



The Planning and Design of Learning Environments for the New American University in Cairo

Ashraf Salloum

AUC NCD Director of Planning and Design

Robert Luchetti

President – Robert Luchetti Associates, Inc.



THE AMERICAN UNIVERSITY IN CAIRO

Better thinkers. Better futures.

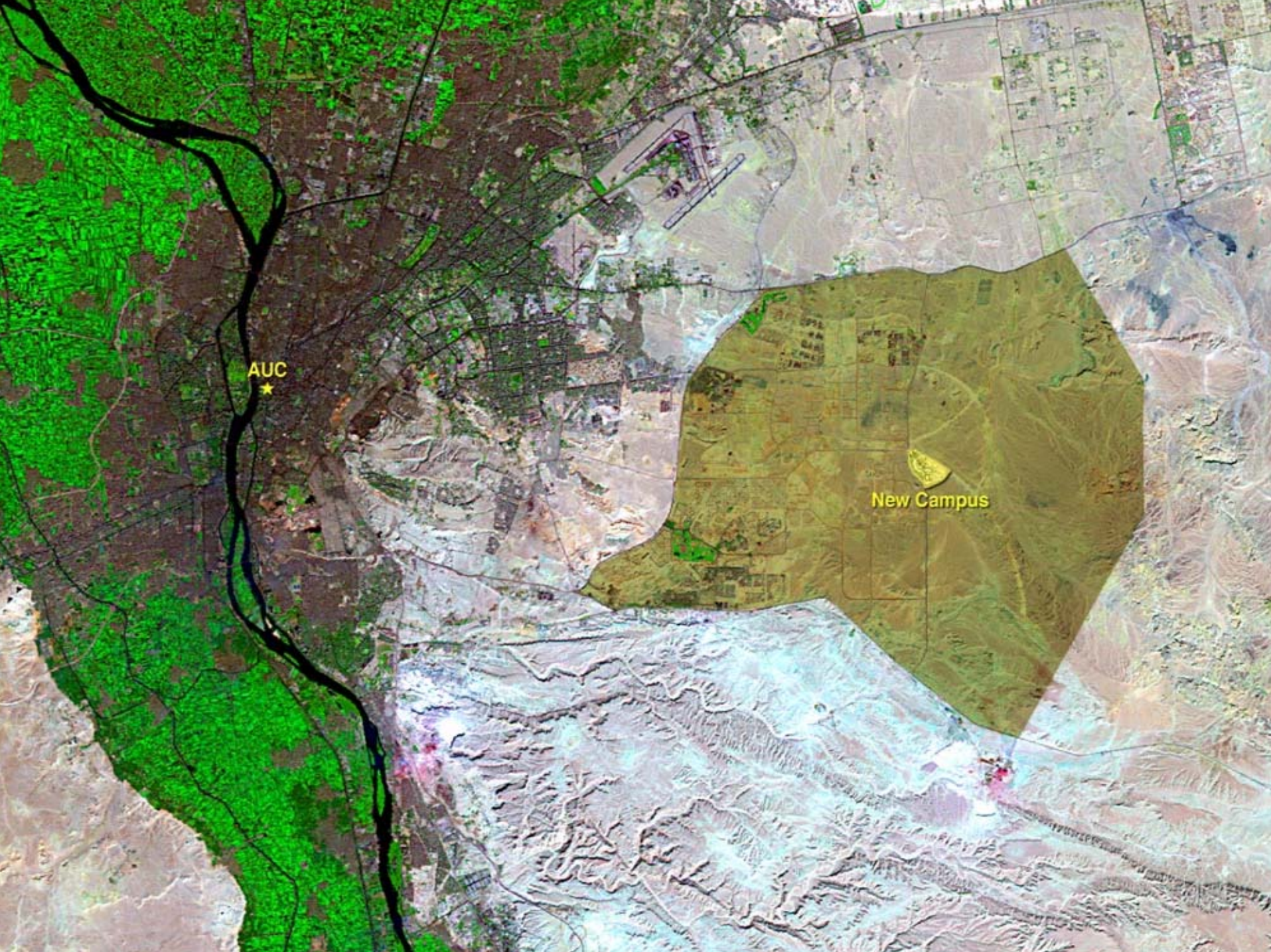




New Campus Development

The ability to attract and educate the best students, to attract and retain the best faculty, and to give students a grounding in liberal arts rests substantially with the quality of curriculum and faculty, but also with buildings and facilities which must of necessity be comparable to similar facilities elsewhere in the developed world.

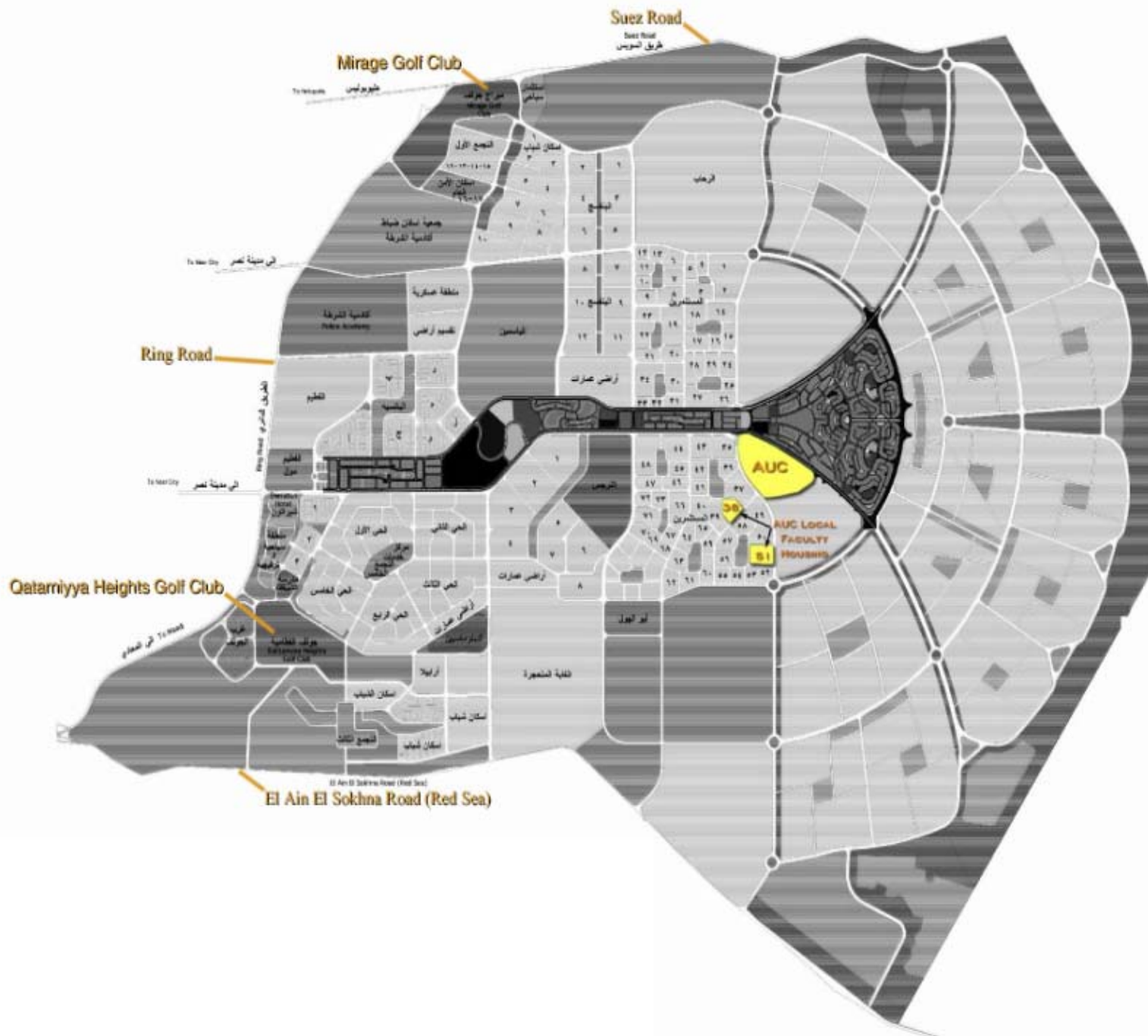
- 5,500 Student
- 1,500 Faculty and Staff
- 260 Acres
- 5,500 Rooms
- 180,000 Square meters of new construction
- \$300 Million US



AUC



New Campus





THE AMERICAN UNIVERSITY IN CAIRO

Better thinkers. Better futures.





New Campus Development

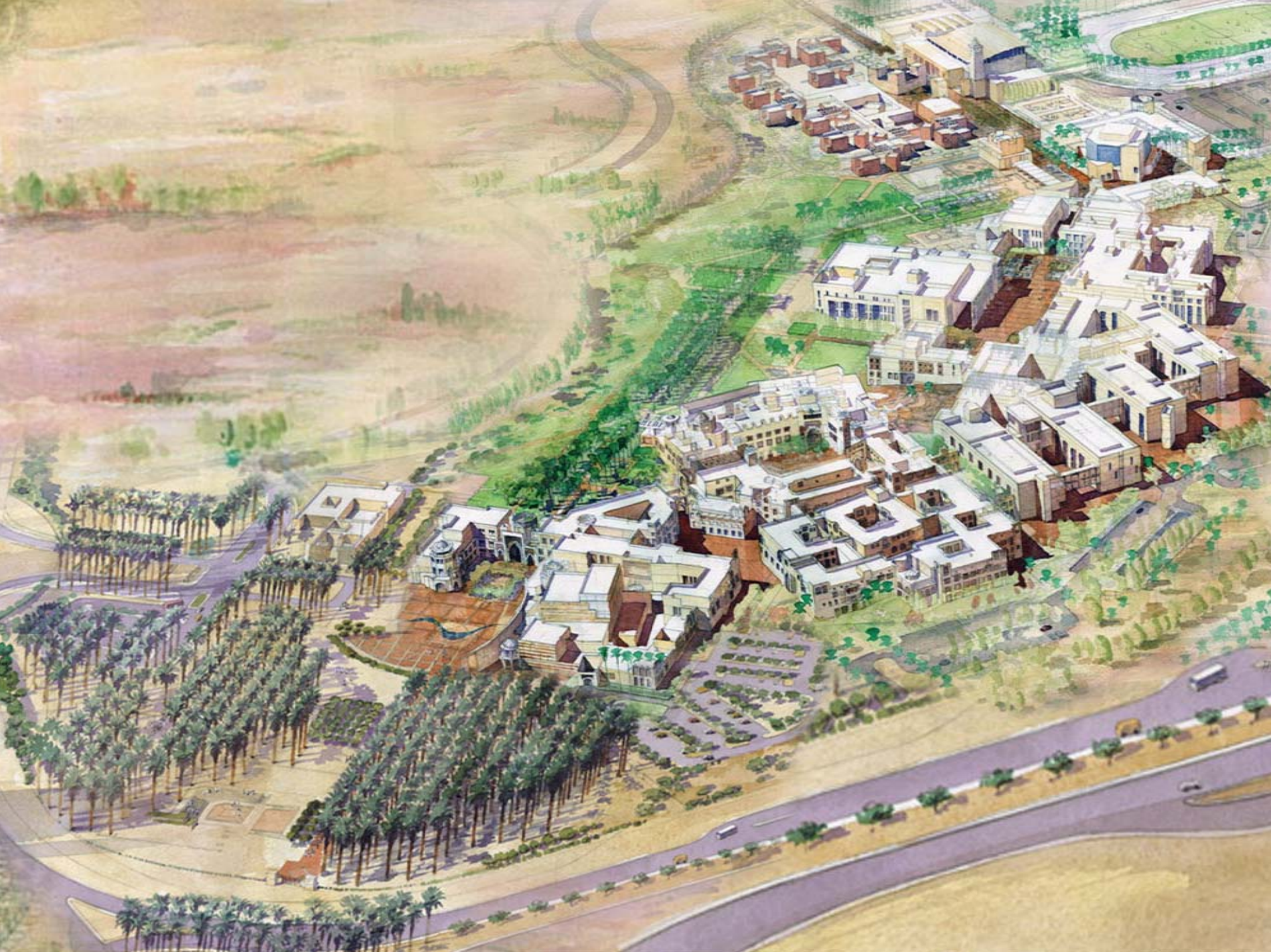
- The new campus must express the University's values as a liberal arts institution in what is essentially a non-Western context with deep traditional roots and high aspirations.
- Early on the design team agreed that a close affinity exists between traditional regional urbanism and the desiderata for a modern liberal arts campus.
- “It is in the intricate texture of Islamic medinas that we find, perhaps, the most inherently natural urban divisions.”



THE AMERICAN UNIVERSITY IN CAIRO

Better thinkers. Better futures.





Key

1. AUC Park
2. AUC Square
3. Ceremonial Campus Entrance
4. Performing & Visual Arts Theater
5. President's House and Garden
6. Main Portal
7. School of Humanities & Social Sciences [HUSS]
8. Administration Building
9. School of Sciences & Engineering [SSE]
10. Core Academic Center
11. Library
12. AUC Plaza
13. School of Business, Economics & Communications [BEC]
14. Campus Center
15. University Garden
16. Meeting Rooms
17. Main University Auditorium
18. South Portal
19. Student Housing
20. Athletics Physical Education & Recreation
21. Swimming Pool and Diving Pool
22. Athletics Fields and Courts
23. Desert Development Center
24. Physical and Utility Plant Complex
25. Recreational Path
26. Underpass Connection

AUC Park and Square



Performing and Visual Arts Center (PVA)

Total Area: 7,000 square meters

Number of Floors: 3

Main Features:

300-seat theater

Art gallery

Art, music and film studios

Electronic recording and

Photography laboratories

100-seat black box theater

Theater design studio



Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud School of Humanities and Social Sciences (HUSS)

Total Area: 20,770 square
meters

Number of Floors: 3

Main Features:

Academic Departments:

African Studies

Arabic Studies

English and Comparative
Literature

SAPE

History

Middle East Studies

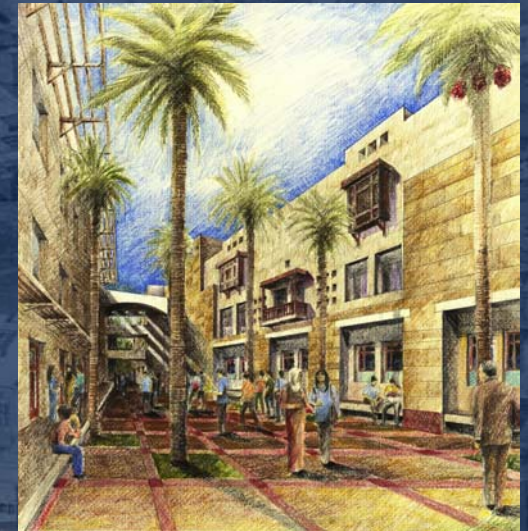
Political Science

Arabic Language and
English Institutes

Model UN and MAL Centers

Writing Program

Language Learning
Laboratories



University Administration

Total Area: 10,900 square meters

Number of Floors: 4

Main Features:

Office of the President

Alumni Affairs Center and Lounge

Executive Meeting and Conference Rooms



School of Sciences and Engineering (SSE)

Total Area: 34, 470 square meters

Number of Floors: 3 floors

Main Features:

Departments of Science
(Biology, Physics,
Chemistry, Mathematics)

Department of Computer
Science

Departments of Engineering
(Construction, Electronics,
Mechanical)

Teaching and Research
Laboratories



Core Academic Center

Total Area: 5,044 square meters

Number of floors: 4

Main Features:

225-seat lecture hall

Core Curriculum Department

Freshman Advising Office

Howard Café Theater

Computer Services Center



Libraries and Learning Technologies

Total Area: 20,550 square meters

Number of Floors: 5

Main Features:

Rare Books and Special Collections Library and Conservation Laboratories

Distance Learning Room

Reading Rooms

Center for Learning and Teaching

Computer Classrooms

Visual Design, Audio Production and Photo Laboratories



Yousef Jameel School of Business, Economics & Communications (BEC)

Total Area: 16, 750 square meters

Number of Floors: 3

Main Features:

Academic Departments:
Economics, JRMC, Management

Computer, Video, and
Photography Laboratories

Management Development Center

Adham Center for TV Journalism

Multimedia Laboratories

Sony Art Gallery

Caravan Office

Executive Training Rooms



Campus Center

Total Area: 16,150 square meters

Number of Floors: 3

Main Features:

1500-seat Auditorium

Career Advising and Placement Services

Student Dining and Recreation Facilities

200-seat University Conference and Meeting Room

Day Care Center

Student Union

AUC Bookshop

Clinic

Student Counseling

International Student Services



Athletics Facilities (Indoor & Outdoor)

Indoor: Total Area: 11, 750 square meters

Number of Floors: 3

Main Features:

2000-seat Central Court

Exercise and Fitness Rooms

Squash Courts

Jogging Track

Judo/Karate/Tai Kwon Do Studio

Free Weight Studio

Outdoor: Total Area: 18,200 square meters

Main Features:

2000-seat stadium

Soccer Field

Tennis Courts

Swimming Pool

Basketball, Handball, and Volleyball Courts

Jogging/Cycling Track



Student Housing

Total area: 15,500 square meters

Number of floors: 3 Floors

Main features:

Computer Room

Director Apartments (2)

Common Group Study (3)

Main Common Room

Men's Section

Men's Computer Room

Men's Resident Assistant Suites (4)

Men's Group Study (4)

Men's Lounge (4)

Men's Single Bedrooms (8)

Men's Double Bedroom (36)

Men's Bedroom, Suite (80)

Men's Living Room, Suites (20)

Women's Section

Women's Computer Room

Women's Resident Assistant Suites (6)

Women's Group Study (6)

Women's Lounge (6)

Women's Single Bedroom (12)

Women's Double Bedroom (58)

Women's Bedroom, Suite (112)

Women's Living Room, Suite (28)

Administrative Offices (9)

Conference / Meeting Room

Visitors / Advisor Faculty Apartments (8)







Project Team > 50 firms

- The American University in Cairo Office of New Campus Development
- Project Management - US and Egyptian firms
- Academic Planning - US firm
- Master Planning & Urban Design – 2 US and 1 Egyptian firms
- Site Development & Landscape Architecture - US and Egyptian firms
- Prime Architect - US and Egyptian firms
- Consulting Architects – 2 US, 6 Egyptian, 1 Mexican firm
- Engineering and Specialized Design – 7 US and 9 Egyptian firms
- Infrastructure and Utilities – 2 US and 2 Egyptian firms
- Environmental Optimization – German and Egyptian firms
- Specifications and Codes – 3 Egyptian firms
- Furniture, Fixtures and Equipment – US firm
- Signage and Wayfinding – US firm
- Legal and Public Relations – 2 US and 1 Egyptian firm



Project Team

- Diversity of points of view
- Sequential team workshops

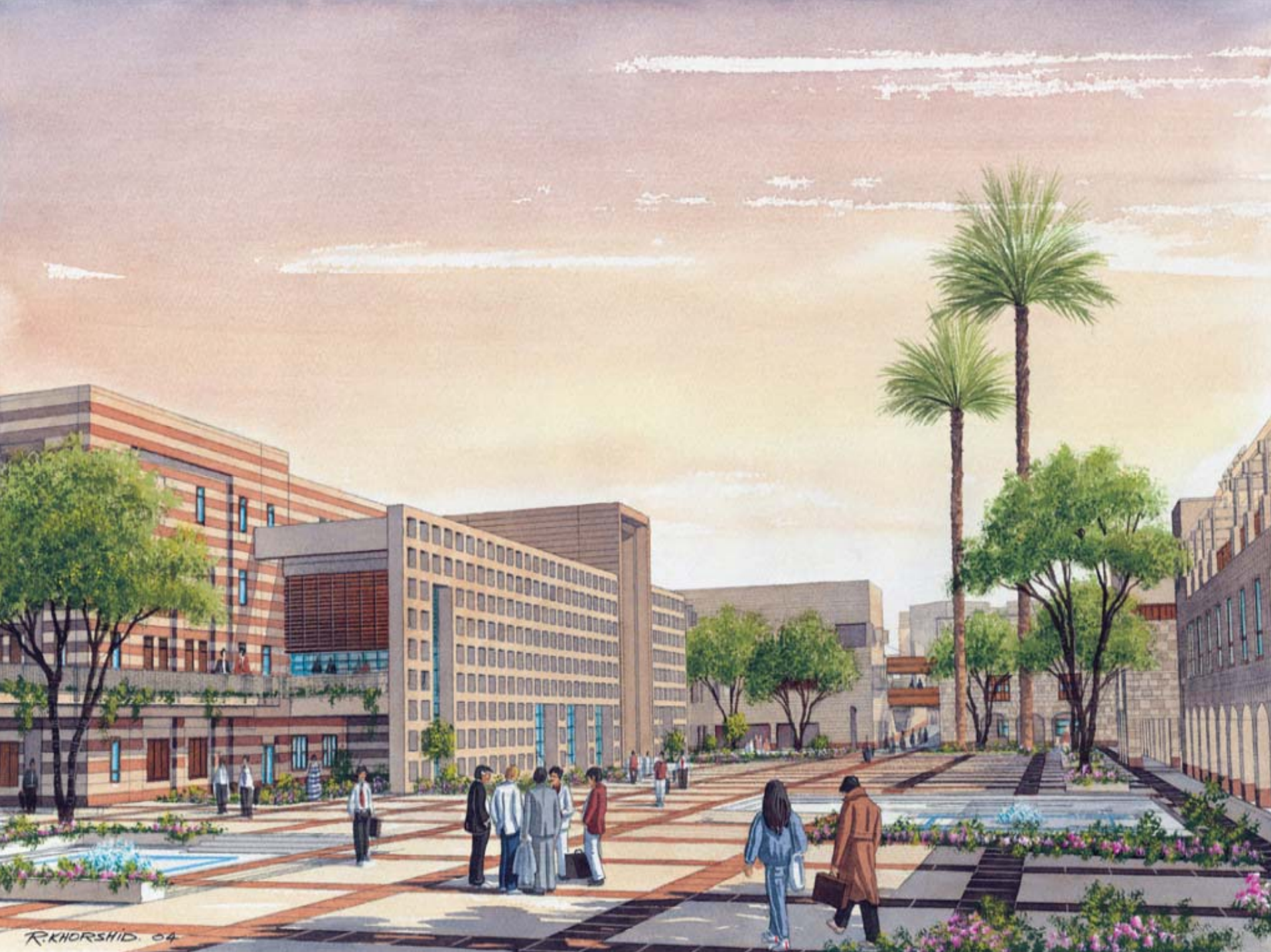




Unity and Diversity

- At the core of liberal arts philosophy is the tolerance of differences in the creation of knowledge and ideas.
- The pluralism should be matched with diversity of architectural expression and spatial systems that promote the encounter of differences.
- Examples of diversity and harmony exist in a wide range of campuses, cities, villages, and landscapes throughout the world.
- Where successful, the experience of visitors is multi-sensory- with a range of textures, temperatures, smells and styles







Cohesive and Interactive Team

The design was completed when we were all involved in the process

- Abdel Halim Community Design Collaborative, Egypt
- Carol R. Johnson Associates, Inc. USA
- Ellerbe Becket, USA
- Engineering Consulting Office, Egypt
- Hardy Holzman Pfeiffer Associates, USA
- Legoratta + Legoretta, USA
- Robert Luchetti Associates, USA
- Sasaki Associates, USA
- Shaker International Group, Egypt
- Sites International, Egypt



Challenge

- How to get this international team to successfully participate in this process to capture diverse ideas within a coherent and unified framework?
- Progressive
- Flexible





Context – Adaptation to Local Conditions

- Contemporary Arts and Craft in Egypt
- Pharonic and Islamic Influence – old Cairo
- Regional culture – use of color and light
- Construction in Egypt
- Furniture Manufacturing in Egypt\
- Maintainability



Contemporary Arts and Craft in Egypt





Contemporary Arts and Craft in Egypt





Pharaonic and Islamic influence – old Cairo





Pharaonic and Islamic influence – old Cairo



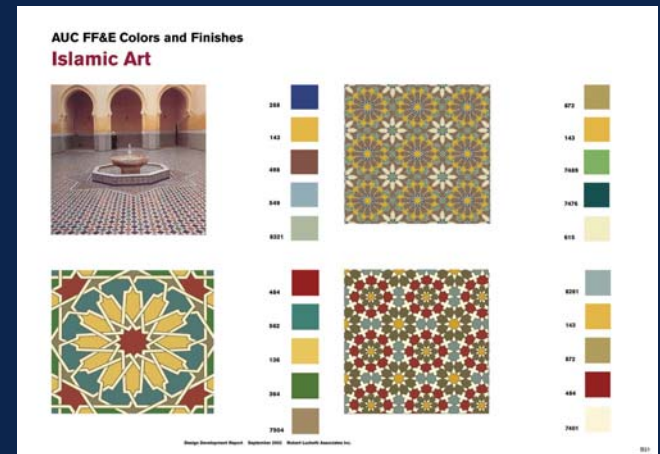
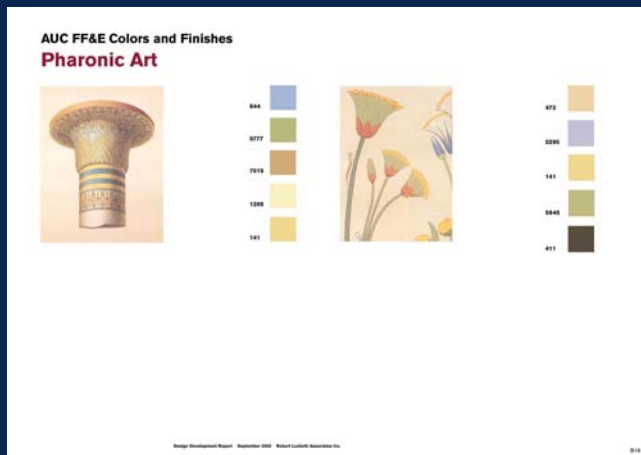
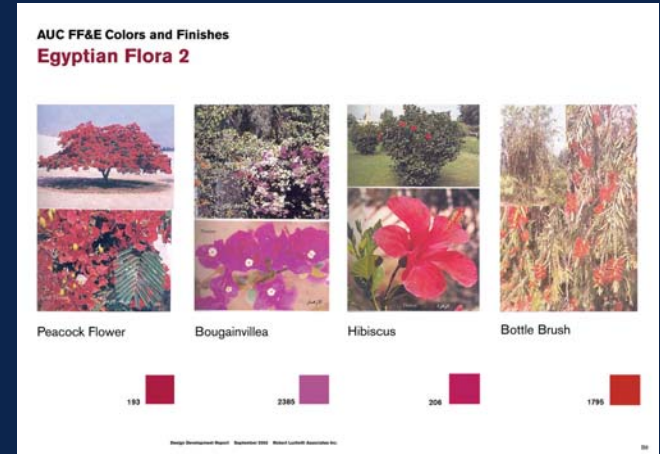
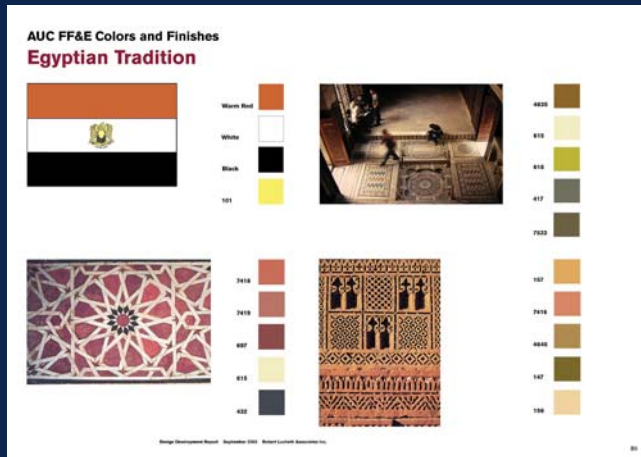


Regional Culture – Use of Color and Light





Regional Culture – Use of Color and Light





Construction in Egypt





Construction in Egypt





Furniture Manufacturing in Egypt





Furniture Manufacturing in Egypt





Maintainability





Maintainability





THE AMERICAN UNIVERSITY IN CAIRO

Better thinkers: Better futures.

The University's Goals and Mission

Pedagogy – Unity and Diversity



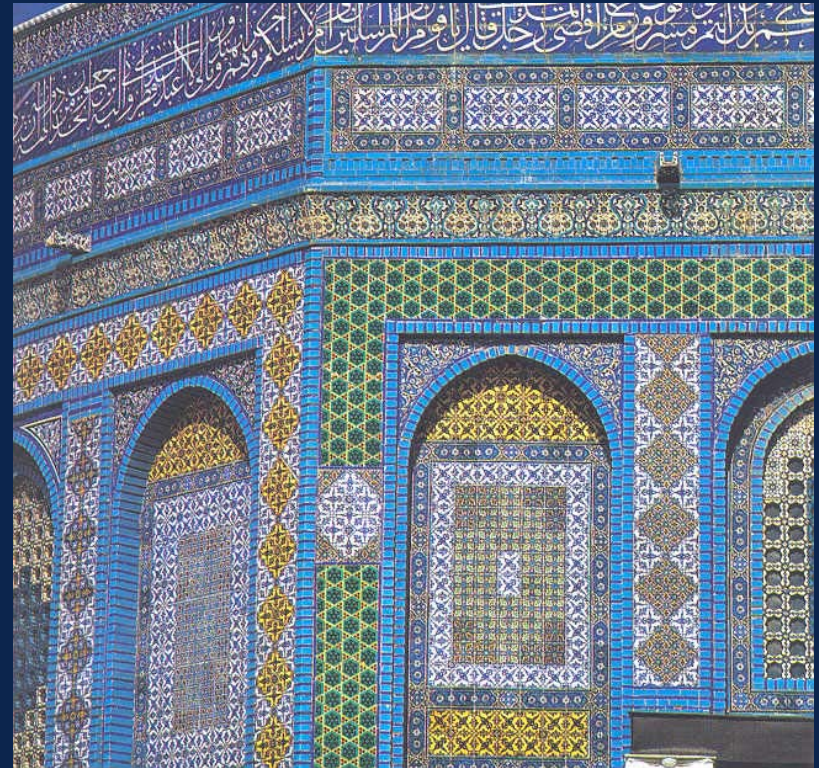


Learning Environments

What are our objectives?

*Pedagogy – Unity and
Diversity*

Reflect the concepts of the
University's liberal arts
mission in the new campus
project





What are our objectives?

- Translate the university's educational mission into its physical setting in a way that reflects the ideals of American liberal arts education and, at the same time, is responsive to future generations of Egyptian's.
- Capture the special societal; character of AUC, recognizing that the synergy created by campus life is paramount and far surpasses the importance if individual buildings serving merely their own needs.



What are our objectives?

- The Campus must be culturally instructive, introducing its users to the rich information, values and experiences which architecture, landscape and art are capable of embodying.
- Historically and contextually the campus must be one that draws themes from Egypt's past, recognizes the present, and anticipates the future and that combines contemporary ideas with Egypt's history in order to make the institution unique and a model for designers in the region.



What are our objectives?

- Communications and IT Technology, because they are reshaping most, if not all, academic institutions with astonishing speed must be integrated into campus planning and design not only for management purposes but especially to serve evolving needs of teaching and learning.



What are our objectives?

- Integrate local arts and craft and support local production
- Leverage the large size of the project to improve local production manufacturing capability and offerings without increasing the size of the project.
- Use local materials because they are generally less expensive and easier to service and maintain.
- Develop detailed ergonomic, engineering, visual design and performance and testing standards and specifications.
- Balance quality and performance with cost.
- Use local vendors for as much of the work as possible.



What are our objectives?

- Liberal Arts motivates interaction between disciplines, students and faculty.





What are our objectives?

- Spaces that foster interaction





What are our objectives?

- How to foster interaction all of the time





What are our objectives?

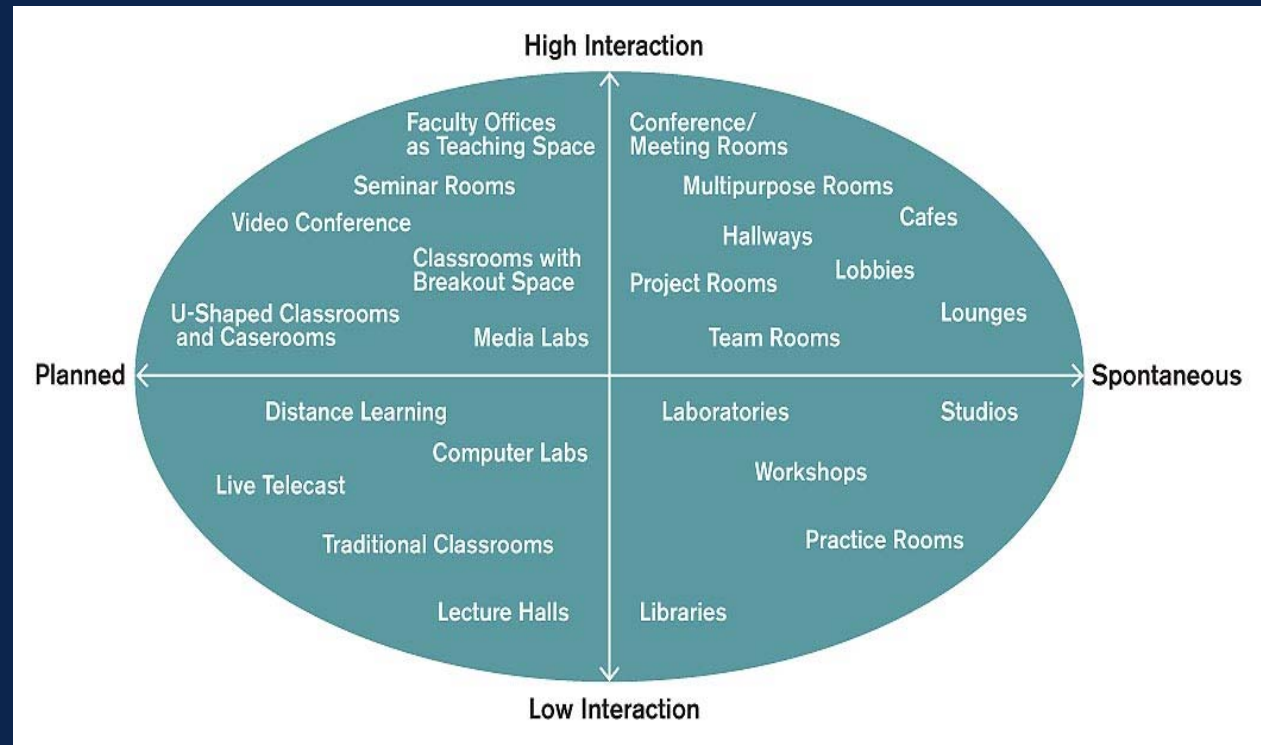
- Outdoor spaces designed to foster flexible interaction





What are our objectives?

- Seamless face to face or virtual interaction anywhere or anytime





What are our objectives?

- Library not just for books – accessory spaces in the library for groups of students to work in teams by sitting and working together with ...





What are our objectives?

- World class high tech applications





What are our objectives?

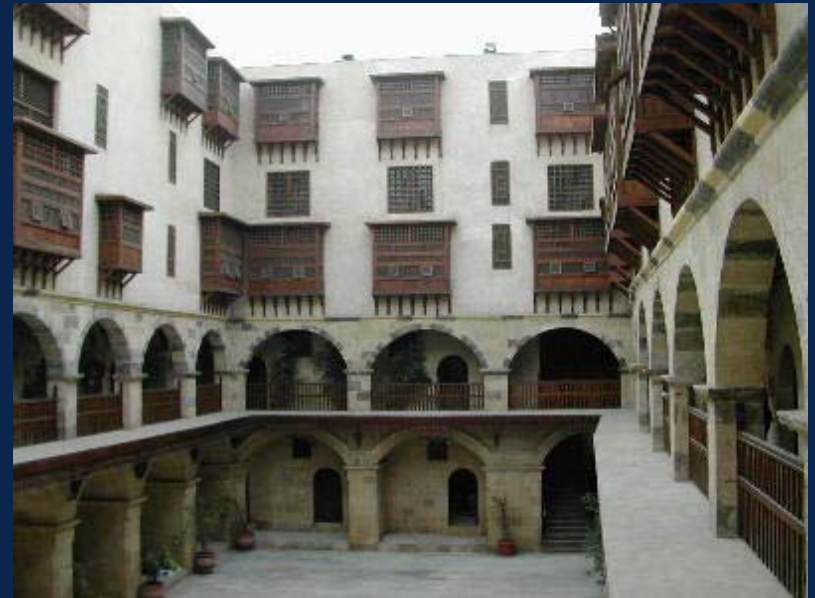
- A wireless campus





What are our objectives?

- Sustainability and environmental optimization





R.KHORSHID. 04



R. KHORSHID 04



What are our objectives?

- Regionalism







What are our objectives?

- User involvement in the design workshops for teaching and learning spaces





NEW Learning Environments

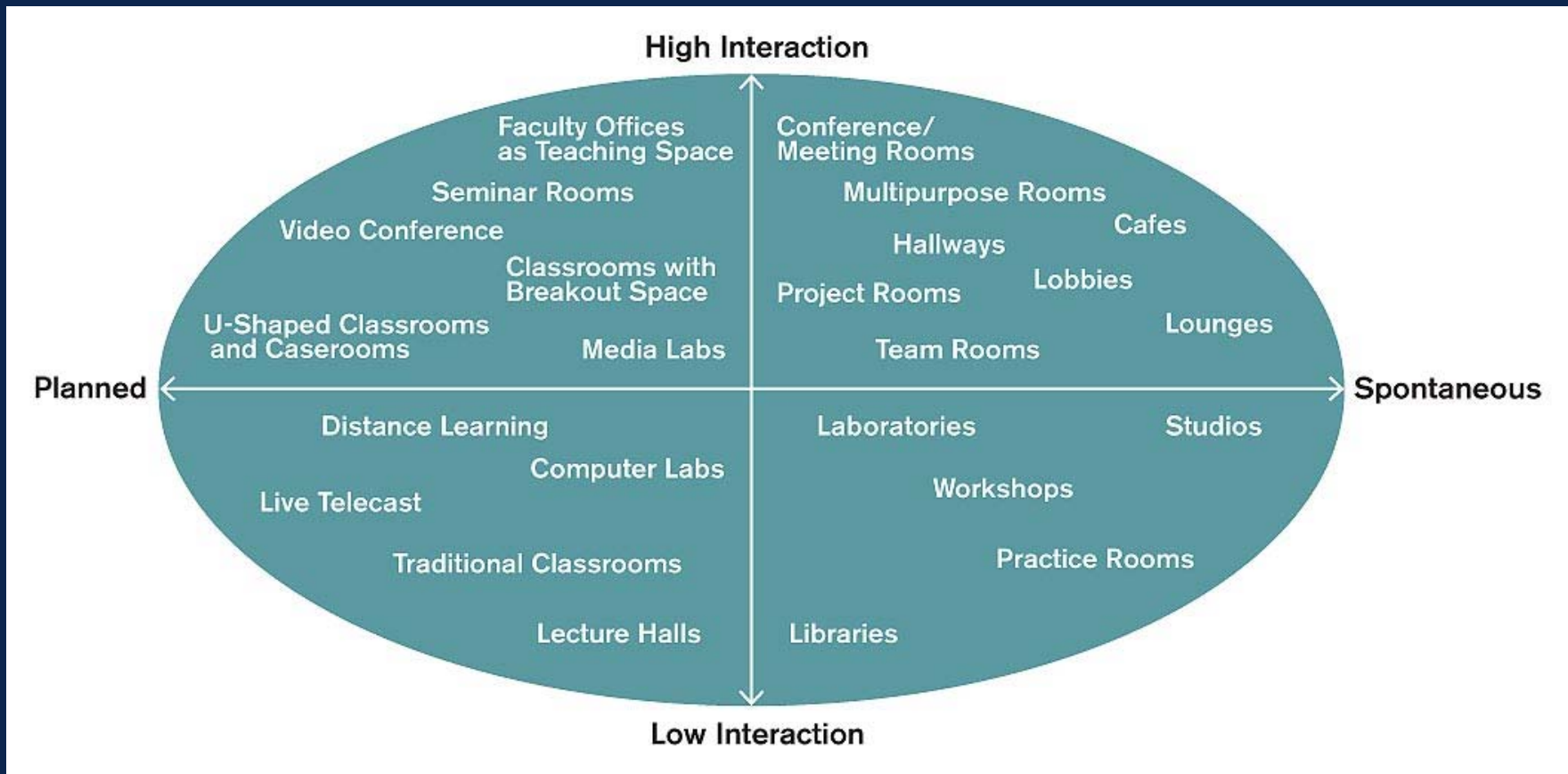
Planning - The limitations of Hegis codes

- 100 General Classroom
- 200 & 400 Computer Labs
- 210, 200 & 250 Science and Engineering Labs and
Art and Design Studios
- 110, 350, 680 Seminar and Meeting Rooms
- 110 Lecture Hall and Caserooms
- 610 Auditorium
- 310 Faculty Office as a Teaching Space
- 315, 410, 630, 650 Informal Spaces



NEW Learning Environments

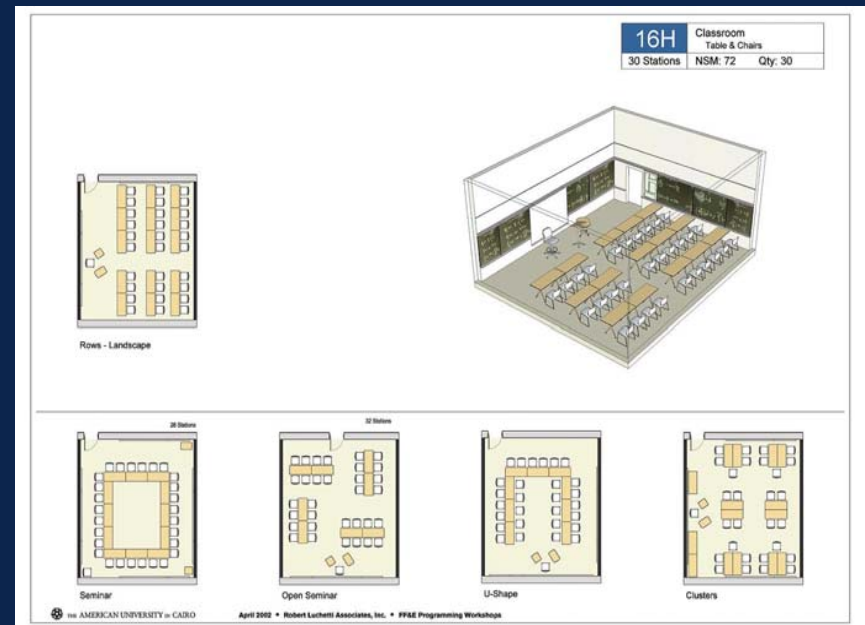
Planning - The limitations of Hegis codes





NEW Learning Environments

Design criteria for user workshops and research by design team



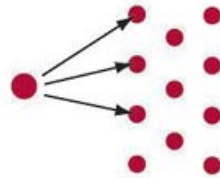
Integration of Research on How We Learn and How Knowledge is Shared

Design for multiple learning styles *and* knowledge sharing modalities

Learning Style

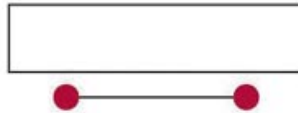
Knowledge Sharing Modes

Lecture



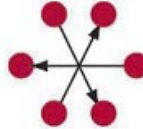
Delivery

Self-directed



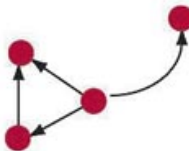
Applying

Small Group



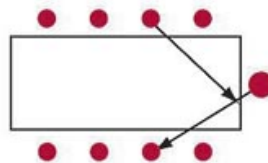
Communicating

Collaborations



Creating

Conferences



Decision Making

Key Trends *in* Classroom Design

Classroom/Computer Lab/Meeting Room Workshop

Fixed, Flexible and Fluid set-ups that can be used for different ways of sharing knowledge or styles of teaching

Charging students and teachers alike with the responsibility of managing **the room as one of their learning tools**

Tables that can be moved (to share media or materials, to reconfigure from unit into larger whole)

Tablet-arms are getting bigger (to accommodate laptops *and* paper)- and taking up more space

Educational resources that are **decentralized** (dispersed throughout the facility): the entire facility is made of learning spaces

Magnet/Pool areas in corridors and niches create spaces for informal “unprogrammed” **learning** (70% of learning occurs outside the classroom)

More wall surface available for **Information Persistence**

Digital- based environments that network beyond the classroom (**Distance Education**)

Integrated wire management into fixed classroom furniture

Technology-rich classrooms require teachers who know how to use technology and tech support that knows how to maintain them

Wireless technologies may replace need for fully wired rooms and **untether the Faculty**

Networked access used for projected presentations more than individual access:

Online access tends to be outside of class for preparation rather than real-time use *in* class

Design Principles

Classroom/Computer Lab/Meeting Room Workshop

Emphasize Flexibility: can derive from a fixed flexible configuration or the ability to adjust furniture location

Site Lines to instructor, other students, display media and should align with knowledge sharing modality

Make the walls out of teaching surfaces: blackboard, display, projection, pin-up space, 'information persistence'

Establish **key relationship between entrance**, windows, blackboard and projection displays, "teaching walls", access at "rear" of room

Always put '**Command Central**' in the same place in the room (including light levels, window coverings, multiple screens, functional light switching, A/V control)

Provide access around room that aligns with knowledge sharing modality

A simple lectern with "plug & show" capability and a small mobile table at the front of the room

Ceiling-mount **technology** to meet instructional requirements

Allow **projecting images** on the screen **and using the blackboard** at the same time

Aesthetics: use color and materials for orientation and character

Lighting should be variable and controllable, indirect, dimmable, switched parallel to front of room, utilizing natural as well as two levels of artificial light

Acoustics: to minimize distracting noises from outside the room; also from echoes within the room

Ergonomics: furniture should fit different sized people and type should align with desired type of interaction

Electronic Chair Rail: brings utilities where they are needed and allows for changes

Standardized Signage System: allowing for orientation as well as information persistence

Storage: provide flexible cabinets



NEW Learning Environments

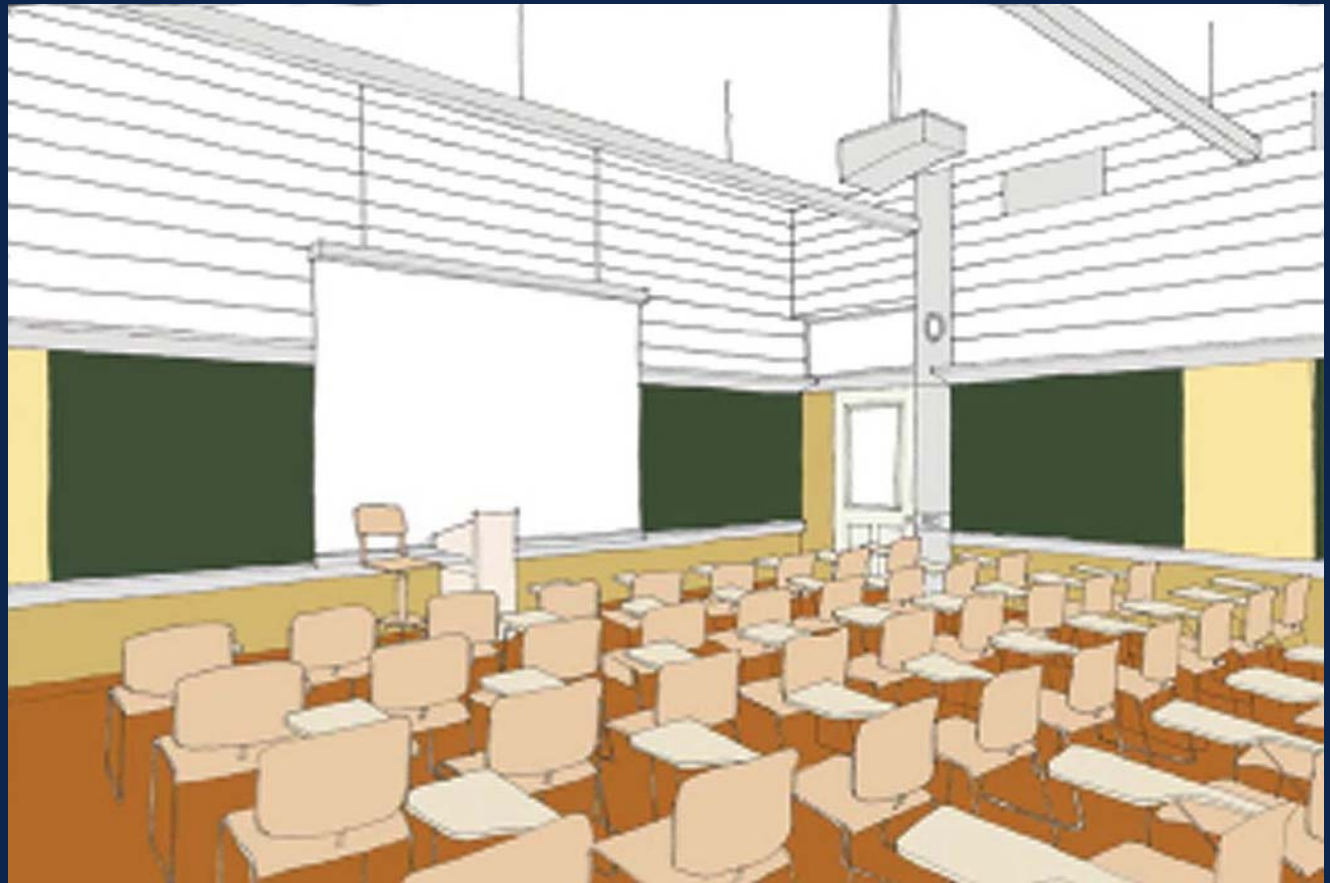
Classrooms





NEW Learning Environments

Classrooms





NEW Learning Environments

Computer Labs

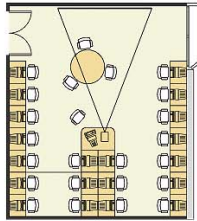




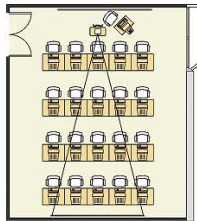
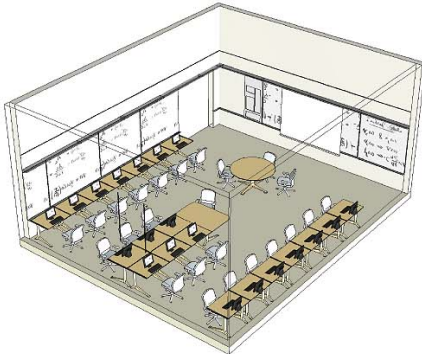
NEW Learning Environments

Computer Labs

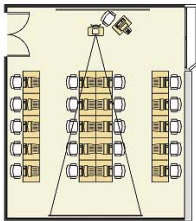
21J	Computer Lab Teaching / Open Lab	
20 Stations	NSM: 76	Qty: 8



Columns



Rows - Portrait



Rows - Landscape

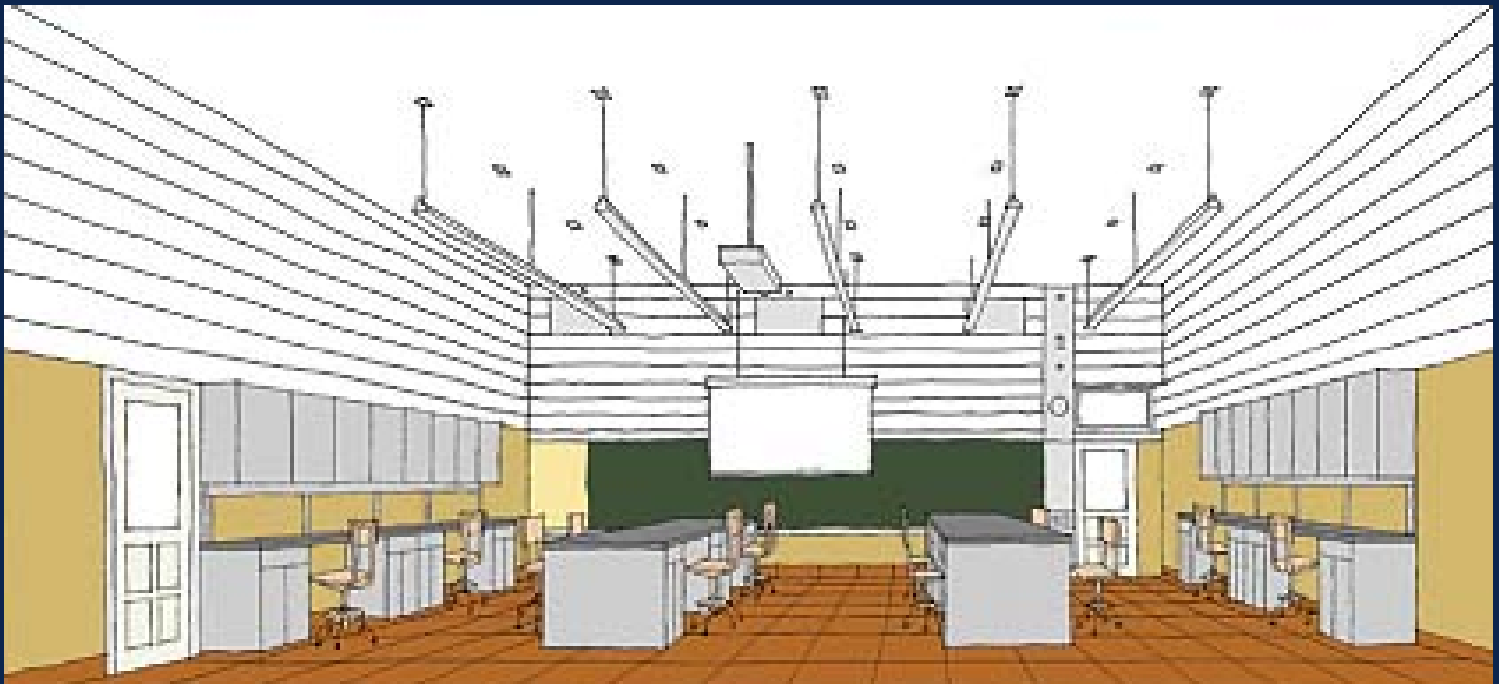
THE AMERICAN UNIVERSITY IN CAIRO

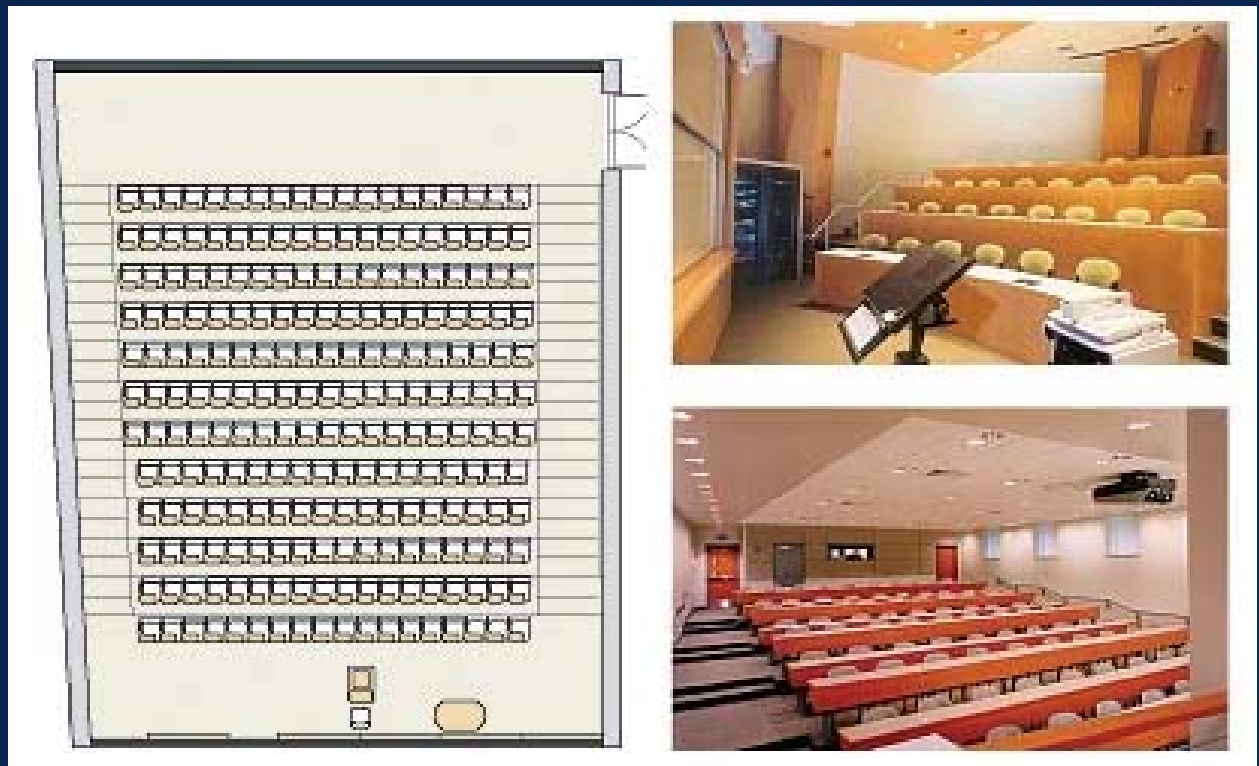
April 2002 • Robert Luchetti Associates, Inc. • FF&E Programming Workshops



NEW Learning Environments

Science and Engineering Labs







24F	Conference - Meeting - Seminar
20 Stations	NSM: 48 Qty: 45

Single Large Table

Seminar

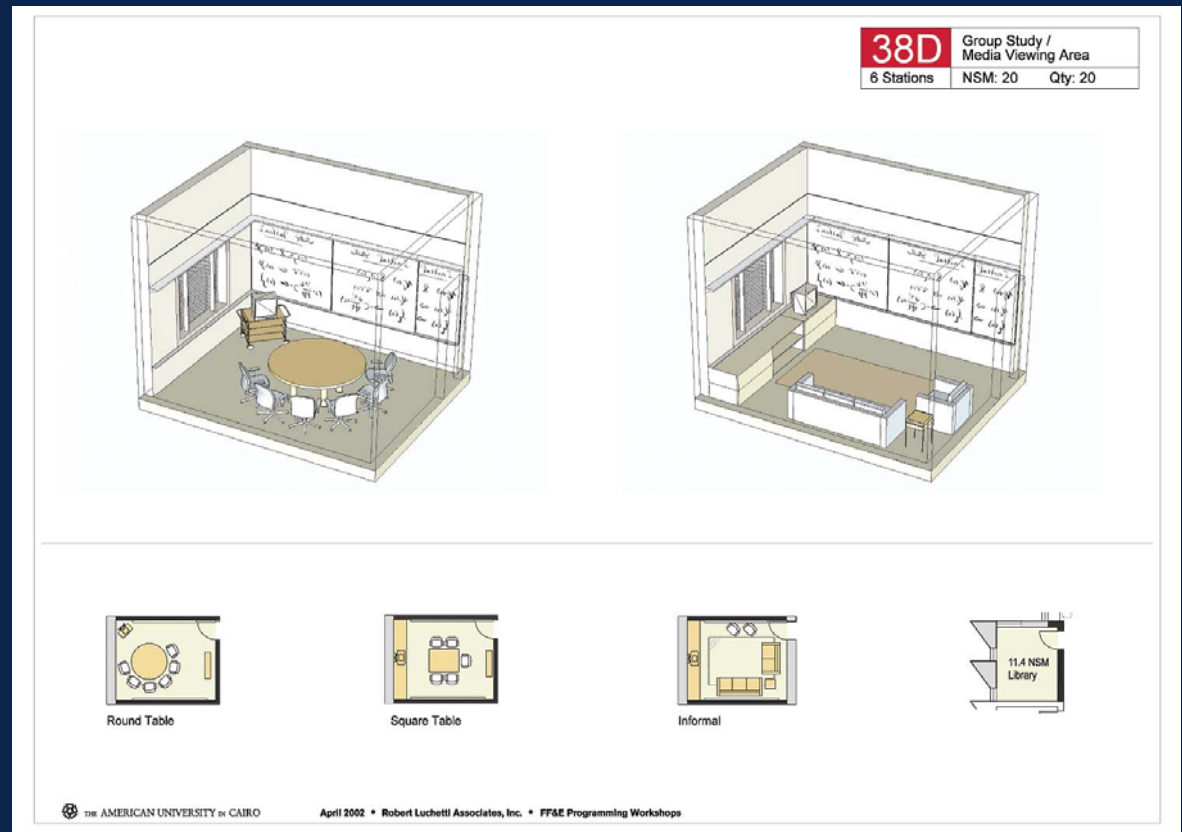
U-Shape

Training

Modular Table

THE AMERICAN UNIVERSITY IN CAIRO

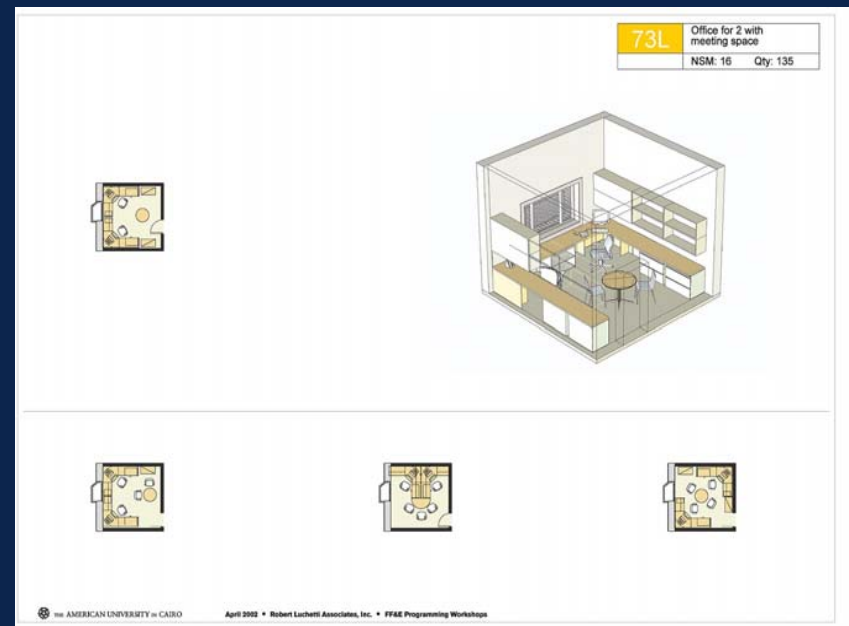
April 2002 • Robert Luchetti Associates, Inc. • FF&E Programming Workshops





NEW Learning Environments

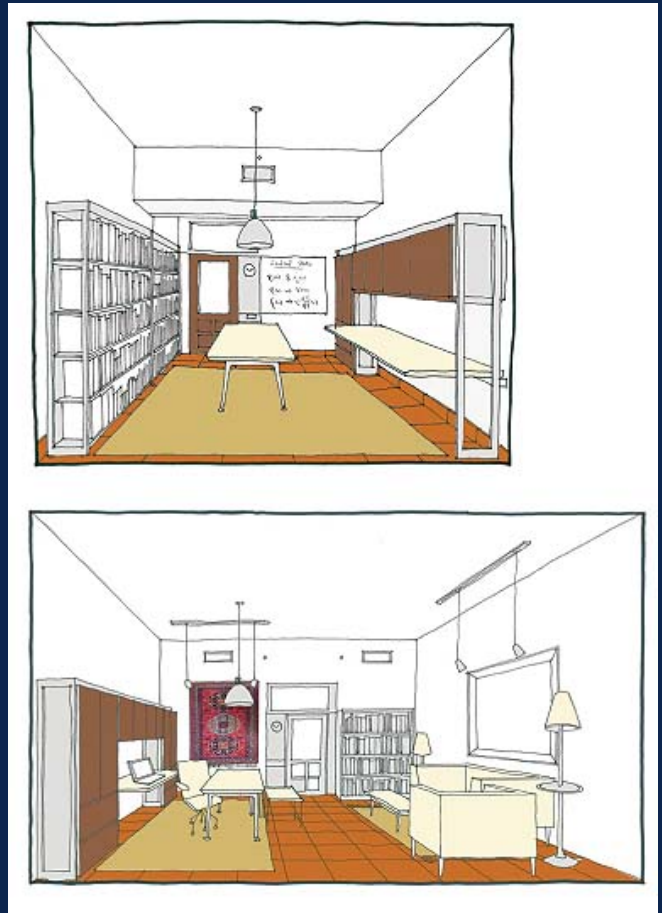
Faculty Offices as Teaching Spaces





NEW Learning Environments

Faculty Offices as Teaching Spaces





NEW Learning Environments

Informal Meeting Areas



Group Study



Cafes



Lounges



Outdoor Spaces



DESIGN of Learning Environments

- Context of Appropriate Traditional Elements
- Human Factors/Ergonomics
- **FLEXIBILITY**
- Interior Systems
- Acoustics
- Lighting
- Furniture and Fixtures



DESIGN of Learning Environments

Context of Appropriate Traditional Elements

Cairene Morphologies



Madrasa of Sultan Hasan



Suheimi House



Suheimi House



Suheimi House



Mosque of Sultan Hasan



Mosque of Sultan Hasan



Mustafa Ga'ar House

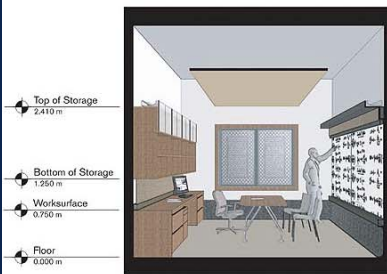




DESIGN of Learning Environments

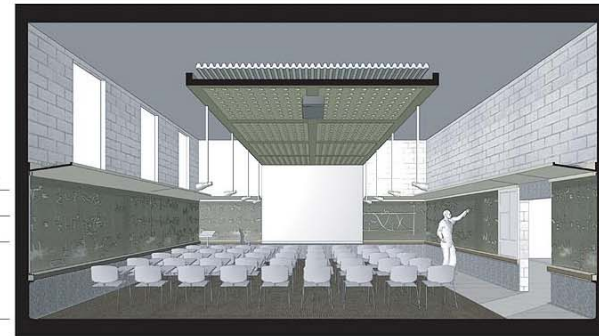
Human Factors

Anthropometrics



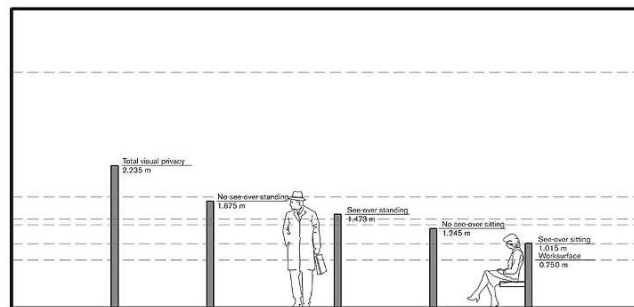
71C Office
Scale 1:25

- Ceiling at Upper Floors 3.700 m
- Top of Teaching Surface 2.125 m
- Comfortable Male Reach 2.030 m
- Eye Level - Standing 1.620 m
- Eye Level - Sitting 1.210 m
- Top of Utility Zone 0.920 m
- Floor 0.000 m



16C Classroom
Scale 1:25

- Ceiling at First Floor 4.700 m
- Top of Teaching Surface 2.900 m
- Top of Utility Zone 0.720 m
- Floor 0.000 m



- Underside of Slab at First Floor 4.700 m
- Underside of Slab at Upper Floors 3.700 m
- 95% Male Standing Eye Height 1.740 m
- 5% Female Standing Eye Height 1.400 m
- 95% Male Seated Eye Height 1.300 m
- 5% Female Seated Eye Height 1.005 m
- Floor 0.000 m

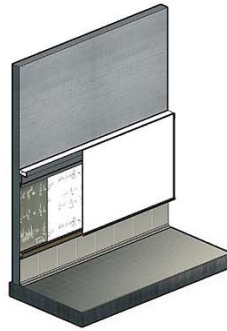




DESIGN of Learning Environments

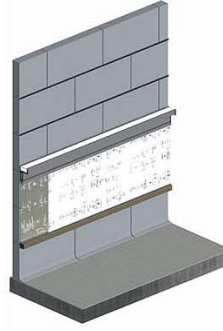
FLEXIBILITY

Demising Walls



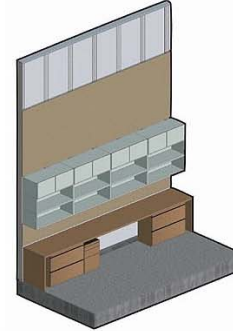
Block With Additive Finishes

- 'Smart' Chair Rail
- Continuous Teaching Surfaces
- Additive Reverberation Treatment



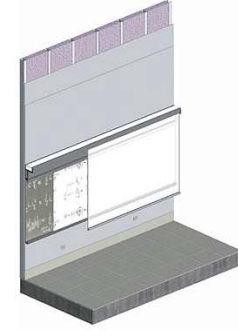
Customized Block

- Some features can be embedded
- Designed Interface with Teaching Surfaces or Storage
- Possible to Relocate



Demountable System

- Most easy to relocate
- Higher First Cost
- Could integrate storage or furniture



Gypsum Wall Board

- Requires effort to meet acoustic Targets
- Power and Data are embedded
- Issues of durability



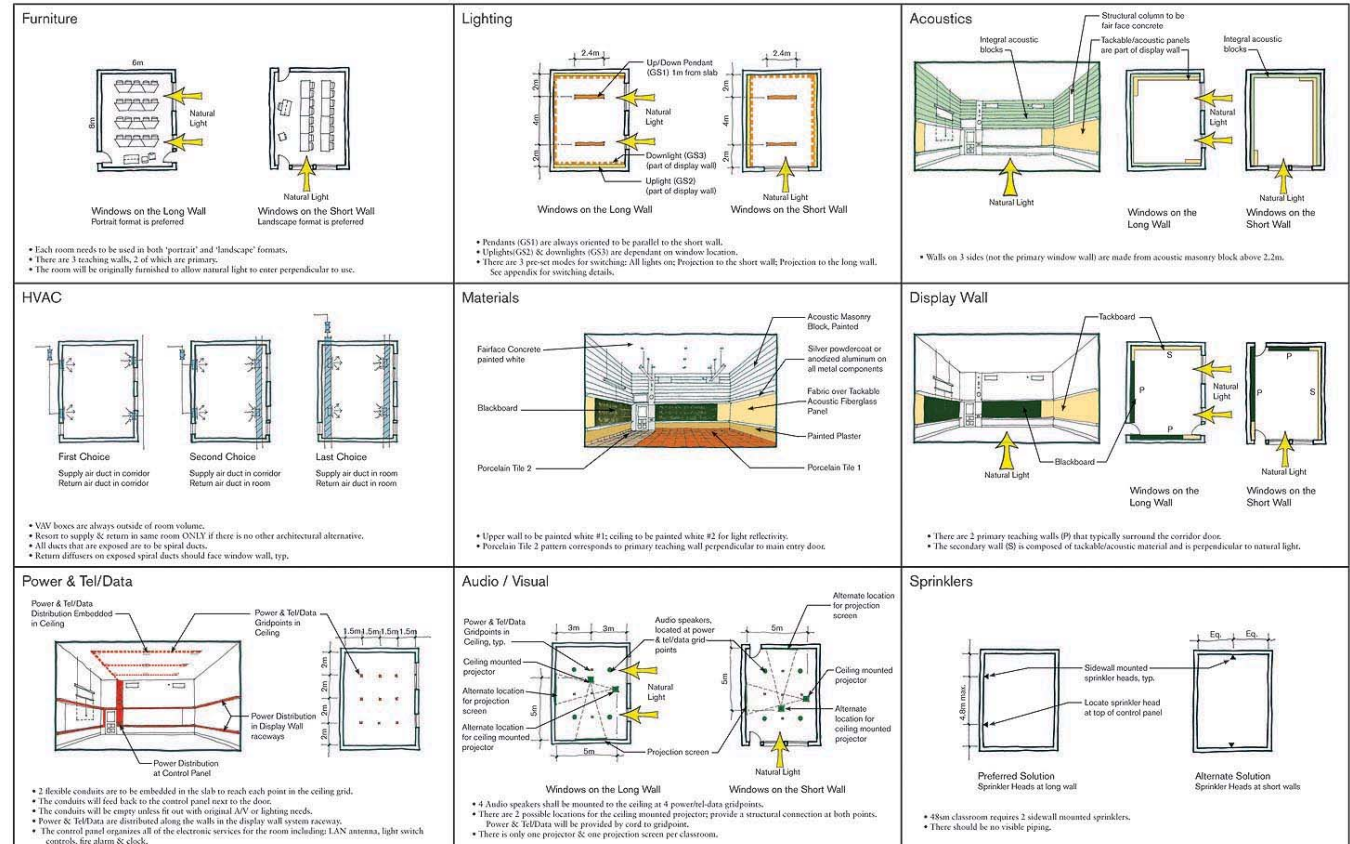


DESIGN of Learning Environments

Interior Systems

Design Guidelines for Generic Spaces

48 sm Classroom

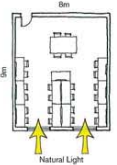
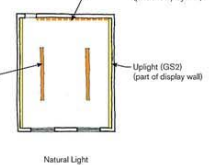
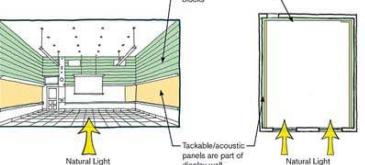
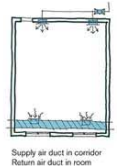
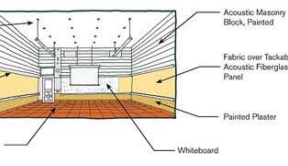
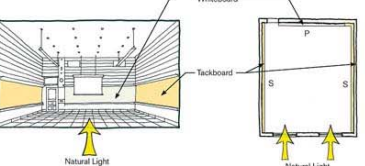
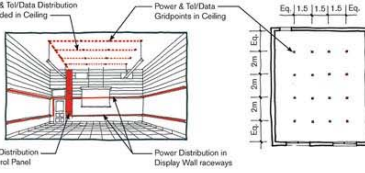
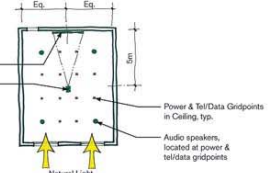
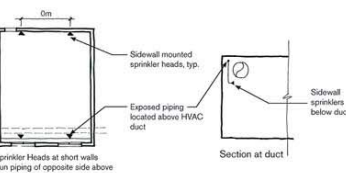




DESIGN of Learning Environments

Interior Systems

Design Guidelines for Generic Spaces **Large Computer Lab, 72 sm**

<p>Furniture</p>  <p>• Computer labs will be furnished with computer furniture but are anticipated to become regular classrooms over time.</p>	<p>Lighting</p>  <p>• Uprights (GS2) are always located perpendicular to natural light. • Downlight (GS3) is at primary teaching wall only.</p>	<p>Acoustics</p>  <p>• Walls above 2.2m are made of acoustic blocks on the 3 walls that are not the primary window wall. • The 2 tackable walls are needed for acoustic design.</p>
<p>HVAC</p>  <p>• VAV boxes are always outside of room volume. • All ducts that are exposed are to be spiral ducts. • Return diffusers on exposed spiral ducts should face window wall, typ.</p>	<p>Materials</p>  <p>• Upper wall to be painted white #1; ceiling to be painted white #2 for light reflectivity.</p>	<p>Display Wall</p>  <p>• Display walls are typically on 3 walls of learning spaces. • There is 1 primary teaching wall (P) with whiteboard. • There are 2 secondary walls (S) with tackable/acoustic material, and they are perpendicular to natural light. • The primary wall (P) is the wall with the entry door and is opposite the main window wall.</p>
<p>Power & Tel/Data</p>  <p>• 2 flexible conduits are to be embedded in the slab to reach each point in the ceiling grid. • The conduits will feed back to the control panel next to the door. • The conduits will be empty unless fit out with original AV or lighting needs. • Power & Tel/Data are distributed along the walls in the display wall raceways. • The control panel organizes all of the electronic services for the room including: LAN antenna, light switch controls, fire alarm & clock.</p>	<p>Audio / Visual</p>  <p>• 4 Audio speakers shall be mounted to the ceiling at 4 power/tel-data gridpoints. • There is 1 location for the ceiling mounted projector. Power & Tel/Data will be provided by cord to gridpoint. • Alternate direction is accommodated by pivoting the projector. • There is only one projector & one projection screen per room.</p>	<p>Sprinklers</p>  <p>• 76sm computer lab requires 4 sprinkler heads. • There should be no visible piping.</p>

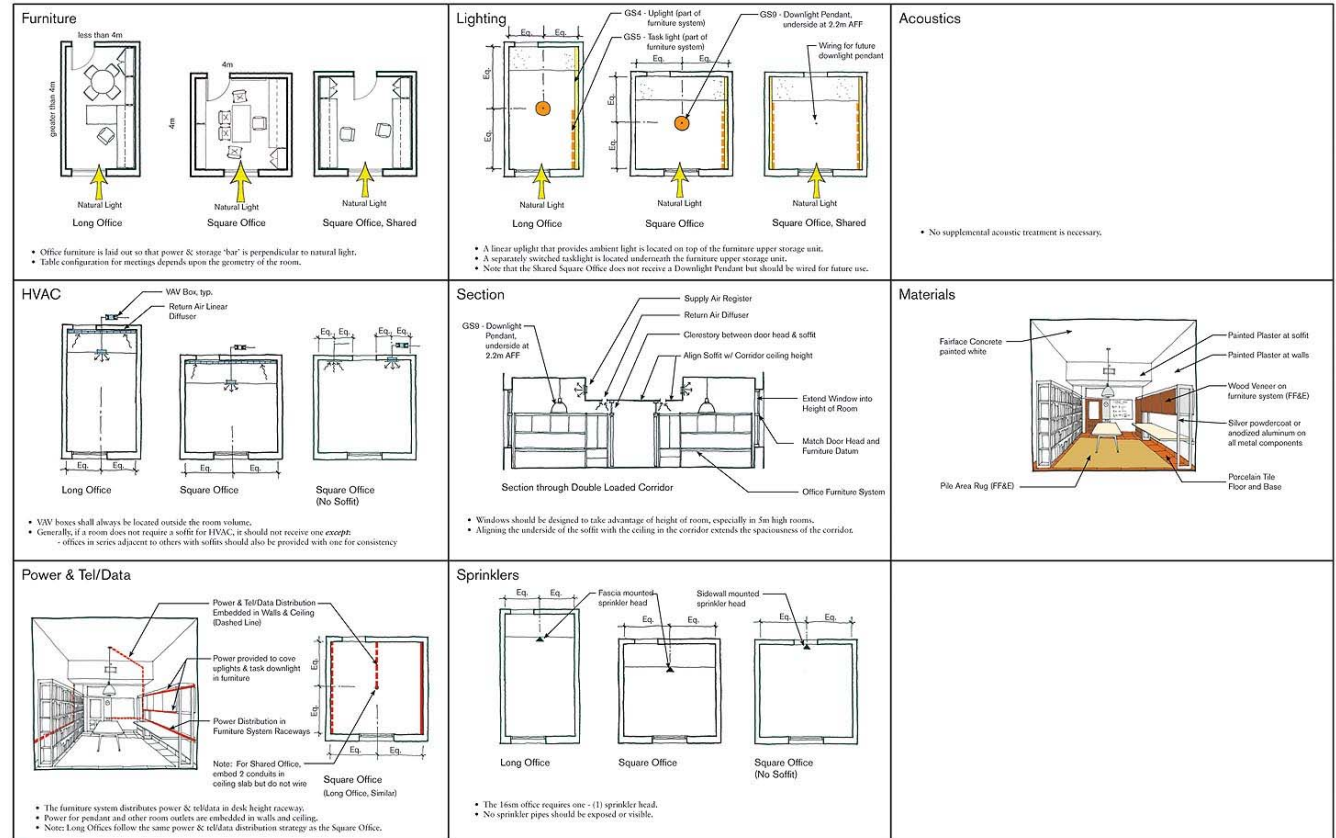


DESIGN of Learning Environments

Interior Systems

Design Guidelines for Generic Spaces

16 sm Office





Furniture Systems

Working and Learning Chairs





Furniture Systems

Classroom and Computer Tables



P-26 Teacher's Table



P-07 Classroom Table



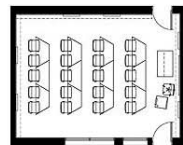
P-08 Classroom Rhomboid Table



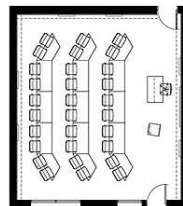
P-37 Computer Table

Classroom Plans:

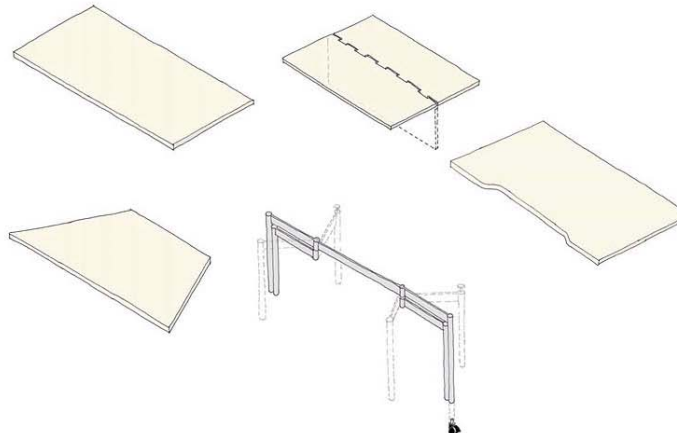
Scale 1/76



48 sq.m. Classroom

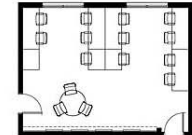


72 sq.m. Classroom

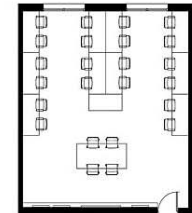


Computer Lab Plans:

Scale 1/76



48 sq.m. Computer Lab



76 sq.m. Computer Lab





Furniture Systems

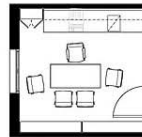
Office Furniture System

Closed Office Applications:

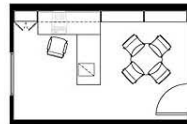
Scale 1:50



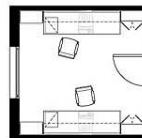
12 sq.m. Office



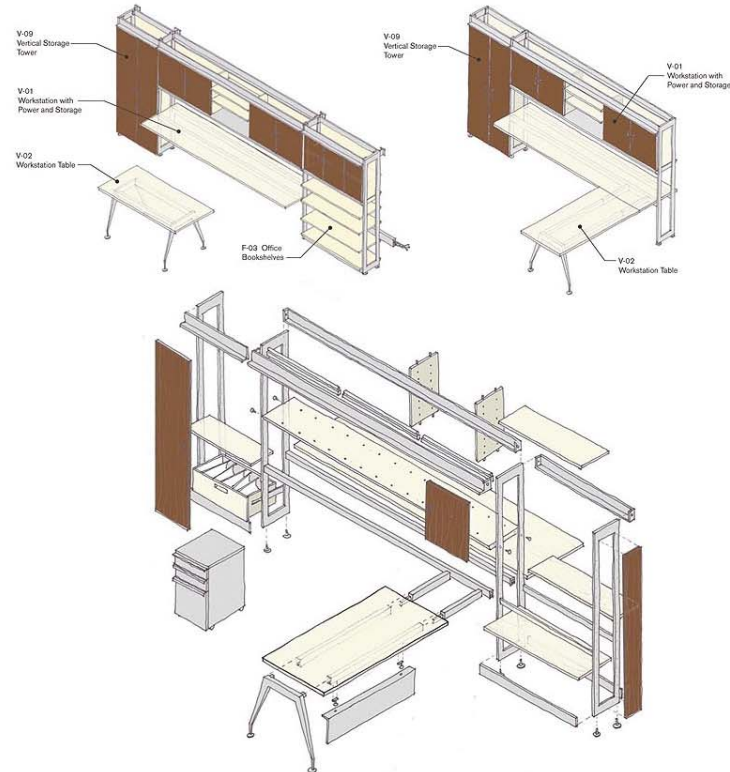
16 sq.m. Office



16 sq.m. Office

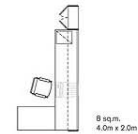


16 sq.m. Office for 2

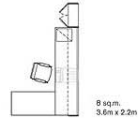


Open Office Applications:

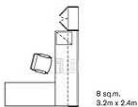
Scale 1:50



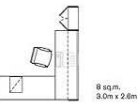
8 sq.m.
4.0m x 2.0m



8 sq.m.
3.6m x 2.2m



8 sq.m.
3.2m x 2.4m



8 sq.m.
3.0m x 2.6m



8 sq.m.
2.8m x 2.8m



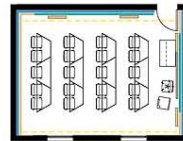


DESIGN of Learning Environments

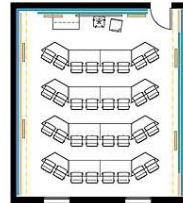
Furnishings

Furniture Systems

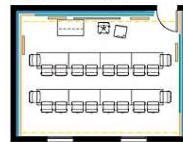
Visual Display Teaching Wall



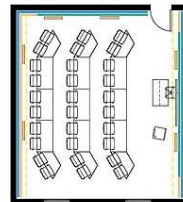
48 sq.m. Classroom, Portrait Format



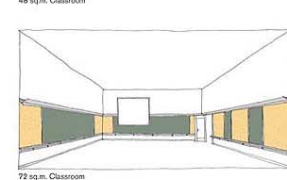
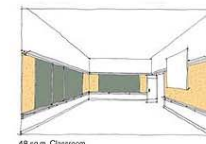
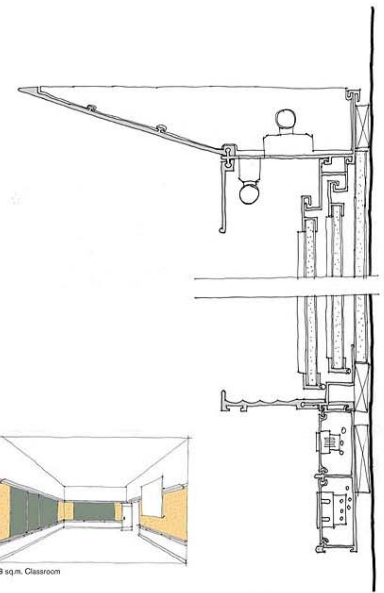
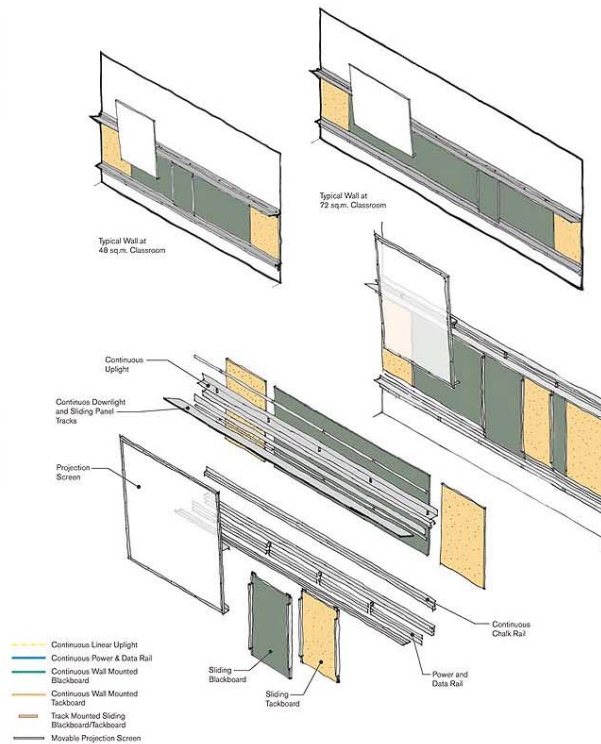
72 sq.m. Classroom, Portrait Format



48 sq.m. Classroom, Landscape Format



































72 sq.m. Classroom, Landscape Format



THE AMERICAN UNIVERSITY IN CAIRO

June 2003 • Robert Luchetti Associates, Inc. • FF&E Design Development

Egyptian Furniture Manufacturers

	OFFICES	CLASSROOMS	DOMESTIC
A. INDUSTRIAL			
Gulf Office Furniture			
Mobica	 		
Mohm	 		
Riadco	 		
Taki			
Williams	  	 	
B. SEMI-INDUSTRIAL			
Eshraka			
Habitat			
Pure Home			
Salah El Khayat			
C. TRADITIONAL			
El Mashrabiya	 		
Hammad Freres			 
Nabil Ghaly			
Nadim			



How will we measure our success ?

Letter From the President

To Members of the AUC Community and Friends:

Few universities in the world have the chance to do what AUC is now doing.

We are building an entirely new campus that began not long ago with a vision and a blank sheet of paper.

It will emerge during this decade as our “City for Learning” in New Cairo.



How will we measure our success ?

This magnificent campus will offer-state-of-the-art educational resources to our students and faculty.

Its environmental sensitivity will be exemplary.

It will express AUC's educational mission in a physical space that weaves Egyptian urban and architectural traditions into the design of a modern campus.

Our new home will make AUCians proud.



How will we measure our success ?

This world-class facility will be one of our most valued assets in a new Era of Excellence.

It will open fresh opportunities to attract new faculty, to deepen the learning of our students, and to increase our attractiveness to international students from the Middle East and around the world



Guidelines for future projects ?

- Set and follow project goals and the mission at the highest level
- Assemble and work a diverse high quality team
- Learn from and adapt to the local context
- Understand and involve the users
- Design for FLEXIBILITY
- Technology integration – teaching and learning environments are everywhere



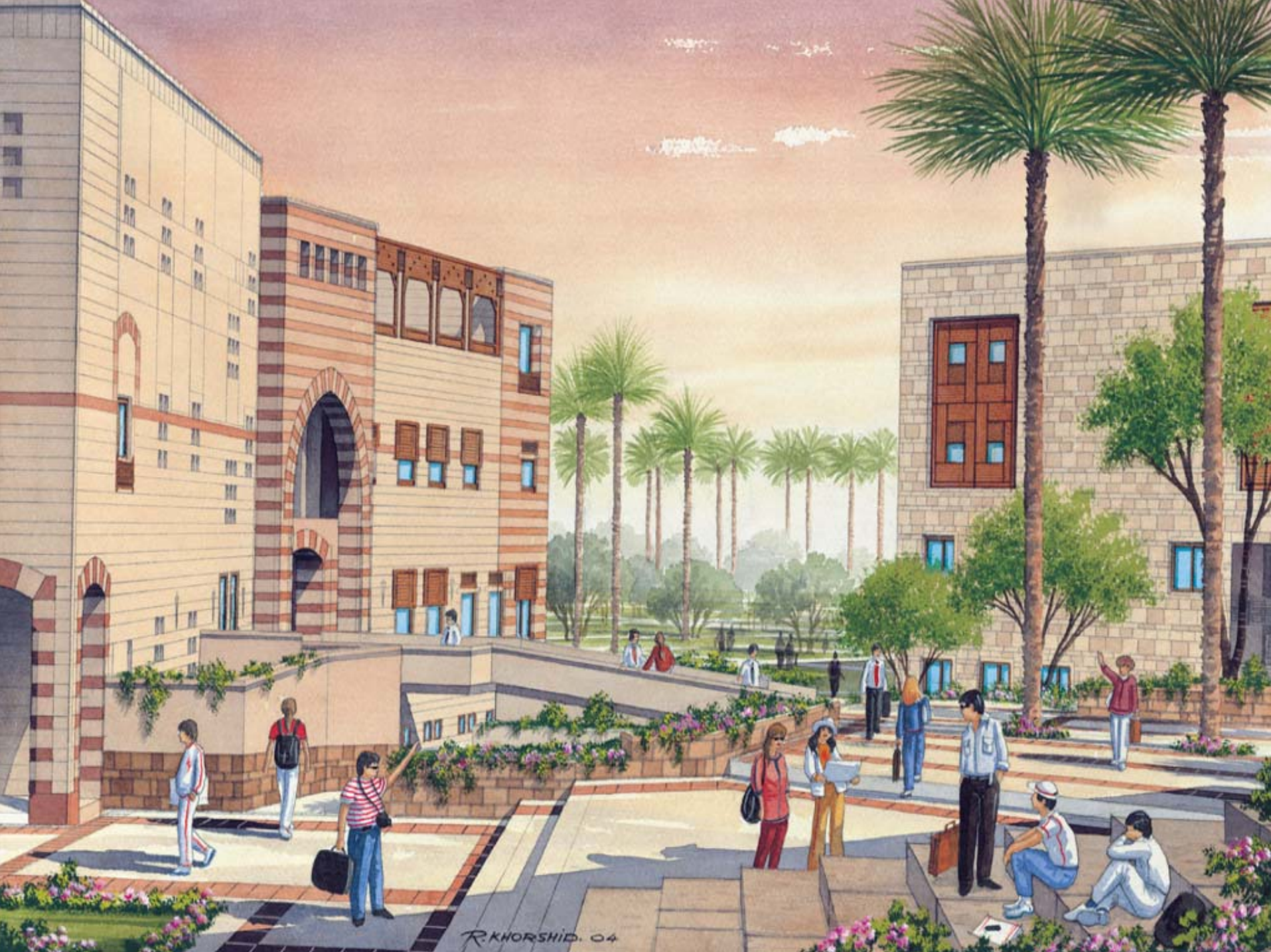
Guidelines for future projects ?

- Leverage and involve the local construction and furniture industries
- Prototype interiors and furnishings: build/test/build again











RKHORSHID. 04









HICAM FARES
SHADY ALBERT
2004



Ashraf Salloum

*AUC NCD Director of Planning and
Design*

Robert Luchetti

*President –Robert Luchetti
Associates, Inc.*