



NYSIM
New York Simulation Center
for the Health Sciences

A PARTNERSHIP OF



THE CUTTING EDGE OF HEALTH
CARE TRAINING: A PUBLIC-
PRIVATE COLLABORATION

SCUP-47
July 7-11, 2012

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Vice Chancellor, Facilities Planning, Construction and Management
City University of New York

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Executive Director

New York Simulation Center for the Health Sciences

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Associate Principal

Ballinger Architects

- CUNY and NYU Background
- Deal Components and Structure
- Design
- Ongoing Operations for a Joint Venture
- Lessons Learned After Year 1
- Q&A

- Formulate creative partnerships that address long-term economic uncertainties by leveraging public and private funds
- Assess diverse programmatic goals to meet expectations among multiple constituencies while increasing space flexibility and utilization
- Identify equipment requirements and resources for a technology-driven learning environment
- Develop collaborative processes across institutions and across disciplines to create new learning paradigms



CUNY is the nation's largest urban public university

24 Colleges and Institutions:

- 11 senior colleges, 7 community colleges, William H. Macaulay Honors College, CUNY Graduate School, and 4 Professional Schools
- Over 300 buildings
- 26 million square feet

Serves 540,000 students

- Both degree seeking and continuing education



The goal of the Public-Private Partnership group is to finance and develop new facilities for the University by:

- Monetizing CUNY's real estate assets,
- Creating revenue supported projects, and
- Use the efficiencies of the private sector.

Four major types of partnerships:

- Condominium and Condominium Leasehold purchases
- Joint Ventures
- Land Swaps and
- Income producing projects

CUNY PUBLIC/PRIVATE PARTNERSHIPS



HUNTER SCHOOL OF SOCIAL WORK



CITY COLLEGE STUDENT RESIDENCE



CUNY LAW SCHOOL



NY SIMULATION CENTER FOR
HEALTH SCIENCES



QUEENS COLLEGE STUDENT RESIDENCE



GRAD CENTER HOUSING

CUNY Funded by State Appropriations

- 100% for Senior Colleges
- 50% matching by the City of New York for Community Colleges

In the wake of 9/11, CUNY received funding in 2004 to build a state of the art first responder, emergency response, and allied health care training facility in Lower Manhattan.

Other hospitals in Lower Manhattan did not have capacity to work with us.

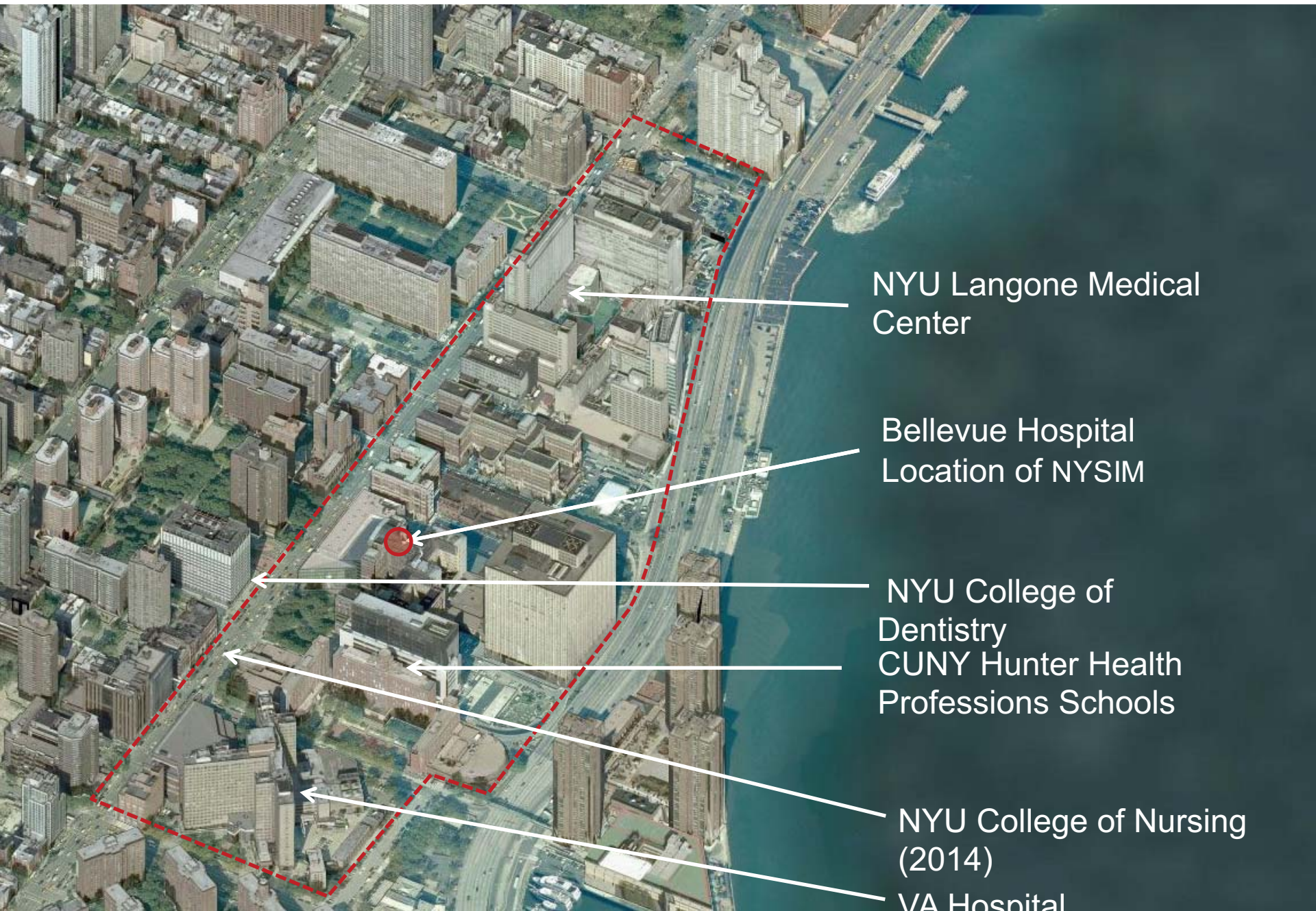
CUNY- NYU Public/ Private Partnership

- In 2008, NYU Medical Center approached CUNY with interest in utilizing both schools' resources to build a simulation training center.
- NYU to bring their training, educational, and research expertise to the project.



- Commitment to the health and welfare of others
- Passion for education
- Understanding of the importance of new technologies
- Need for similar programmatic space

- New York University is one of the largest private universities
 - Over 40,000 students
 - 18 schools and colleges
 - Over 3100 full time faculty
- NYU Langone Medical Center
 - Tisch
 - Rusk Institute of Rehabilitation Medicine
 - Hospital for Joint Diseases
 - NYU School of Medicine
 - 676 medical students
 - 2425 students and trainees (residents/fellows, Medical, MD/PhDs, PhDs, Post Docs)
 - 5164 Faculty
 - Affiliated with Bellevue Hospital



NYU Langone Medical Center

Bellevue Hospital
Location of NYSIM

NYU College of Dentistry
CUNY Hunter Health Professions Schools

NYU College of Nursing (2014)

VA Hospital

NYU Affiliated Hospitals

- **Bellevue Hospital Center**

The oldest public hospital in the United States, providing both acute and long-term healthcare services to patients of all backgrounds.

- **Gouvernor Healthcare Services**

The largest freestanding ambulatory care clinic in the NYC Health and Hospitals Corporation system, serving mostly Chinese and Hispanic immigrants.

- **New York Harbor Veterans Affairs Healthcare Center**

The healthcare system for New York City's veteran population with campuses in Brooklyn, Queens, and Manhattan.

- **Woodhull Hospital Medical Center**

Serving residents of North Brooklyn, including Bushwick, Williamsburg, Greenpoint, Bedford-Stuyvesant, and Fort Greene, provides primary, specialty, and acute-care services with an emphasis on disease prevention and health promotion.

HISTORY AND TIMELINE



2008

2009

2010

2011

CUNY Receives \$21M allocation NYS-NYC for Simulation Center

First CUNY/NYU discussion regarding a joint effort

CUNY/NYULMC complete Development and Operating Agreements

Design and Development

Construction Begins Oct. 2010

Opened Sept. 2011

CUNY Chancellor designates 2005-15 the "Decade of Science"

Simulation Committee completes assessment on NYU needs for a Simulation Program

Simulation becomes a one of the 7 key elements for Curriculum for the 21st Century

Program Development



NYU trains learners from the School of Medicine including UME, GME and Continuing Medical Education, hospital nurses, students from the School of Nursing, School of Dentistry



CUNY has 13 Nursing Schools and graduates approximately 1200 RNs per year representing 50% of all new RNs graduating from nursing schools in New York City.

CUNY also provides city-wide leadership in emergency management and first-responder training and certification through programs at BMCC, John Jay, LaGCC and many others.

- An initial group of more than 10,000 potential learners were identified for the facility:
 - Nursing and Allied Health Care Students- Hunter, LaGuardia, BMCC, NYU
 - NYU Medical Students
 - CUNY Sophie Davis School of Biomedical Education
 - Graduate medical and nursing education- ACLS, ATLS, advanced training
 - First responders and emergency management leaders- including, FDNY, the Red Cross and New York Downtown Hospital
- The needs assessment process took place over 3 months and included interviews with approximately 22 schools and departments at both CUNY and NYU as well as a variety of City agencies.

Joint Venture

- CUNY to provide \$21M in combined City and State capital appropriations for construction.
- NYU to lead design and construction of the facility, hold all contracts, and operate the facility over a number of years to amortize CUNY's capital contribution (approximately 7 years at \$3M per year).

- Development Agreement
 - Construction of the Project (Planning, Contracts, Payment)
- Lease and Sub-Lease
- Operating Agreement
 - Financial Obligations of each party
 - Governance (Steering Committee)
 - Procedures
 - Program Allocation
 - Reporting requirements

- Time allocation
 - NYU- 40%
 - CUNY- 40%
 - Joint- 20%
- Steering Committee
 - Comprised of two (2) individuals appointed by from NYU and two (2) individuals appointed by CUNY
 - Decisions must be unanimous
 - Chaired on a rotating basis

- **Ballinger** - Architecture Firm
- **VVA** - Project Manager
- **J.A. Jennings** - General Contractor
- **NYULMC Real Estate** - Property Management

CUNY and NYULMC chose A/E team, Project Manager, General Contractor and IT/AV consultant together.

- NYSim is located in Bellevue Hospital - 462 First Avenue
- Approximately 25,000 gsf of leased space
- Centrally located, publicly owned space
- Level-I Trauma Center
- Strong ties with FDNY
- Disaster Preparedness, First Response, Terrorism



FIRST NURSING SCHOOL



FIRST EMERGENCY
MEDICAL SERVICE





Bellevue Hospital – 3rd Floor
New York Simulation Center for the Health Sciences
(NYSim)

- User Groups- Monthly or Bi-weekly
 - Groups divided by required functionality, programs, discipline, space requirements, course content, class size, scheduling
- Project Team Working Group- Weekly
 - Project manager, architects, real estate groups, NYSIM management team
 - Technology Group (AV/IT Consultants), General Contractor, Trades
- Steering Committee – Monthly
 - CUNY/NYU Real Estate Groups (during construction)
 - Operating Steering Committee Members

- In-Place or Traditional Facilities Remain
- Design for High Fidelity
- Design for Team Training
- Does it fulfill the Center's Objectives
 - Is it High Fidelity ?
 - Is it Inter-Professional ?
 - Is it too specific / use limiting / low utilization ?

- **Large Simulation Rooms**
 - Operation Room
 - Labor and Delivery
- **OSCE Center** (14 exam rooms required)
- **Medium Simulation Rooms**
 - Patient Rooms (med/surg type - 10p capacity)
- **Small Simulation Rooms**
 - Outpatient Exam Rooms (phys/dental type - 4p capacity)
- **Procedure/Tissue/Disaster Training** (wet, multi-purpose, fluid capable space)
- **Nursing Skills Lab**
- **ICU / Trauma Rooms** (multiple patient / intensive care setting)
- **Certificate Training Room** (multi-purpose w/ wet lab)
- **Debrief Rooms** (teleconference capable)
- **Classrooms** (divisible w/ 80-90 person capacity)



RECENT NATIONAL SURVEY OF TOP MEDICAL SCHOOLS

	Clinical Skills	High-Fidelity	Task + Skills	Tissue + Surgical	
JOHNS HOPKINS UNIVERSITY Outpatient Center & School of Medicine Baltimore, MD	12 - Pat Exam X - Other	2 - Medium 1 - Large	X - Lab X - Bays	Gross Anat.Lab 1 - Skills Suite	Elizabeth Hunt, MD PhD Dru Holehan, BS
Simulation Center for Health Sciences New York University + CUNY + BMCC New York, NY	9 - Pat Exam 5 - Lrg Other	2 - Medium 3 - Large	1 - Flex Use 5 - Stations	1 - Wet Flex 3 - Stations	Thomas Riles, MD Sheila O'Loughlin
BRIGHAM & WOMEN'S HOSPITAL Stratus Center for Medical Simulation Boston, MA	? - Pat Exam ? - Other	? - Medium ? - Large	? - Lab ? - Bays	? - OperLab ? - Class	TBD Sarah Peyre
VIRGINIA COMMONWEALTH UNIVERSITY Human Simulation and Patient Safety Center Richmond, VA	16 - Pat Exam X - Other	4 - Medium 2 - Large	1 - Lab 8 - Bays	Gross Anat.Lab	Ellen Brock, MD Brenda Seago
WEILL CORNELL MEDICAL COLLEGE Stratus Center for Medical Simulation Boston, MA	10 - Pat Exam 2 - Lrg Other	X - Medium 1 - Large	1 - VR CAVE X - Bays	Gross Anat.Lab	Yoon Kang Nancy Farrell
PENN MEDICINE Penn Rittenhouse Clinical Simulation Center Philadelphia, PA	12 - Pat Exam 2 - Other	3 - Medium 3 - Large	Multi-Purp. 6 - Bays	Gross Anat.Lab 1 - Skills Suite	Joseph Palmieri, MS Ed. Gretchen Kolb, MS CGC
EMORY UNIVERSITY ExCEL Emory Center for Experiential Learning Atlanta, GA	16 - Pat Exam 4 - Suites	2 - Medium 2 - Team	1 - Lab 2 - Large (flex)	1 - OperLab 6 - Stations	Douglas Ander, MD Kim Fugate
UNIV OF PITTSBURGH MEDICAL CENTER West Campus for Simulation	6 - Pat Exam	3 - Medium	1 - Multi Purp	1 - Wet Flex	Thomas Dongilli Donald Denton, MD

Listening
Learning

TECHNOLOGY-ENABLED ACTIVE LEARNING SPACES

Self
Paced



+250 students

Lecture Mode



+100 students

Learning Studio



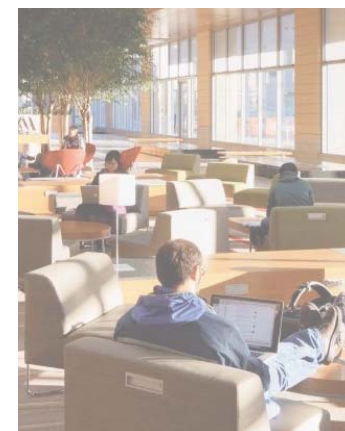
Teams of 2-8

Teaching lab



Simulation

Role Playing



1 student

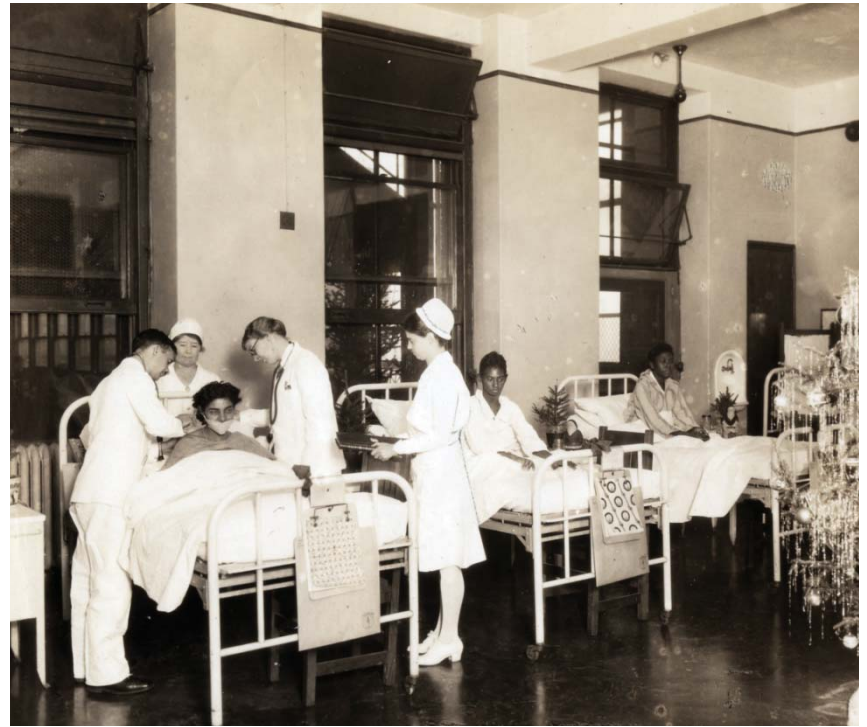
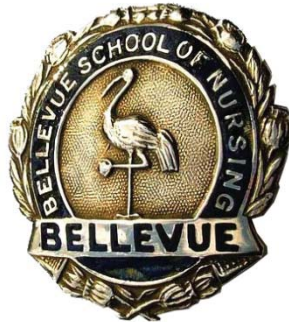
Self Directed

- Reduce Lecture Seating Time - 12 min. Listening Attention Span
- No Front of the Room - Multiple Problem Solving Presentation Locations
- Teamspot Collaboration Software

NYSIM - BELLEVUE 3RD FLOOR: EXISTING PLAN



EXISTING FACILITY



Adaptable Furniture



- Turnover + Rotations
- Rooms on Edges
- Unsupervised Use

Skyfold Walls



- Max Utilization
- Adaptable Environments
- Team Instruction

Functional Transformation



- Individual Record Capture
- Off Site Connectivity
- Remote Learning / Teaching

RESULTS: SIMULATION CENTER SOLUTION



Linear Approach



Concentric Approach



Radial Approach



Virginia Commonwealth
University



University of Michigan



NY Simulation Center
for Health Sciences

NYSIM - ZONED FLOOR PLAN

- 1. Entry & Public Amenities
- 2. Classrooms
- 3. Administration & Staff Support
- 4. Simulation
- 5. Control
- 6. Services
- 7. Storage

High-Fidelity
Simulation Suite

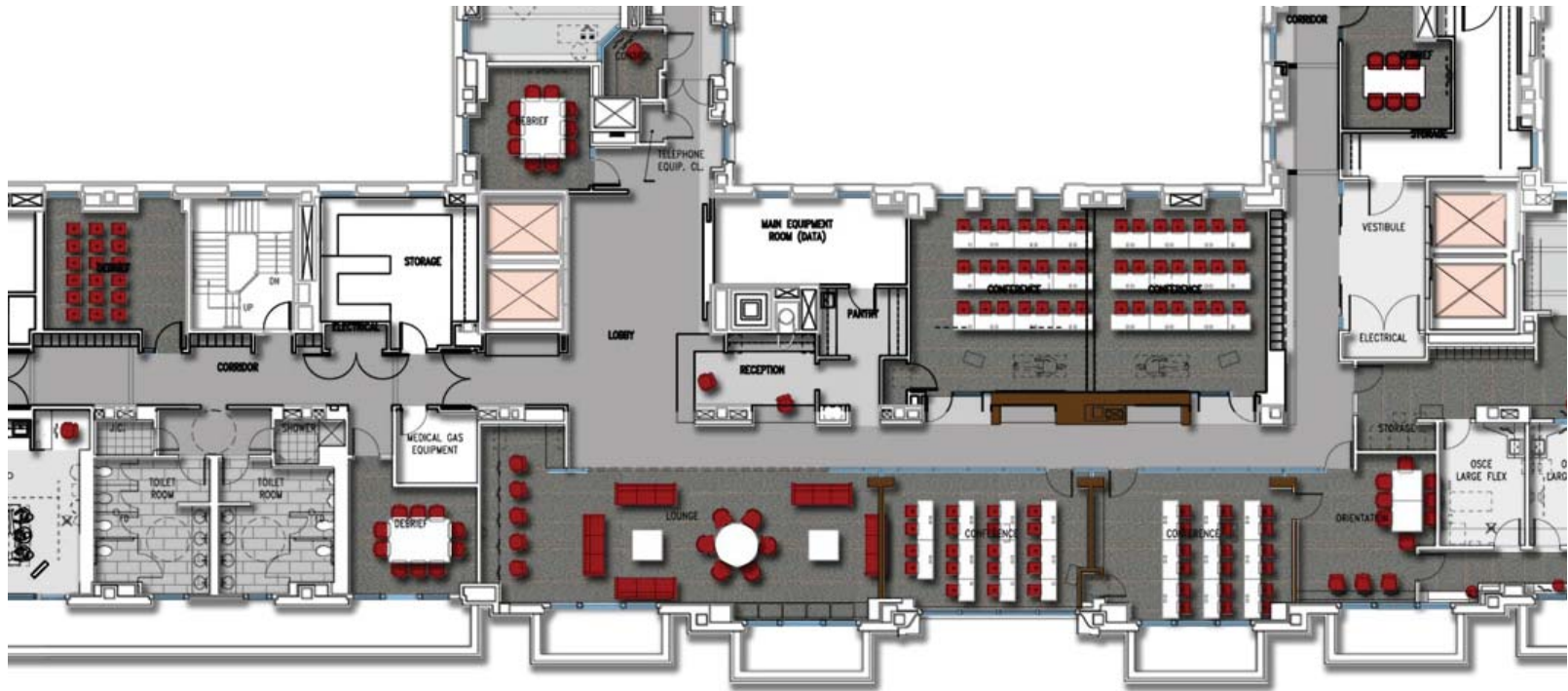
Administration
Support Suite



Simulation Suite

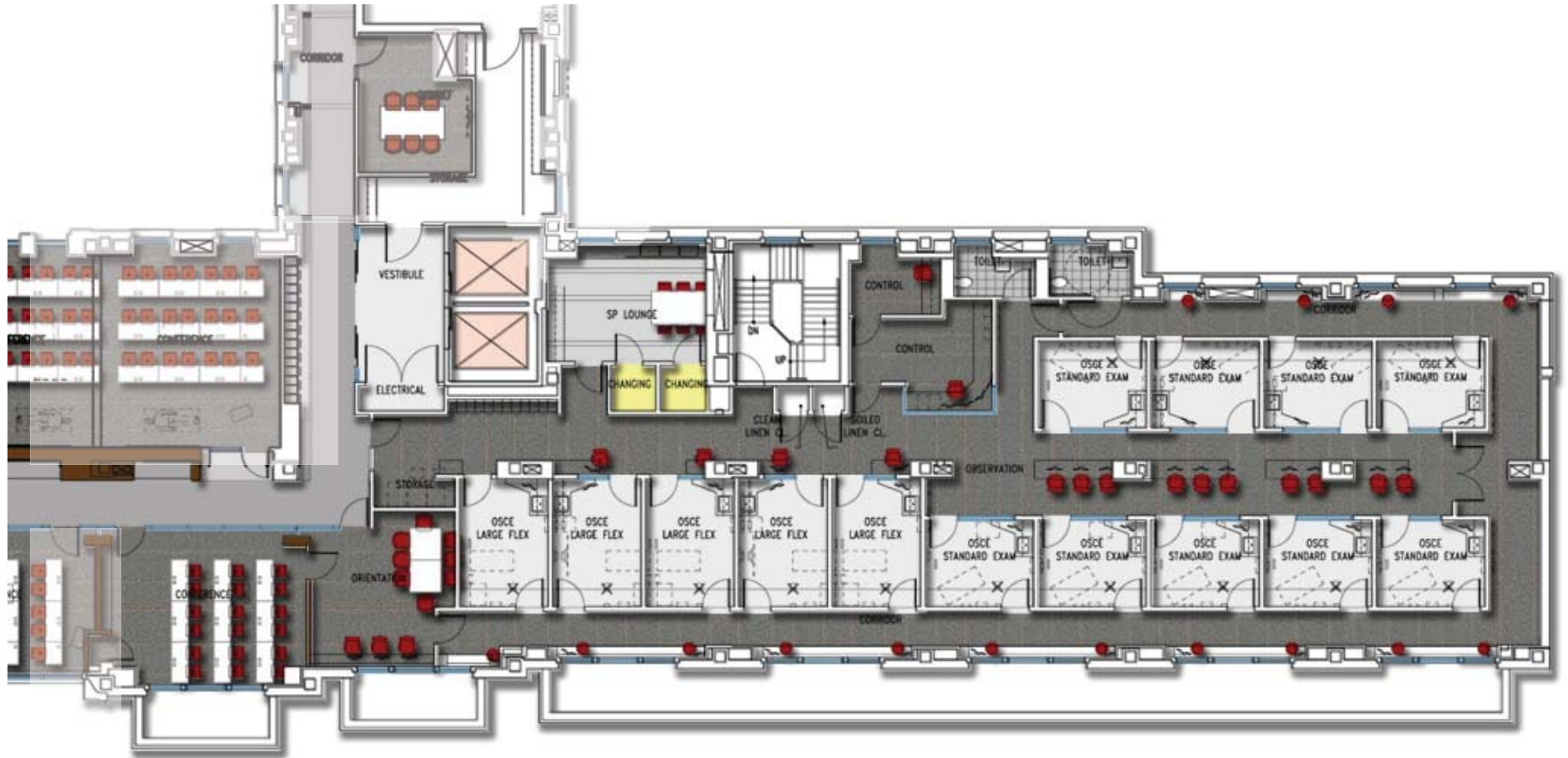
Shared Interaction
Commons

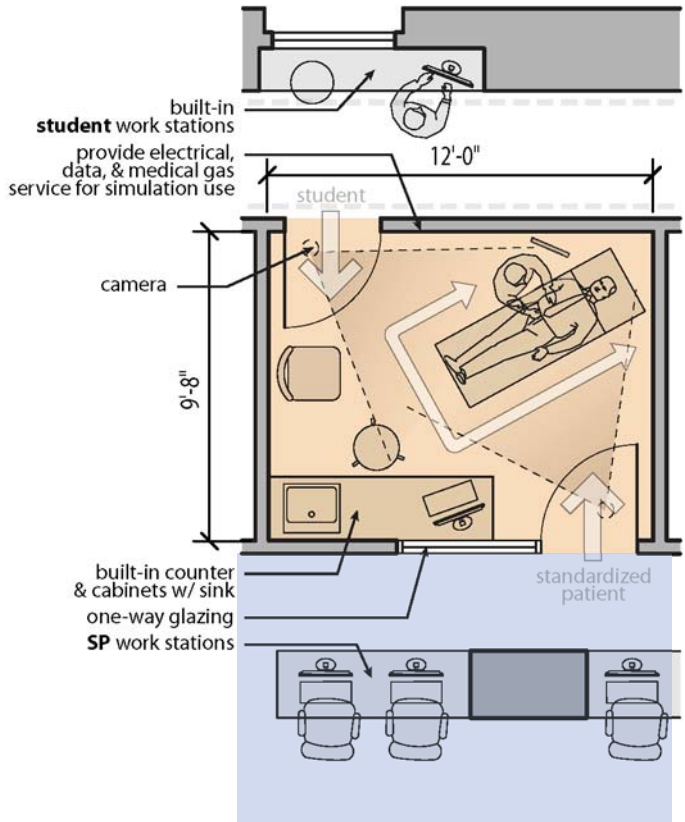
OSCE Simulation Suite



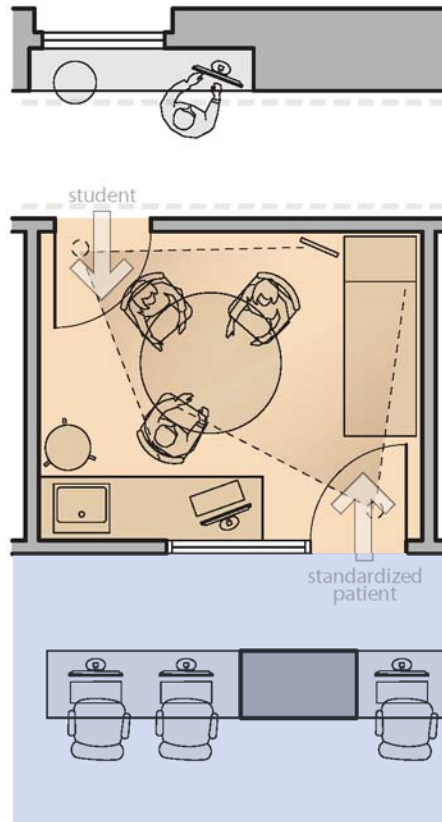




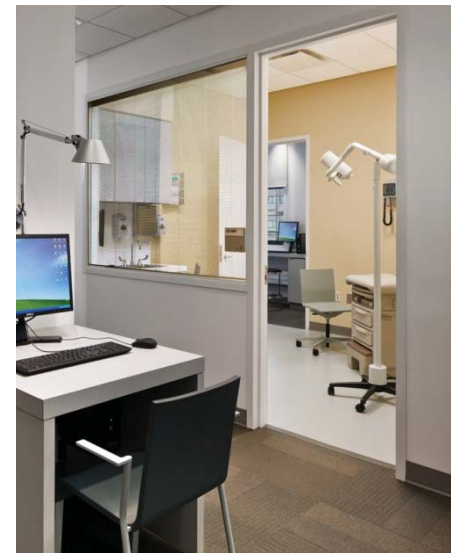




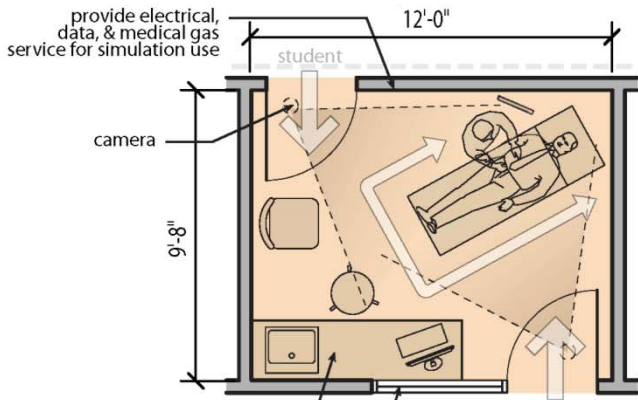
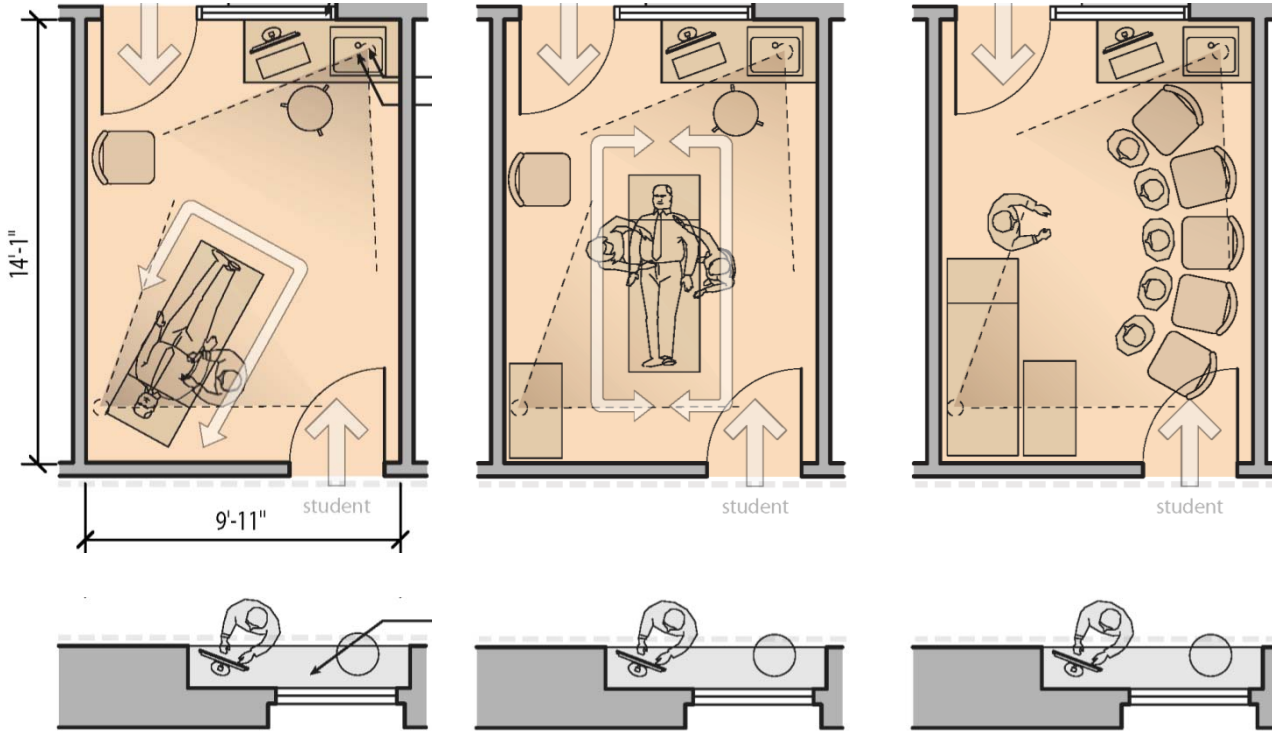
Typical OSCE Exam



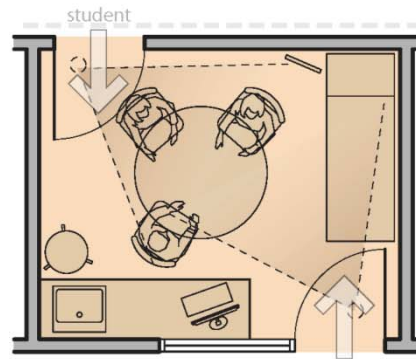
Social Work Sim/Debrief



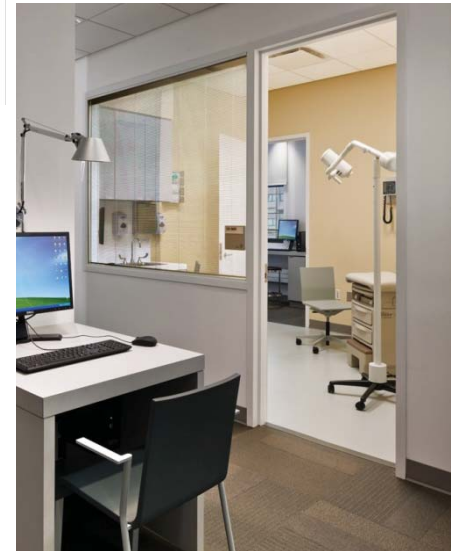
CLINICAL SKILLS: PATIENT EXAM ROOMS

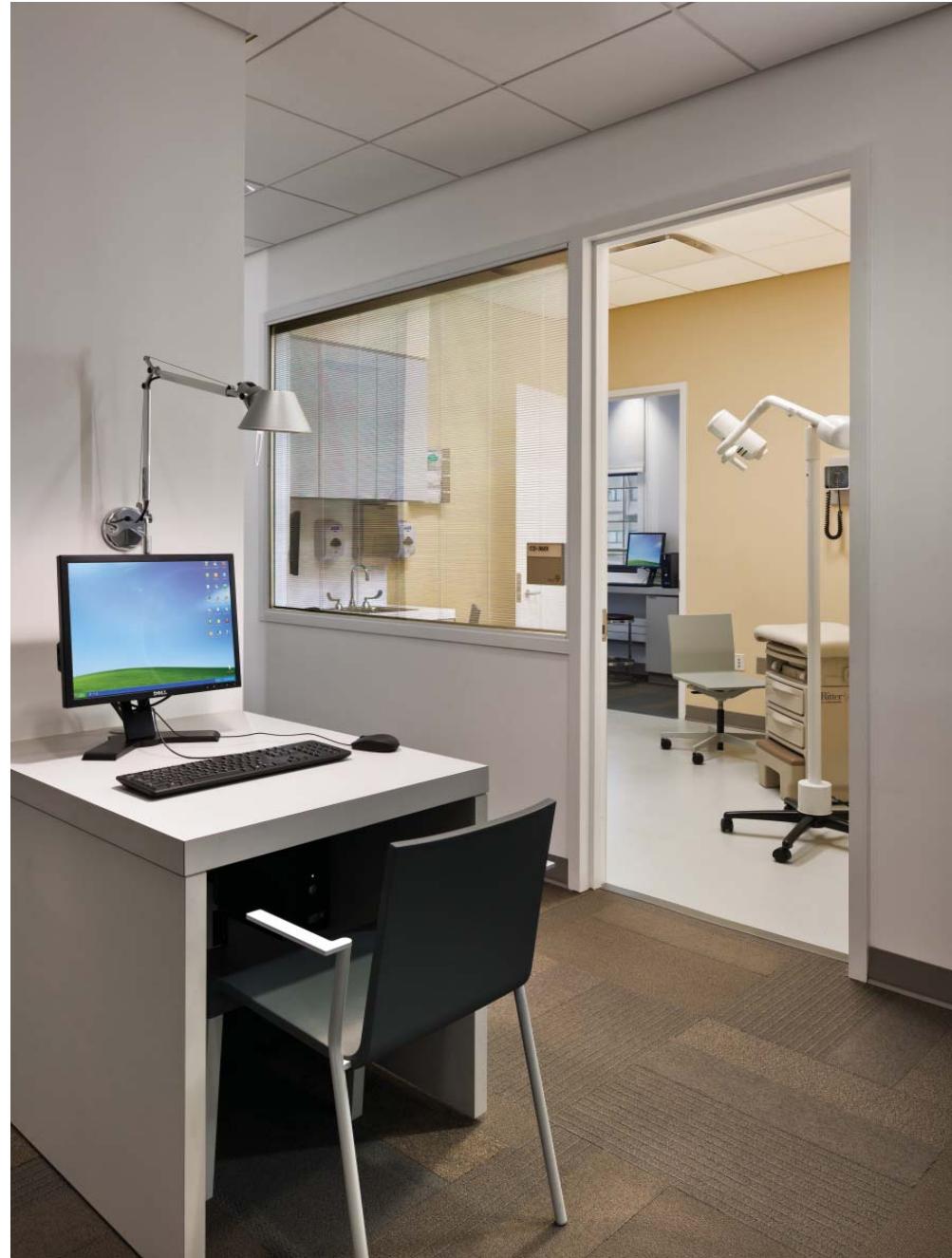
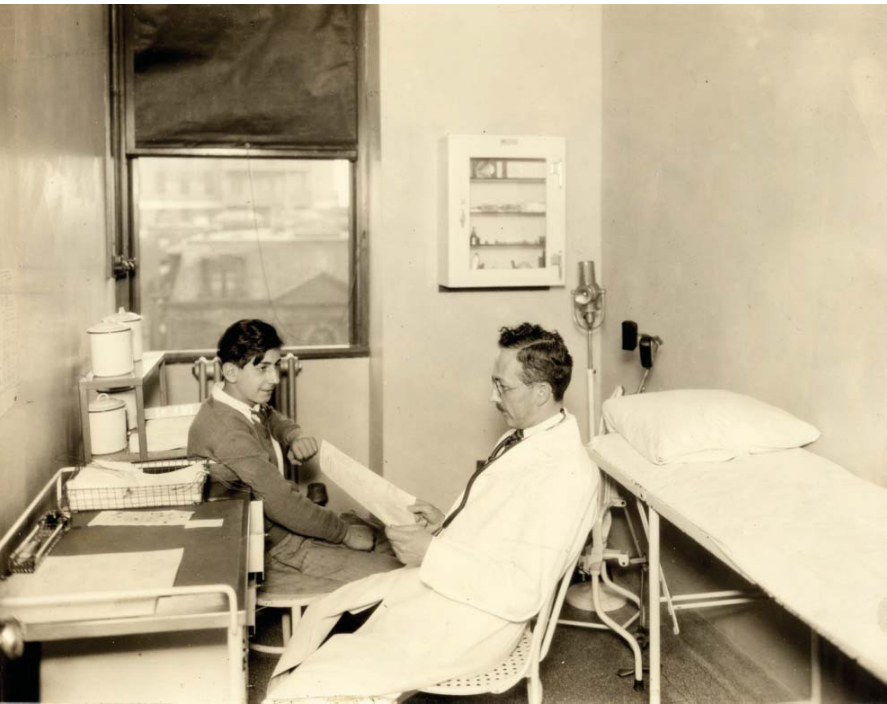


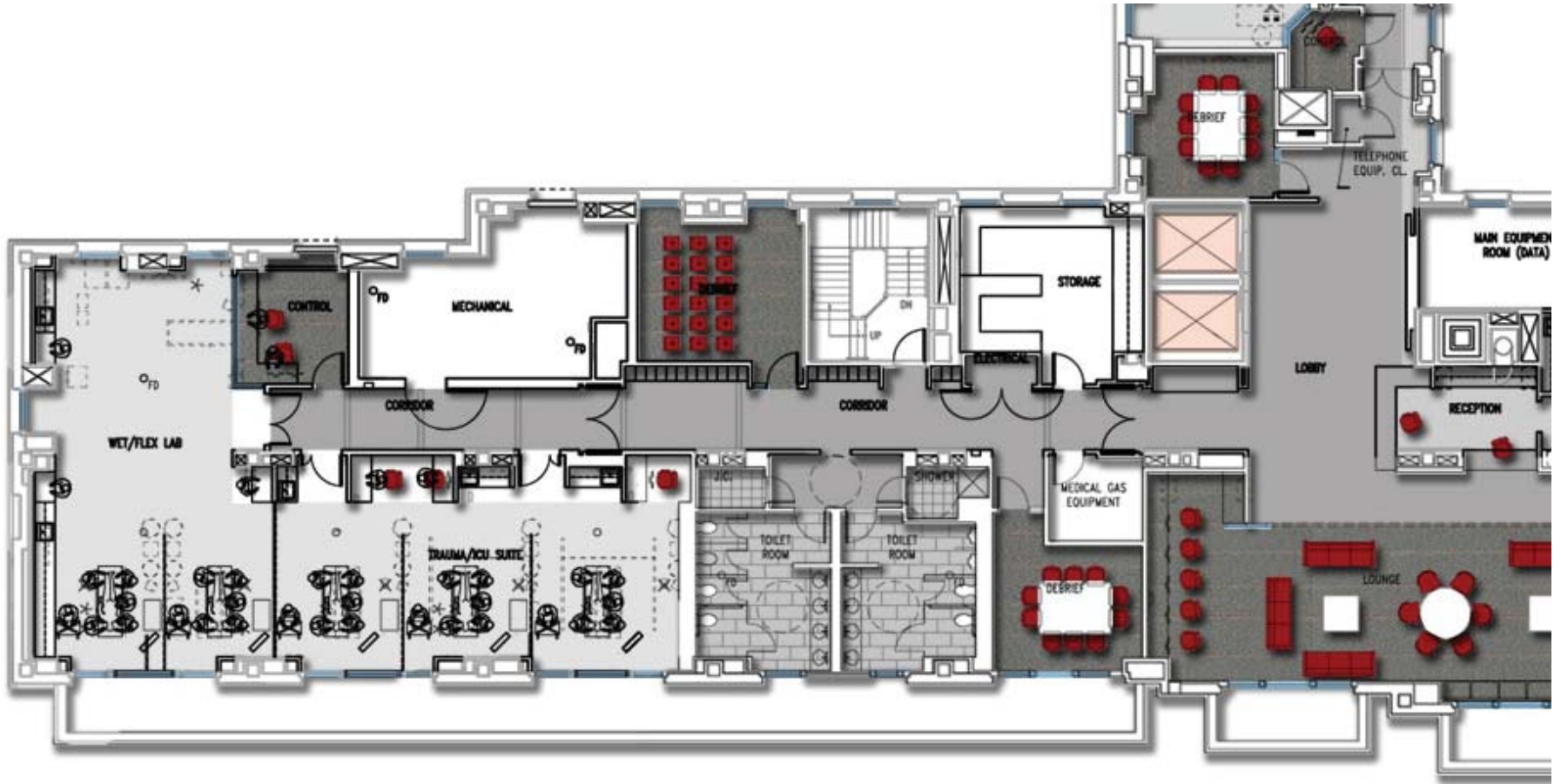
Typical OSCE Exam

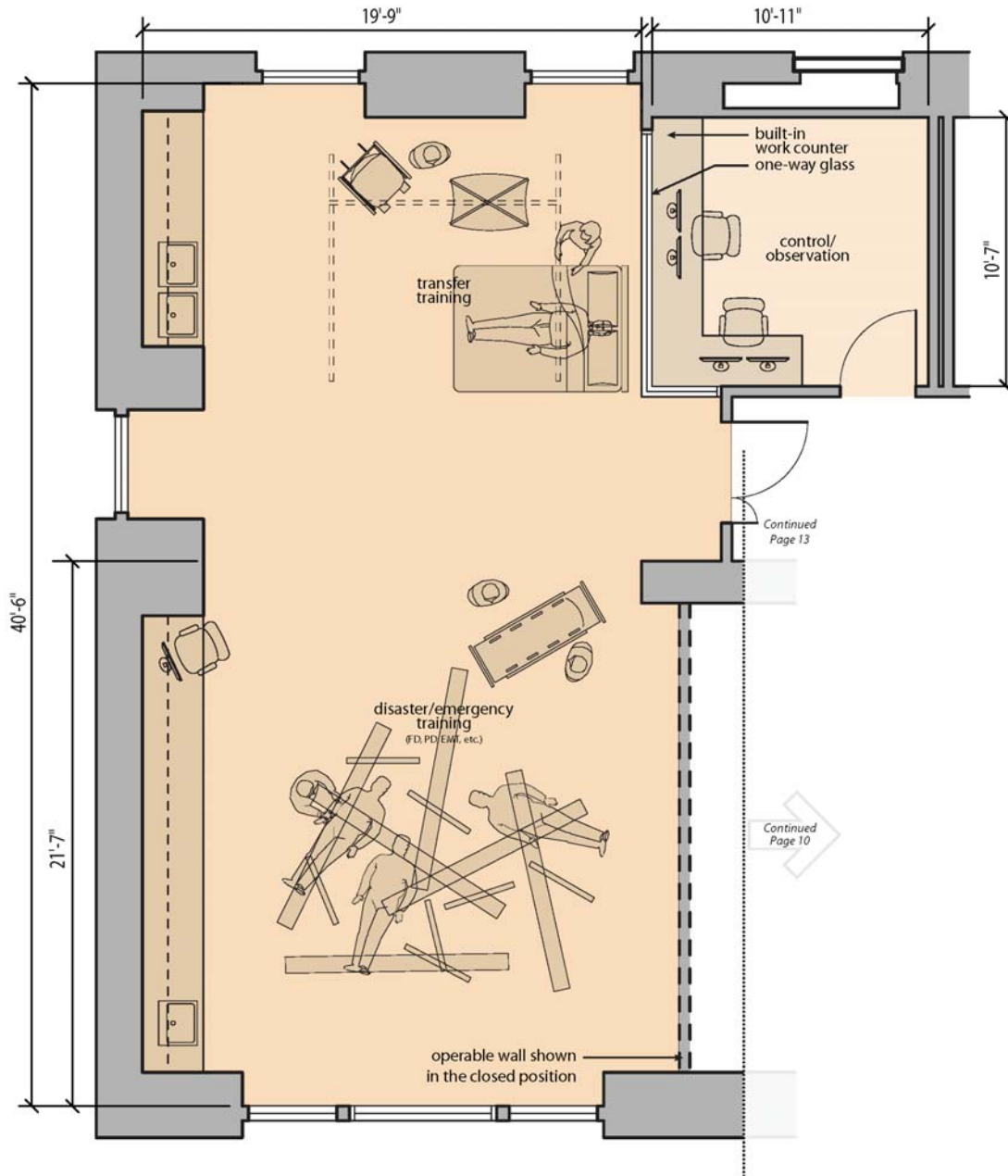


Social Work Debrief

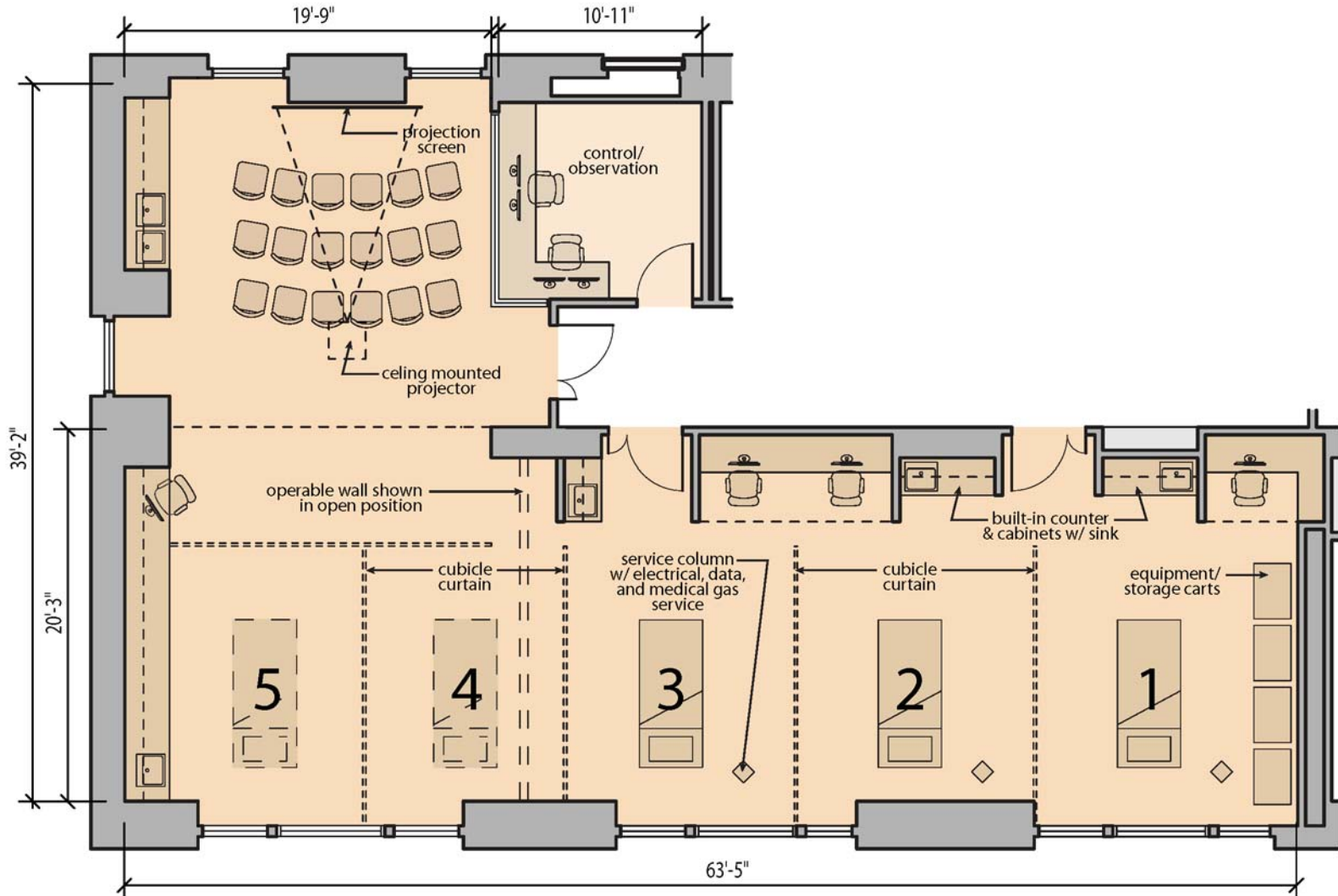








NYSIM - 5-BAY TRAUMA/ICU SUITE

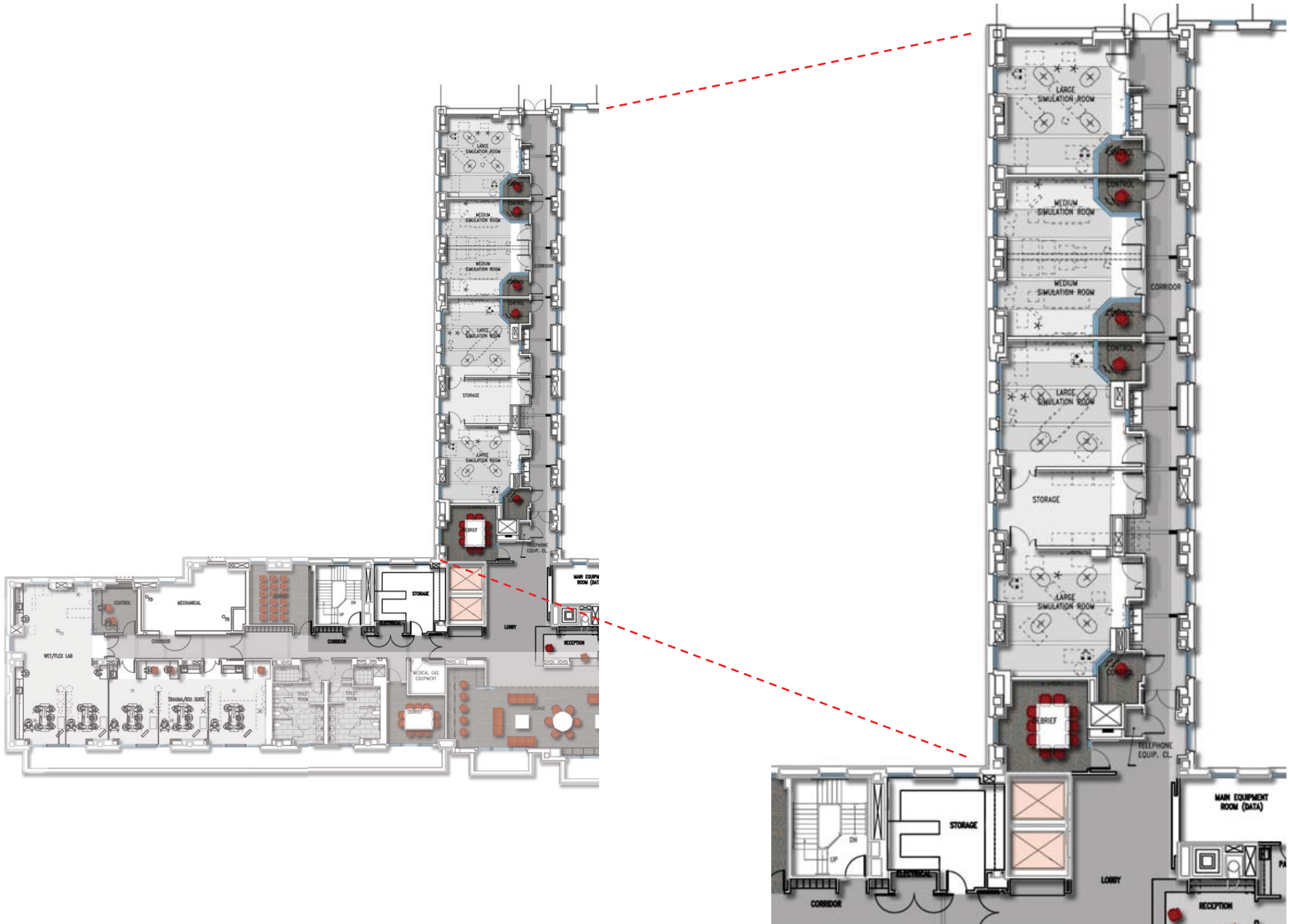




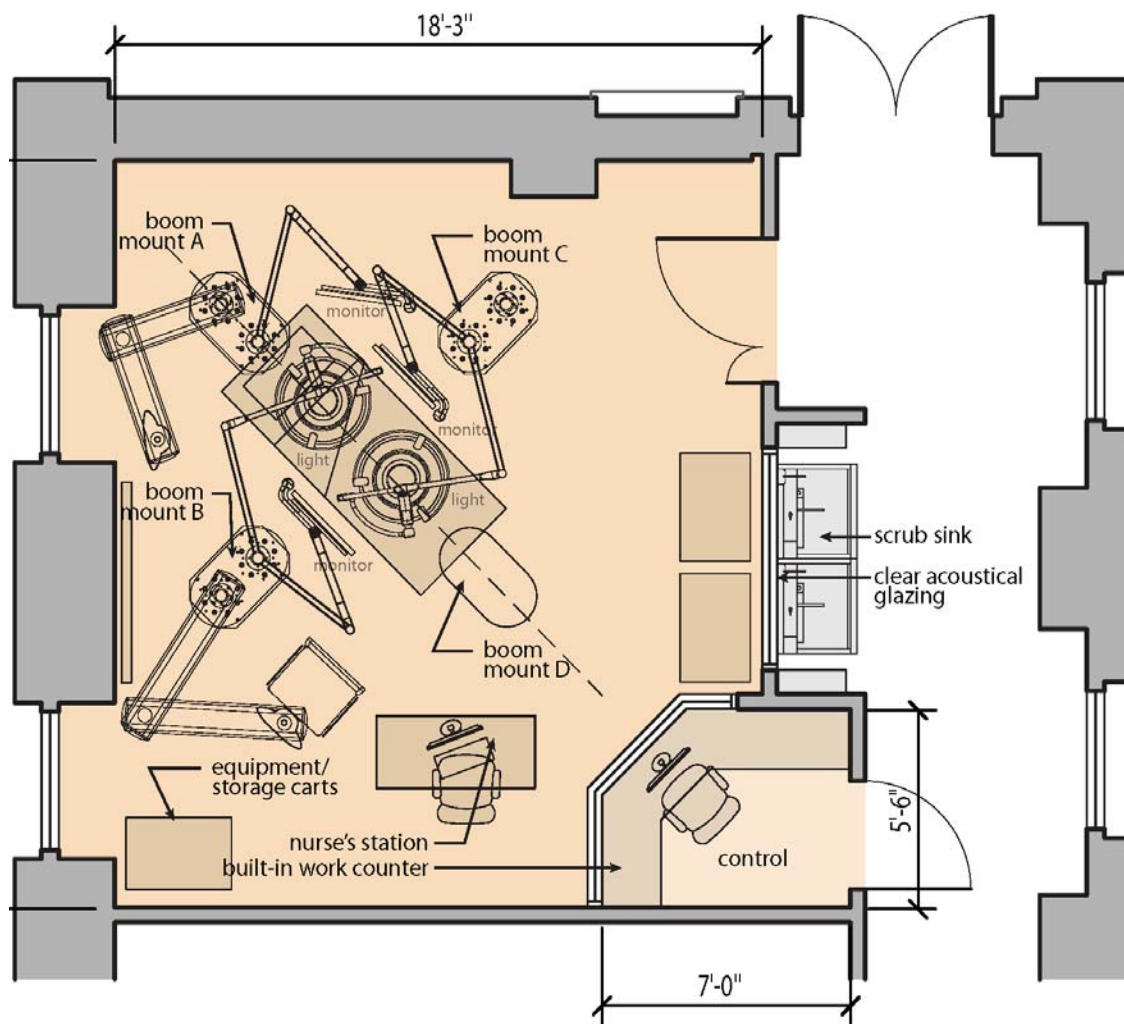


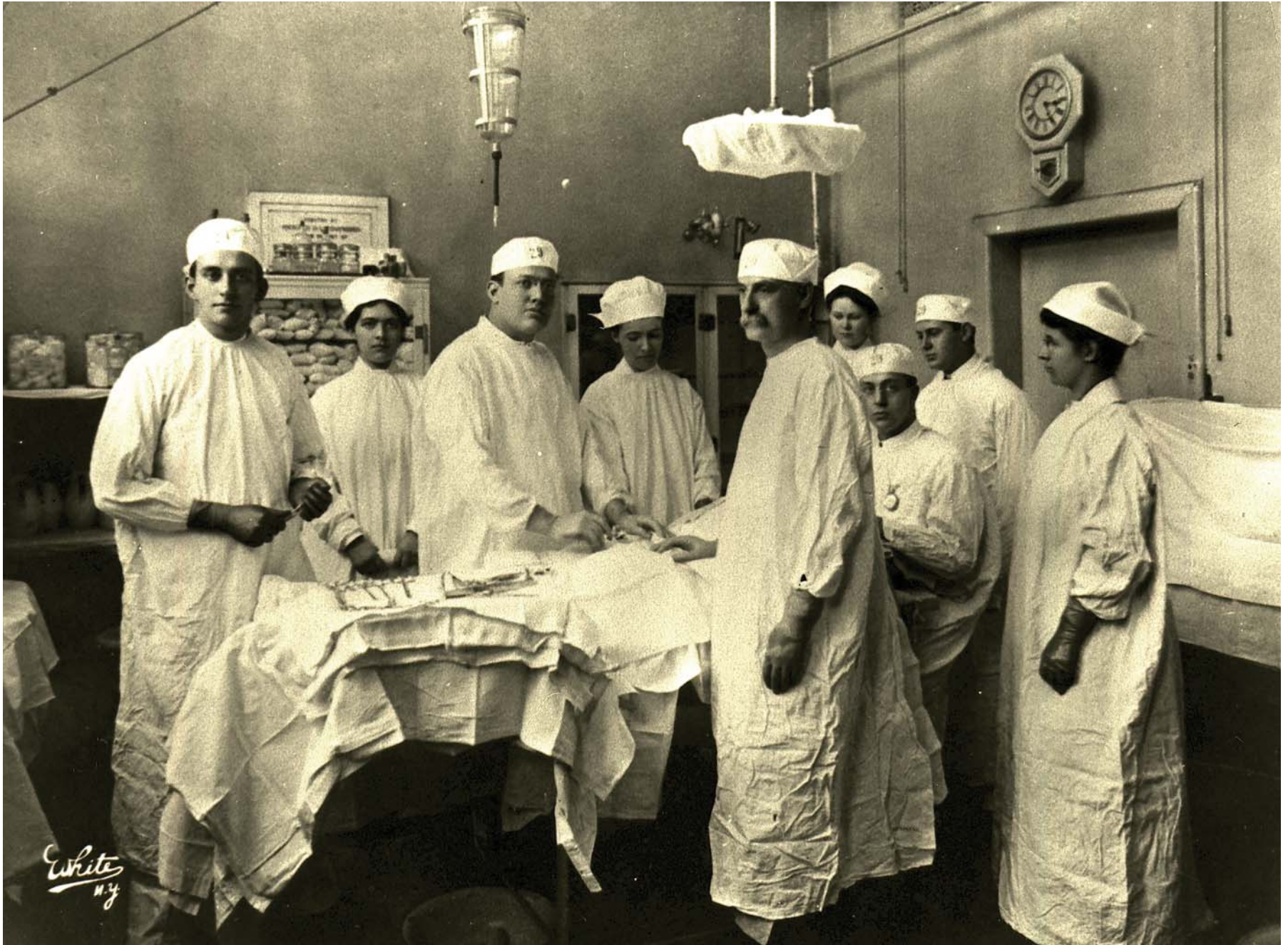


HIGH FIDELITY SIMULATION



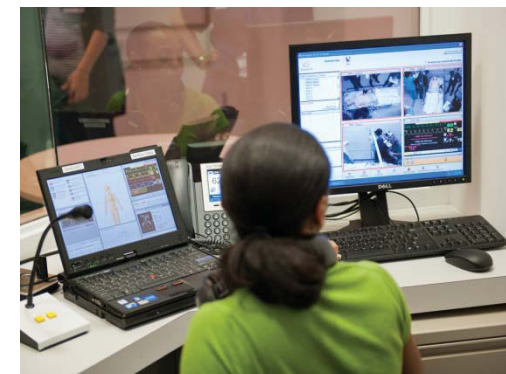
LARGE SIMULATION OR







- State of the art teaching space
- Flexibility
- First Priority Investment
- Meet Changing Medical Needs
- Environments
- Mannequins



Facility Cost Benchmarks

PROJECT / LOCATION	# OF STUDENTS / SF	SIMULATION CENTER	CLINICAL SKILLS	FIT-UP \$ / SF	STATUS	NEW OR RENOVATION
UNIVERSITY OF MARYLAND MEDICAL CENTER National Training Center Baltimore, MD	TBD / 12,000 SF	+	+	\$265	In Planning Complete 2013	New
JOHNS HOPKINS UNIVERSITY School of Medicine Baltimore, MD	120 / 10,000 SF (Phase 1) 10,000 SF (Phase 2)	+	+	\$204	Phase 1: 2009 Phase 2: 2012	Renovation
WEILL CORNELL MEDICAL COLLEGE Weill Greenberg Center New York, NY	100 / 15,000 SF	+	+	\$255	Completed 2007	New
VIRGINIA COMMONWEALTH UNIVERSITY School of Medicine Richmond, VA	200 / 20,000 SF		+	\$275	In Construction 2013	New
TEMPLE UNIVERSITY School of Medicine Philadelphia, PA	180 + 20 Grad / 15,000 SF	+	+	\$140	Complete 2009	New
NEW YORK UNIVERSITY / CUNY Langone Medical Center New York, NY	162 / 23,000 SF	+	+	\$360	Completed 2011	Renovation
UNIVERSITY OF NORTH CAROLINA School of Medicine Chapel Hill, NC	170 + 14 Grad / 23,000 SF	+		\$250	In Design 2013	New & Reno
HOWARD UNIVERSITY Washington, DC	115 / 7,000 SF	+	Elsewhere (5,000 SF)	\$250	In Construction 2012	Renovation
SAGINAW VALLEY STATE UNIVERSITY Crystal M. Lange Health & Human Services Center University Center, MI	120-150 / 12,800 SF	+		\$275	Complete 2010	New
UNIVERSITY OF ROCHESTER Rochester, NY	100 / 20,000 SF	+	+	\$285	In Design 2013	New & Reno
UNIVERSITY OF MARYLAND School of Nursing Baltimore, MD	160 BSA - RN, 240 - 14 PhD - 16 DWP / 25,000 SF	+	+	\$275	Completed 2002	New

Average \$/SF

\$257

Cost in 2011 \$'s

NY Simulation Center for the Health Sciences - 23,000 gsf

Scope of Work	Project Costs	\$ / SqFt
Construction	\$ 7,400,000	\$321 / sf
Furniture	\$ 425,000	\$18 / sf
IT/Voice/Data	\$ 560,000	\$24 / sf
AV Equipment	\$2,750,000	\$119 / sf
Medical Equipment	\$1,800,000	\$78 / sf
Simulation Equipment	\$1,900,000	\$82 / sf
Simulation Software	\$500,000	\$21 / sf

EQUIPMENT REQUIREMENTS

MEDICAL = \$1.9 M



AUDIOVISUAL = \$2.75 M



- Working with two universities, multiple schools and departments
 - Development and operating agreements
 - Marketing materials, branding, press releases, etc.
 - Vetting and hiring new personnel
 - Approving budgets
 - Establishing reports to conform to needs of various stakeholders
 - Development of lines of communications with and among stakeholders
- Establishing pricing agreements with outside users
 - Costs of space and services
 - Pricing to attract those unaccustomed to outsourcing

- Full support from CUNY and NYU administrations
- Support of a cadre of health care educators who recognized the need and utility of simulation in their curricula
- Secure funding for construction and operations
- Individuals involved in the planning, design, partnership remained in place as Executive Director and Managing Director of NYSIM
- Hiring of Associate Medical and Nursing Directors with experience in simulation education and program development



- Training NYU and CUNY faculty in use of NYSIM
 - Faculty Development Workshops
 - Expanding the number, the quality and the breadth of programs
 - Monthly NYSIM Community Meetings
- Development of a strategic plan
 - Business opportunities with outside users
 - Research
 - Partnership with other simulation centers for program development
 - Branding
- Establishing systems operational efficiency

- The partnership of the two universities provided opportunities that could not have been realized by either acting alone
- Having individuals leading the process who were familiar with their institutional culture, and who communicated candidly was a great asset in overcoming obstacles and moving the process forward
- Important to maintain respect for each others' decision making processes which will inevitably be different at each institution.
- Communication, Communication, Communication