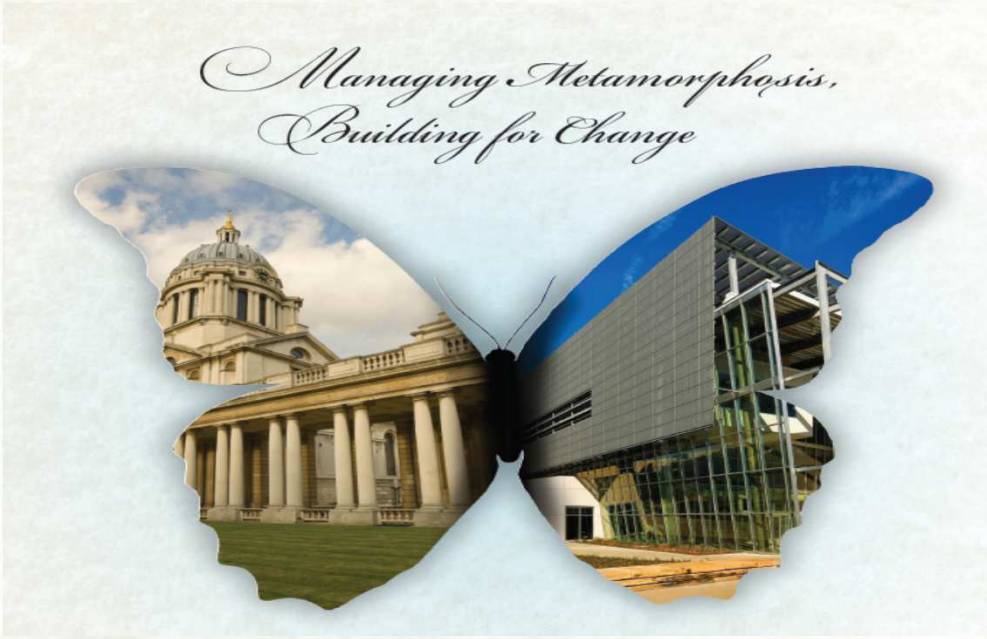
ASSOCIATION OF
Texas College & University Facilities
PROFESSIONALS

Managing Metamorphosis, Building for Change

CONTINUING EDUCATION
AIA

ASSOCIATION OF
Texas College & University Facilities
PROFESSIONALS



Session: 100106

Date: Wednesday, October 3, 2012

Time: 1:00 pm – 3:00 pm

CONTINUING EDUCATION
AIA

ASSOCIATION OF Texas College & University Facilities PROFESSIONALS

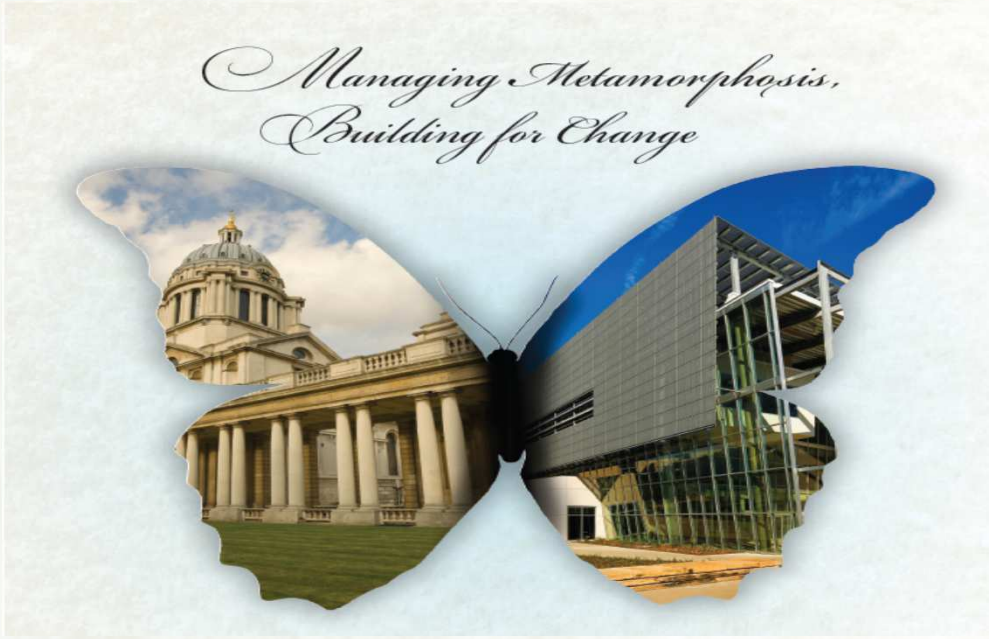
Transformation: A New Building Worthy of Top-Tier Status

Presented by:

- **Dr. William Dodge, D.D.S, Dean, School of Dentistry, UTHSC-San Antonio**
- **Patrick Lew, Senior Project Manager, UTHSC-San Antonio**
- **Larson, EDAC, Kahler Slater**
- **Bill Reeves, AIA, Marmon Mok**

CONTINUING EDUCATION AIA

ASSOCIATION OF
Texas College & University Facilities
PROFESSIONALS

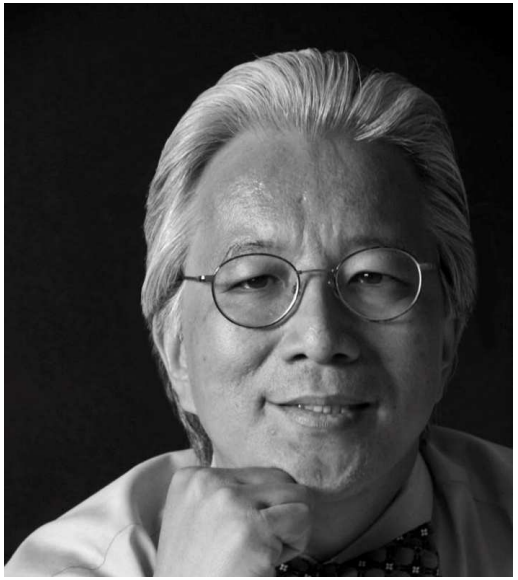


This program is registered with the AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product. Questions related to specific materials, methods, and services may be addressed at the conclusion of this presentation.

CONTINUING EDUCATION AIA

Presentation Team

- **William Dodge, DDS**
  Dean,
  School of Dentistry
- UTHSC-San Antonio



- **Patrick Lew**
  Senior Project Manager
  Office of Facilities
  Planning and Construction
- UTHSC-San Antonio

- **Mark Larson, EDAC**
  Programmer / Planner
  Associate Principal
- Kahler Slater

- **Bill Reeves, AIA**
  Project Manager
  Partner
- Marmon Mok

Learning Objectives:

- Demonstrate planning & design process for a health sciences user group
- Understand complex systems coordination and how they influence design
- Discuss success factors and decision-making process
- Review the “fast-track” process

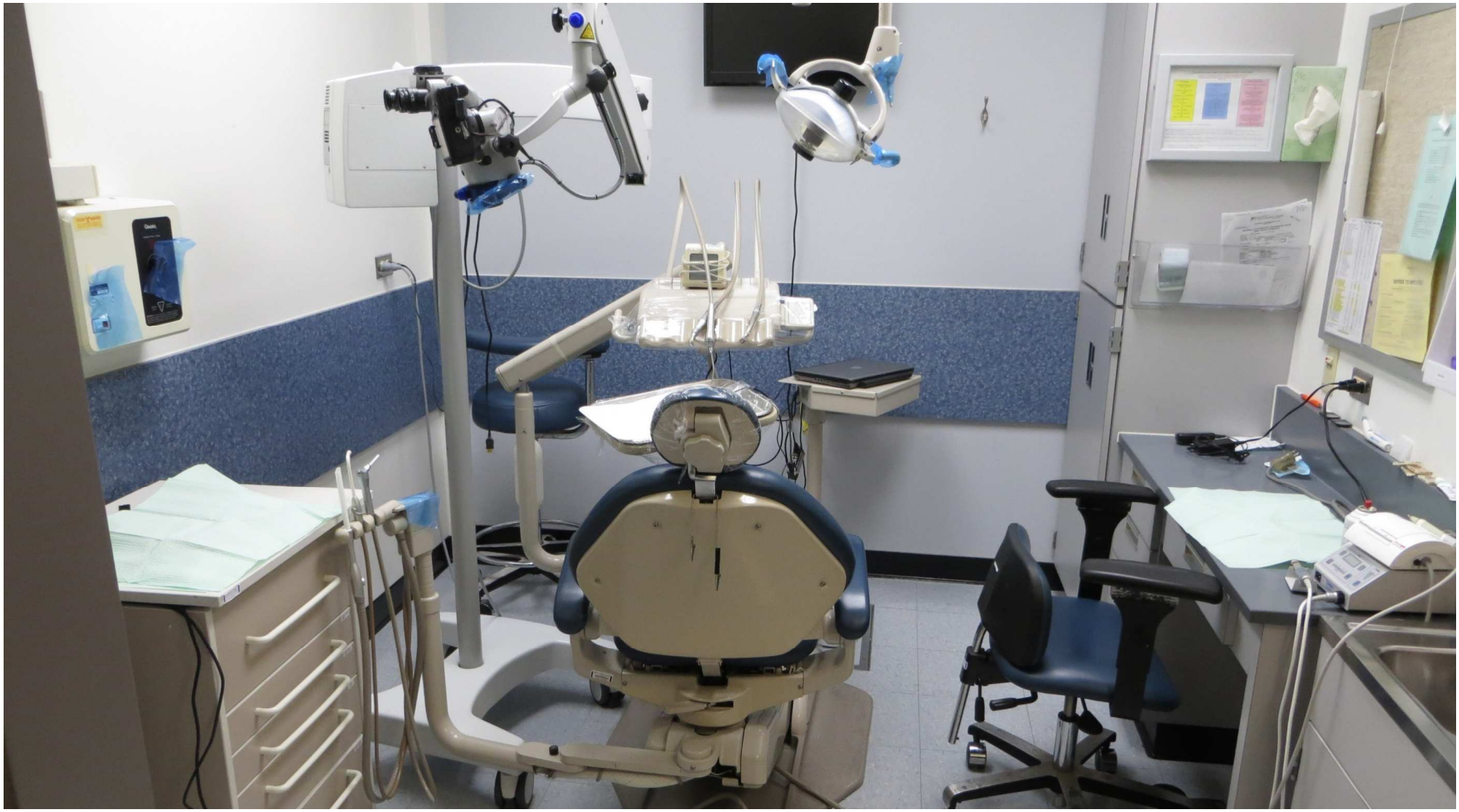
Introduction to UT Dentistry
at the Health Science Center in San Antonio

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

UT Dentistry

- Highly competitive ~1,300 applicants for 100 positions
  - 4 yr. curriculum graduates ready to practice
  - 9 specialties (2-6 additional years)
- School operates its own clinics (ambulatory care center)
  - Dental school clinics are safety nets
  - 115,980 patient visits in 2013
  - Multi-specialty treatment
- Research Themes/collaboration
- State support = 29%, clinic revenue, research, tuition
- Tuition among lowest in the US

Support Services

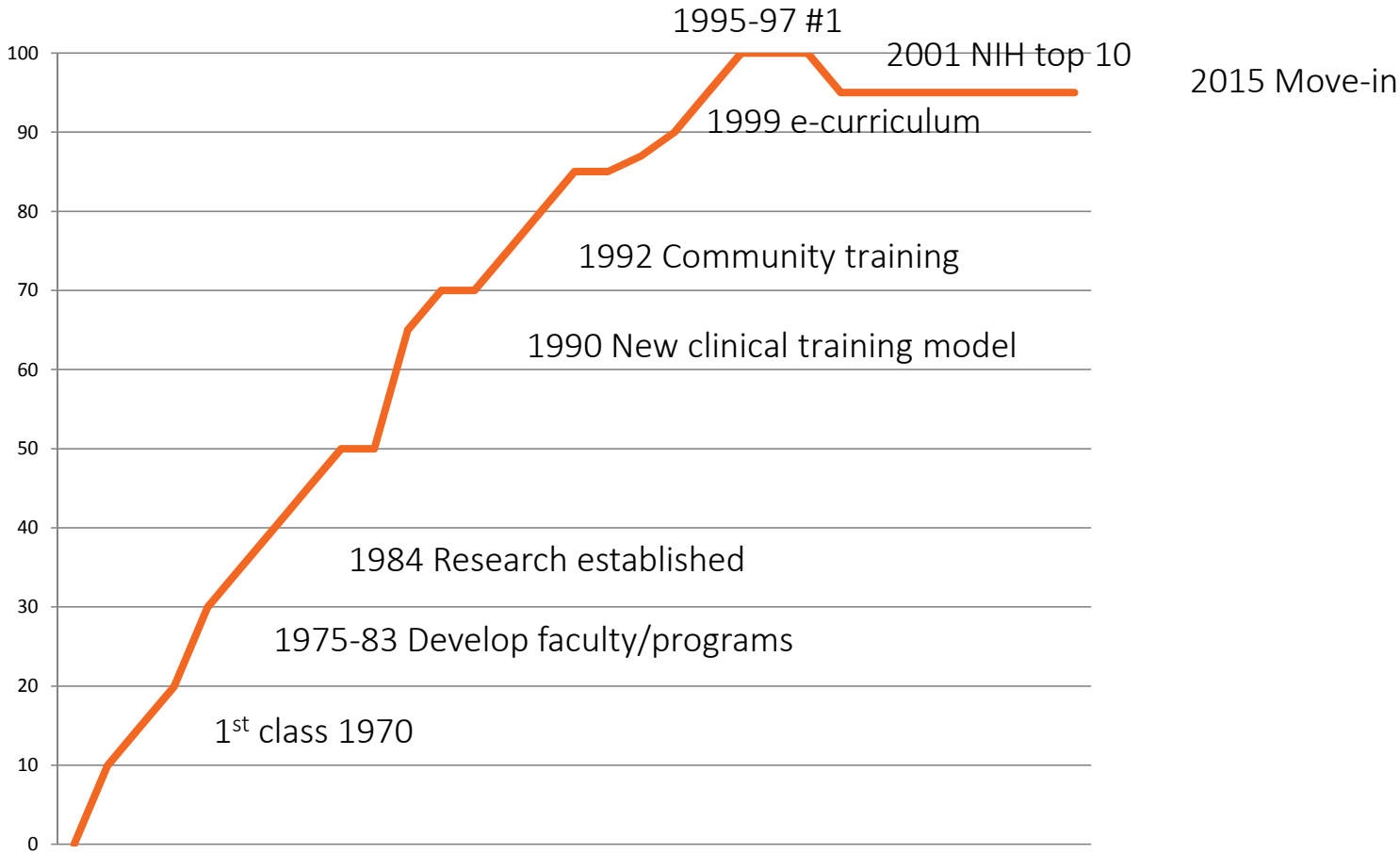



BOBCAT
04/05/2009

UT Dentistry

- Highly competitive ~1,300 applicants for 100 positions
  - 4 yr. curriculum graduates ready to practice
  - 9 specialties (2-6 additional years)
- School operates its own clinics (ambulatory care center)
  - Dental school clinics are safety nets
  - 115,980 patient visits in 2013
  - Multi-specialty treatment
- Research Themes/collaboration
- State support = 29%, clinic revenue, research, tuition
- Tuition among lowest in the US

UT Dentistry Milestones



Evaluation of Current Facilities

Infrastructure and Maintenance Issues

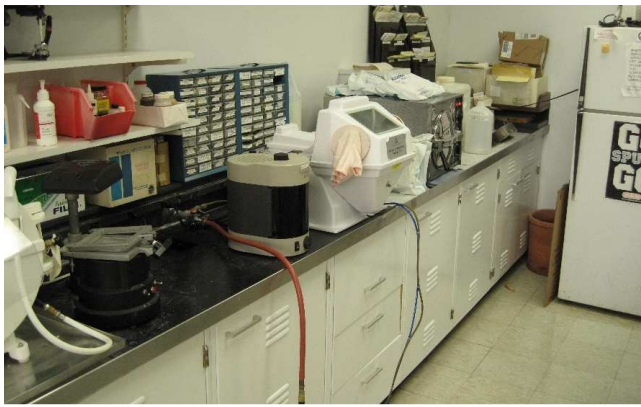
- Code compliance
- Annual repair costs escalating
- Renovations difficult due to occupied spaces
- Air quality / hazardous materials
- Space limitations

Evaluation of Current Facilities

Patient / Student / Provider Experiences

- Inefficiencies in workflow & clinical relationships
- New technology/ pedagogy difficult to integrate
- Image not reflective of quality of care or education



Waiting Rooms

We’re on 2!


2
4
5
D6


in case of fire
elevators
are out of service
USE EXIT
FIREFIGHTERS' OPERATION
PHASE I
TO RECALL ELEVATORS

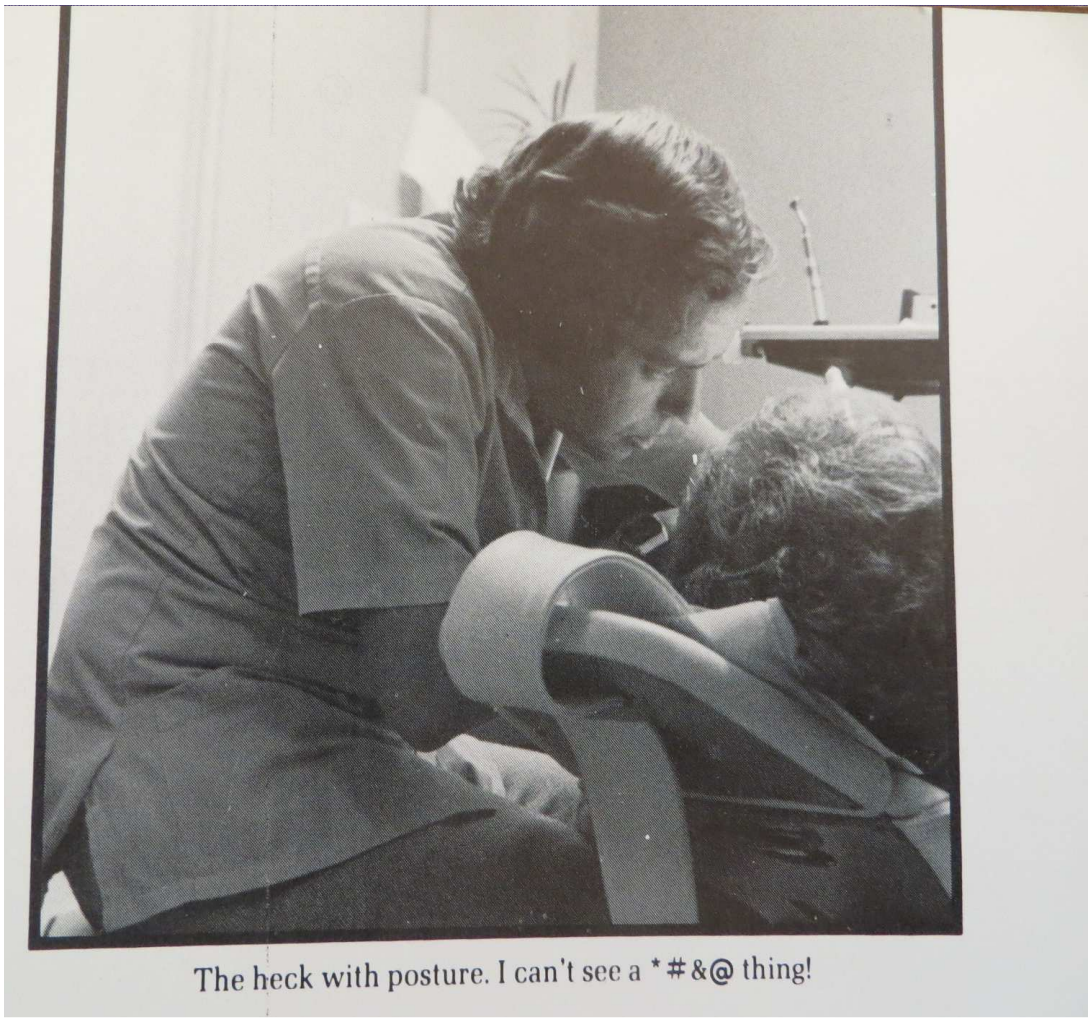
All Too Familiar

Signage


4TH FLOOR
CONTINUING DENTAL EDUCATION 4,204R
DENTAL DEANS OFFICE 4,320R
DENTAL HYGIENE 4,314R
DENTAL LABORATORY TECHNOLOGY 4,394S
FACIAL PAIN CLINIC 4,076R
GRADUATE ENDODONTIC CLINIC 4,045R
GRADUATE PROSTHODONTICS CLINIC 4,336R
INSURANCE OFFICE 4,194R
MAXILLOFACIAL PROSTHETICS CLINIC 4,160R
ORTHODONTIC GRADUATE CLINIC 4,096R
PEDIATRIC DENTISTRY 4,110R
Orthodontic Applicants please go to room 4,546U (4th floor)
Welcome to The Dental School
The Office of Continuing Dental Education is located on the 4th Floor, Room 4,204R
For additional assistance, please call 007.
Elevators to 4th Floor
Dental Hygiene CE Course
Application of Pit & Fissure Sealants
Thursday, October 28, 2009
8:00am - 4:00pm
4th Floor Room #4,419s


TOOTH PASTE SALE 25¢
TOOTH BRUSH SALE $1.00
Application of
Pit & Fissure Sealants
October 28, 2009
Room #4,419s

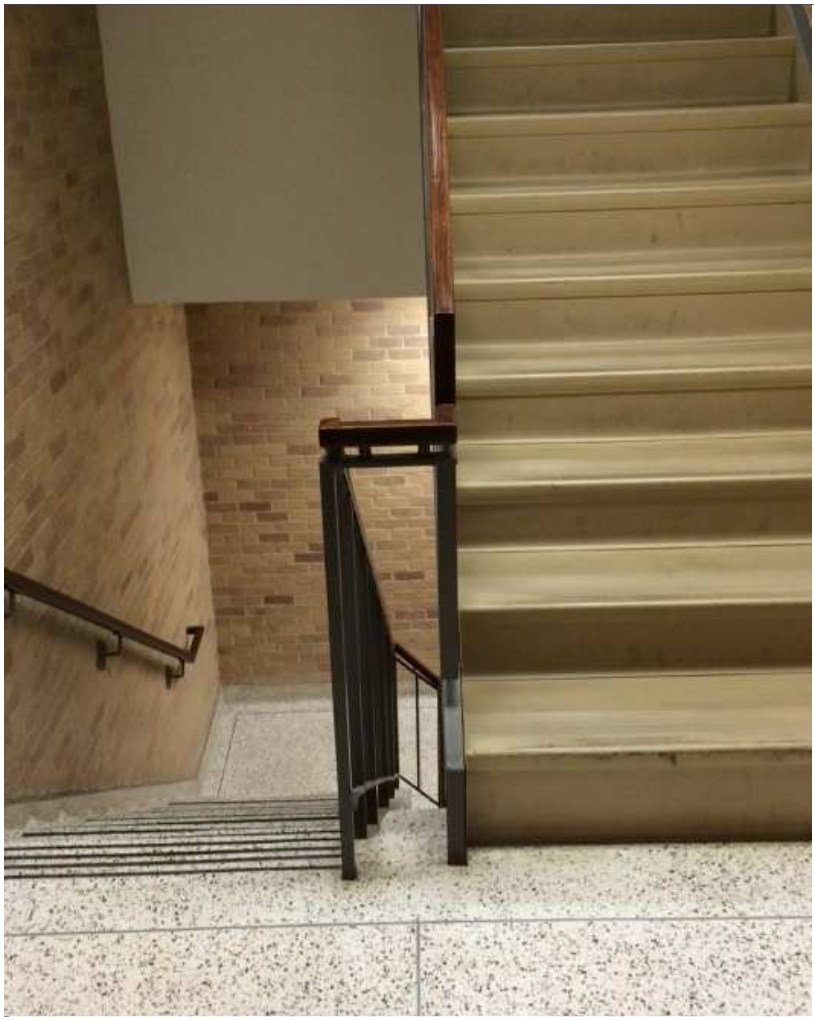
Then



The heck with posture. I can't see a *#&@ thing!

Now

Life Safety

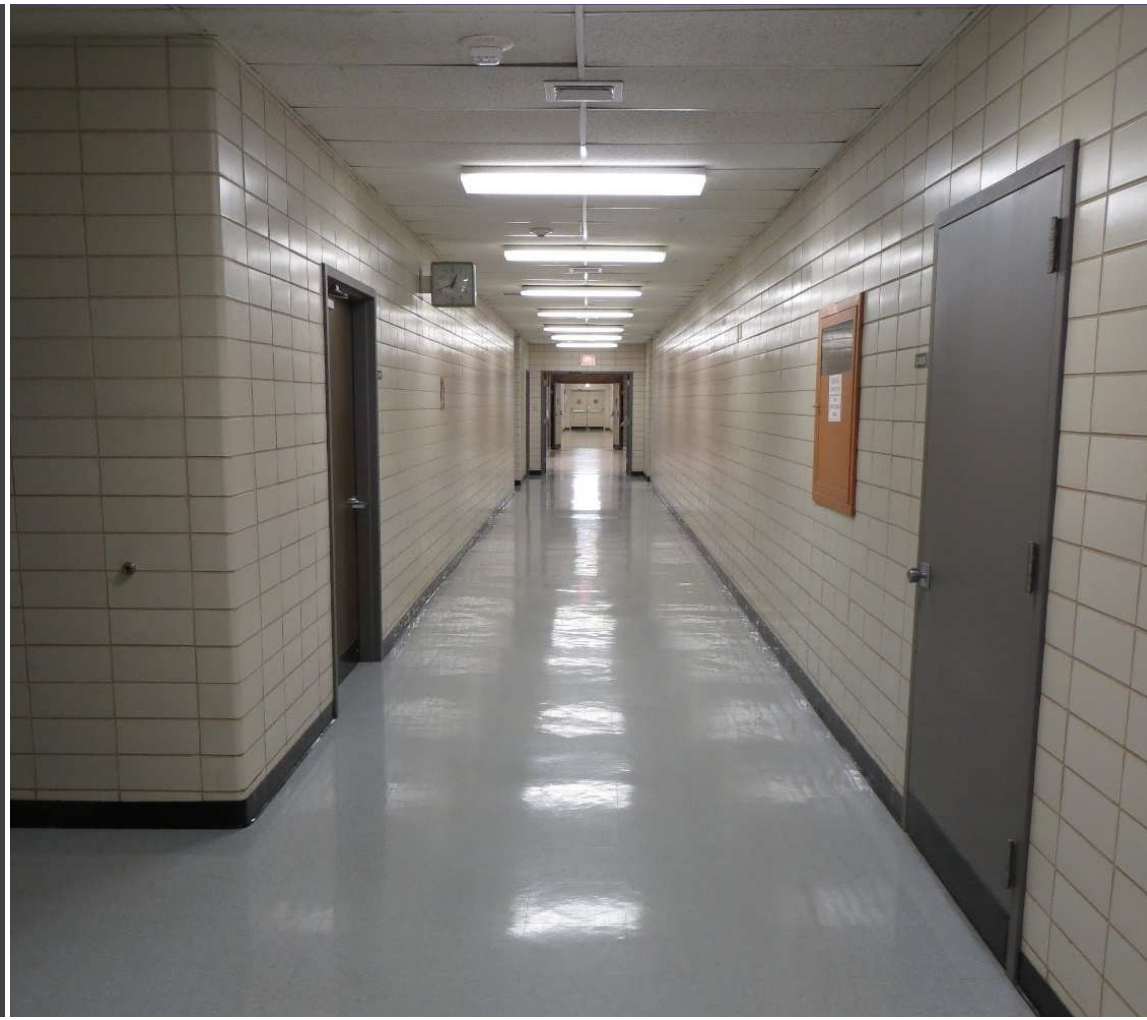


Student Comments

"Windows would be nice"

"It's a windowless box"

"It's gloomy and dark"



The Tipping Point

If our clinics can’t be used?

Project Inception: Goals

Setting Clear Objectives from the Start

- Improve patient access and experience
- Improve student experience
- Windows/natural light
- Improve efficiency
- Incorporate technology
- Parking
- Enhance collaboration with medicine
- Life safety code compliance

Challenge: Dental Schools are Different

Modular design

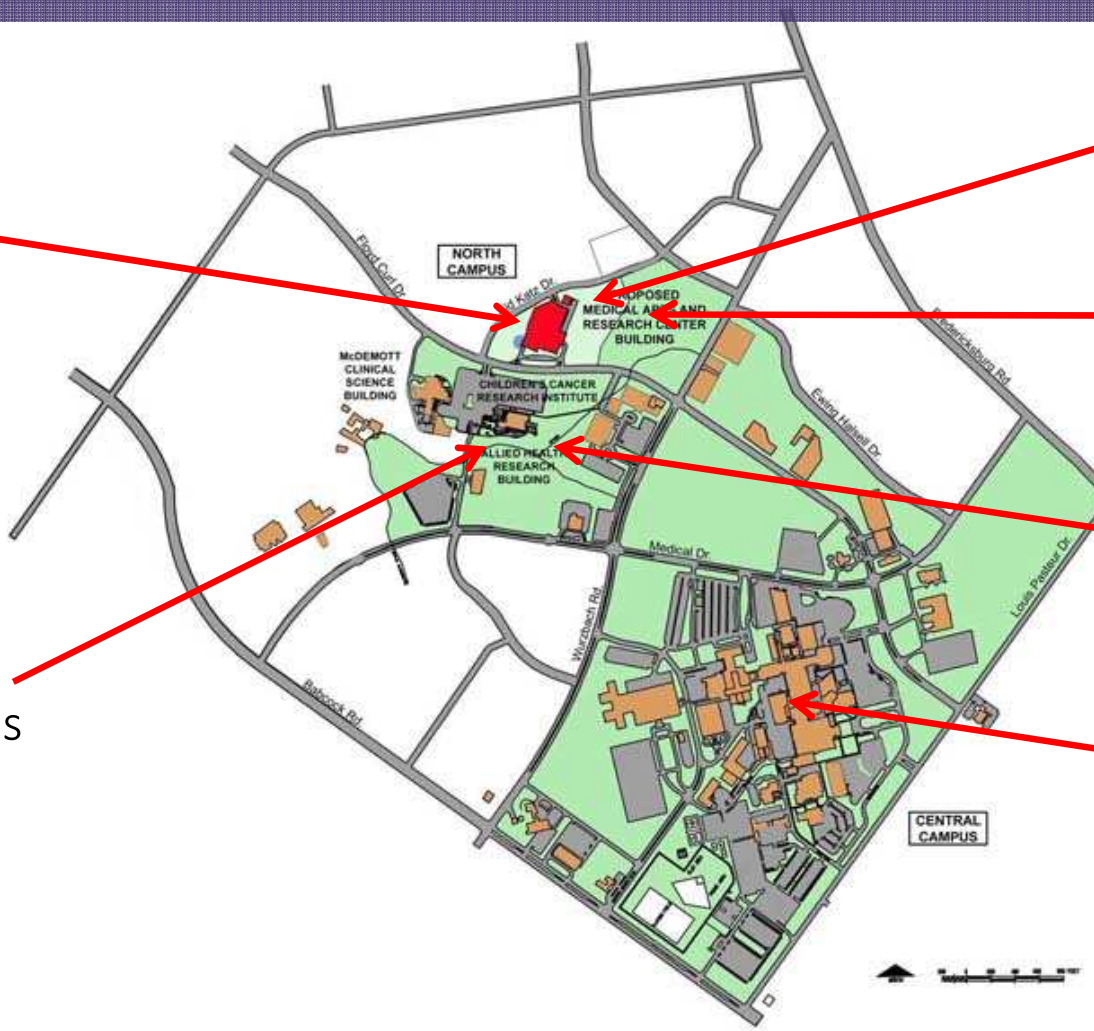
Fewest possible custom pieces

UTHSCSA Dental School | Ground Floor / Level 2

Getting Started Right

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

UTHSCSA Campus Plan



Medical Arts & Research Facility

Greehey Academic & Research Campus

Northside Floyd Curl Dr. – Clinical

COHCR Project Site

Southside Floyd Curl Dr. – Research

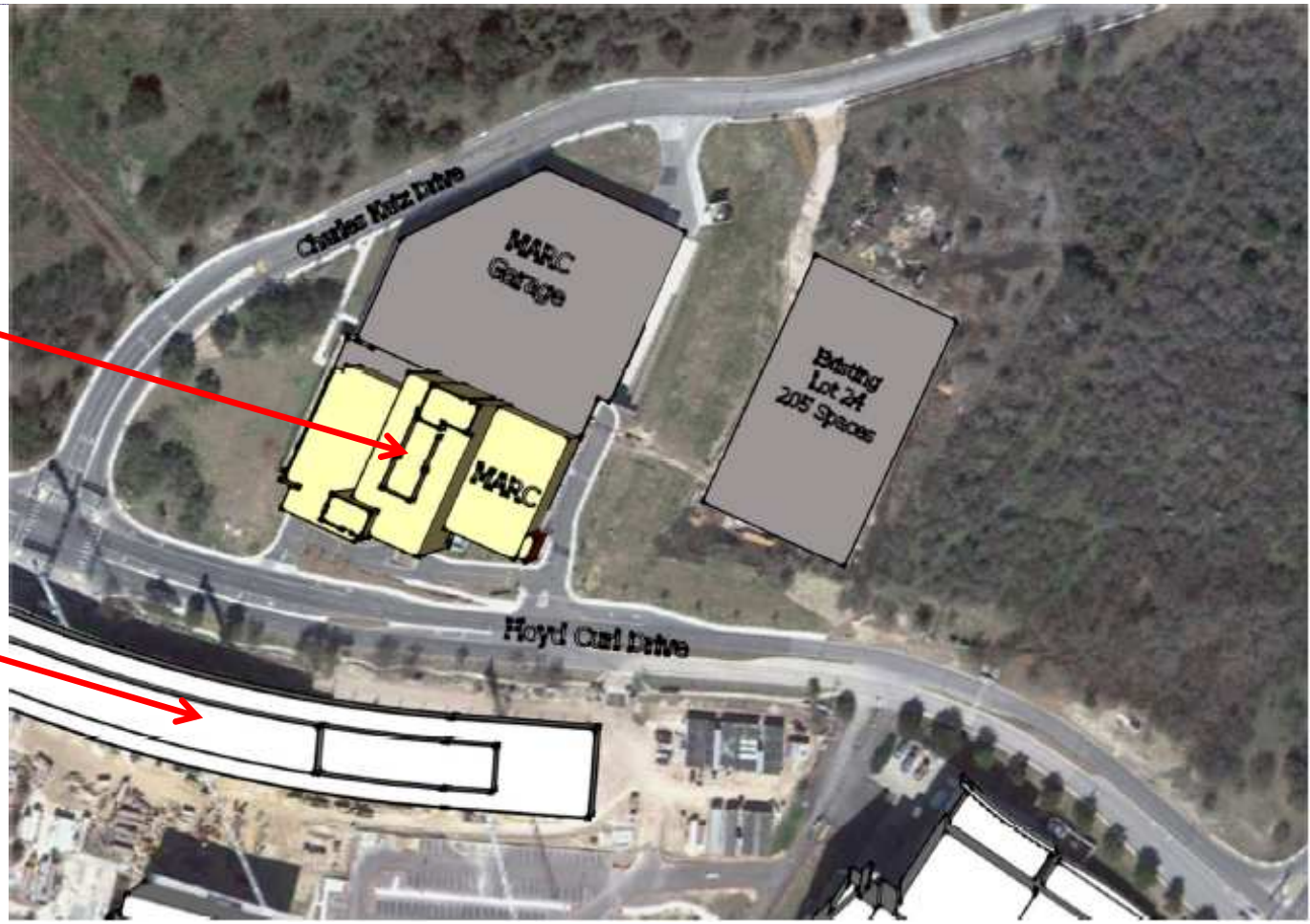
Main Campus

Site Selection

Medical Foundation

Medical Arts & Research Center, SC – July – Nov. 2009

South Texas Research Facility, SC – Sept. 2011



Site Plan with Existing Parking Lot

Master Plan Development

Clinic for Oral Health

Classroom Building
Hospital
Medical Office Building
Central Plant
Site Circulation & Parking
Connecting Pedestrian
- Bridges between MARC, Dental School & Hospital

Program Development

2005: Dental Clinic Program Completed

- Preliminary Project Size: 168,000 GSF
- Preliminary Project Cost: $64.5M escalated to 2007
- Preliminary Site: Greehey Academic & Research Campus

2012: Campus Program Updated

- Preliminary Project Size: 172,000 GSF
- Preliminary Project Cost: $81.0M

Funding

Budgeting:

- OFPC Historical Costs
- Representative Projects
  - Medical Arts and Research Center
  - Ambulatory Clinics (UTMDA, UTSWMC, UTMB)
  - UT Health Science Center Houston, Dental School

Funding:

BOR CIP Approved
February 9, 2012

- Permanent University Fund: $74M
- Revenue Financing System Bond Proceeds: $5M
- Designated Funds from Clinical Revenue: $15M
- Gifts: $2.5M

Schedule

- Fast Track - start construction to avoid inflation
- Local Market Conditions
  - Eagle Ford
  - Military
  - School Districts
- Surveying
- Utility Improvements (Prior to A/E Selection)
  - Extend Chilled Water
  - Add Chiller to Central Plant
  - Add Secondary Electrical Service

Commercial Medical Hybrid - Building systems

Architectural

- Reduce landscape scope
- Cast-in place concrete paving in lieu of pavers
- Stucco & metal paneling in lieu of masonry
- Pre- cast parking garage in lieu of cast in place
- Level 4 drywall finish in lieu of Level 5
- Use of painted finish at gypsum board walls
- Texture and paint finish at interior columns in lieu of furring with metal studs and gypsum board

Scope & Quality

Architectural

- Vinyl composition tile in lieu of porcelain ceramic tile at operatories
- Reduce carpet face weight to 28 oz.
- Plastic laminate in lieu of solid surface at countertops.
- Painted steel handrails and guardrails in lieu of stainless steel.
- Hollow metal door frames in lieu of prefab. aluminum frames.

Fire Protection

- Allow Victaulic coupling for fire sprinkler piping in lieu of welded and malleable joints/fittings.
- Provide flexible sprinkler head drops in lieu of welded pipe.

Scope & Quality

Plumbing & HVAC

- Used hybrid engineer's standard specifications and OFPC specifications for mechanical and plumbing.
- Pressure test medium ductwork only. Low pressure ductwork is not tested.
- Allow up to 5 office/spaces on one fan powered terminal box
- Change 1-1/2 in. thick 3 lb. insulation type in mechanical rooms to 2 in. thick – 1 lb. density fiberglass duct wrap.
- Reduce medium pressure ductwork rating 6" to 4".
- Standard terminal boxes in lieu of UT standard.
- Allowed copper "L" type piping in lieu of schedule 40 pipe for chill and hot water piping.

Scope & Quality

Plumbing & HVAC

- Use type “L” copper above ground domestic water in lieu of type “K” copper.
- Revise toilet fixtures to floor mounted in lieu of wall mounted.
- Plumbing – use propress fittings 2” and smaller.
- Deleted insulation on cold water piping.

Electric

- Used hybrid engineer’s standard specifications and OFPC specifications.
- Used commercial light fixture package with standardized lamp types.
- Use of MCI cable after main branch line.
- Aluminum wound transformers in lieu of copper.

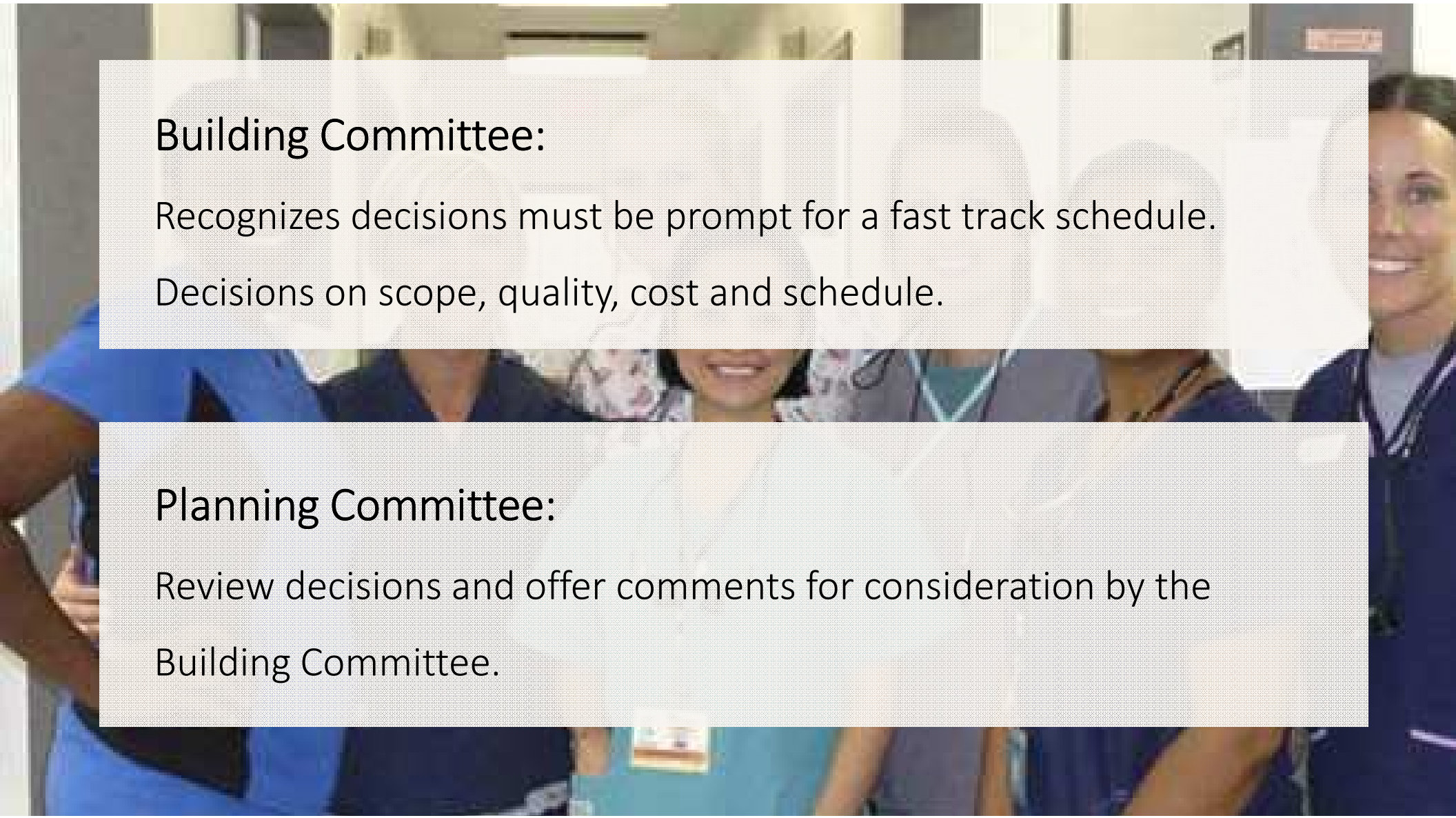
Scope & Quality

Electrical

- Aluminum wire in lieu of copper for #1 and large 600 volt.
- EMT conduit for all feeders & equipment in lieu of IMC
- Plenum rated cable for fire alarm system provided in lieu of raceway system.
- Allow more than 5 receptacles per circuit.
- Delete cable tray system and all use of J-Hooks to support special system conductors in lieu of raceways.

Building a Team

Building Committee	» EVP Facilities Planning & Operations » AVP for Strategic Initiatives » AVP for Facilities » Assistant Dean - Dental School » Director of Clinical Operations – Dental School » OFPC Senior Resident Manager » OFPC Senior Manager
Planning Committee	» Department Chairs – Dental School
Architect	» Marmon Mok / Kahler Slater – Joint Venture
Construction Manager	» Vaughn Construction Company (CM @ Risk)



Building Committee:

Recognizes decisions must be prompt for a fast track schedule.

Decisions on scope, quality, cost and schedule.

Planning Committee:

Review decisions and offer comments for consideration by the Building Committee.

Design Team

- Structural Engineer: Jaster-Quintanilla
- MEP Engineer: H2MG
- Civil Engineer: Pape-Dawson Engineers
- Landscape/Wayfinding: TBG Partners
- Dental Equipment: Gene Burton Associates
- IT/AV /Security/Acoustics: Combs Consulting
- Cost Estimating: Construction Cost Systems, Inc.
- Lighting: Schuler Shook
- Parking Garage: Walter P. Moore
- Code Consultant: Aon Fire Protection Engineering

Learning From Peers

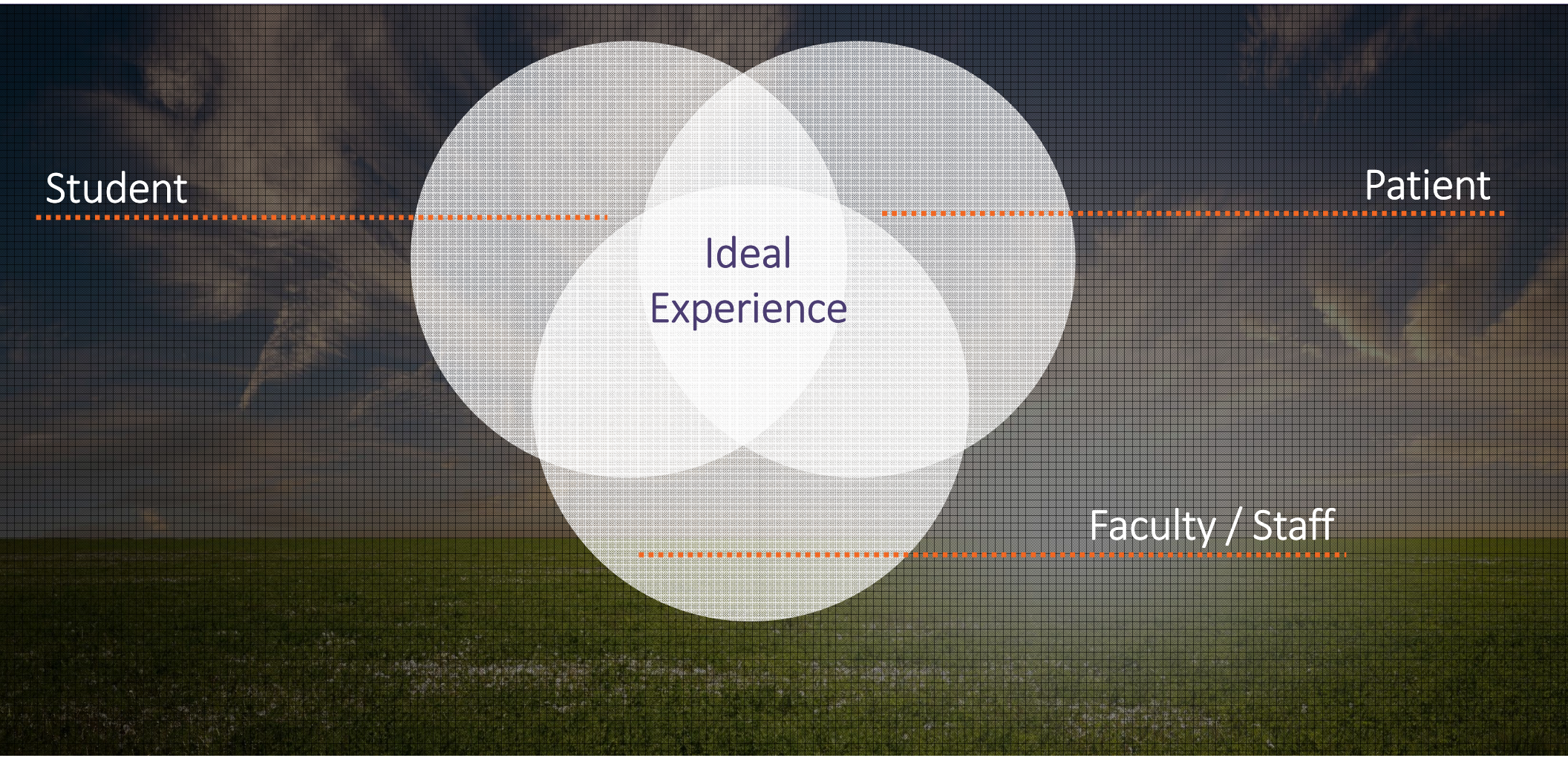
Benchmarking Tours

- Midwestern Dental School, Dental Clinic
- Medical University of South Carolina, Dental Clinic
- Georgia College of Dental Medicine
- University of Texas Health Science Center Houston, Dental School
- A-dec Factory Tour

Programming & Design Direction

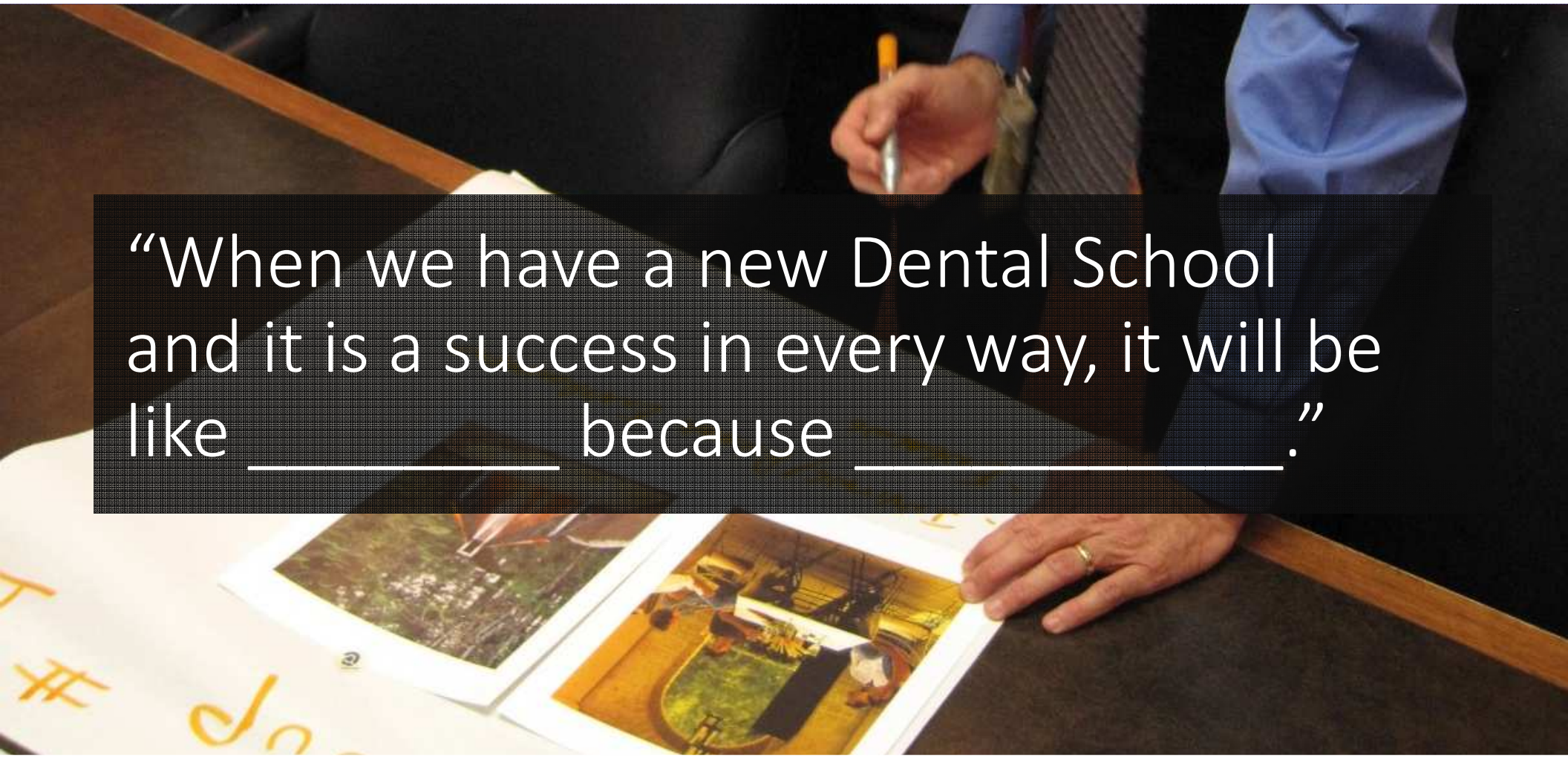
WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

Balancing User Experiences

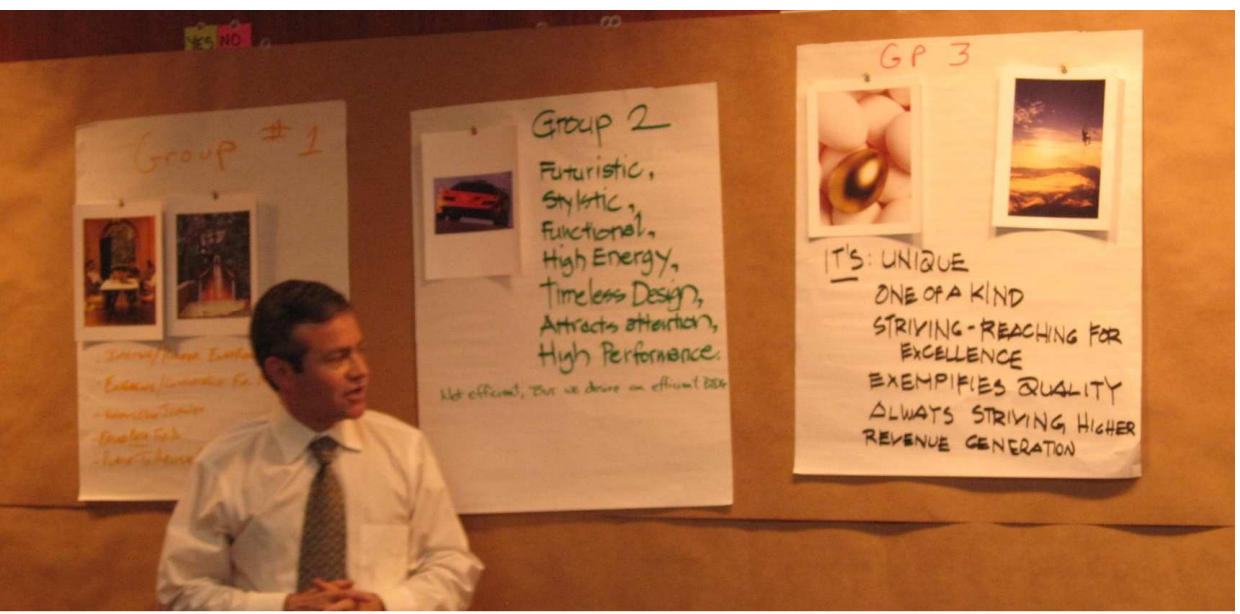


The new facilities for the University of Texas Health Science Center at San Antonio Dental School **will support 21st Century student education and training, enhancing its recognition as a Top –Tier institution** which incorporates the best current and future technology for providing exemplary patient care. The expanded facility will improve the UT Dental School's ability to **provide multi-specialty care in one location with an enhanced patient experience** which attracts additional patients and ensures the school's ability to obtain and conduct clinical research, sustaining continued excellence in education.

Vision and Project Drivers



"When we have a new Dental School and it is a success in every way, it will be like _____ because _____."


Group #1
Group 2
Futuristic,
Stylistic,
Functional,
High Energy,
Timeless Design,
Attracts attention,
High Performance.
GP 3
IT'S: UNIQUE
ONE OF A KIND
STRIVING - REACHING FOR EXCELLENCE
EXEMPIFIES QUALITY
ALWAYS STRIVING HIGHER
REVENUE GENERATION

Establishing Project Drivers

- **Improve the Patient Experience**, projecting an image of a quality contemporary healthcare facility
- **Improve the student education** and training experience
- **Generate the revenues** needed for continued excellence in education and patient care
- **Enhance efficiency** through improved work flow, clinical relationships and space utilization
- **Increase opportunities for resource sharing** and flexibility
- **Centrally locate** pre-doctoral programs
- **Improve visibility** of Faculty Practice and increase utilization of clinic

Image and Materials Survey

Communication Tools

Renderings

3D Modeling

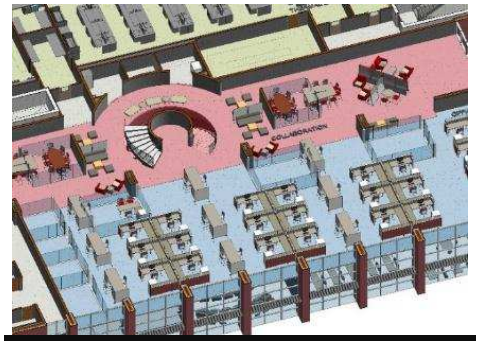
Puzzle Play

Physical Models

Project Drivers

Full Scale Mock-Ups

Fly Throughs

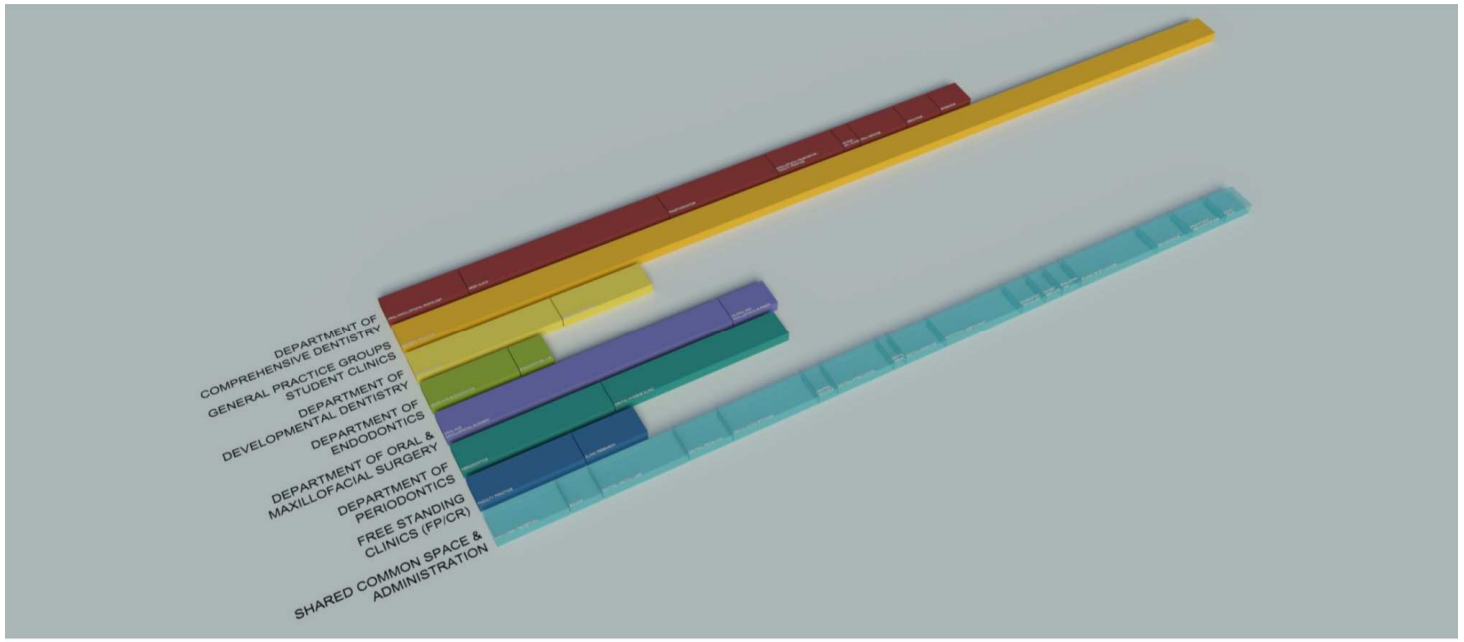


Digital Mock-Ups

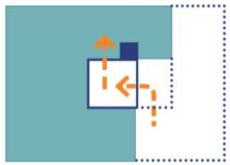
Full-Scale Mock Ups

Faculty Practice

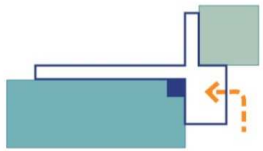
Translating Program into Design Concepts



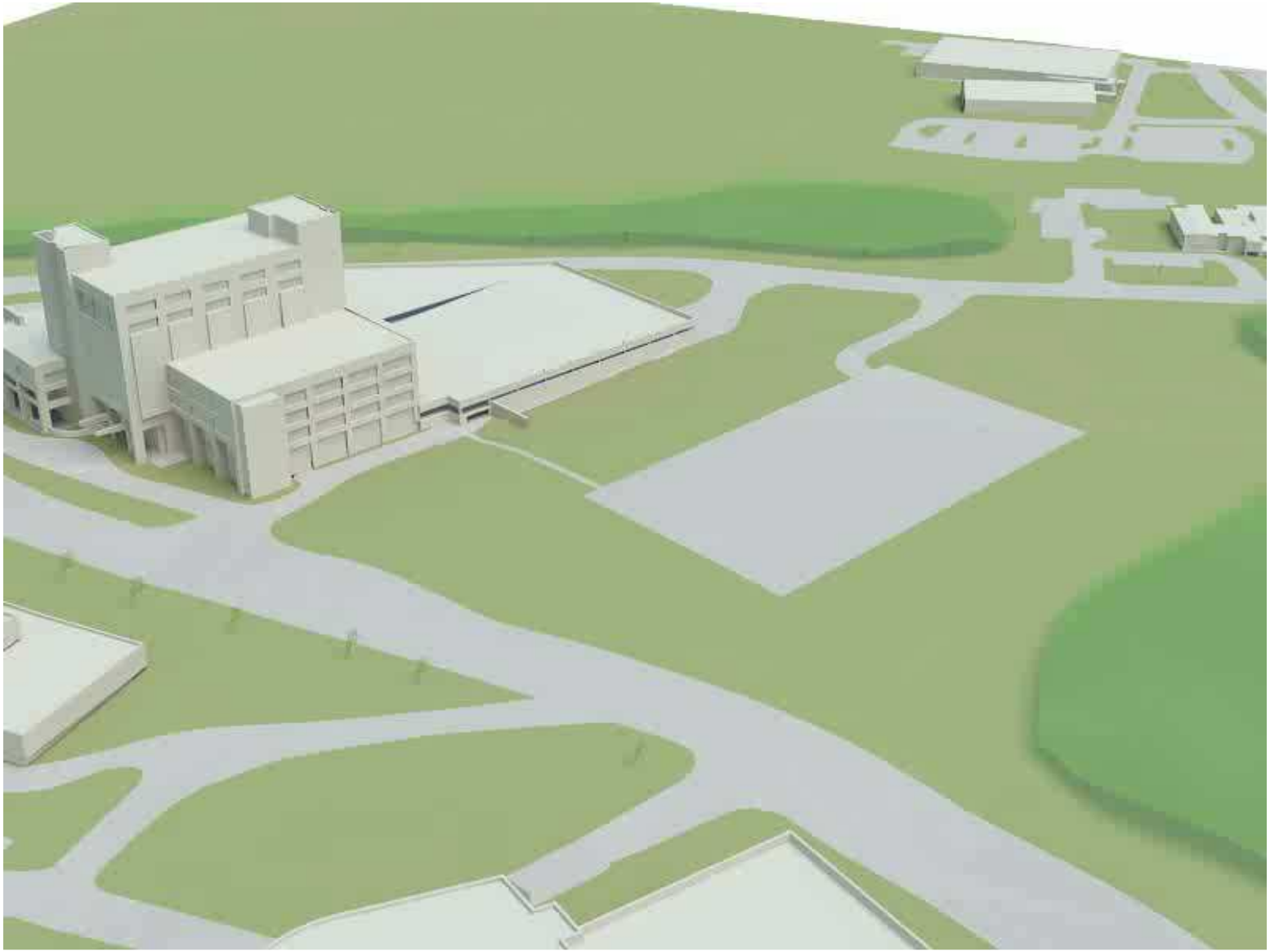
BRIDGE SCHEME

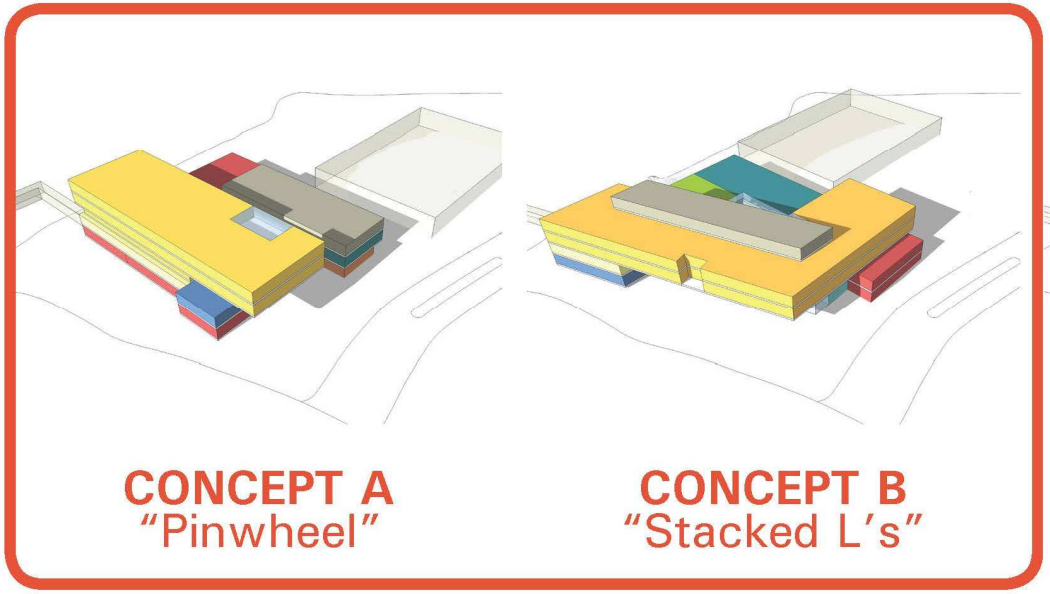


COURT SCHEME



HINGE SCHEME



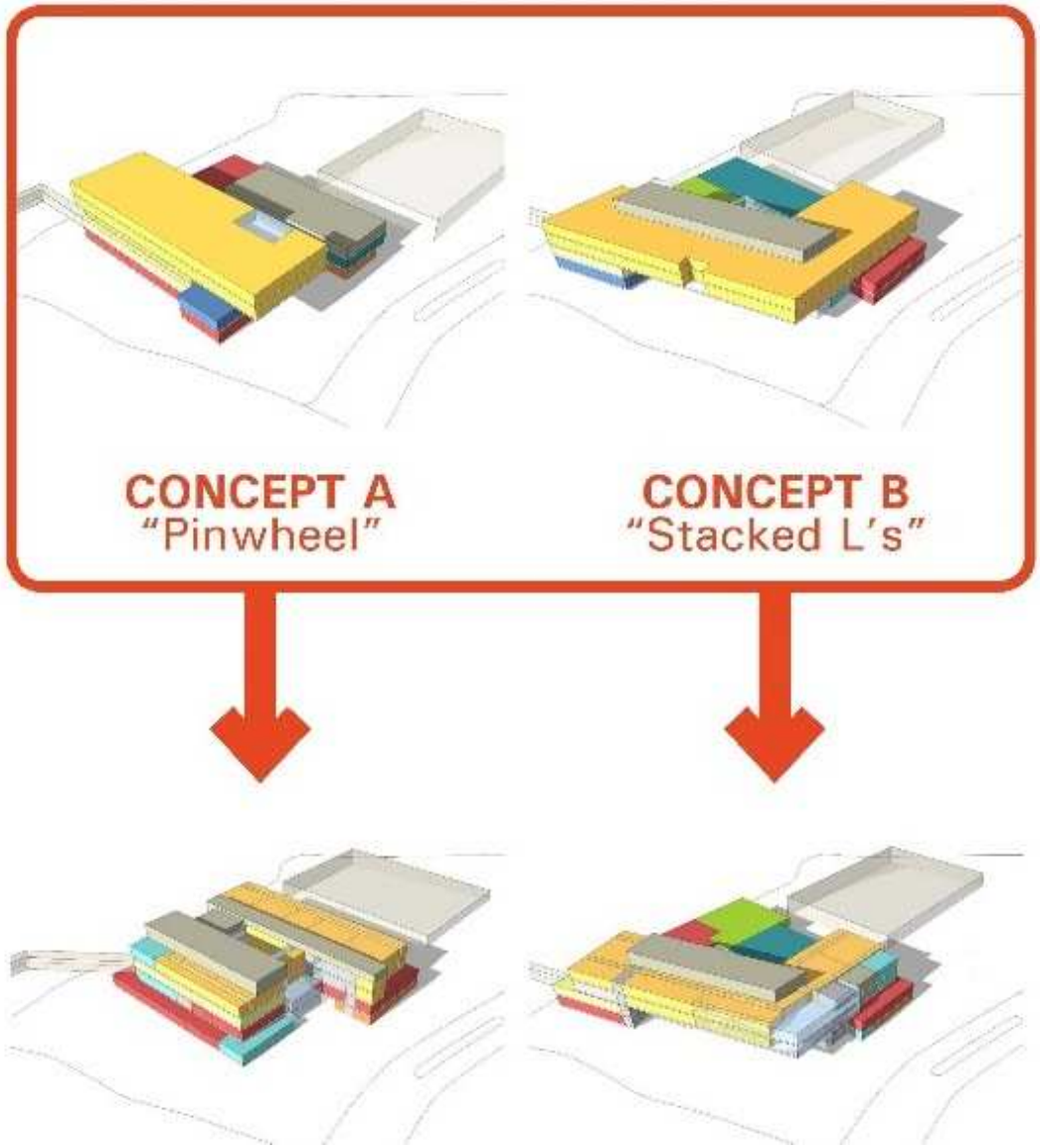


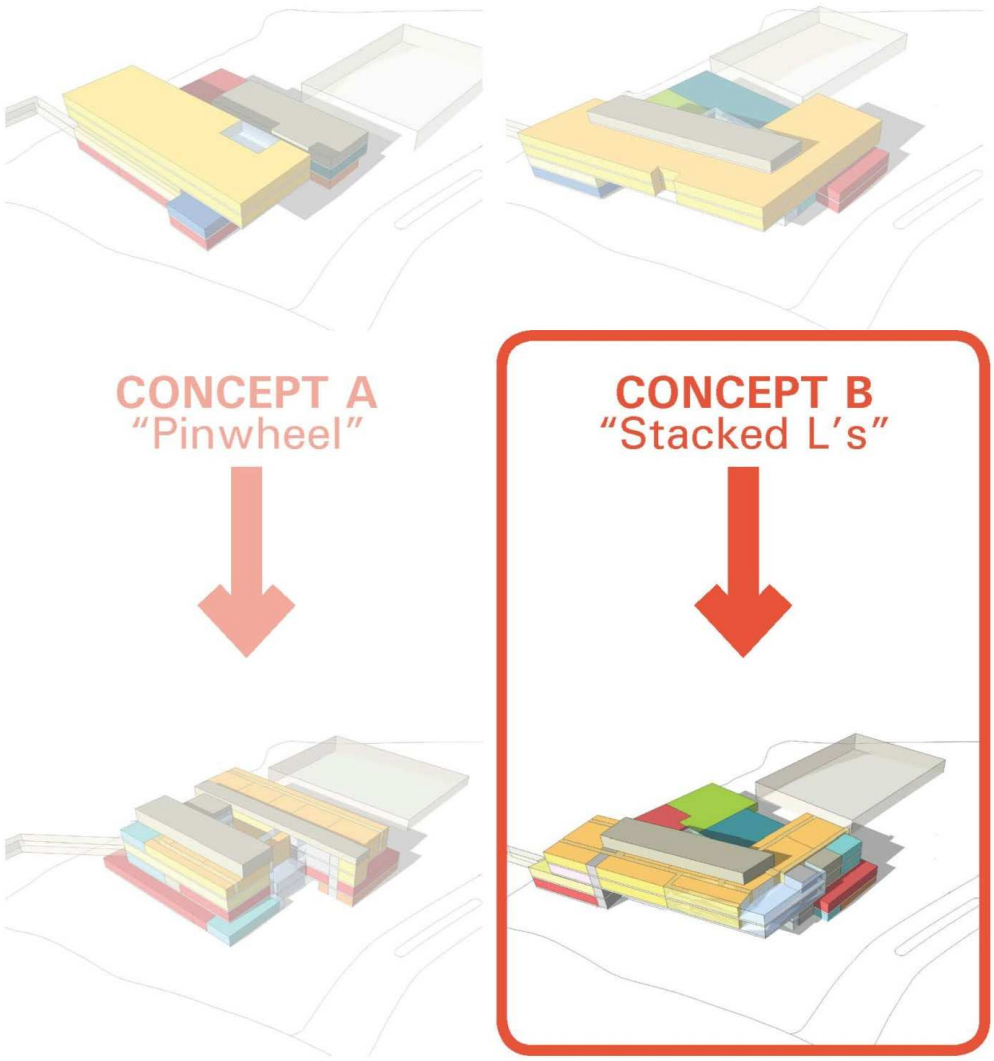
CONCEPT A
"Pinwheel"

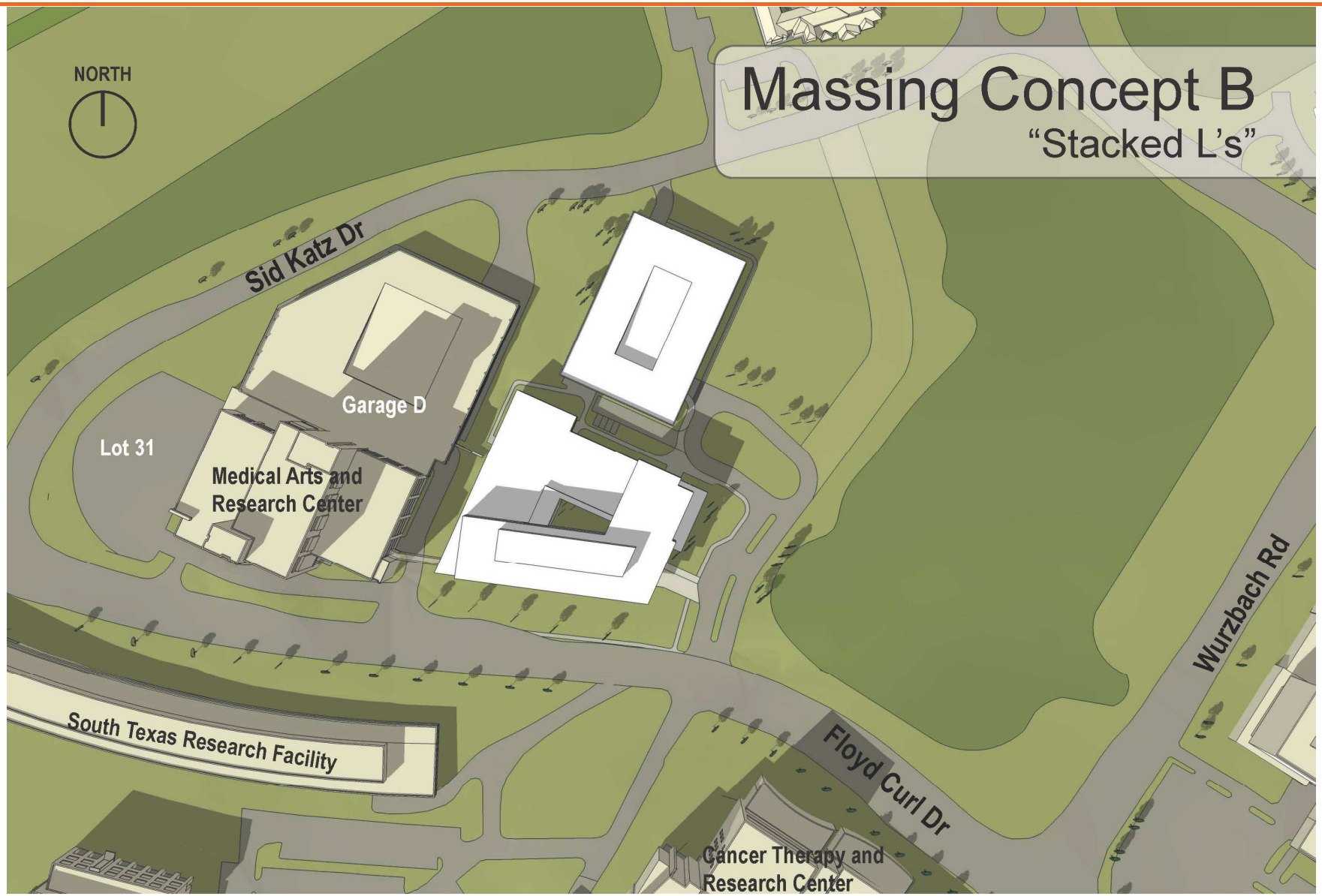
CONCEPT B
"Stacked L's"

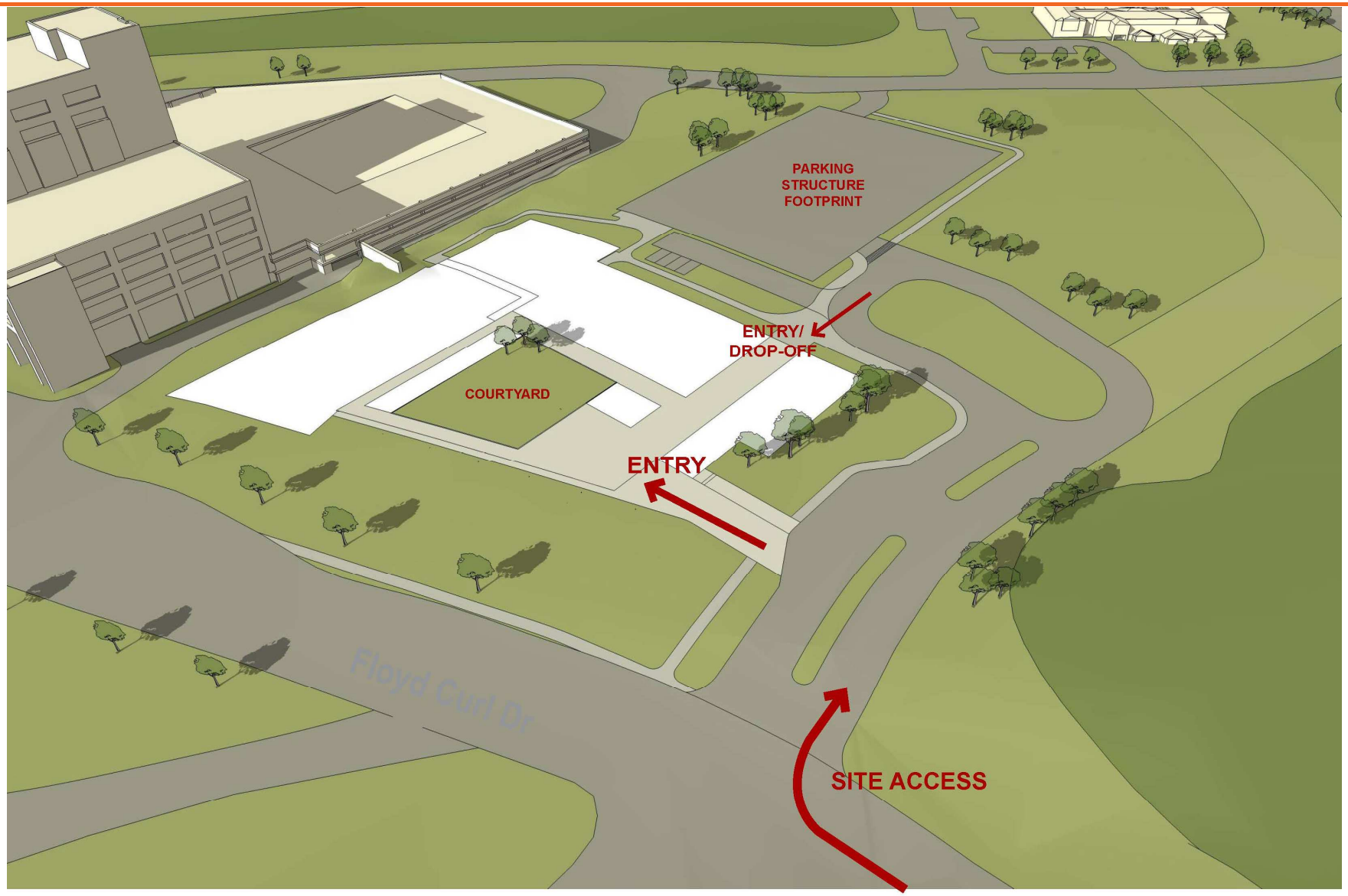
CONCEPT C
"Hinge"

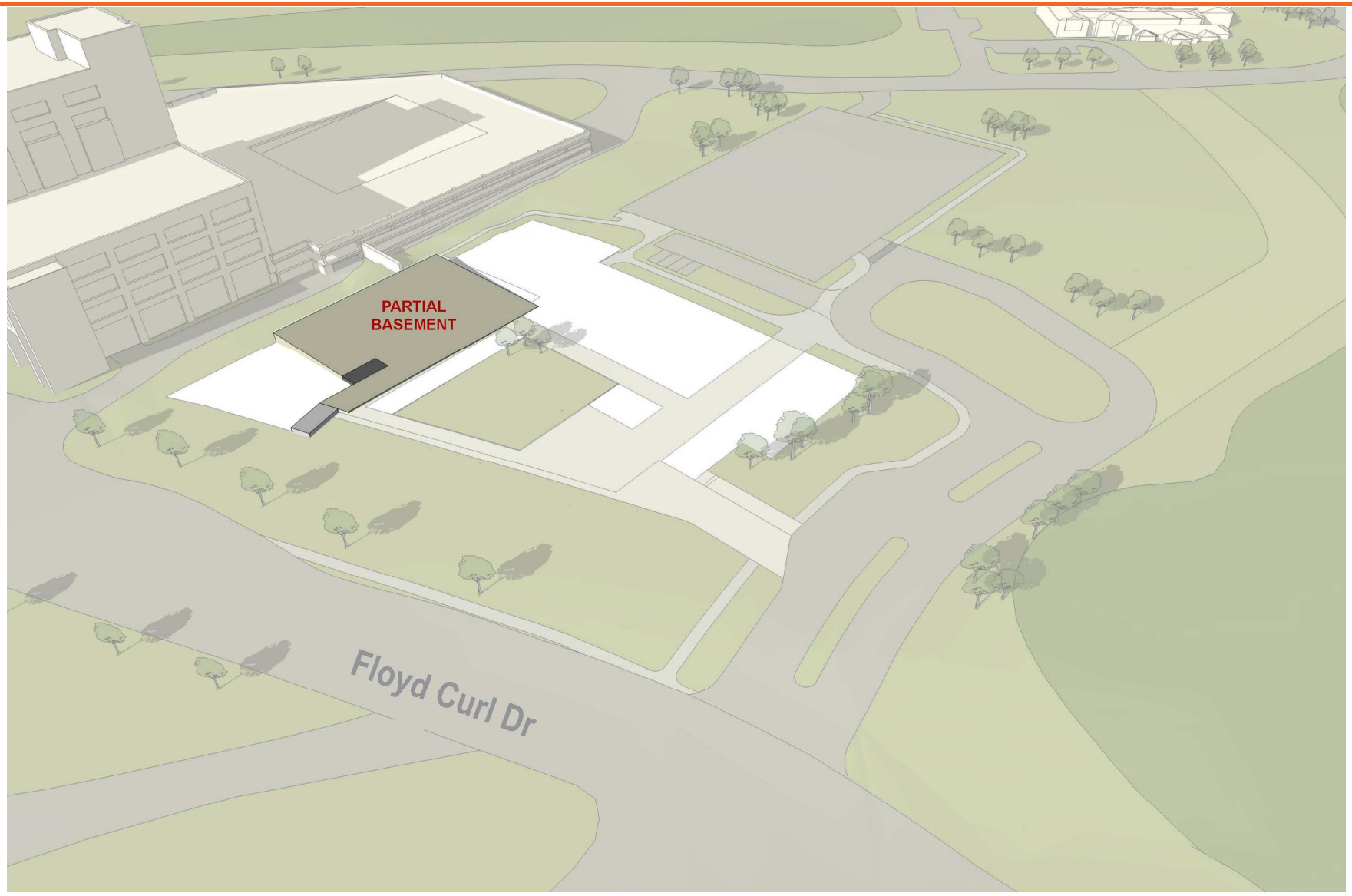
CONCEPT D
"U-Court"

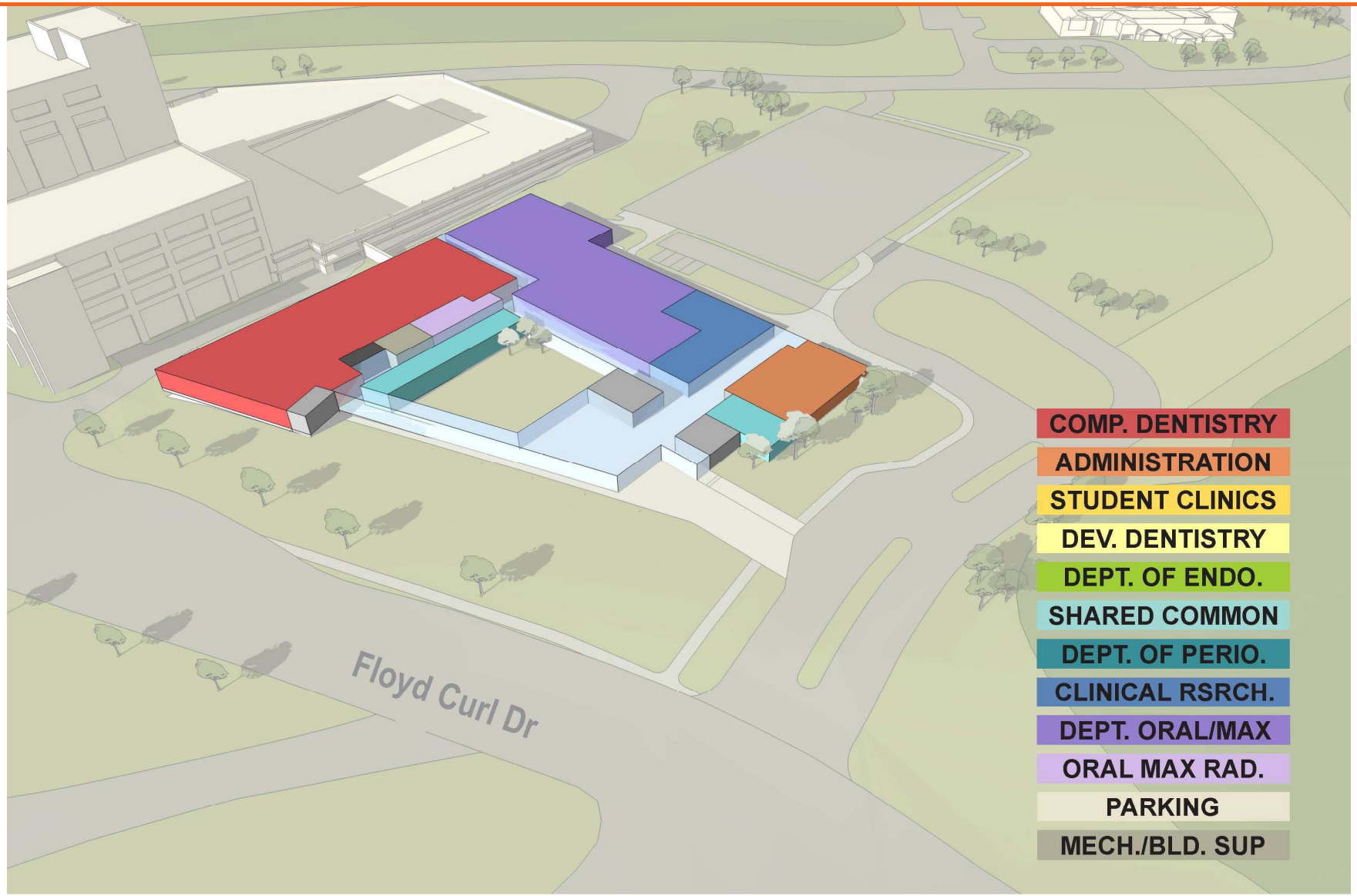

CONCEPT A
"Pinwheel"
CONCEPT B
"Stacked L's"

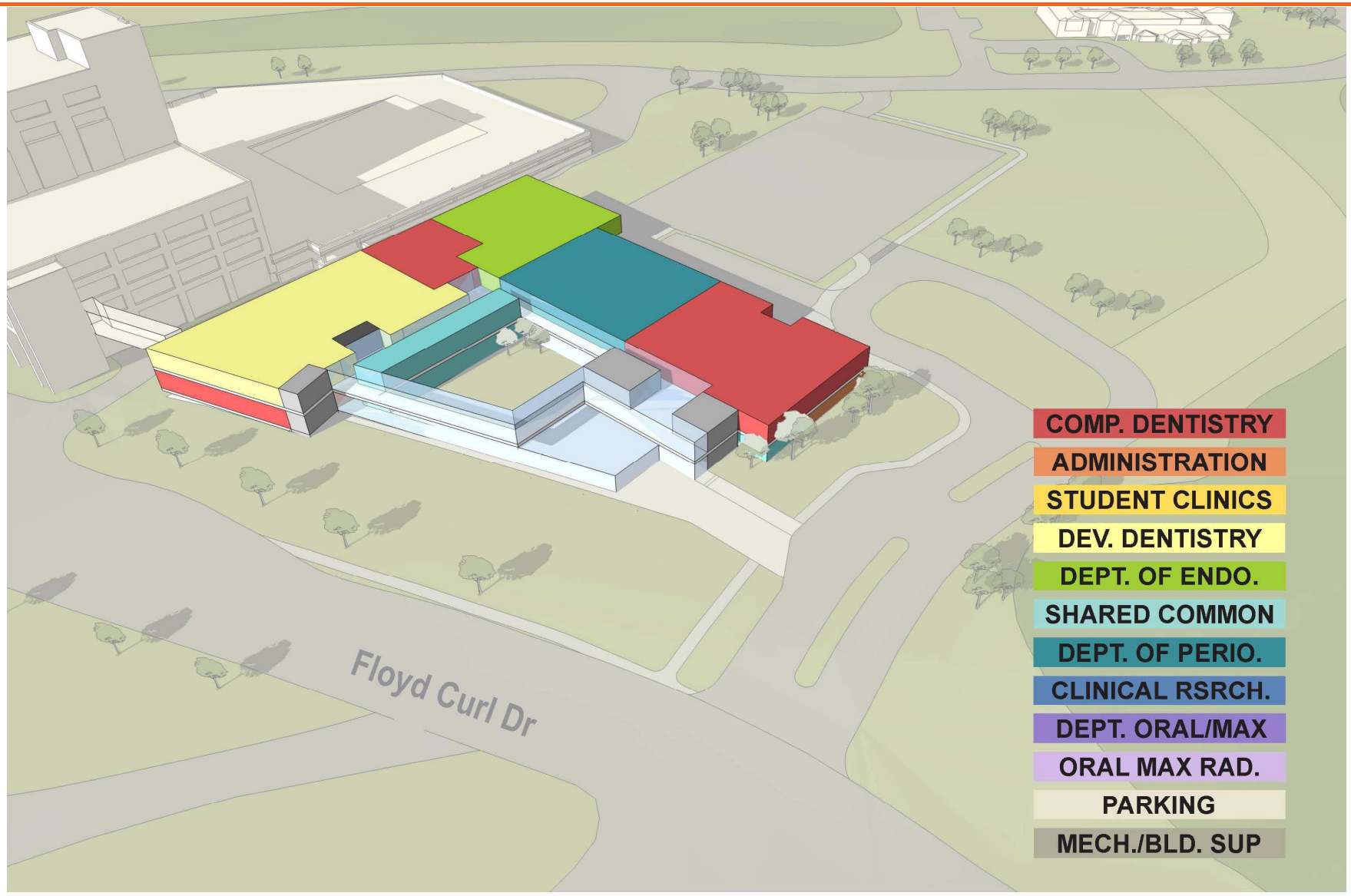

CONCEPT A
"Pinwheel"
CONCEPT B
"Stacked L's"

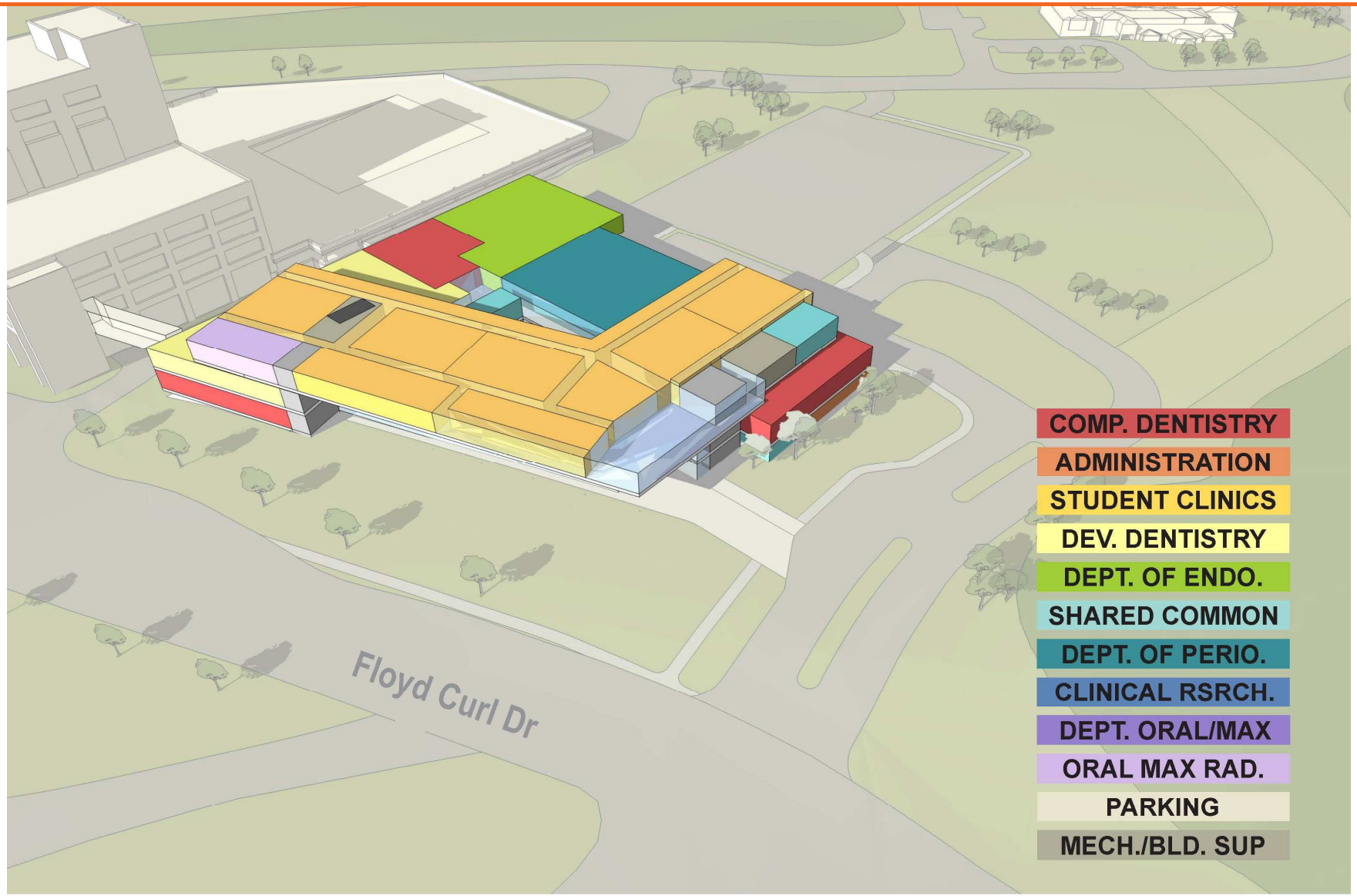

NORTH
Massing Concept B
"Stacked L's"
Sid Katz Dr
Garage D
Lot 31
Medical Arts and
Research Center
South Texas Research Facility
Floyd Curl Dr
Wurzbach Rd
Cancer Therapy and
Research Center

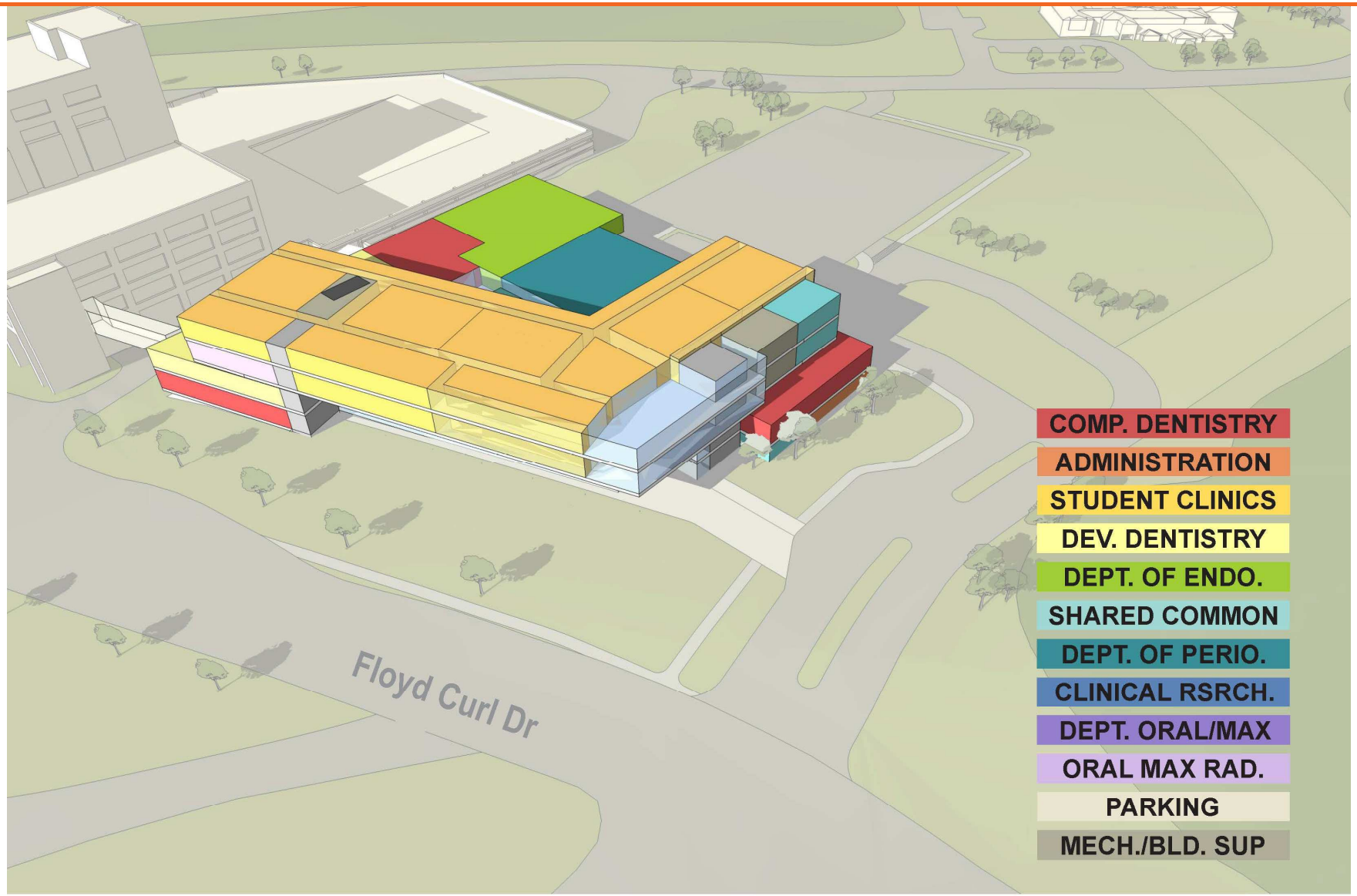

PARKING
STRUCTURE
FOOTPRINT
ENTRY/
DROP-OFF
COURTYARD
ENTRY
Floyd Curl Dr
SITE ACCESS


PARTIAL
BASEMENT
Floyd Curl Dr

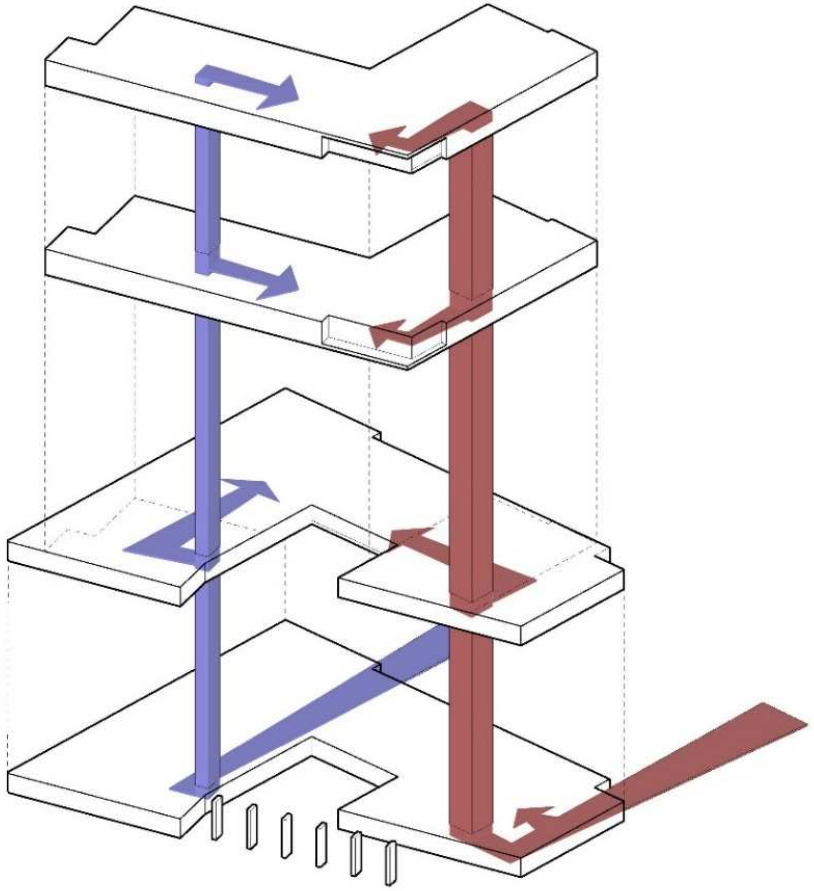

Floyd Curl Dr
COMP. DENTISTRY
ADMINISTRATION
STUDENT CLINICS
DEV. DENTISTRY
DEPT. OF ENDO.
SHARED COMMON
DEPT. OF PERIO.
CLINICAL RSRCH.
DEPT. ORAL/MAX
ORAL MAX RAD.
PARKING
MECH./BLD. SUP

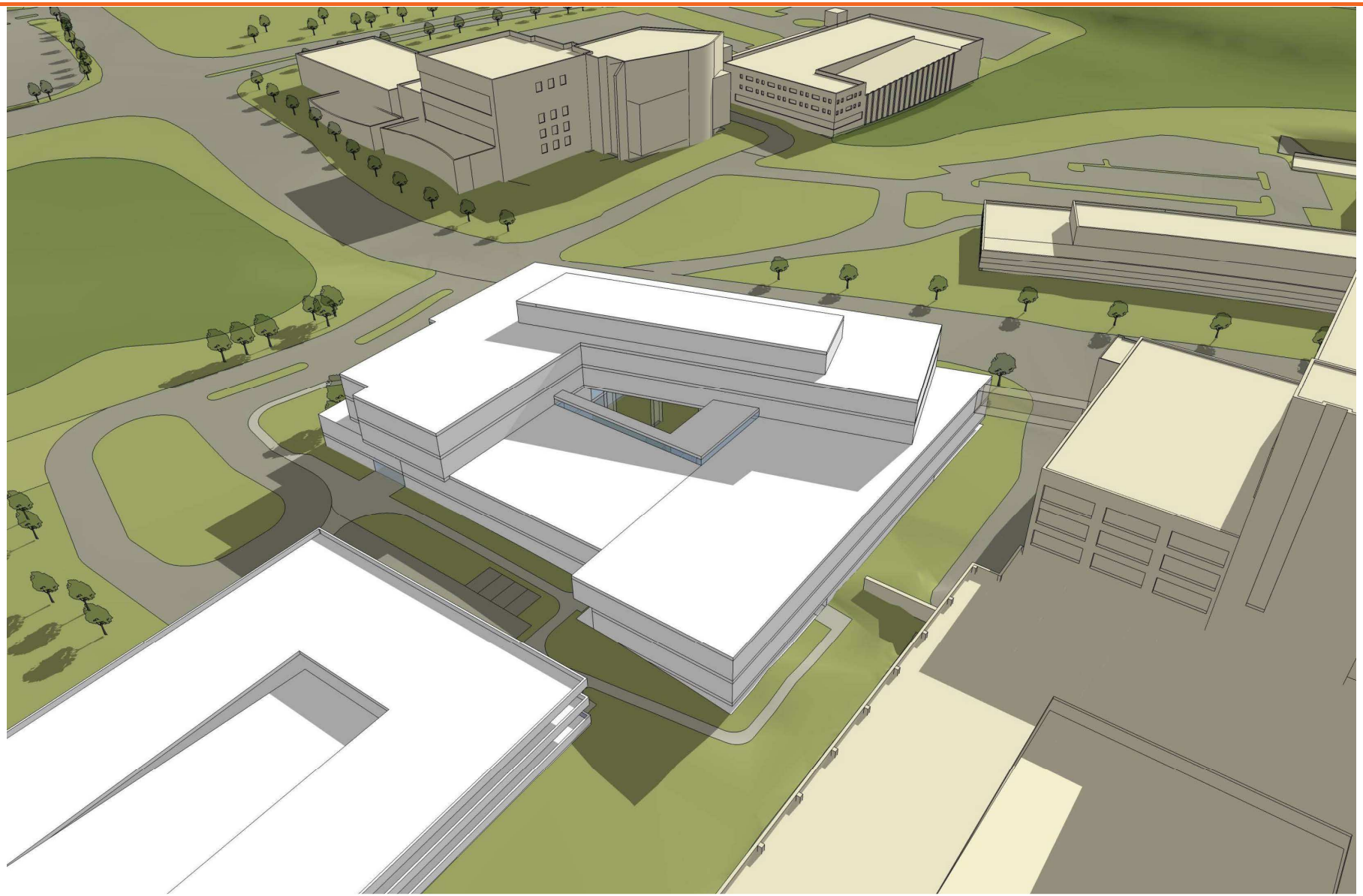

Floyd Curl Dr
COMP. DENTISTRY
ADMINISTRATION
STUDENT CLINICS
DEV. DENTISTRY
DEPT. OF ENDO.
SHARED COMMON
DEPT. OF PERIO.
CLINICAL RSRCH.
DEPT. ORAL/MAX
ORAL MAX RAD.
PARKING
MECH./BLD. SUP


Floyd Curl Dr
COMP. DENTISTRY
ADMINISTRATION
STUDENT CLINICS
DEV. DENTISTRY
DEPT. OF ENDO.
SHARED COMMON
DEPT. OF PERIO.
CLINICAL RSRCH.
DEPT. ORAL/MAX
ORAL MAX RAD.
PARKING
MECH./BLD. SUP


Floyd Curl Dr
COMP. DENTISTRY
ADMINISTRATION
STUDENT CLINICS
DEV. DENTISTRY
DEPT. OF ENDO.
SHARED COMMON
DEPT. OF PERIO.
CLINICAL RSRCH.
DEPT. ORAL/MAX
ORAL MAX RAD.
PARKING
MECH./BLD. SUP

Building Flow and Efficiency






Center for Oral Health Care
and Research

Entry Lobby

The Building Process

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

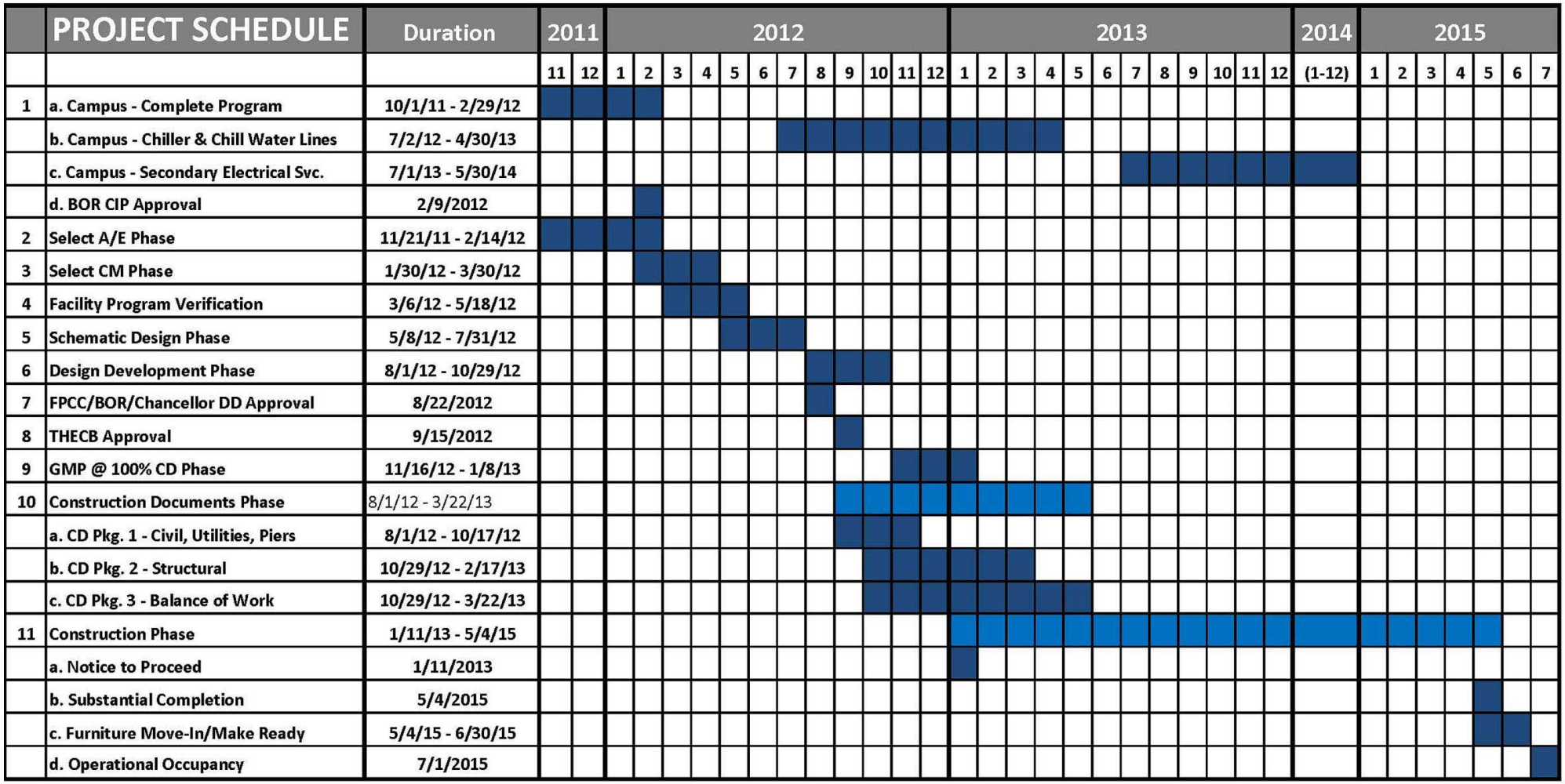
Design Phase

- Construction Delivery Method: Construction Manager at Risk
- A/E & CM-R Selection
  - Kahler Slater / Marmon Mok – Joint Venture
  - Vaughn Construction Company

Project Schedule

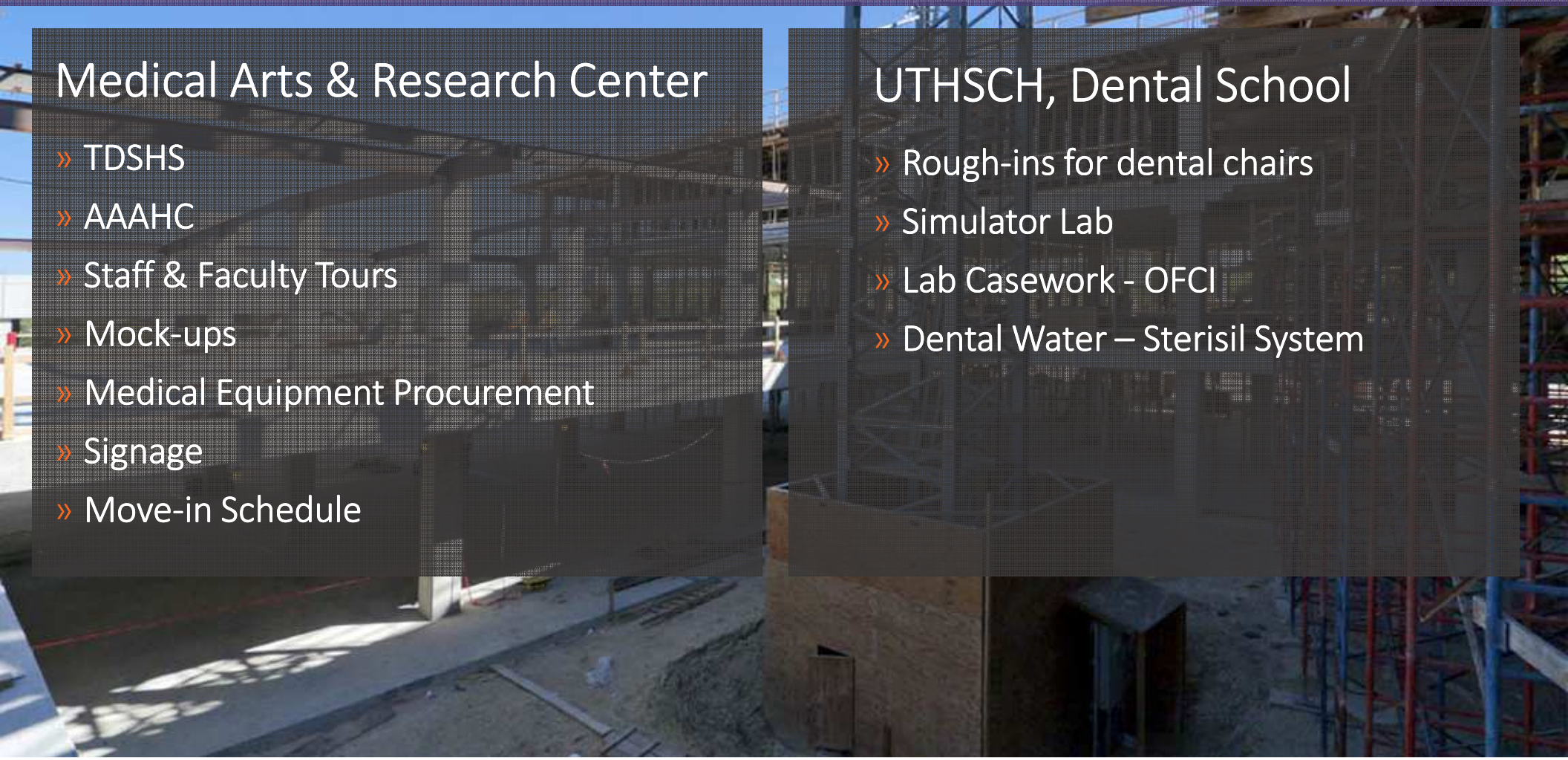
- **Campus - Facility Program:** **Oct. 1, 2011 – Feb. 29, 2012**
- Campus – Extend Chill Water Lines: July 2, 2012 – Apr. 30, 2013
- A/E Selection Phase: Nov. 21, 2011 – Feb 14, 2012
- Board of Regents' CIP Approval: Feb. 9, 2012
- CM-R Selection Phase: Jan. 30, 2012 – Mar. 30, 2012
- Facility Program Verification: Mar. 6. 2012 – May 18, 2012
- **Schematic Design:** **May 8, 2012 – July 31, 2012**
- **Design Development:** **Aug. 1, 2012 – Oct. 29, 2012**
- GMP at 100% DD: Nov. 16, 2012 – Jan. 8, 2013
- **Construction Documents**
  - **Package 1:** **Aug. 1, 2012 – Oct. 17, 2012**
  - **Package 2:** **Oct. 29, 2012 – Feb. 17, 2013**
  - **Package 3:** **Oct. 29, 2012 – Mar. 22, 2013**
- **Construction Phase:**
  - **NTP:** **Jan. 11, 2013**
  - **Substantial Completion:** **May 4, 2015**
  - **Furniture Move-In/Make Ready:** **May 4, 2015 – June 30, 2015**
  - **Operational Occupancy:** **July 1, 2015**

Project Schedule



	PROJECT SCHEDULE	Duration
1	a. Campus - Complete Program	10/1/11 - 2/29/12
	b. Campus - Chiller & Chill Water Lines	7/2/12 - 4/30/13
	c. Campus - Secondary Electrical Svc.	7/1/13 - 5/30/14
	d. BOR CIP Approval	2/9/2012
2	Select A/E Phase	11/21/11 - 2/14/12
3	Select CM Phase	1/30/12 - 3/30/12
4	Facility Program Verification	3/6/12 - 5/18/12
5	Schematic Design Phase	5/8/12 - 7/31/12
6	Design Development Phase	8/1/12 - 10/29/12
7	FPCC/BOR/Chancellor DD Approval	8/22/2012
8	THECB Approval	9/15/2012
9	GMP @ 100% CD Phase	11/16/12 - 1/8/13
10	Construction Documents Phase	8/1/12 - 3/22/13
	a. CD Pkg. 1 - Civil, Utilities, Piers	8/1/12 - 10/17/12
	b. CD Pkg. 2 - Structural	10/29/12 - 2/17/13
	c. CD Pkg. 3 - Balance of Work	10/29/12 - 3/22/13
11	Construction Phase	1/11/13 - 5/4/15
	a. Notice to Proceed	1/11/2013
	b. Substantial Completion	5/4/2015
	c. Furniture Move-In/Make Ready	5/4/15 - 6/30/15
	d. Operational Occupancy	7/1/2015

Lessons Learned – Previous Projects



Medical Arts & Research Center

- TDSHS
- AAAHC
- Staff & Faculty Tours
- Mock-ups
- Medical Equipment Procurement
- Signage
- Move-in Schedule

UTHSCH, Dental School

- Rough-ins for dental chairs
- Simulator Lab
- Lab Casework - OFCI
- Dental Water – Sterisil System

Design Cost Estimating / Bid Package Strategy

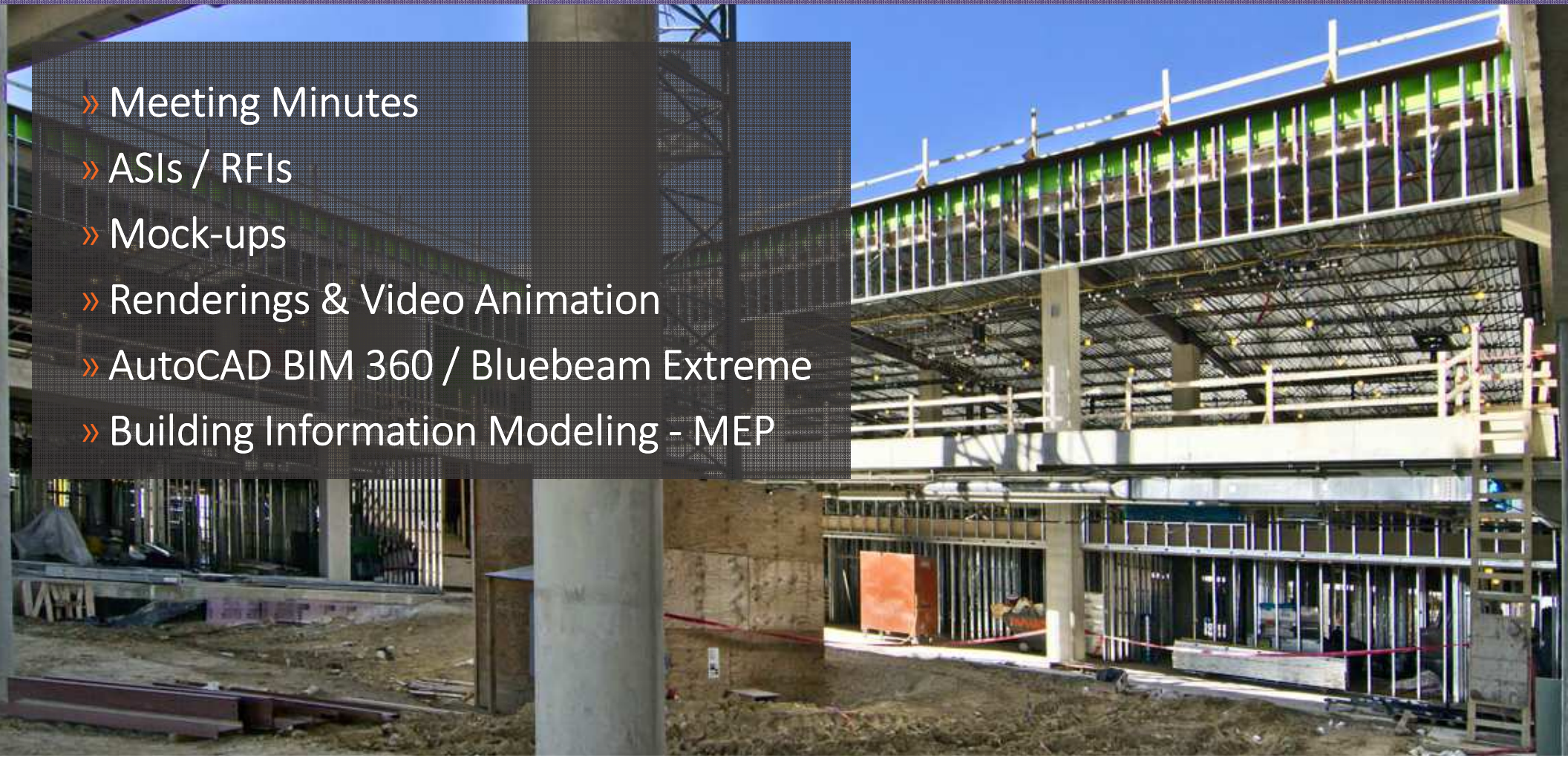
- Design Team & CM-R at each Phase/submission
- CM-R
  - Constructability
  - Recommendations for alternate materials/cost reduction
  - Nonproprietary specifications
  - Recommendations for package alternates
  - Bid Strategy – Requested bids from 3 equipment manufacturers for controls, lighting and electrical gear, air handlers, exhaust fans and fire alarm.

Construction Phase

Meetings

- Building Committee & Planning Committee
  - Bi-weekly meetings with Dental School Representatives
  - Monthly meetings with Planning Committee (Dental School Dept. Chairs)
  - Monthly with Building Committee and as needed for decisions relative to cost and schedule
- Construction Team meetings every 2 weeks
- Move-in schedule (relocation, dental equipment, furniture, make ready, IT & AV, and security)
- Department representatives attend in-wall inspections to coordinate utilities, blocking and IT.

Construction Communication Tools



- Meeting Minutes
- ASIs / RFIs
- Mock-ups
- Renderings & Video Animation
- AutoCAD BIM 360 / Bluebeam Extreme
- Building Information Modeling - MEP

Where We Are Now

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO


EXIT
ONLY

MEP Coordination

Basement – VAC/Air Equipment Room

Basement – VAC/Air Equipment Room

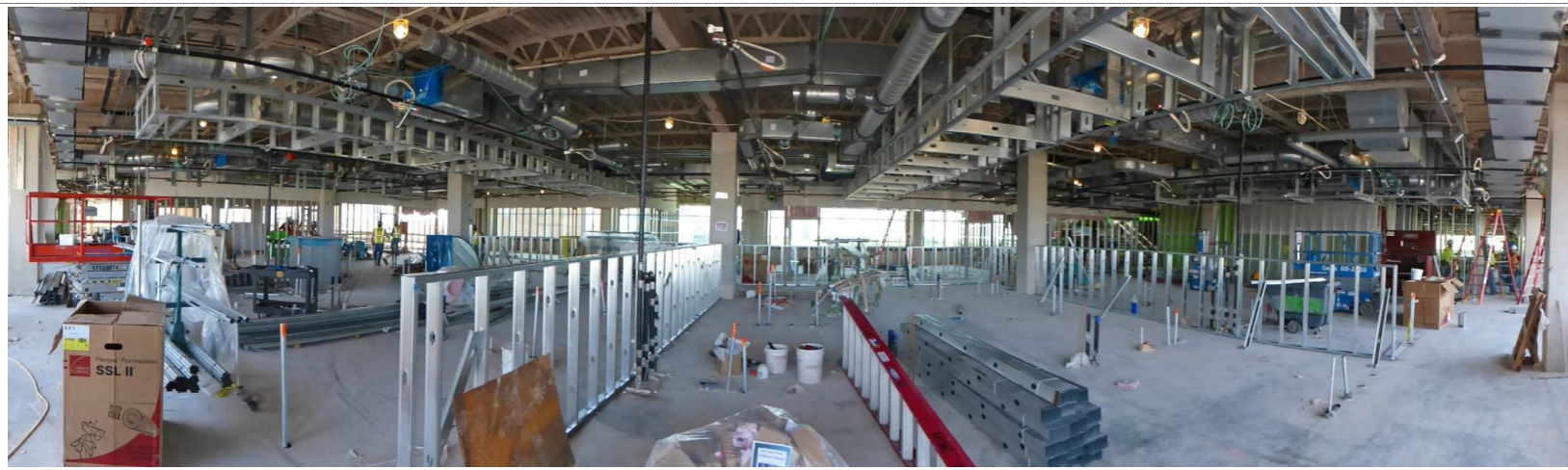
Basement – Central Sterilization

Basement – Central Sterilization

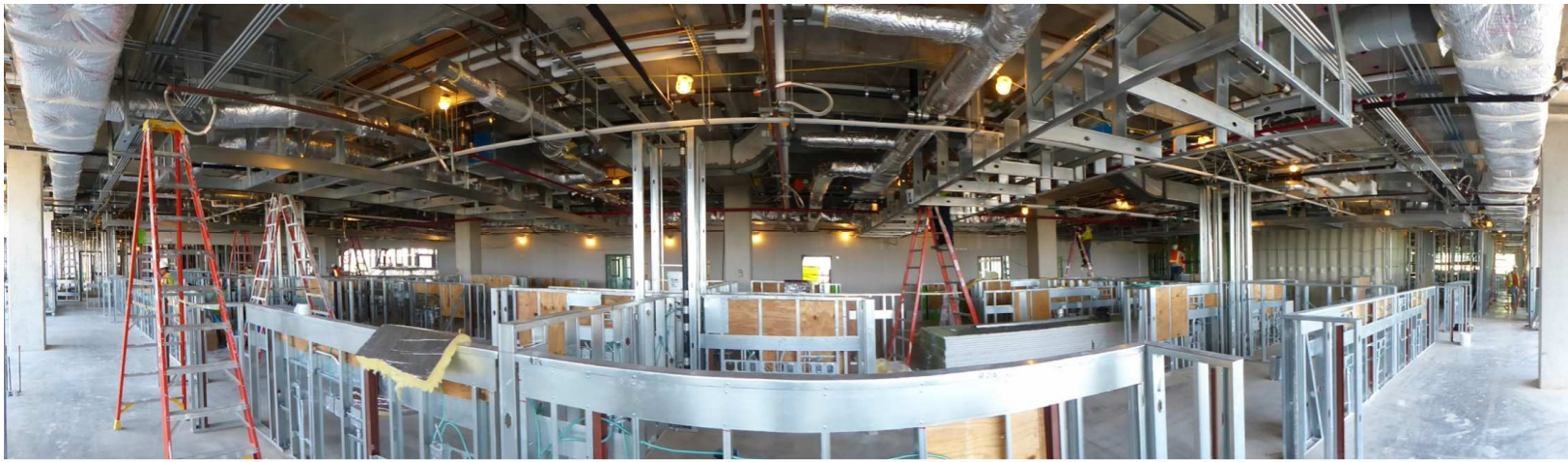
First Floor – OMS Ambulatory Surgery Center

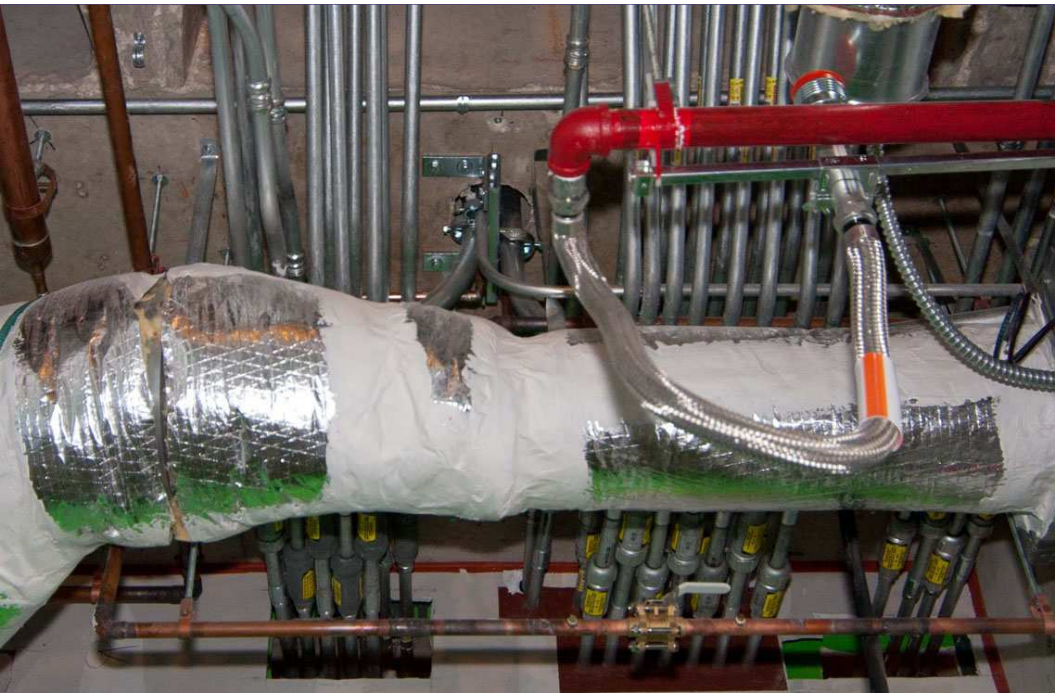
Second Floor - Endodontics

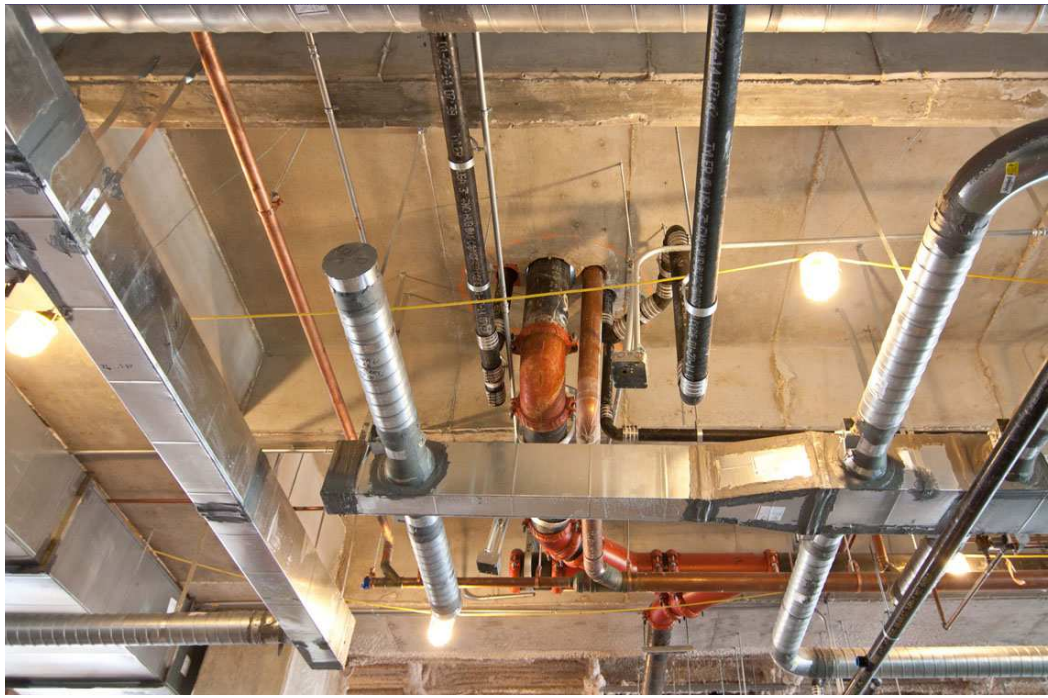
Fourth Floor – General Practice Group Open Operatory



Third Floor – General Practice Group Open Operatory








Animation

Lessons Learned

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

Lessons Learned

- Visit dental schools and sit with Owner, Architect & CM-R to discuss lessons learned.
- Quicker and thorough code review for ASC
- BIM modeling and clash detection at walls
- Design for higher floor to floor heights – difficult to design under 16’
- Bid Document Packaging – combine structural with MEP for more complicated projects

Lessons Learned

- Mock-ups at a separate location
- Procure Dental Equipment earlier to verify rough-ins.
- Impress upon users the importance of timely decision making on programming, planning and specialty equipment selection
- OFOI sterilizers – obtain the correct rough-in requirements
- Have construction team witness dental equipment in use to clarify installation

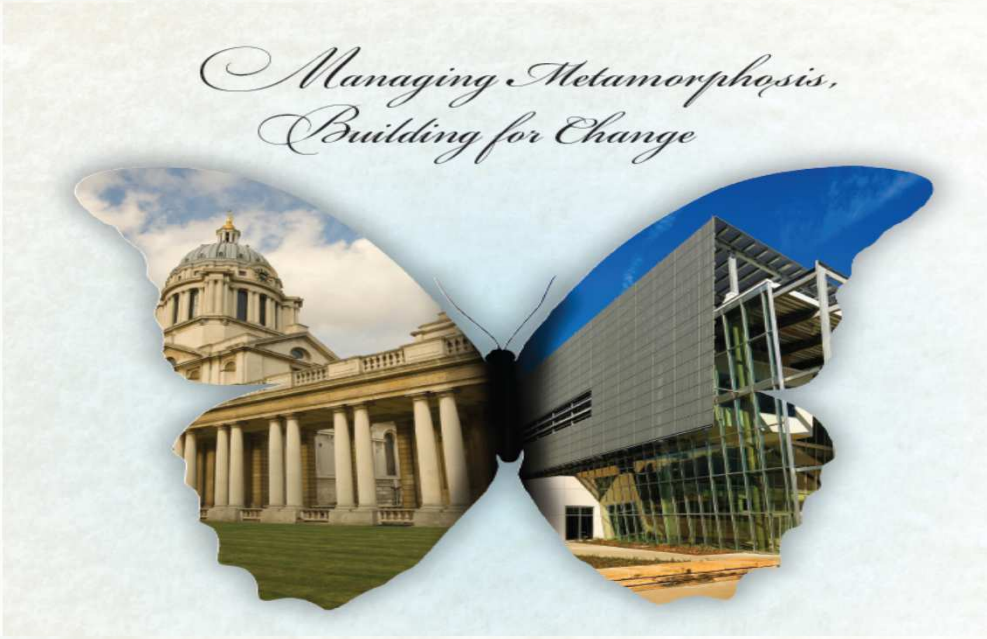
Animation

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

Questions

WE MAKE LIVES BETTER
UT HEALTH SCIENCE CENTER®
SAN ANTONIO

ASSOCIATION OF Texas College & University Facilities PROFESSIONALS



Seminar Evaluation

We hope you enjoyed this session…

Please take a moment to complete the evaluation form.

Thank you!

CONTINUING EDUCATION AIA