	Ring
15				X		39	8.6	126	Ring
20				X		26	9.2	123	Ring
		(SM) Silty Sand, fine with medium and coarse, red brown					6.1		
25				X		21	7.0	112	Ring
30				X		22	10.4	114	Ring
		(SP-SM) Sand, fine to medium with silt, light red brown					4.8		

BORING_LOG_EQUIV_SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-5a

LOG OF BORING 5

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,027± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
40		(SP-SM) Sand, fine to medium with silt, light red brown		X		32	4.4	115	Ring
				X		38	9.6	123	Ring
		(SM) Silty Sand, fine with medium and coarse, red brown			▩		9.4		
45				X		34	10.5	116	Ring
50				X		28	7.9	119	Ring
		END OF BORING							
55									
60		NO BEDROCK NO REFUSAL FILL TO 2.5' SLIGHT CAVING NO FREE GROUNDWATER							
65									

BORING_LOG_EQUIV._SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-5b

LOG OF BORING 6

Date Drilled: 3/6/02 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation (ft): 1,029± | Logged by: S.H. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT N60)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	3" of Asphalt Concrete over 4" of Aggregate Base							
	(SM) Silty Sand, fine with medium, brown	Fill				6.6		
	(SM) Silty Sand, fine with medium, red brown	Native			10	9.1	106	Ring
						4.8		
5	(SM) Silty Sand, fine with medium, light red brown					4.1		
					12	3.1	105	Ring, Consol.
10								
					64	5.1	119	Ring
15								
					40/2.5"	7.3	100	Ring
20								
					40/4.5"	9.0	109	Ring
25								
	(SP-SM) Sand, fine to medium with coarse and silt, light brown					6.8		
					40/6"	9.8	107	Ring
	END OF BORING							
30	NO BEDROCK NO REFUSAL FILL TO 3.0' SLIGHT CAVING NO FREE GROUNDWATER							

BORING_LOG_EQUIV._SPT_N60 02220-3.GPJ CHJ.GDT 3/20/02

C·H·J

AGSM BUILDING
UCR CAMPUS, RIVERSIDE, CA

Job No. 02220-3 | Enclosure B-6

APPENDIX "C"

LABORATORY TESTING

C·M·J·

Enclosure "C-1"
Job No. 02220-3

TEST DATA SUMMARY

OPTIMUM MOISTURE - MAXIMUM DENSITY RELATION:

ASTM D 1557-91

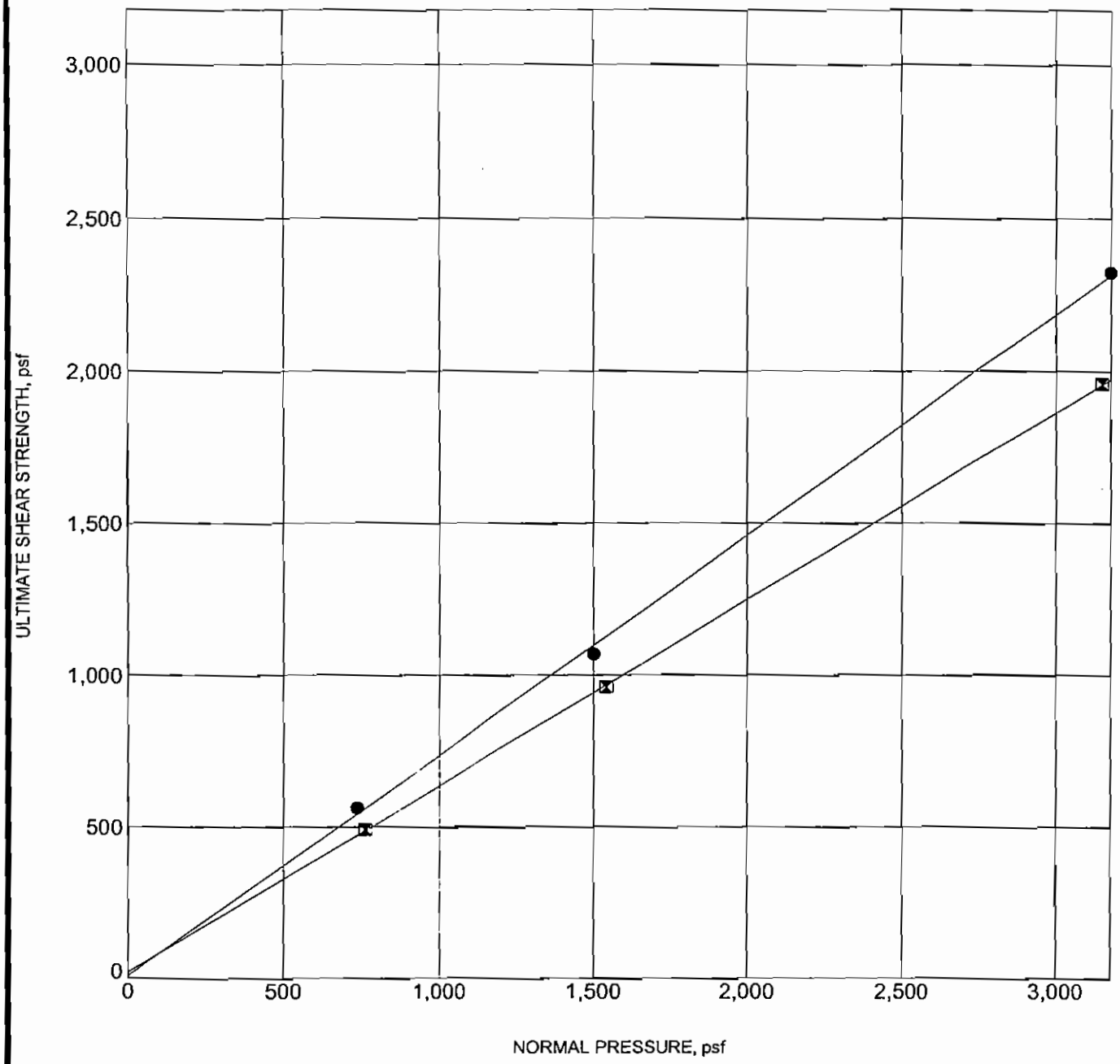
Boring No.	Depth of Sample (ft.)	Classification	Optimum Moisture (Percent)	Maximum Dry Density (pcf)
1	0.5-3.5	Silty Sand, fine with medium, red brown (SM)	8.0	133.0

SOLUBLE SULFATES:

EPA 300.0

Boring No.	Depth of Sample (ft.)	Result (%)	Exposure*
1	0.5-3.5	0.0053	"negligible"

* Based on criteria from American Concrete Institute Manual of Concrete Practice, 2000 (Part 3), Table 4.3.1



	Boring	Depth (ft.)	Sample Type	γ_d	MC%	c	ϕ
●	1	0.5	Ultimate, Saturated, Remolded 90% RC	120	8	0	36
⊠	5	5.5	Undisturbed, Ultimate, Saturated	108	8	0	32

C • M • J •

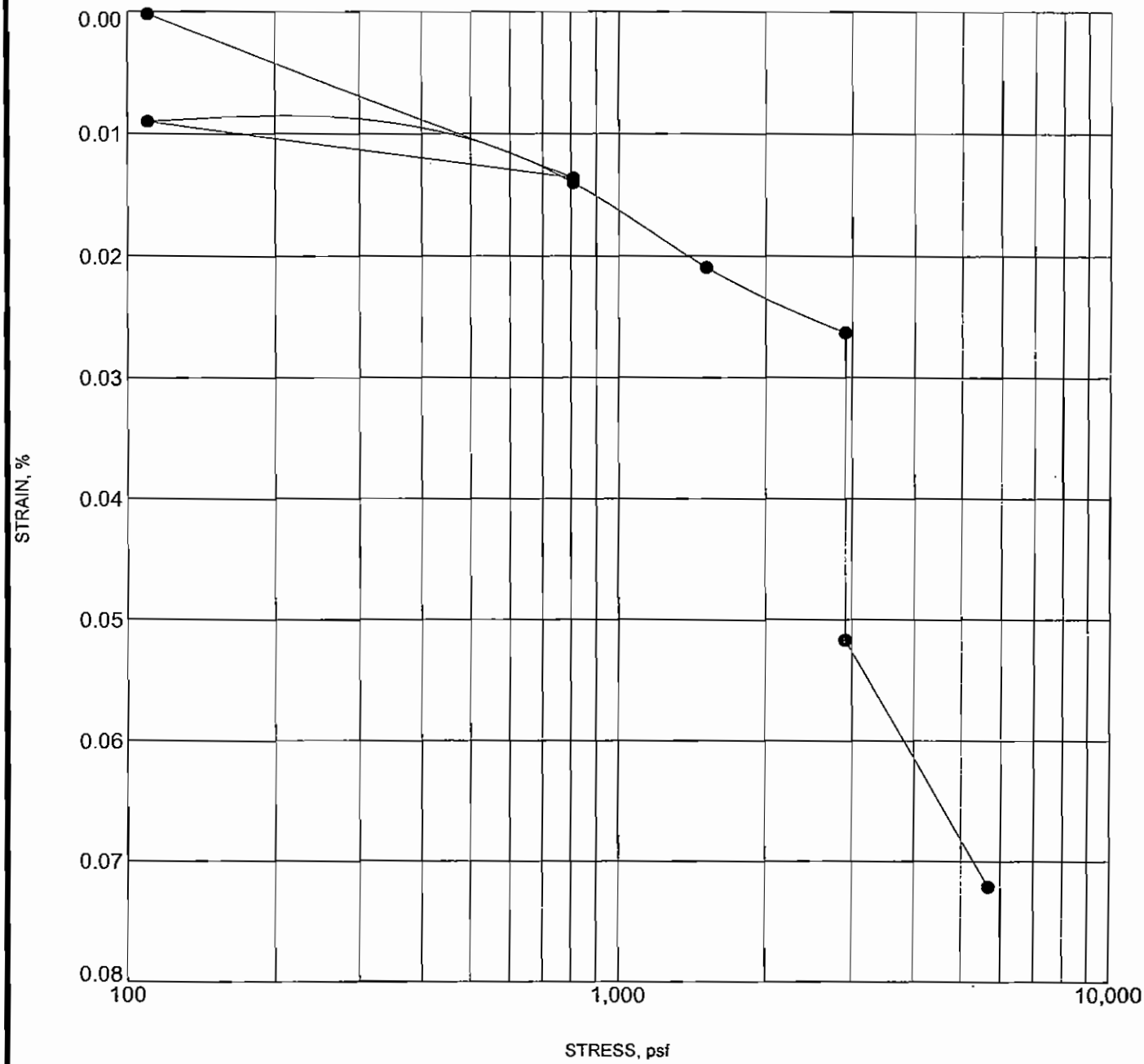
DIRECT SHEAR TEST

Project: AGSM BUILDING

Location: UCR CAMPUS, RIVERSIDE, CA

Job Number: 02220-3 Enclosure: C-2

US DIRECT SHEAR 02220-3.GPJ US LAB.GDT 3/13/02



	Boring	Depth (ft.)	Sample Type	γ_d	MC%
●	3	10.5	(SM) Silty Sand, fine with medium and coarse, brown	115	7.7

US CONSOL STRAIN 02220-3.GPJ US LAB.GDT 3/14/02

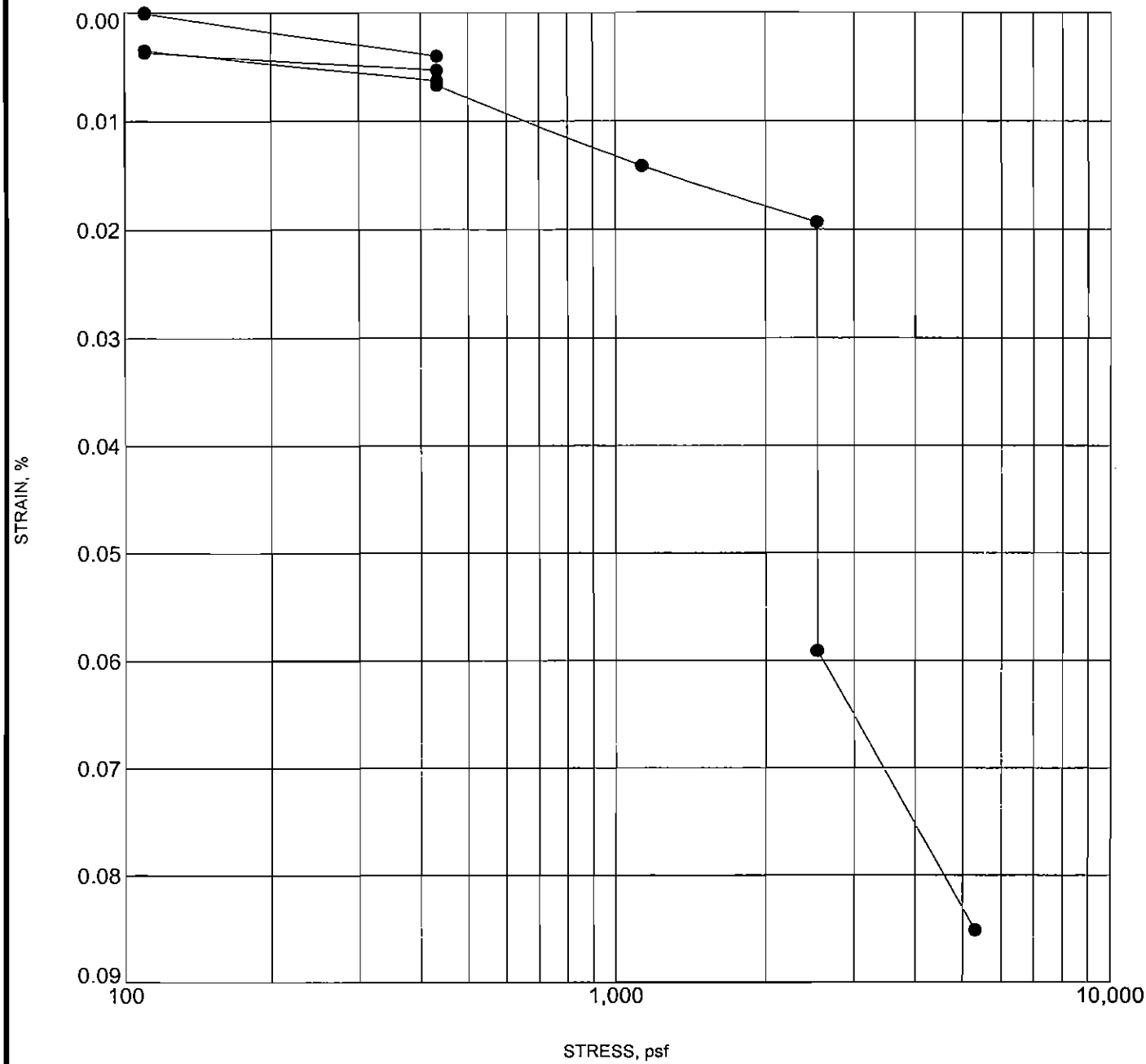
C • M • J •

CONSOLIDATION TEST

Project: AGSM BUILDING

Location: UCR CAMPUS, RIVERSIDE, CA

Job Number: 02220-3 Enclosure: C-3



Boring	Depth (ft.)	Sample Type	γ_d	MC%
● 4	7.5	(SM) Silty Sand, fine with medium, brown	109	7.0

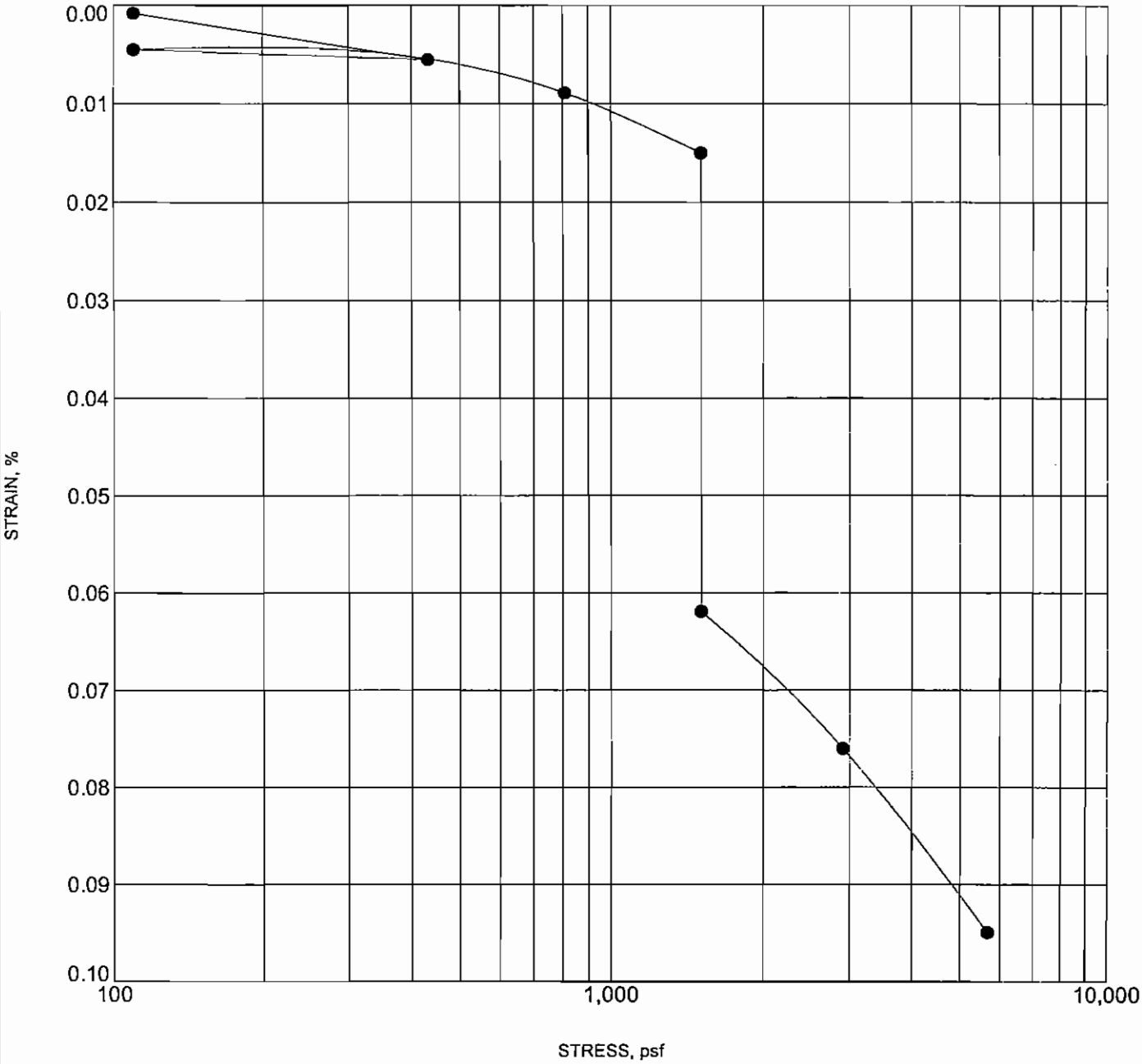
CONSOLIDATION TEST

Project: AGSM BUILDING

Location: UCR CAMPUS, RIVERSIDE, CA

Job Number: 02220-3 Enclosure: C-4

US CONSOL STRAIN 02220-3.GPJ US LAB.GDT 3/14/02



	Boring	Depth (ft.)	Sample Type	γ_d	MC%
●	6	7.5	**(SM) Silty Sand, fine with medium, light brown**	**105**	**3.1**

US CONSOL STRAIN 02220-3.GPJ US LAB.GDT 3/20/02

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CONSOLIDATION TEST

Project: AGSM BUILDING

Location: UCR CAMPUS, RIVERSIDE, CA

Job Number: 02220-3 Enclosure: C-5

APPENDIX "D"

SEISMIC DATA

PROBABILITY OF EXCEEDANCE

BOORE ET AL(1997) NEHRP D (250)1