

Collaborative Design/Build: A New Paradigm

TH514

Thursday, June 21, 2018 10:30 AM – 11:30 AM

Learning Units 100 LU HSW GBCI RIBA

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Questions related to specific products and services may be addressed at the conclusion of this presentation.

Speakers List

Timothy E. Blood

Project Director, Sundt Construction, Inc.

Fabian Kremkus AIA

Design Principal, CO Architects

Tania Nunez AIA

*Project Manager - Facilities Management
California State University, Sacramento*

Course / Learning Objectives

- Evaluate the design/build, collaborative design/build, and integrated project delivery processes.
- Examine the benefits of schedule and cost planning as they relate to the various delivery models.
- Explore the programming, design, and construction processes in the collaborative design/build model and learn how to organize stakeholders.
- Learn to identify project potential and understand how to leverage the collaborative design/build process for an integrated planning process.

CO ARCHITECTS



Fabian Kremkus, AIA
Design Principal



Sean K. Falvey
Sr. Project Manager



Tania Nunez
Project Manager
Facilities Management

POLLING SITE

Please enter url:

pollev.com and then [coarchitects011](#) for the username into your browser and answer the questions while listening to the presentation. The polling will serve as a framework / inspiration for our Q+A

Thank you

Collaborative Design Build as a new paradigm – Get Ready! Poll

When survey is active, respond at PollEv.com/coarchitects633

0 surveys done

 0 surveys underway

Start the presentation to see live content. Still no live content? Install the app or get help at PollEv.com/app

Who is in the room?

Architect

Vendor

Student

Engineer

Contractor

Developer

Institutional Client

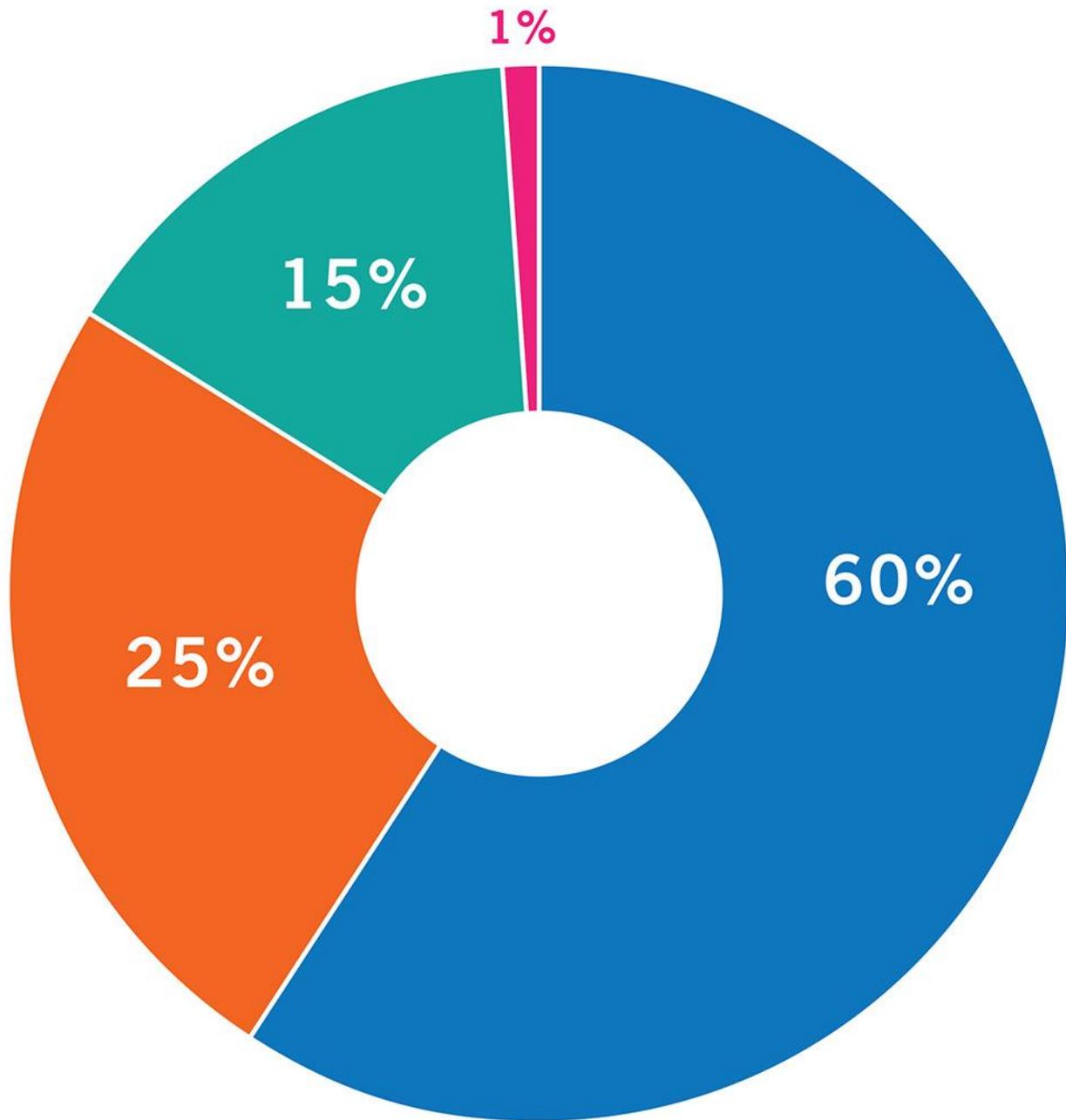
Client

AGENDA

Delivery Method

Collaborative Design Build – Why

Lets Discuss the Polls



**DELIVERY METHOD PREVELANCE IN U.S.
VERTICAL CONSTRUCTION MARKET**

60% DESIGN-BID-BUILD

25% CM@R

15% DESIGN BUILD

1% IDP

PROJECT DELIVERY METHODS

P3

DESIGN -
BUILD

CM@R
CONTRACTS

DESIGN - BID -
BUILD

MULTIPLE
PRIME CONTRACTS

LEAST

OWNER'S RISK

GREATEST

GREATEST

CONTRACTOR'S RISK

LEAST

LEAST

OWNER'S CONTROL

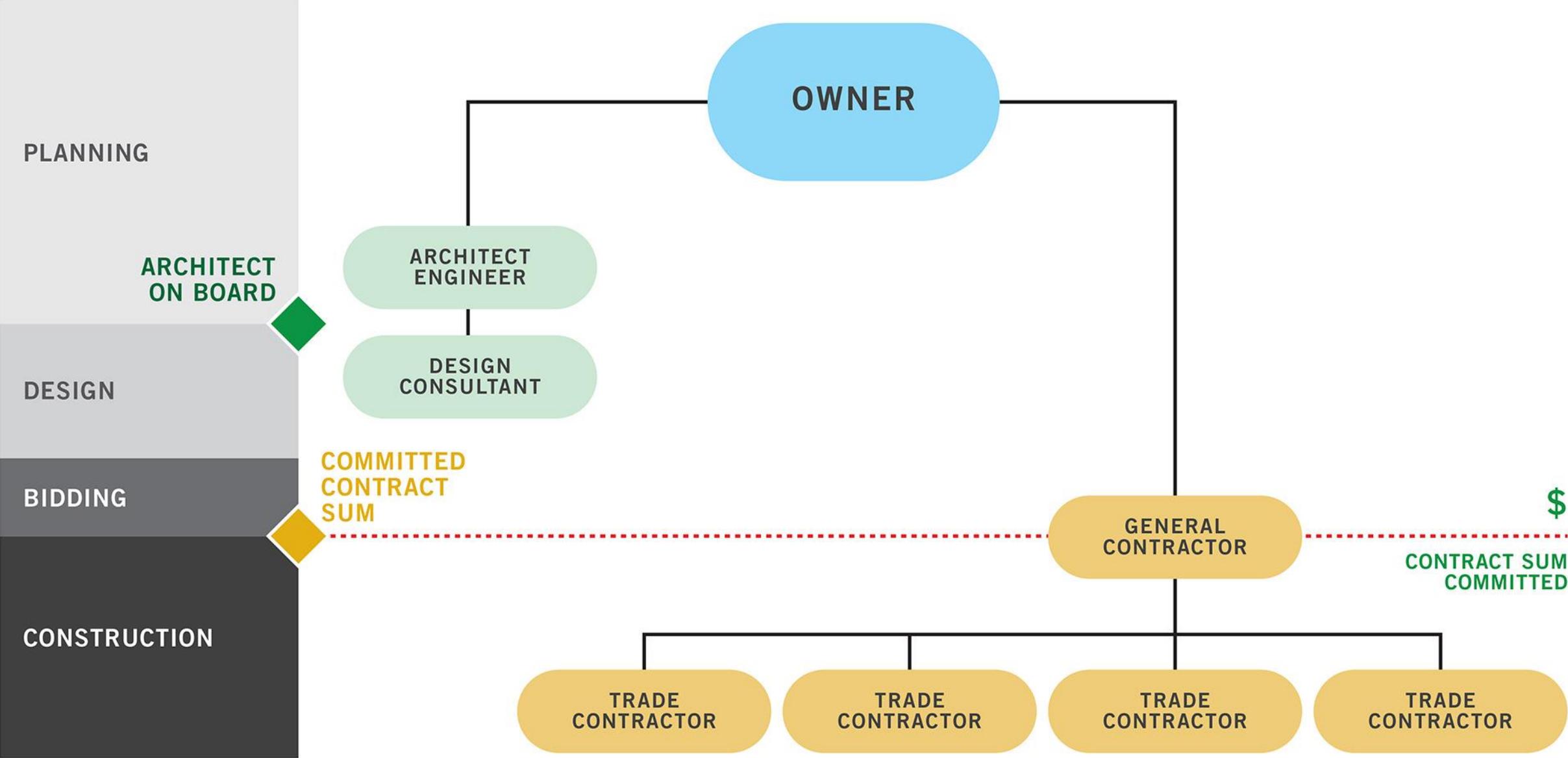
GREATEST

GREATEST

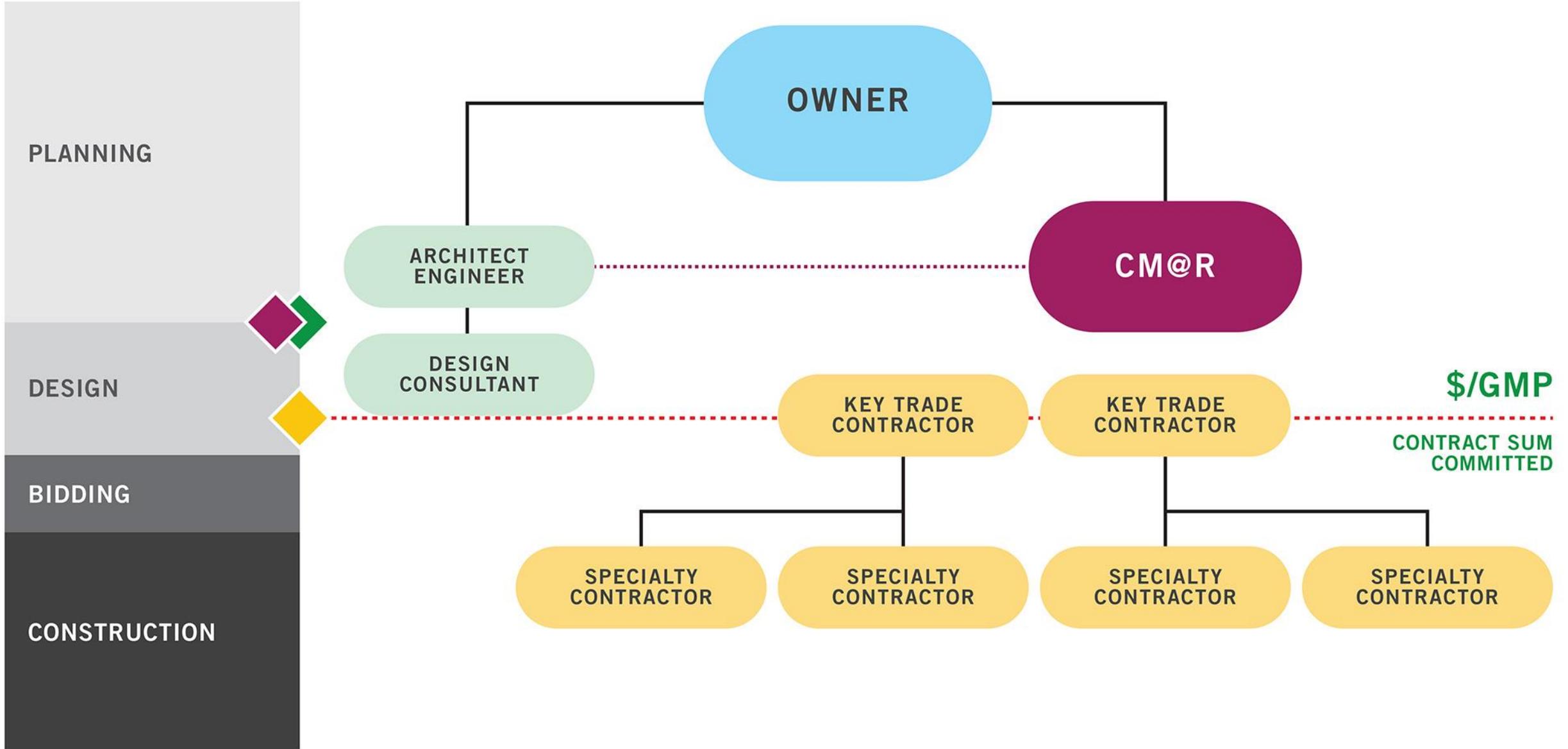
CONTRACTOR'S CONTROL

LEAST

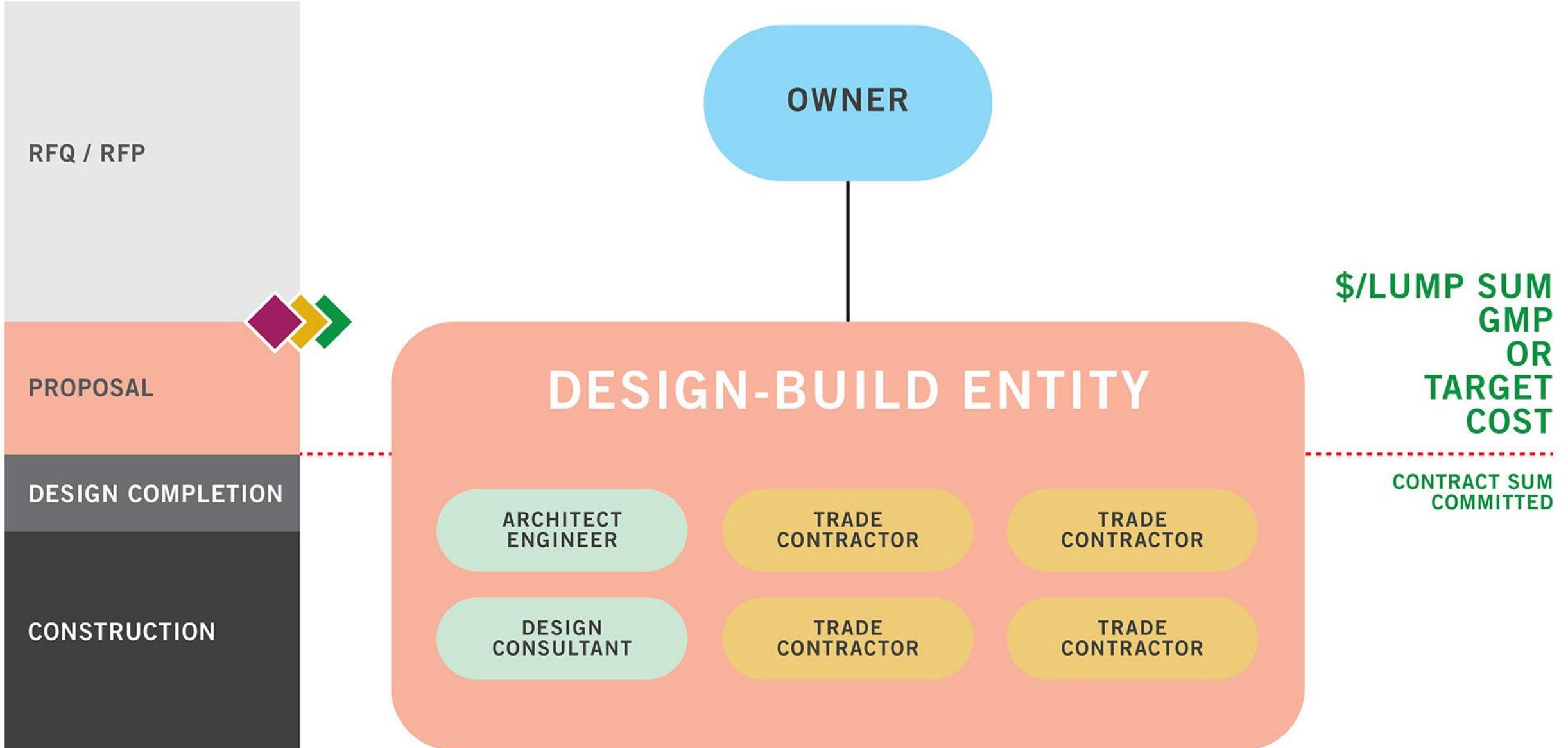
DESIGN-BID-BUILD DELIVERY METHOD



CM@R DELIVERY METHOD



DESIGN-BUILD DELIVERY METHOD



DESIGN-BUILD VARIATIONS



Qualifications Based Selection
RFQ > Shortlist > Award
No Stipend

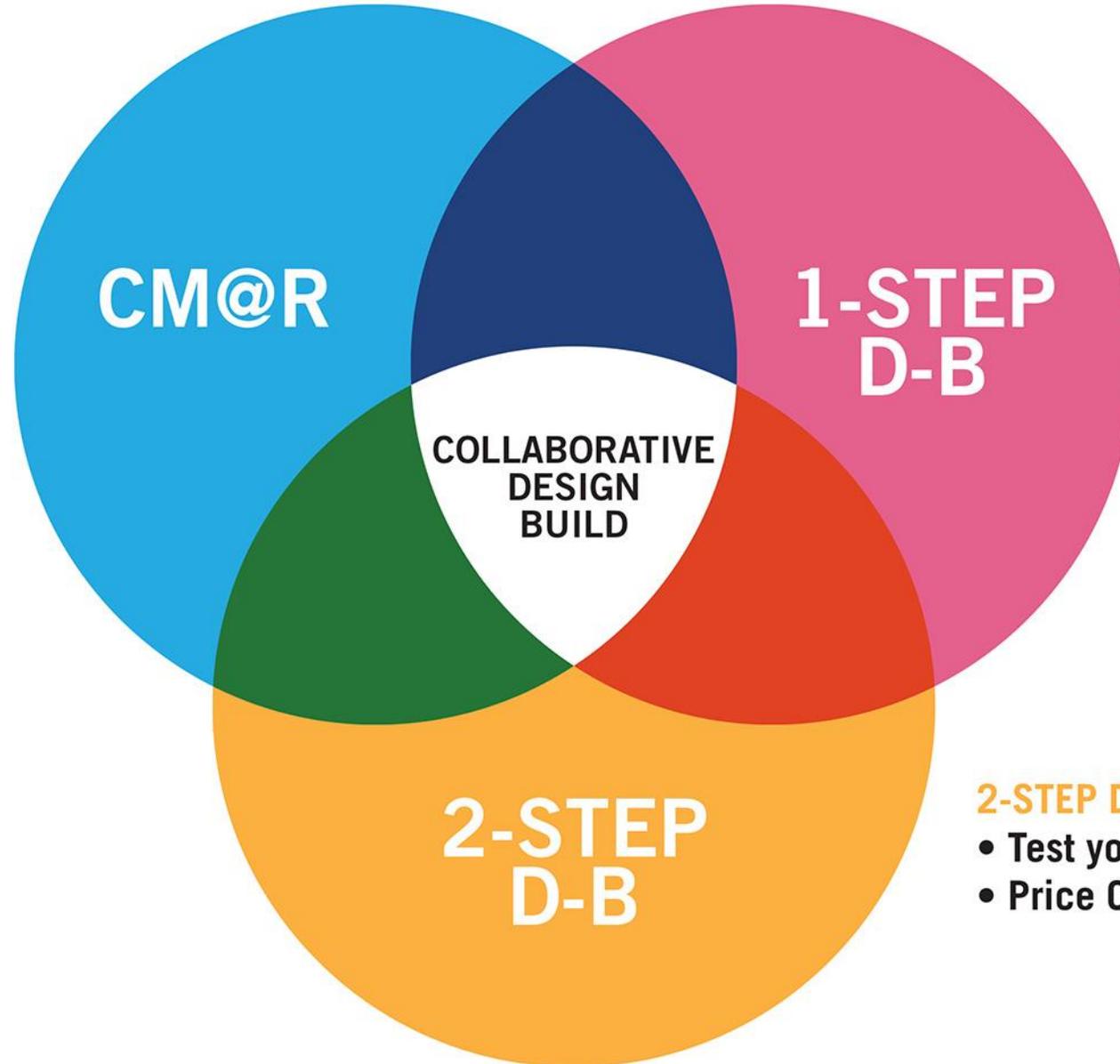
Qualifications Based Selection
RFQ > Shortlist
RFP Design Competition
Multiple User Meetings
Design Oriented Solution
Stipulated Sum – Maximize Scope for Price
No Stipend



CAPITALIZE ON THE ADVANTAGES

CM@R ADVANTAGES:

- Very good cost estimating at early stages in the project
- Can create the best collaborative team structure
- General contractor and architect chosen primarily on qualifications, secondarily on price.
- Faster transition from design documents to start of construction.



1-STEP DB ADVANTAGES:

- Quick Procurement
- Low Cost to Pursue
- Attractive to market = Larger Pool

2-STEP DB ADVANTAGES:

- Test your teams
- Price Certainty

What is the delivery method commonly seen in your practice

Collaborative Design Build

Design Build

Construction Manager at Risk

Design, Bid, Build

Multi Prime

P3 / Private Public Partnership

IPD / Integrated Project Delivery

What is the delivery method you see your practice needs to develop more expertise in?

Collaborative Design Build

Design Build

Construction Manager at Risk

Design, Bid, Build

Multi Prime

P3 / Private Public Partnership

IPD / Integrated Project Delivery

Is there a disparity between the delivery methods you are using and the method you would like to see in use?

Yes

No

AGENDA

Delivery Method

Collaborative Design Build – Why

Lets Discuss the Polls

**4
MONTHS**

**10
MONTHS**

BOARD OF TRUSTEES

**26
MONTHS**

**RFQ
RFP**

**PHASE 1
DESIGN / PRECON**

GMP

**PHASE 2
APPROVALS / CONSTRUCTION**

RFQ/RFP

- Feasibility Study, Preliminary Programming & Design Criteria

RFQ

- Qualifications based selection of teams to move on

RFP

- Design Criteria
- Confidential Meetings
- Proposal Evaluation and Scoring, including rendering
- Fees provided and included in scoring

WET

0.5 - 2 HOODS/MOD

WET BENCH FOCUSED

HEALTH SCIENCES



FLEX

0.25 HOODS / MOD

CLINICAL

PSYCHOLOGY



DRY

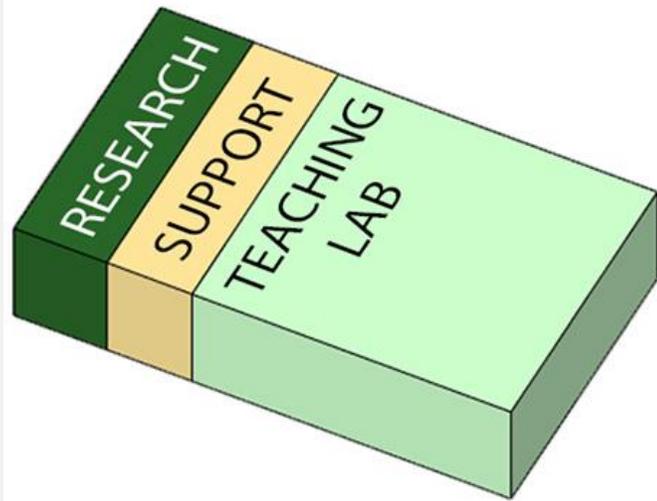
0 HOODS

IT FOCUSED

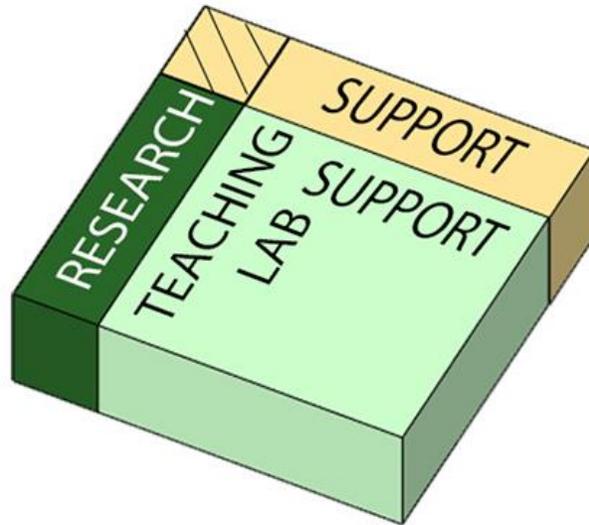
INFORMATICS



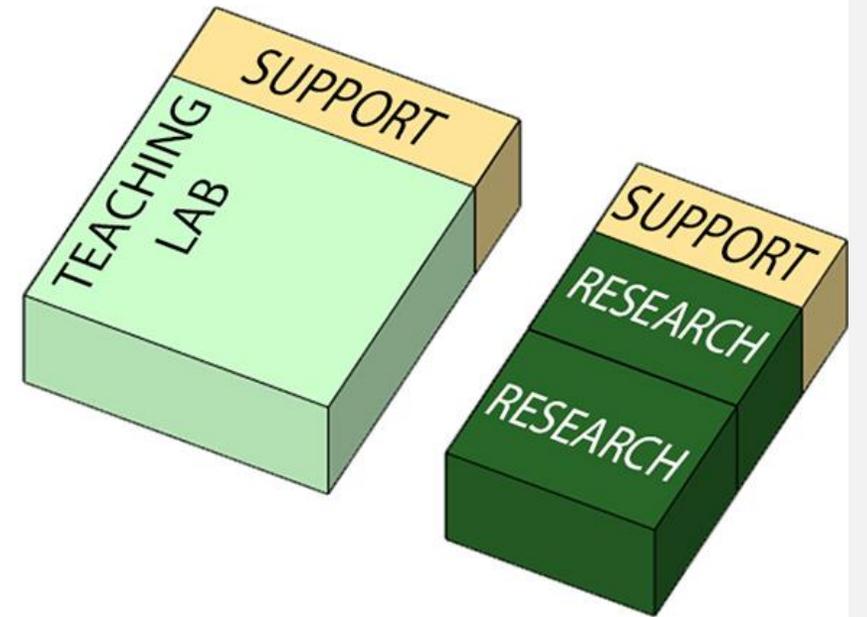
Side
By Side



Teaching
Emphasis



More Science
To See



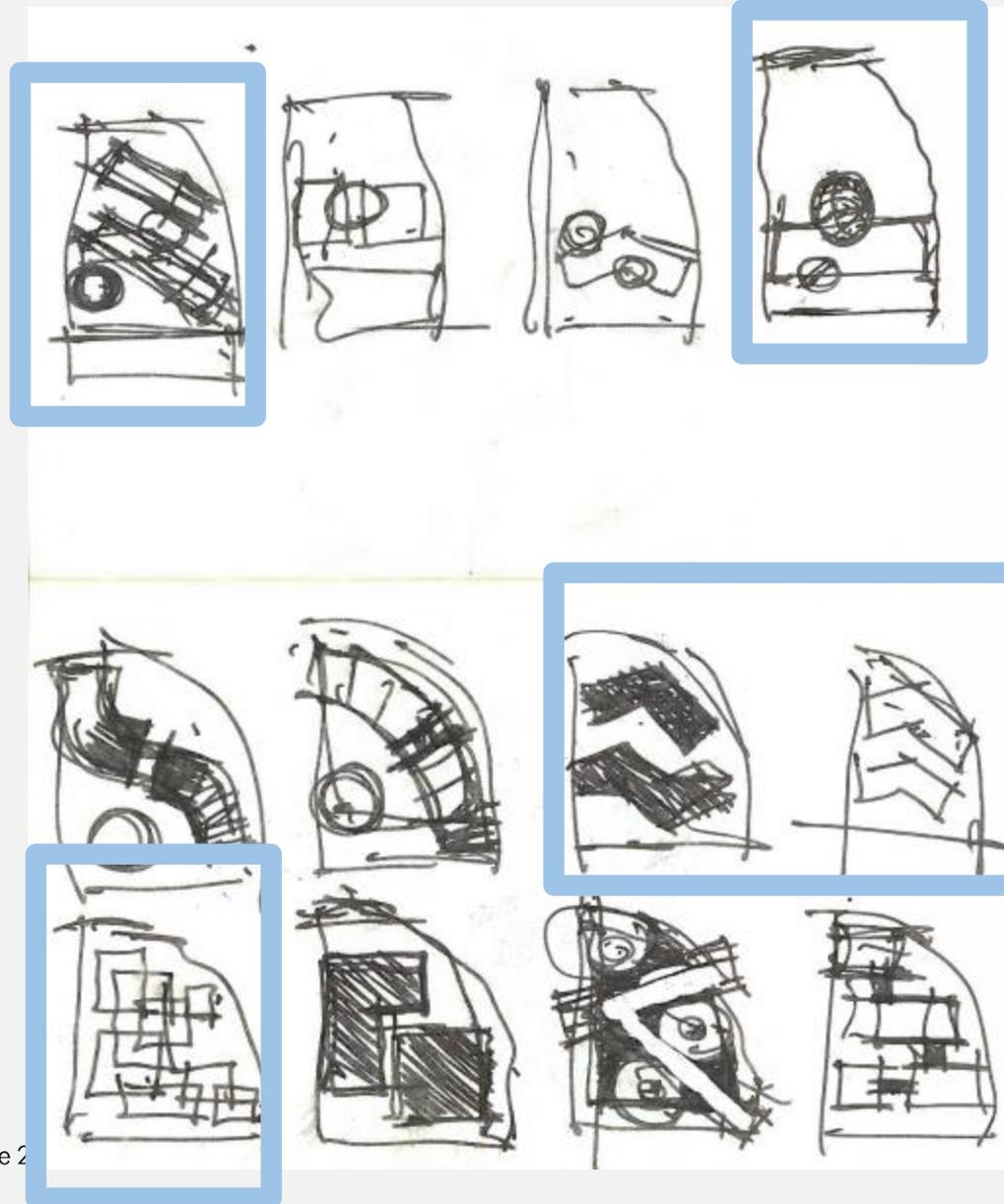
FACULTY OFFICE

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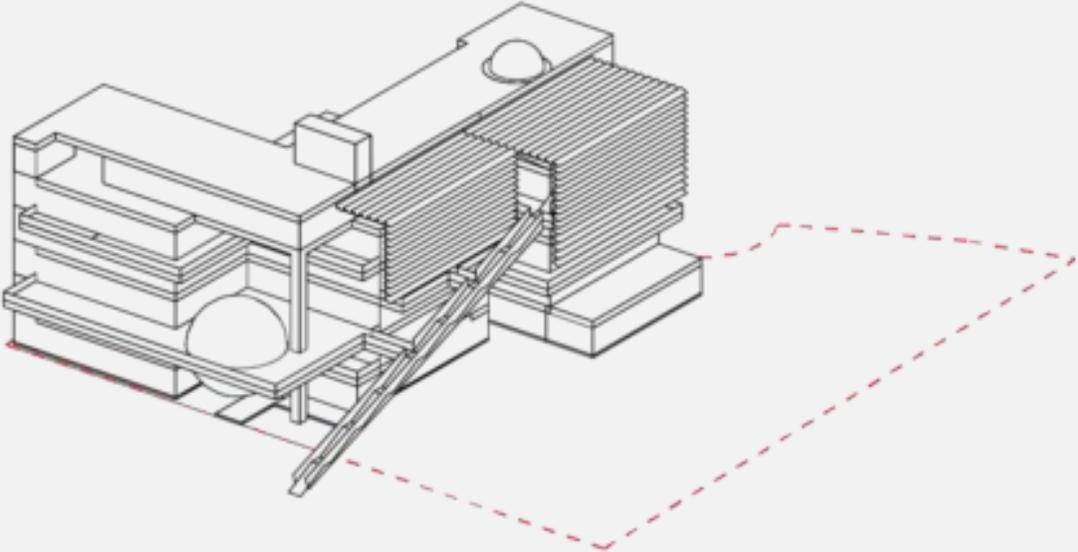
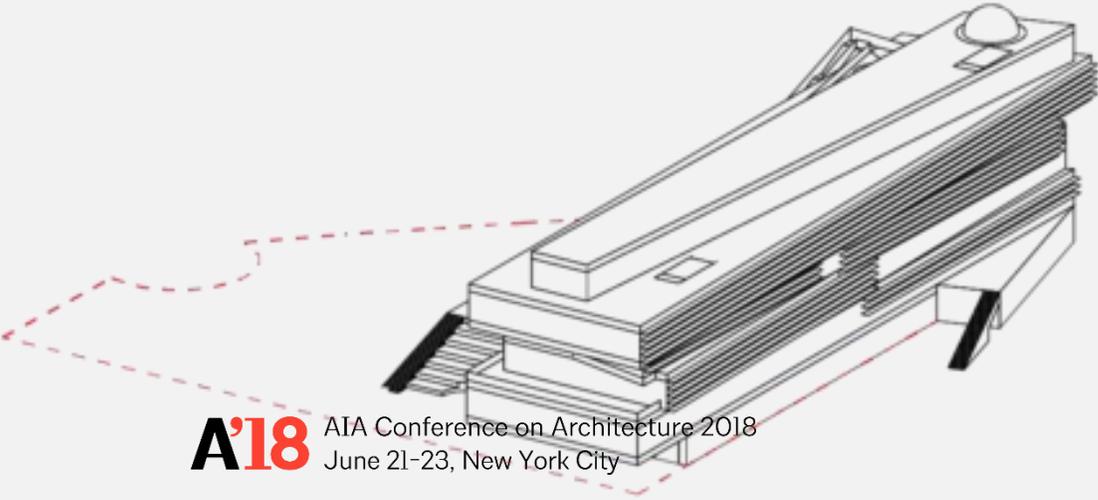
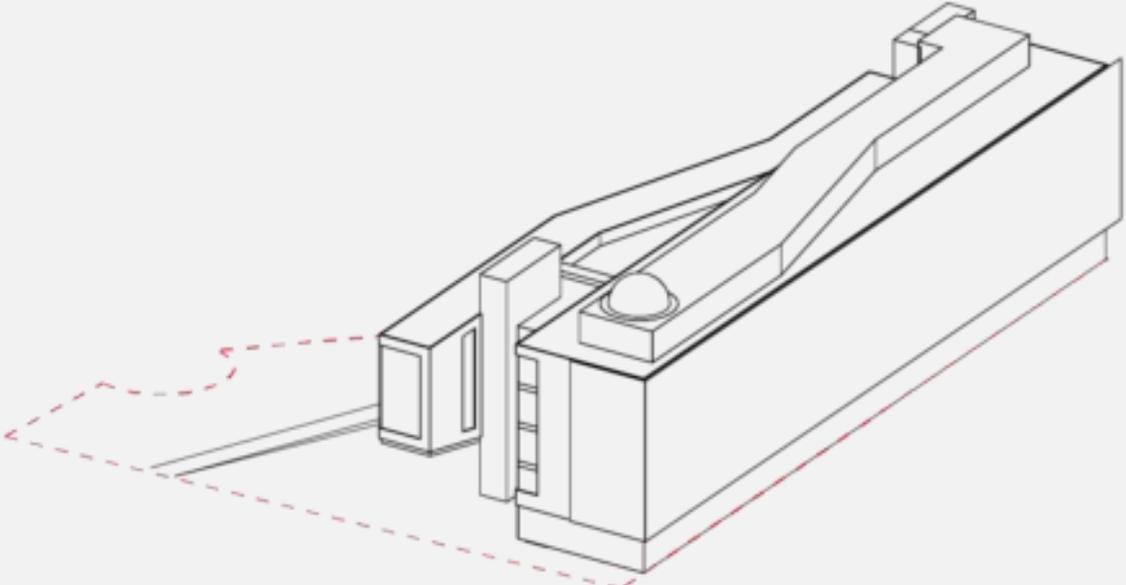
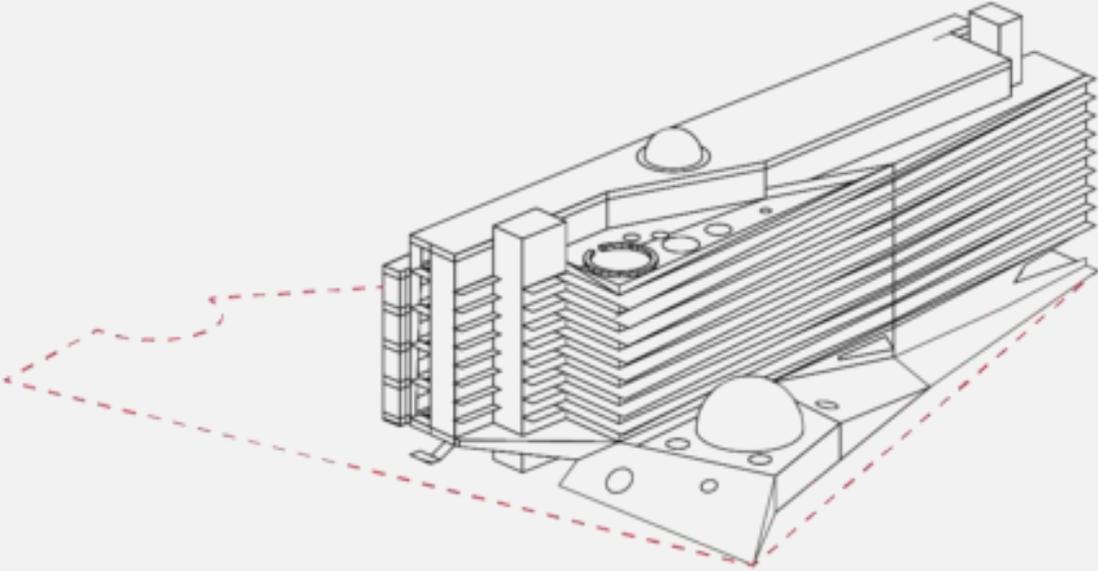
COLLABORATION

LABORATORY SAFETY

LEAN FLEXIBILITY



Pace and the Design Process

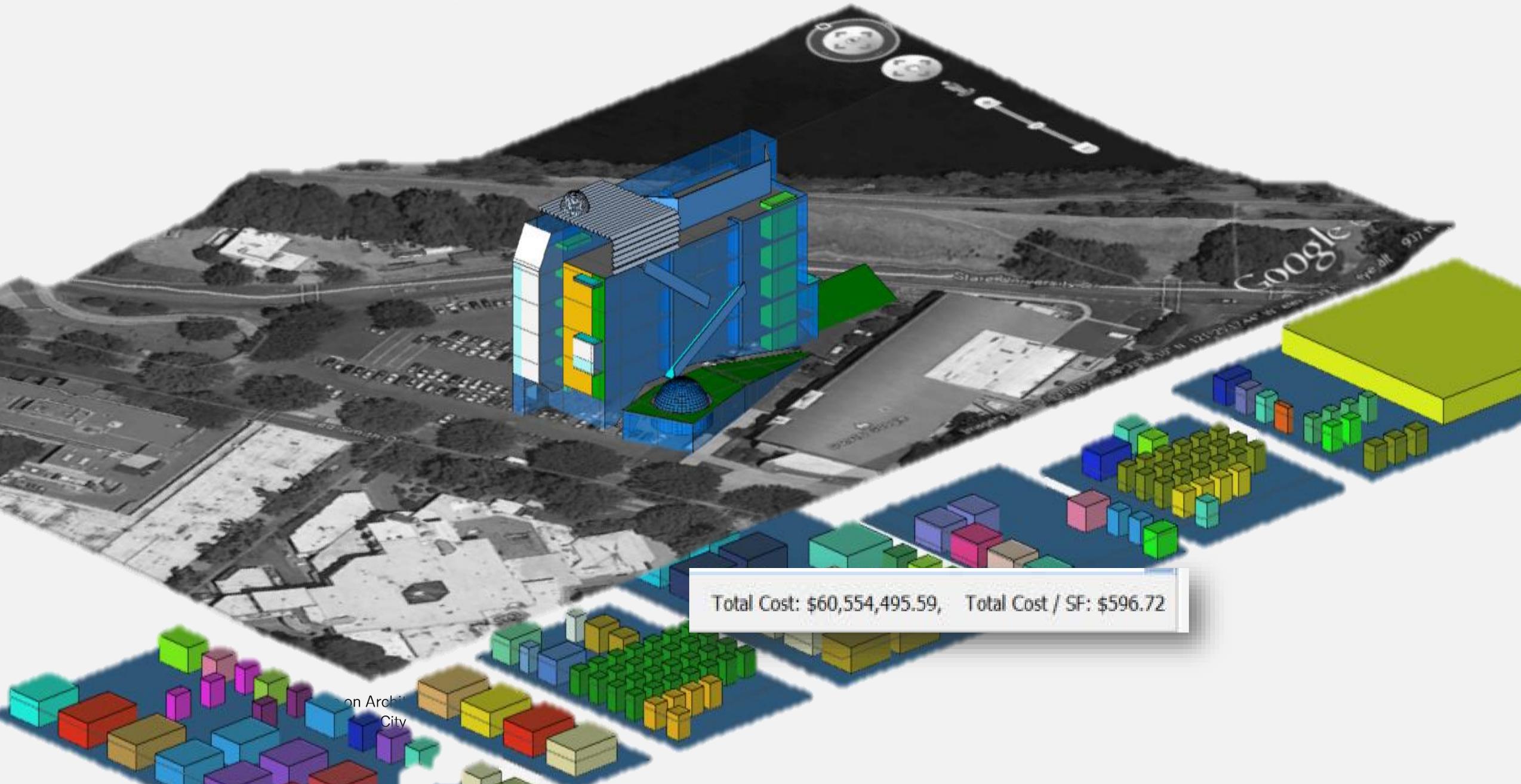








YOU ASKED: State the Design-Builder's opinion of the project Cost



on Archi
City

RFQ SCORING

DESCRIPTION	POSSIBLE POINTS	Team A	Team B Team C	(RFP Team A)	Team D	Team E (RFP Team B)	Team F (RFP Team C)	Team G	Team H (RFP Team D)
Respondent's General Design-Build Experience (required):	80	64	60	74	70	74	70	66	67
Respondent's Science Building Experience:	70	55	35	70	40	60	61	67	55
Architect's Science Building Experience (required):	80	69	49	78	50	67	76	65	65
Prior Project Experience:	50	24	25	48	32	45	40	33	35
Project Specific Requirements:	50	45	27	45	32	45	48	37	42
Schedule:	50	42	34	49	38	47	48	40	45
Respondent's experience utilizing DVBE subcontractors.	10	0	8	8	10	10	10	10	10
Provide a description of Respondent's safety record. Provide your Experience Modification Rate	50	40	42	47	36	38	40	46	47
Respondent's unique qualifications to perform on this Project.	40	29	27	39	34	38	37	33	36
Respondent's experience within 50 miles of the Project.	40	29	25	35	30	36	37	27	38
During the past five (5) years was the Respondent required to pay penalties for failure to pay prevailing wages? If yes, please explain.	30	30	30	30	30	30	30	30	30
During the past five (5) years has the Respondent been assessed CAL-OSHA fines in the serious, repeat, or willful category? If yes, provide circumstances, number of instances, and the amount of fine(s).	10	10	10	10	10	10	10	10	10
Response to RFQ was clear, concise and responsive. (No tab required)	40	5	35	38	25	39	5	38	39
Maximum Possible Points	600								
Total Points Awarded		442	407	571	437	539	512	502	519
Score Order				1		2	4		3

RFP SCORING

	TOTAL POSSIBLE	Team A	Team B	Team C	Team D
TAB 1 PROJECT SPECIFIC REQUIREMENTS	40	39	39	31	29
TAB 2 PROJECT ORGANIZATION, PERSONNEL EXPERIENCE/QUALIFICATIONS	50	41	48	43	42
TAB 3 STAFFING LEVELS	80	57	72	80	77
TAB 4 PROJECT APPROACH	80	60	62	69	68
TAB 5 PROJECT SCHEDULE AND PLAN	50	43	42	49	46
TAB 6 DVBE	3	3		3	3
TECHNICAL SKETCH	50	39	44	40	40
PROPOSAL INTERVIEW	40	20	40	38	38
TECHNICAL PROPOSAL TOTAL	393	302	347	353	343
COST PROPOSAL					
Small Business Preference	0.081%				
% FEES (with SCB as applicable)		17.25%	20.57%	21.02%	22.65%
COST PROPOSAL	80	80.00	66.96	65.20	58.79
TOTAL POINTS		382.00	413.96	418.20	401.79
Score Order		4	2	1	3



JS
9 People



JS
9 People



JS
9 People



Tim Blood

TB Get ready for the live results!

+1 (916) 275-1908



James Simeo

JS U r hilarious

Tim Blood

TB We won

James Simeo

Yeah!

JS Excellent news.

Teri Jones

Yes!!!!!!!

+1 (916) 870-6575



Yes!!!!!!!

+1 (916) 870-6575



Great job team

Antoinette Bunkley



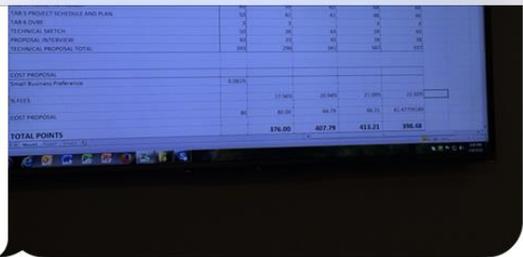
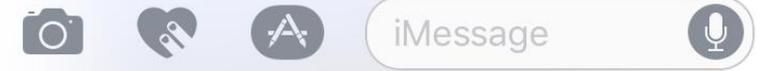
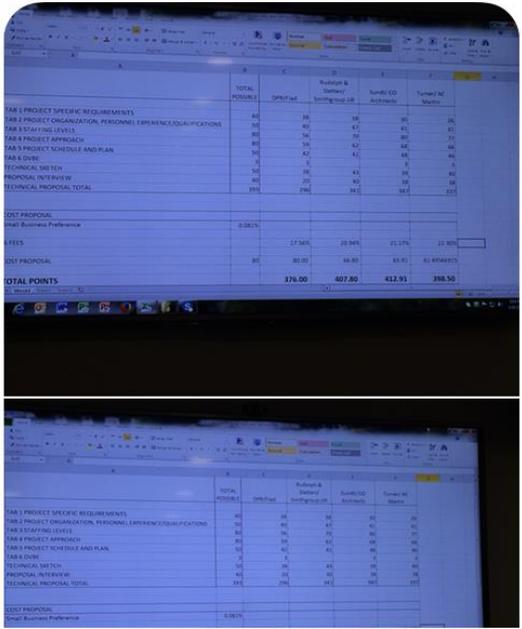
AB No way!! Awesome!!!

Jennifer Swedell



JS best friday ever!

Tim Blood



This is great. Excellent congrats everybody.

+1 (916) 275-1908



Hot diggity dog!!!!

+1 (602) 721-6597



Let's hear it for the Sacramento team.

Tim Blood



And the CO TEAM!!!!



+1 (602) 721-6597



We all did our parts and it payed off, can we take the next two days off??



4
MONTHS

RFQ
RFP

10
MONTHS

PHASE 1
DESIGN / PRECON

BOARD OF TRUSTEES

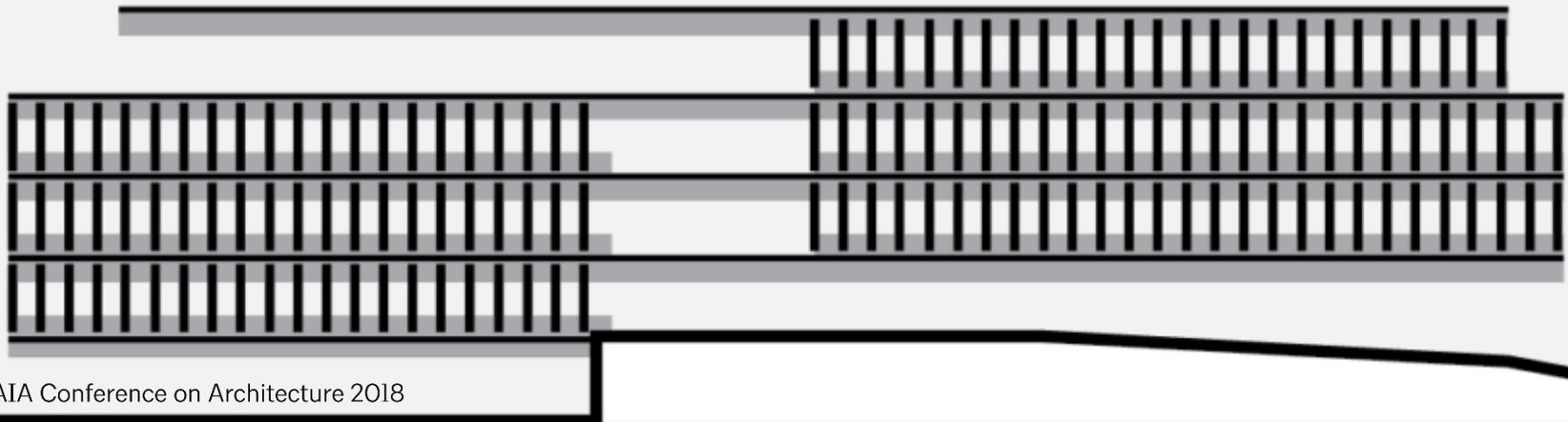
GMP

26
MONTHS

PHASE 2
APPROVALS / CONSTRUCTION

PHASE 1

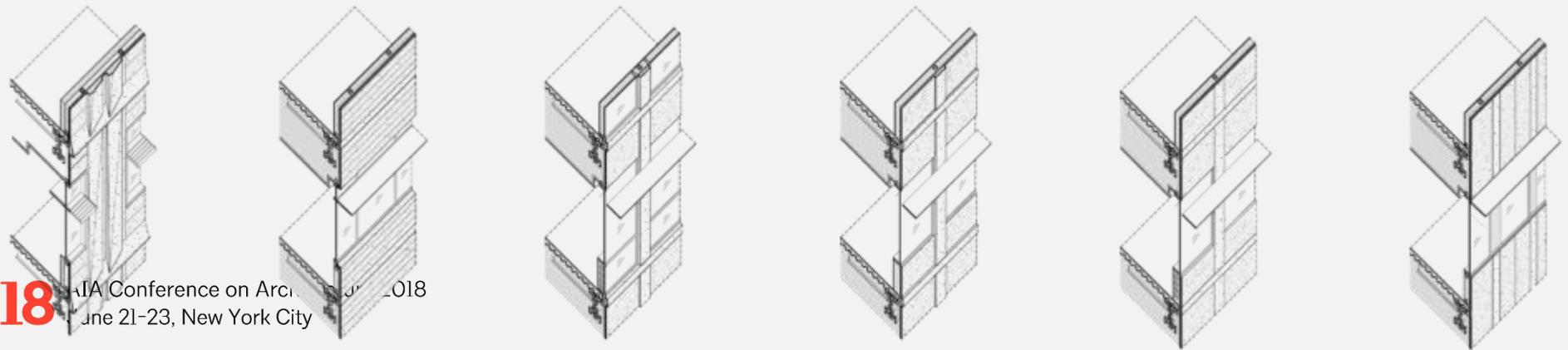
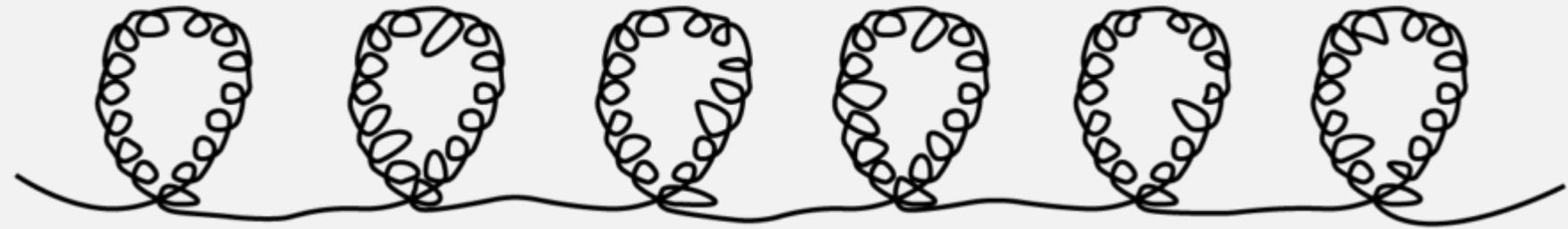
- Full Design & Preconstruction Services
- Program Verification
- Schematic Design
- Design Development
- Design-Assist Subcontractors
- GMP Development/Submission



influences / studies
time



influences / studies
time

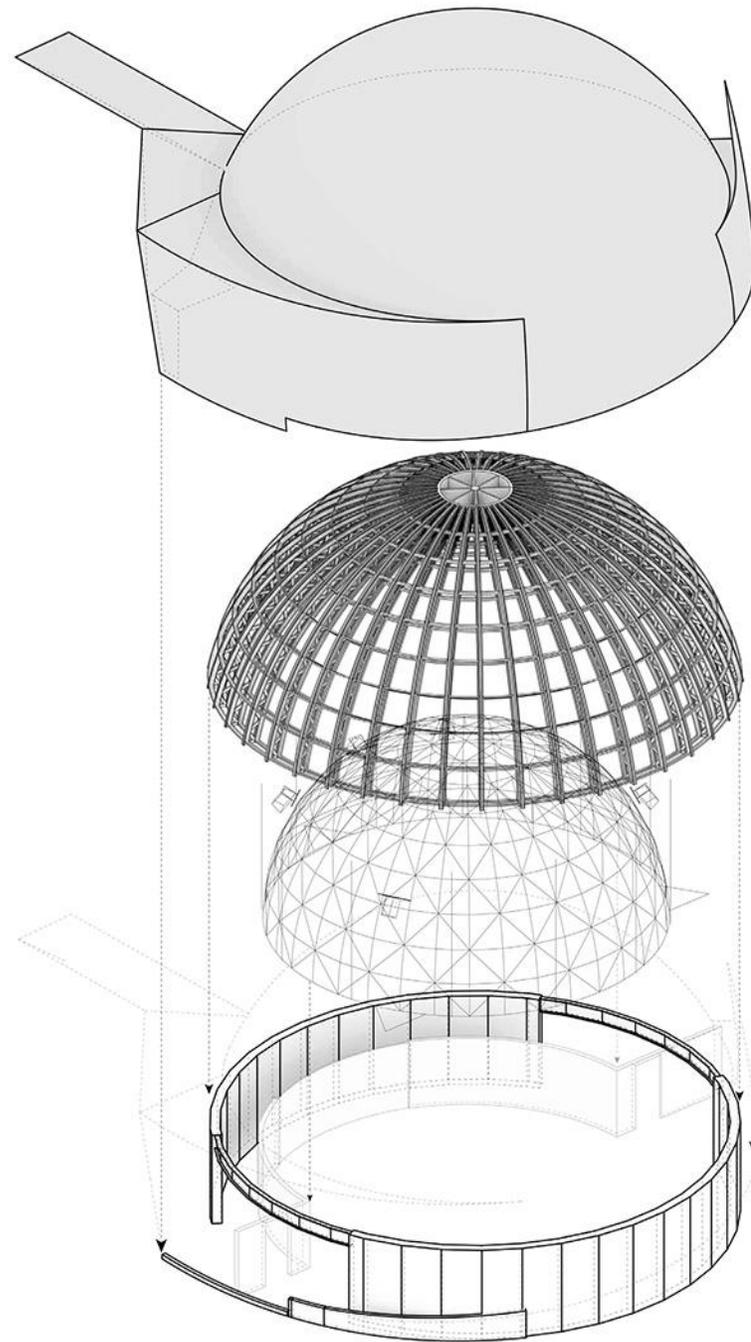












ZINCSKIN

TRUSS DOME

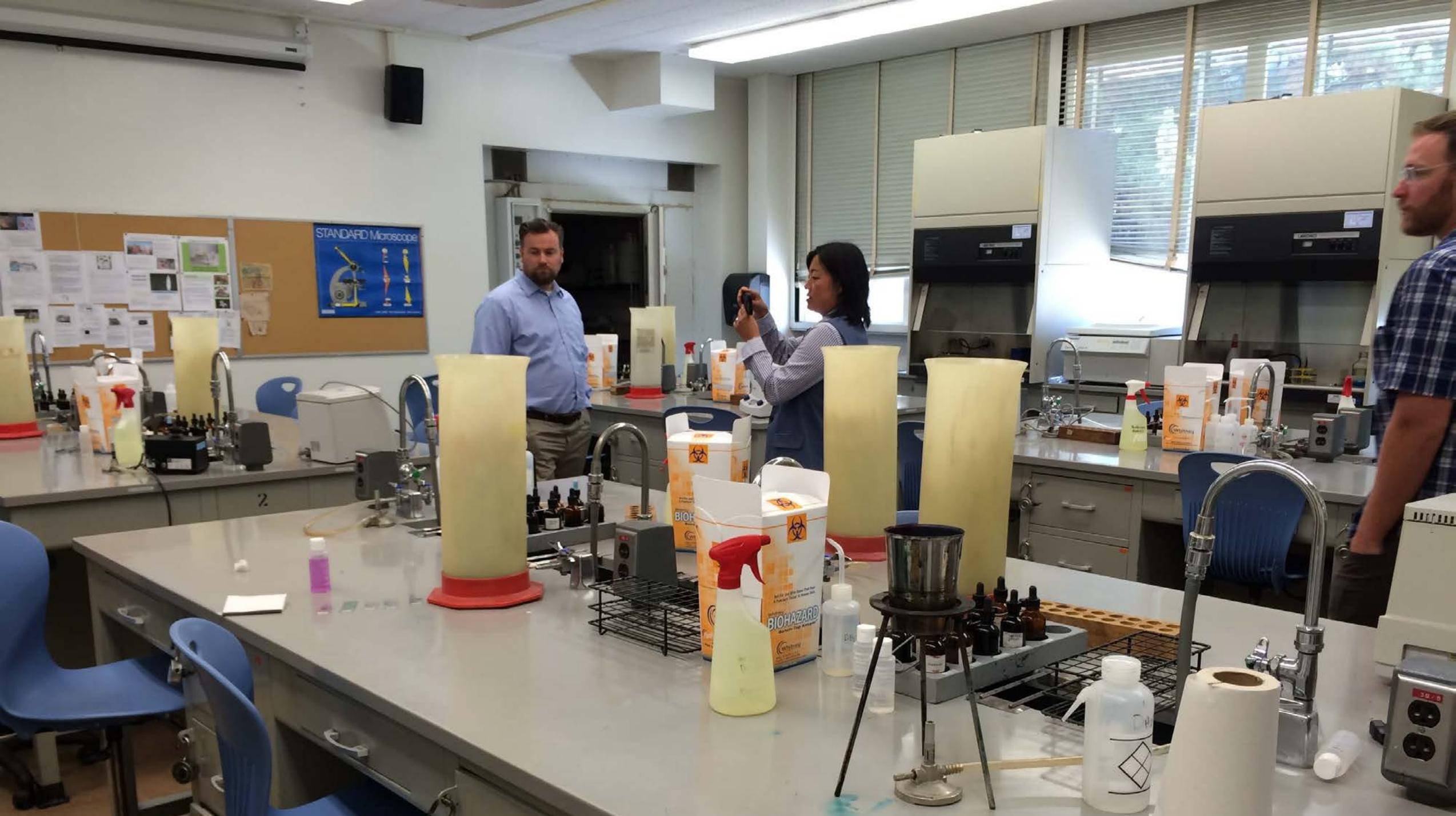
INTERIOR PROJECTION DOME

CONCRETE AND STEEL BASE







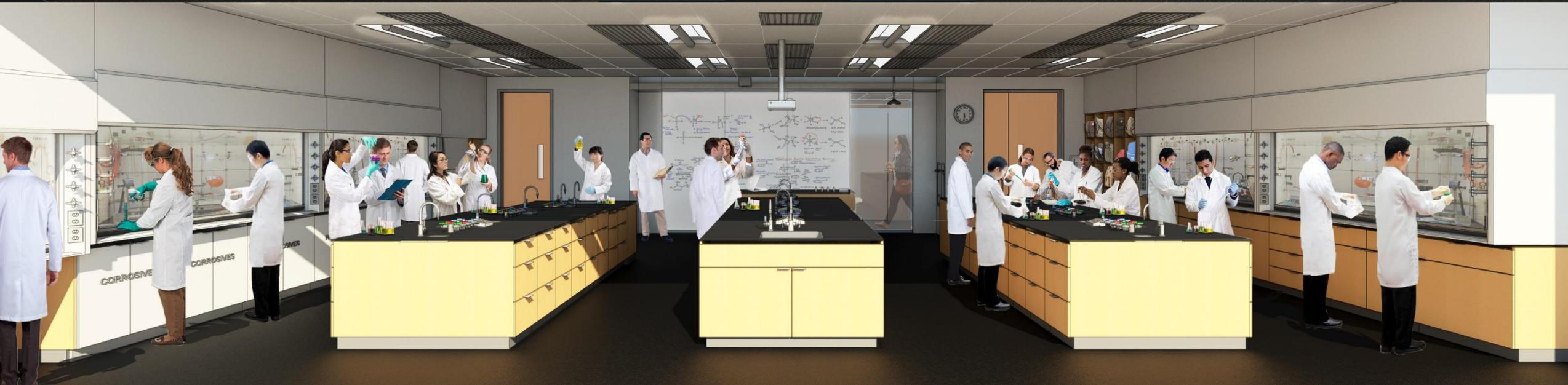


STANDARD Microscope

BIOHAZARD
Whitney

2

3075



GMP / GUARANTEED MAXIMUM PRICE

Sacramento State University, Science II Building



SUNDT

GMP Summary, Dated 04-18-2017

BID PACKAGE	Budget	Design Assist Sub	Bid	Allowance	DEL Adjustment	Total
01.0 - General Requirements						
TBD by bid at a later date	\$ 2,085,459				\$ -	\$ 2,085,459
03.1 - Building Concrete						
Roebbelen Contracting, Inc.		\$ 3,422,383			\$ (76,000)	\$ 3,346,383
03.2 - Precast Concrete - Design Assist Subcontract Awarded Earlier						
Clark Pacific		\$ 4,193,500			\$ (325,000)	\$ 3,823,500
05.1 - Structural Steel - Design Assist Subcontract Awarded Earlier						
JD2		\$ 4,834,100			\$ 30,000	\$ 4,864,100
06.1 - Architectural Woodwork						
TBD by bid at a later date	\$ 651,853				\$ (218,175)	\$ 433,678
07.1 - Waterproofing						

DEL / DESIGN EVOLUTION LOG

Design Evolution Log				CSUS - Science II Building				
Idea Summary				Revised Date: 6/13/17				
Date	Item	Description	Status	BUDGET REVISIONS				
				Committed	Accepted	Potential	Rejected/Void	Comments
2/10/17	10	Reduce additional DI locations per CO's plan and Tania's review	A		(\$30,320)			
2/10/17	58	Delete curved bench at vestibules (2nd thru 5th floor); go with FF&E	A		(\$80,000)			Included in 50% CD Update
1/0/00	109	CSUS IGMP Comment 1.32 - Paint in lieu of fabric panels at lab entrances	P			(\$55,249)		Co to review
1/0/00	111	CSUS IGMP Comment 1.34 - Flooring material at Observatory	P			\$0		Review 50% CD Updates
5/3/17	128	Move West Elevation Vertical Glazing	A		\$3,500			*Include in 50% CDs
5/3/17	129	Added C-CAPP Skin Joints	P			\$2,100		*
5/3/17	130	Maintenance Access	P			\$510		Pending OSHA Approval
5/3/17	131	Reduced window sizes (floors 2 - 5) at the North Entrance - West Elevation	A		\$816			*Include in 50% CDs
5/3/17	132	Level 1 Glazing Changed to C-CAPP at the North Entrance - West Elevations	A		\$2,129			*Include in 50% CDs
5/3/17	133	Sloped Glazing Change at South Elevation Green Roof	P			\$28,959		*
5/3/17	134	Level 1 Elevation Façade Design Change Option 1	A		\$10,659			*Include in 50% CDs
5/24/17	137	Planetarium Exterior Changes	P			\$0		
5/24/17	138	Chemical Storage Cabinet Add	A		\$11,957			include in 50% CDs
5/24/17	139	Planter at Dean's Terrace Option 1	P			\$0		*
5/24/17	140	Planter at Dean's Terrace Option 2	P			\$0		
5/24/17	141	C-CAPP Preweld vs. Steel Shop Welded	A		(\$1,645)			
5/24/17	142	Dean's Terrace C-CAPP Change to Metal Panel	P			(\$5,422)		
5/15/17	143	Electrical System Sub-Metering	P			\$0		TBD
5/17/17	144	Door Access Hardware Option	P			\$0		TBD
5/25/17	146	UEI Parking - Opt 2 - Parallel	P			\$1,592		
5/25/17	147	UEI Parking - Opt 3 - Moved North	P			\$4,755		
5/25/17	148	UEI Parking - Opt 1R - Consolidated	P			\$13,589		pending CSUS approval
5/31/17	149	Add Exterior Stair Soffits	P			\$0		*Priority TBD...dependent on pricing
5/31/17	150	Roof Mechanical Plenum	P			\$0		
6/6/17	151	Collaboration Space Redesign (2nd thru 5th Floor)	P			\$80,000		To balance savings in item #58
5/18/17	152	Loading Dock Skin Changes	A		(\$7,118)			
5/24/17	153	South Façade Window Shades	P			\$52,500		*CO priority
6/12/17	154	Reclaimed Wood Clgs i.l.o ACT at Learning Studio	P			\$0		
6/7/17	155	South Façade Exterior Upgrades	P			\$0		Pending CO design proposal
6/12/17	156	Added Light Cove at Planetarium (det. 26/A9.13)	P			\$0		
6/12/17	157	Custom Marker Board at Planetarium (det. 17/A9.13)	P			\$0		
6/12/17	158	Reconfigure FH Bases per User Comment	P			\$21,196		
1/0/00	159	Trellis at South Elevation	P			\$0		
1/0/00	160	Blank	P			\$0		
TOTAL					(\$8,370,769)	(\$90,022)	\$144,530	(\$543,328)

GMP / GUARANTEED MAXIMUM PRICE

BID PACKAGE	Budget	Design Assist Sub	Bid	Allowance	DEL Adjustment	Total
DIRECT COST OF THE WORK	\$ 9,413,742	\$ 49,418,532	\$ 3,251,563	\$ 550,000	\$ (2,484,837)	\$ 60,104,000
% Of Total Direct Cost	15.66%	82.22%	5.41%	0.92%	-4.13%	100%
INDIRECT / SOFT COST						
Site Management Fee						2,350,040
Design Fees						6,152,608
Performance and Payment Bond						569,786
Sub Bonds/ Subguard						601,040
Contractor Fee						3,258,238
Contractor Contingency						2,884,992
TOTAL INDIRECT / SOFT COST						\$ 15,816,704
TOTAL DESIGN BUILD CONTRACT						\$ 75,920,704
ADDITIONAL CAMPUS EXPENSES		% of Total D-B Contract				
Campus Contract Management Services		6.43%				4,884,000
Campus Project Contingency		2.87%				2,181,775
Additional Services during PW Phase		3.00%				2,278,000
Additional Services during Construction		1.01%				765,122
OCIP + BR		1.75%				1,329,000
Group II Equipment (FF&E)		5.53%				4,200,000
TOTAL INDIRECT / SOFT COST						\$ 15,637,897
TOTAL DESIGN BUILD CONTRACT						\$ 91,558,601

4
MONTHS

10
MONTHS

BOARD OF TRUSTEES

26
MONTHS

RFQ
RFP

PHASE 1
DESIGN / PRECON

GMP

PHASE 2
APPROVALS / CONSTRUCTION

PHASE 2

- General Conditions and remaining Design & Preconstruction Services
- Construction Documents
- Execute Trade Subcontracts
- Monthly Progress Payment Review
- Project Savings
- Coordination
- Monthly Progress Report
- As-Built Documents
- FF&E (if contracted)
- Project Close Out

LESSONS LEARNED A/C

- > **Perfect for “Big Room” colocation project. Speed of the process requires very close collaboration.**
- > **Cost transparency is not inherent to the process and a design evolution log is important to ensure tracking of the design and associated costs**
- > **Team consistency is vital. AOC team should stay through the entire duration**
- > **The closer the initial design vision tracks with the budget the easier is the continued design process.**

LESSONS LEARNED Owner

- > **CSU has experienced a diminished quality of drawings with this process. Not with Science II**
- > **Often times the Architect provides the solution the Contractor wants, rather than the right solution for the project or the campus. In other words, we have to know when to cry uncle.**
- > **Because the Contractor holds the contract with the Architect and Design team, those team members have to work harder than usual to make design choices that fit within the budget and program scope. I could see some firms feeling browbeaten.**

What delivery method in your experience has yielded the best design outcome?

Collaborative Design Build

Design Build

Construction Manager at Risk

Design, Bid, Build

Multi Prime

IPD / Integrated Project Delivery

P3 / Public Private Partnership

What in your opinion is the most important characteristic that project a delivery needs to address successfully?

schedule and budget
reliability

design integrity

client satisfaction

team integration

When is the appropriate time, in your opinion, to engage subcontractors?

Schematic Design

Design
Developemnt

Construction
Documents

After all the
design is done

What are the parameters that need to be in place to start? Funding

all

partial

Owners team

Full

Partial

User Groups

Full

Partial

Site

Yes

No

What in your opinion is most effective for team building?

Workshops

Frequent large team
meetings

Shared activities like golfing,
going to a game, bbq

Team building activity games

All

Program through construction: What are the parameters that maintain an integrated process and the project vision? Please arrange in order of importance

Consistent staffing

Design for flexibility

Other

A commitment to a fixed budget by all parties

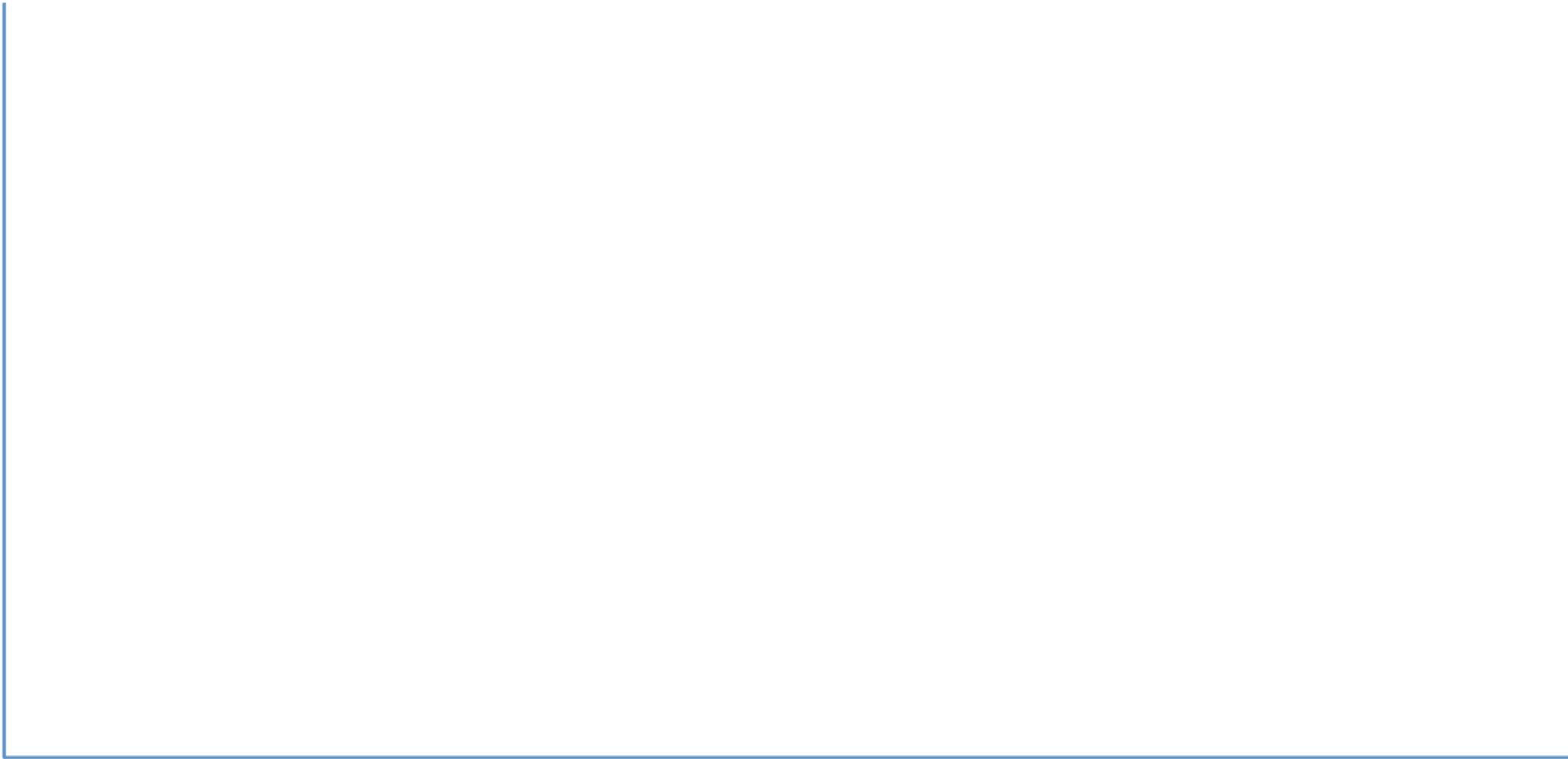
Clear rules of communication

Would you consider participating in a collaborative design build pursuit for a project?

yes

no

maybe

A vertical axis for a poll with three categories: yes, no, and maybe. The axis is a thin blue line on the left side of the chart area. The labels 'yes', 'no', and 'maybe' are positioned to the left of the axis line, corresponding to the top, middle, and bottom of the axis respectively.

AGENDA

Delivery Method

Collaborative Design Build – Why

Lets Discuss the Polls



Contact Information

Fabian Kremkus . Design Principal . AIA . LEED GA
CO Architects

5055 Wilshire Boulevard, Los Angeles CA 90036

ph 323 525 0500 x5730 . mobile 213 810 2377

www.coarchitects.com

Thank you!