**Presenter Bios**

**Michael Roush**

UCSD Facilities Design and Construction  
mroush@ucsd.edu

- Bachelor of Science in Architecture from The Ohio State University
- 9 years with UCSD FDC
- 9 years on UCSD Jacobs Medical Center  
  Project Manager  
  Program Manager

**Scott Laoboonmi**

CannonDesign  
slaoboonmi@cannondesign.com

- Bachelor of Architecture from the University of Southern California
- 15 years with CannonDesign
- 9 years on UCSD Jacobs Medical Center  
  BIM Manager  
  Project Manager
1.) UCSD Medical Campus

2.) UCSD Jacobs Medical Center

3.) From the Owner...

4.) On Future Projects...
UCSD Medical Campus - 38.4 Acres
UCSD Medical Campus

OSHPD Site - 15.3 Acres

#BIMForumED  @michaelroushaia
OSHPD Site - 15.3 Acres

The purpose of OSHPD's Facilities Development Division is to regulate the design and construction of healthcare facilities to ensure they are safe and capable of providing services to the public.

- Plan Review
  - Construction Documents
  - Change Orders
  - Deferred Approvals
- Construction Observation
UCSD Medical Campus

1.) Thornton Hospital

Project Timeline: 1986 - 1993
Hand Drawings

#BIMForumED @michaelroushaia
2.) Sulpizio Cardiovascular Center

1.) Thornton Hospital
   - Project Time Line: 1986 - 1993
   - Hand Drawings

2.) Sulpizio Cardiovascular Center
   - Project Time Line: 2005 - 2012
   - CAD for 2D drawings, BIM for construction coordination

#BIMForumED @michaelroushaia
UCSD Medical Campus

3.) Central Plant

1.) Thornton Hospital
   Project Time Line: 1986 - 1993
   Hand Drawings

2.) Sulpizio Cardiovascular Center
   Project Time Line: 2005 - 2012
   CAD for 2D drawings, BIM for construction coordination

3.) Central Plant
   Project Time Line: 2009 - August 2014
   BIM for 2D drawings and construction coordination

#BIMForumED  @michaelroushaia
4.) Thornton Renovation

1.) Thornton Hospital
   Project Time Line: 1986 - 1993
   Hand Drawings

2.) Sulpizio Cardiovascular Center
   Project Time Line: 2005 - 2012
   CAD for 2D drawings, BIM for construction coordination

3.) Central Plant
   Project Time Line: 2009 - August 2014
   BIM for 2D drawings and construction coordination

4.) Thornton Renovation
   Project Time Line: 2009 - April 2017
   BIM for 2D drawings and construction coordination
UCSD Medical Campus

5.) New Bed Tower

1.) Thornton Hospital
   Project Time Line: 1986 - 1993
   Hand Drawings

2.) Sulpizio Cardiovascular Center
   Project Time Line: 2005 - 2012
   CAD for 2D drawings, BIM for construction coordination

3.) Central Plant
   Project Time Line: 2009 - August 2014
   BIM for 2D drawings and construction coordination

4.) Thornton Renovation
   Project Time Line: 2009 - April 2017
   BIM for 2D drawings and construction coordination

5.) New Bed Tower
   Project Time Line: 2009 - August 2017
   BIM for 2D drawings and construction coordination
1.) UCSD Medical Campus

2.) UCSD Jacobs Medical Center

3.) From the Owner...

4.) On Future Projects...

#BIMForumED @michaelroushaia
3.) Central Plant

UCSD Jacobs Medical Center

3.) Central Plant
2 Stories, 40,000 SF
2 Volumes, 520 pages
4.) Thornton Renovation

3.) Central Plant
- 2 Stories, 40,000 SF
- 2 Volumes, 520 pages

4.) Thornton Renovation
- 4 Stories, 60,000 SF
- Multiple OSHPD projects

UCSD Jacobs Medical Center
5.) New Bed Tower

3.) Central Plant
   2 Stories, 40,000 SF
   2 Volumes, 520 pages

4.) Thornton Renovation
   4 Stories, 60,000 SF
   Multiple OSHPD projects

5.) New Bed Tower
   6 Stories, 230,000 SF
UCSD Jacobs Medical Center

5.) New Bed Tower - SD Prime

3.) Central Plant
2 Stories, 40,000 SF
2 Volumes, 520 pages

4.) Thornton Renovation
4 Stories, 60,000 SF
Multiple OSHPD projects

5.) New Bed Tower
12 Stories, 510,000 SF
10 Incremental packages to OSHPD
24 Volumes, 3,600 pages

#BIMForumED
@michaelroushaia
UCSD Jacobs Medical Center

SD & SD Prime Height Comparison

6 Story Building, 230,000 SF

12 Story Building, 510,000 SF
5.) New Bed Tower - OSHPD Approval

3.) Central Plant
- 2 Stories, 40,000 SF
- 2 Volumes, 520 pages

4.) Thornton Renovation
- 4 Stories, 60,000 SF
- Multiple OSHPD projects

5.) New Bed Tower
- 12 Stories, 510,000 SF
- 10 Incremental packages to OSHPD
- 24 Volumes, 3,600 pages

September 14, 2016: OSHPD Approval

#BIMForumED @michaelroushaia
UCSD Jacobs Medical Center

5.) New Bed Tower - CDPH Approval

3.) Central Plant
- 2 Stories, 40,000 SF
- 2 Volumes, 520 pages

4.) Thornton Renovation
- 4 Stories, 60,000 SF
- Multiple OSHPD projects

5.) New Bed Tower
- 12 Stories, 510,000 SF
- 10 Incremental packages to OSHPD
- 24 Volumes, 3,600 pages

October 12, 2016: CDPH Approval
UCSD Jacobs Medical Center

5.) New Bed Tower - 1st Patient

3.) Central Plant
2 Stories, 40,000 SF
2 Volumes, 520 pages

4.) Thornton Renovation
4 Stories, 60,000 SF
Multiple OSHPD projects

5.) New Bed Tower
12 Stories, 510,000 SF
10 Incremental packages to OSHPD
24 Volumes, 3,600 pages

November 20, 2016: 1st Patient
Single Firm Multi-Office (SFMO)
2D Deliverables

PDF

DWG
2 NEW BUILDINGS
2 NEW BUILDINGS
10 RENOVATION PROJECTS
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
31 MODELS
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
31 MODELS
37 VOLUMES
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
31 MODELS
37 VOLUMES
6,000 SHEETS
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
31 MODELS
37 VOLUMES
6,000 SHEETS
21 PERMITS
2 NEW BUILDINGS
10 RENOVATION PROJECTS
610,000 TOTAL SF
31 MODELS
37 VOLUMES
6,000 SHEETS
21 PERMITS
9 YEAR PROJECT
1.) UCSD Medical Campus

2.) UCSD Jacobs Medical Center

3.) From the Owner...

4.) On Future Projects...
Growing Complexity

- Shelled areas became part of the project... And parts of the project became shelled...
Growing Complexity

- Shelled areas became part of the project... And parts of the project became shelled...
- Design was still happening during Construction Documents... And then still going on during construction...
Growing Complexity

- Shelled areas became part of the project...And parts of the project became shelled...

- Design was still happening during Construction Documents...And then still going on during construction...

- Remote office involvement
From the Owner...

Pluses and Deltas

- What worked...? What didn’t...?
Pluses and Deltas

- What worked...? What didn’t...?
- Expectations vs. Reality
Pluses and Deltas

- What worked...? What didn’t...?
- Expectations vs. Reality
- PDF’s and DWG’s are the As-Built deliverables
1.) UCSD Medical Campus
2.) UCSD Jacobs Medical Center
3.) From the Owner...
4.) On Future Projects...
Lessons Learned - UCSD

- Pencils Down
Lessons Learned - UCSD

- Pencils Down
- UCSD to have a framework for Design Teams to follow
Lessons Learned - UCSD

- Pencils Down
- UCSD to have a framework for Design Teams to follow
- Need a BIM Execution Plan
On Future Projects...

Lessons Learned - CannonDesign

- All Consultants need to be in BIM
Lessons Learned - CannonDesign

- All Consultants need to be in BIM
- Upgrade models to current version
On Future Projects...

Lessons Learned - CannonDesign

- All Consultants need to be in BIM
- Upgrade models to current version
- Have the right team
Lessons Learned - CannonDesign

- All Consultants need to be in BIM
- Upgrade models to current version
- Have the right team
- We also needed a BIM Execution Plan
Presenters

Michael Roush
UCSD Facilities Design and Construction
mroush@ucsd.edu

Scott Laoboonmi
CannonDesign
slaoboonmi@cannondesign.com