

Project Delivery Open Forum

Course Number EV209

Thursday, June 23, 2022

Speakers List

- **Laura F. Stagner, FAIA, DBIA, PMP**
US General Services Administration (retired), AIA PDKC 2022 chair
- **Al Spagnolo, AIA**
Founding Partner, SGA
- **Laura Wake-Ramos, AIA, NCARB, DBIA, EDAC**
Design Phase Manager, Mortenson
- **Rona Rothenberg, FAIA, DBIA**
AIA California 2022 President

Mission/Purpose

- **Better Teams. Better Results.**
- aia.org/pd
- 12,700+ members

Los Angeles Federal Courthouse

Clark - Design Builder
SOM - Design Architect

GSA Design Excellence Award
AIA, Design Build Institute of America, BD+C, CMAA
project of the year, and other Awards
LEED Platinum

A'22 AIA Conference on Architecture 2022
June 22–25, Chicago



Mission/Purpose

The AIA **Project Delivery** knowledge community (PD) promotes the architect's leadership role in all project delivery methods by assembling and distributing knowledge and best practices for a variety of project delivery methods, e.g. design-build (DB), integrated project deliveries (IPD), and public-private partnerships (P3).

PDKC Goals

- Promote the architect's leadership role in all project delivery methods.
- Expand awareness of trending delivery methods around the country.
- Provide resources for advocating towards expanding delivery models regionally.
- Promote case studies of successes and lessons learned from projects built through alternative delivery methods

Bodies of Knowledge

We focus on improving project outcomes, particularly reducing claims and conflicts on the project.

San Ysidro Land Port of Entry, San Ysidro, CA

Clark, Hensel Phelps - Design Builders

Miller|Hull Partnership - Design Architect

GSA Design Excellence Award

Design Build Institute of America award, ENR award

LEED gold



Bodies of Knowledge

We highlight and promote strategies that improve project delivery, including strategies to reduce cost and address ongoing labor shortages and supply chain challenges.

Strategies include: technology that supports collaboration, offsite fabrication and modularization, use of blockchain, and other innovative project delivery strategies.

Bodies of Knowledge

As the construction industry moves to collaborative delivery strategies, our aim is to improve the architect's information about and familiarity with alternative project delivery strategies.

We strive to improve the architect's leadership in projects and either directly, or indirectly through the architect, improve the owner's knowledge and approach to projects.

VDC PROMOTES THE ARCHITECT'S LEADERSHIP ROLE IN PROJECT DELIVERY

VDC - THE BRIDGE BETWEEN DESIGN AND CONSTRUCTION

Architects have been called on with increasing urgency to deliver more complex buildings with shorter schedules. There is more to be done and less room for error; and the traditional approach no longer works.

With the right tools and principles, the process shifts from adversarial to cooperative, from a culture where blame follows failure to one in which trust fosters success.

STATEMENT OF THE PROBLEM

30% OF CONSTRUCTION IS **REWORK**
10% OF MATERIAL IS **WASTED**
50-70% OF MEGA PROJECTS **FAIL**
30% OF CM|GC WORK IS **EXCULPATORY**

Source: Edward W. Merrow. (2011) Industrial Megaprojects: Concepts, Strategies, and Practices for Success. Wiley
Sir John Egan. (1998). Rethinking Construction, The report of the Construction Task Force. London, England: Department of Trade and Industry

CHALLENGE TO ELEVATE THE PROFESSION

DESIGN BUILD
IS THE CURRENT **PREFERRED** PROJECT DELIVERY METHOD IN CERTAIN MARKET SEGMENTS
95% OF DESIGN BUILD PROJECTS ARE LED BY **CONSTRUCTION MANAGERS**
5% OF DESIGN BUILD PROJECTS ARE LED BY **ARCHITECTS**

Empirical evidence gathered by The Cox Group, Seattle, consultants to professional service firms, including the architecture industry.

PROJECT DELIVERY EVOLUTION

TRADITIONAL

Architect vs. Contractor



PROJECT EVOLUTION
GTech
2005



DESIGN ASSIST

Integration of consultants + trades



ING
2008



DESIGN BUILD

Streamlines Delivery



Cubist
2011



IPD

Fully Integrated Project Delivery



Autodesk
2014



VDC

Completes Bridge Between Design + Construction



50+60 Binney Street
2017

VIRTUAL DESIGN + CONSTRUCTION

CHALLENGE

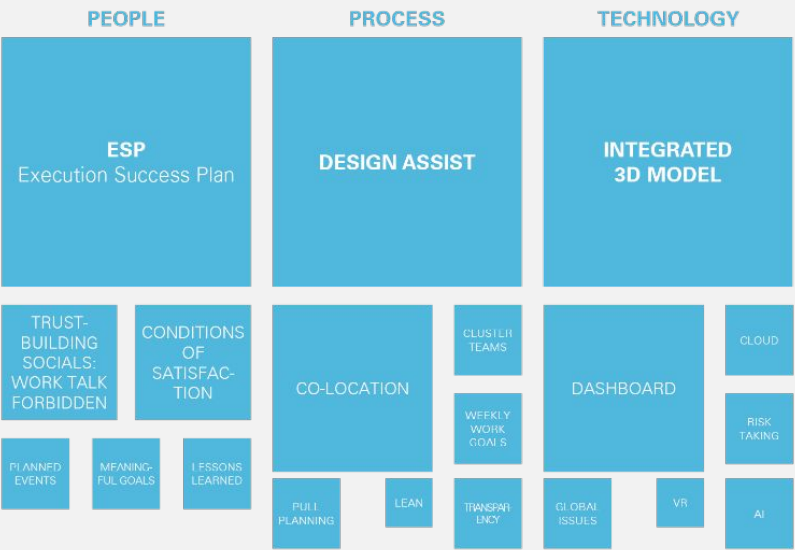
Change the adversarial dynamic of traditional project delivery methods that put design quality and project value at risk by breaking down stereotypes and elevating the leadership role of the architect.

SOLUTION

Adopt Virtual Design and Construction as a process that harnesses technology and people to represent a paradigm shift in the design and construction businesses.

OUTCOME

VDC model eliminates gaps and points of confrontation inherent in traditional delivery methods. It gives project teams a seamless, smooth workflow that prevents delays and duplication of work and provides clients with certainty in terms of schedule and cost.



APPLICATION OF VDC

1. PROJECT DASHBOARD

A team's decisions are only as good as the information used to inform those decisions. Real-time performance metrics are made visible for the entire project team.



2. TEAM COMMITMENTS

All team members agree to an Execution Success Plan, aligning goals of project, and a Conditions of Satisfaction list of measurable tests for the project to pass.

→ RENT COMMENCEMENT @ EARLIEST DATE ALLOWED PER LEASE AGREEMENT
→ ENJOY THE PROJECT, PLAN AND ATTEND SOCIAL EVENTS; TEAM WANTS TO WORK TOGETHER IN PAPER
→ CM, CLIENT, AND PM ACTIVITIES TIED TO BUILDING SCHED, TRACKED, AND COMPLETED WITHIN AGREED PERIODS
→ 90% OF SUBMITTALS APPROVED WITH NO REVISIONS
→ COMMUNICATE PROJECT ACTIVITY BY NEIGHBORHOOD IN ADVANCE
→ 100% OF PAST LESSONS LEARNED TRACK/MEASURE NOW
→ KOL: KEEP ONLY PROMISES; ACHIEVE 0% FIELD CHANGE

3. CO-LOCATION

Architects, contractors, trades working together on site builds trust and a spirit of solving problems together.



4. DIGITAL TWIN

Sophisticated cloud-based model creates a “digital twin” of the actual construction in real time.



50 + 60 BINNEY STREET: VDC FULL THROTTLE

CHALLENGE

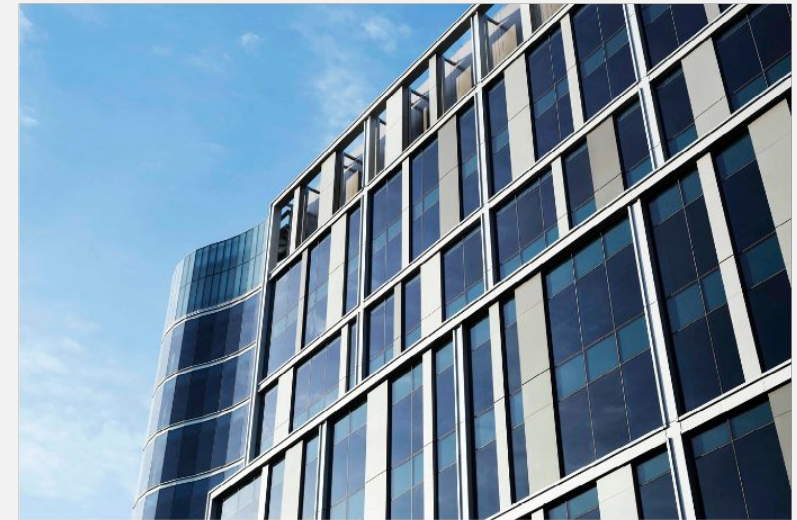
The owner encouraged the architect to push the boundaries and provide services beyond the already advanced IPD performed on 225 Binney Street.

SOLUTION

Commit fully to VDC's potential.

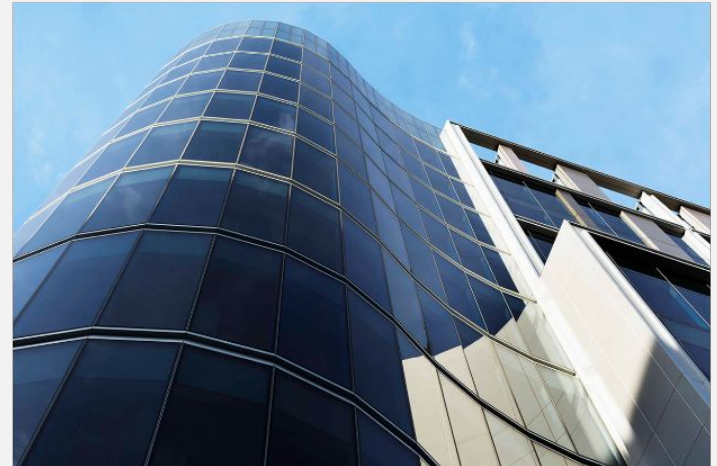
OUTCOME

The project was completed six months ahead of schedule, reducing RFIs and waste to zero, and suppressing change orders to less than 1%.



50 + 60 BINNEY STREET: VDC FULL THROTTLE

VDC works to reduce the confusion faced in the traditional owner-builder-architect relationship. Through enhanced workflow, co-location and a unique dashboard of insights, VDC ultimately reduces time spent on costly change orders, RFIs and repetitive submissions that can result in extensive energy wasted.



90%

SUBMITTALS
APPROVED ON
1ST SUBMISSION

0

RFI's

3%

OF GMP SAVED
BY MINIMIZING
CHANGE ORDER

100%

ON SCHEDULE

UNION SQUARE D2.1: VDC DOUBLE-TASKING

CHALLENGE

Time the completion of this mixed-use life sciences building – the first phase of the redevelopment of Somerville’s historic Union Square – with the long-awaited extension of light rail to the Square.

SOLUTION

Use the firm’s integrated 3D model to assist with the building’s complex mechanical systems and infrastructure that require an exceptional level of coordination. Utilize the Dashboard’s parallel analytical tools to monitor and coordinate work with light-rail construction schedules to insure the projects finish simultaneously.

OUTCOME

Full collaboration across the project team has proved invaluable in staying on schedule for projected delivery in early 2021.



TWO DRYDOCK: VDC'S VALUE + CERTAINTY

CHALLENGE

Achieve the highest levels of coordination and visualization in the design and construction process, to secure cost savings, schedule reductions, and achieve heightened design quality for a foreign client investing cautiously in the U.S.

SOLUTION

Implementation of VDC at the leadership level with the client, the construction manager, and other critical stakeholders, to deliver Two Drydock in a highly innovative and collaborative manner.

VDC allowed the team to overcome early delays as a result of client uncertainties by using experimental building technologies and innovative communication tools. One result of the architect's leadership rope is the creation of "cluster teams", each charged with a project segment.



160 MERRIMACK ST: WINNING VDC CONVERTS

CHALLENGE

Convert a regional client, himself a contractor fluent only in traditional project delivery methods, that Virtual Design and Construction could transform the design and delivery of a proposed luxury mixed-use development in the former industrial city in Massachusetts on the accelerated 14-month schedule the client desired.

SOLUTION

The architect proposed an expanded role for all members of the project team, with the architect in lead, to eliminate previous problems and give the owner predictable results. All parties were invited to an educational workshop, led by the architect. All subcontractors were pre-qualified to ensure they could manage the technology, with SGA providing tutorials.

OUTCOME

The client witnessed the collaborative dynamic across the project team and the seamlessness of the process and is now implementing VDC training within his company.

4

MONTH
CO-LOCATION

FEB'20

COLLEGE
OPENING

14

MONTH
DELIVERY



TITLETOWNTECH: VDC LIVE AND ON WHEELS

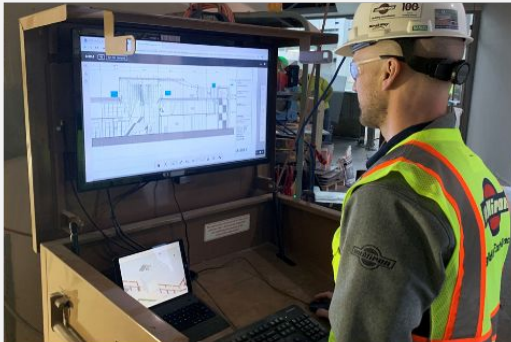
CHALLENGE

Deliver this high-profile, fast-track business accelerator in 10 months to be open before the first Green Bay Packers football game on September 8, 2019, and before the onset of Wisconsin's harsh winter, to bring contemporary technological solutions to North East Wisconsin industries.

SOLUTION

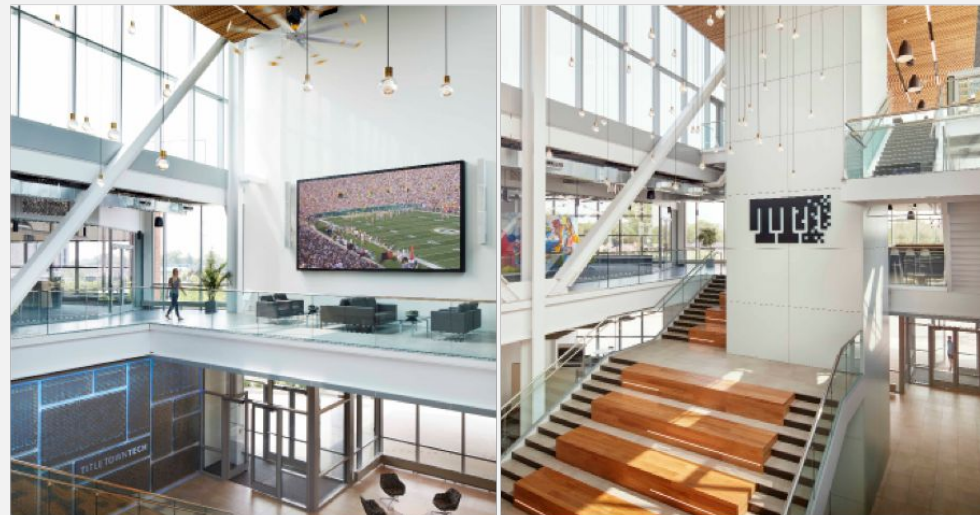
This project's aggressive schedule demanded a VDC project delivery approach, and it provided the perfect opportunity to export the Model to the Midwest. The architect took its VDC Application, including a "live" virtual model and Dashboard, incorporated previous lessons learned, and enhanced the process with the addition of live webcams and 3D reality capture to increase communication and accelerate construction.

Believing in the importance of giving trades "real-time access" to the 3D model. Provided the general contractor and subs with "field carts".



OUTCOME

The project was completed ahead of schedule. The building models developed for the project reflect the commitment to innovation that will be fostered at the new campus.



VANDERBILT UNIVERSITY: VDC CUSTOMIZED

CHALLENGE

Vanderbilt's campus architect was challenged to deliver a major renovation to the Peabody College of Education and Human Development in a way that would maximize the value of the historic Nashville campus, minimize waste and suppress change orders without adversely affecting the quality of design.

SOLUTION

Employed a customized VDC approach of communication and collaboration protocols. The architect established the contractual relationship with the joint-venture team, as well as educated the AOR team and project partners on VDC.

OUTCOME

The project broke ground in September 2018 and was completed for the start of academic year 2020-2021. Waste and change orders were significantly reduced by VDC.



AUG.'20

COLLEGE
OPENING

5%

FM OPERATING
COST REDUCTION

23

MONTH
DELIVERY

Best Value Project Delivery in CA Government

- Judicial branch models for DB, CMAR and DBB established as statutory basis
- Data from 2002-2020 established metrics for 27 first generation projects totalling ~\$2B
- Mandatory audits compared CMAR v. DBB outcomes



Arnason Justice Center
Photo credit: Tim Griffith



San Joaquin Courthouse
Photo credit: Sean Airhart



East County HOJ
Photo credit: Michael O'Callahan



Santa Clara Family Justice Center
Photo credit: Nick Merrick-Hedrich
Blessing Photography

Best Value Project Delivery in CA Government

- Comparable \$/SF results for CMAR compared to PBI models
- PBI Developer had shorter time frame by ~2 years
- Both high functioning, with early development of integrated Owner-Architect-Builder teams
- Clear whole-building design goals and objectives

San Bernardino
Completed 2014
LEED Gold
CMAR: Rudolph & Sletten
Architect: SOM
Photo credit: Bruce Damonte



Long Beach Courthouse
Completed 2013
LEED Gold
PBI-Build-Operate-Maintain
DB: Clark Construction
Architect: AECOM
Operator: Johnson Controls



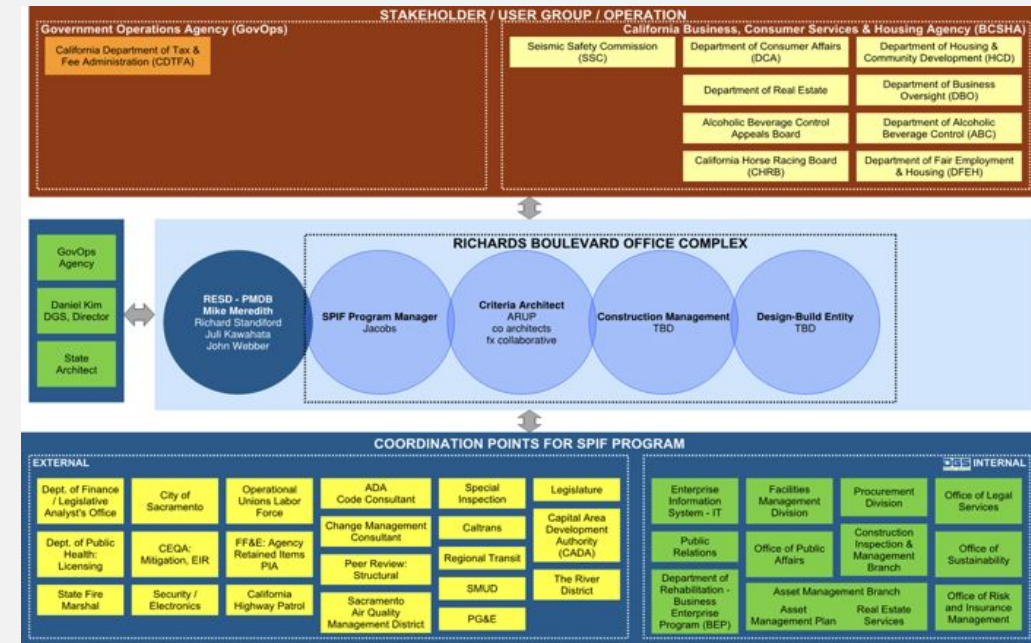
Best Value Project Delivery in CA Government

- Executive branch model-DGS
- Size of program ~\$3.25B, 17M BGSF
- Complex sequencing, State administrative requirements and loss of experienced staff
- Institutional history with DB delivery over 3 decades
- Demonstration project merits of PDB compared to CMAR model



Ask me how to: Understand Progressive Design Build

- Early development of fully integrated teams, collaborative culture
- Full owner engagement and defined management plan for team expectations
- QBS Progressive procurement authority
- Deliberate planning and risk assessment with criteria development prior to DB RFQ
- Integrated planning approaches can be applied in any sector, any sized project, any delivery method



Ask me how to: Succeed at Design Build



Benjamin P. Grogan and Jerry L. Dove Federal Building
Hensel Phelps - Design Builder
Kruek & Sexton - Design Architect
Gensler - AOR

GSA Design Excellence Award
15 major AIA and Design Build Awards

Ask me how to: Understand Design Build Best Practices



O Street - Sacramento
Hensel Phelps - Design Builder
HOK - Architect



Humanities Gateway Building - UCI
Hensel Phelps - Design Builder
Fentress Architects



Wellington Webb Building - Denver
Hensel Phelps - Design Builder
RNL, Tryba Architects

The Dashboard

The Problem

- Software **proliferation**
- Many accounts, log-ins, and **passwords**
- Lack of **interoperability** between software
- System administrators **not available**
- New team members added mid-stream (**no onboarding**)
- **Unfamiliarity** of capabilities
- **Overlapping** functionality of tools (which one for what task)
- Web based vs. Installed tools, various local **permissions**
- Email file attachments and **content lost**
- **Proprietary tools** that are all vying to be the **gatekeepers** of project data



The Dashboard

Every Project deserves a **front door.**

The Dashboard

CASE STUDY

Gillette Stadium | The Kraft Group Office Building

4-story, new construction building

Office building, 100,000 SF - Accelerated Project Delivery

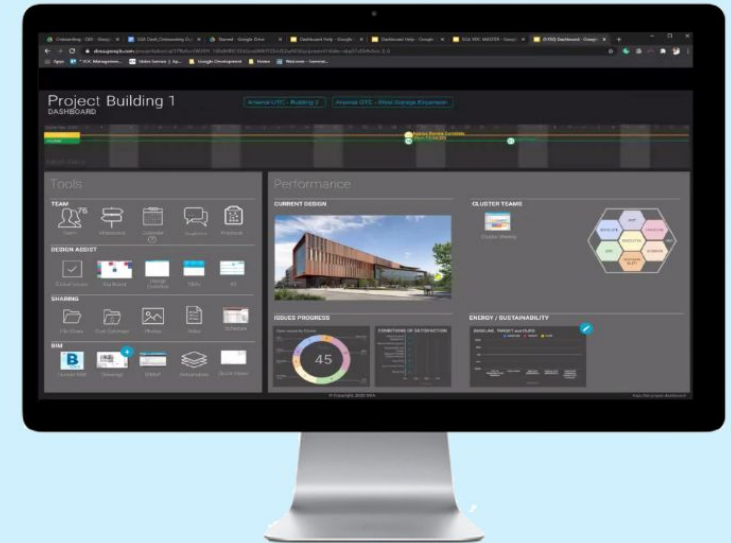
Located in Foxborough, MA.

The Dashboard

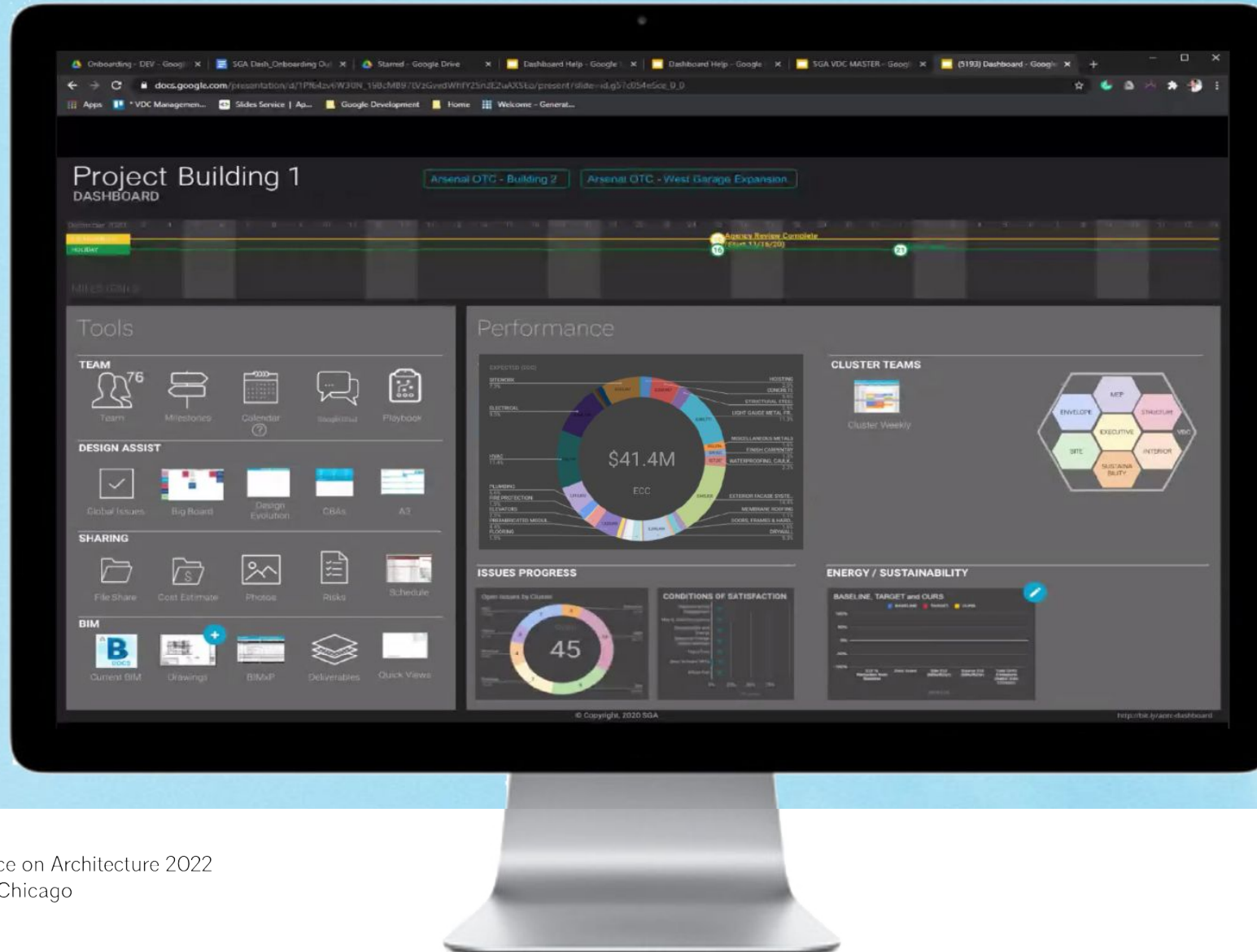
What is it?

A secure web-based collaboration tool for team visibility. It's the single source of up-to-date and accurate information for the entire project.

- Calendar
- Milestones
- BIMxP (BIM execution plan)
- Identify and see project issues
- Find basic information like contacts and vacation dates
- Tracks Budget and costs, leading to a successful project outcome



The Dashboard



The Dashboard

Why Are We Using It?

- To support design-assist
- For deep integration, transparent dialogues, and easy access to details
- Decisions must be made at the latest responsible moment



The Dashboard

Who Uses it?

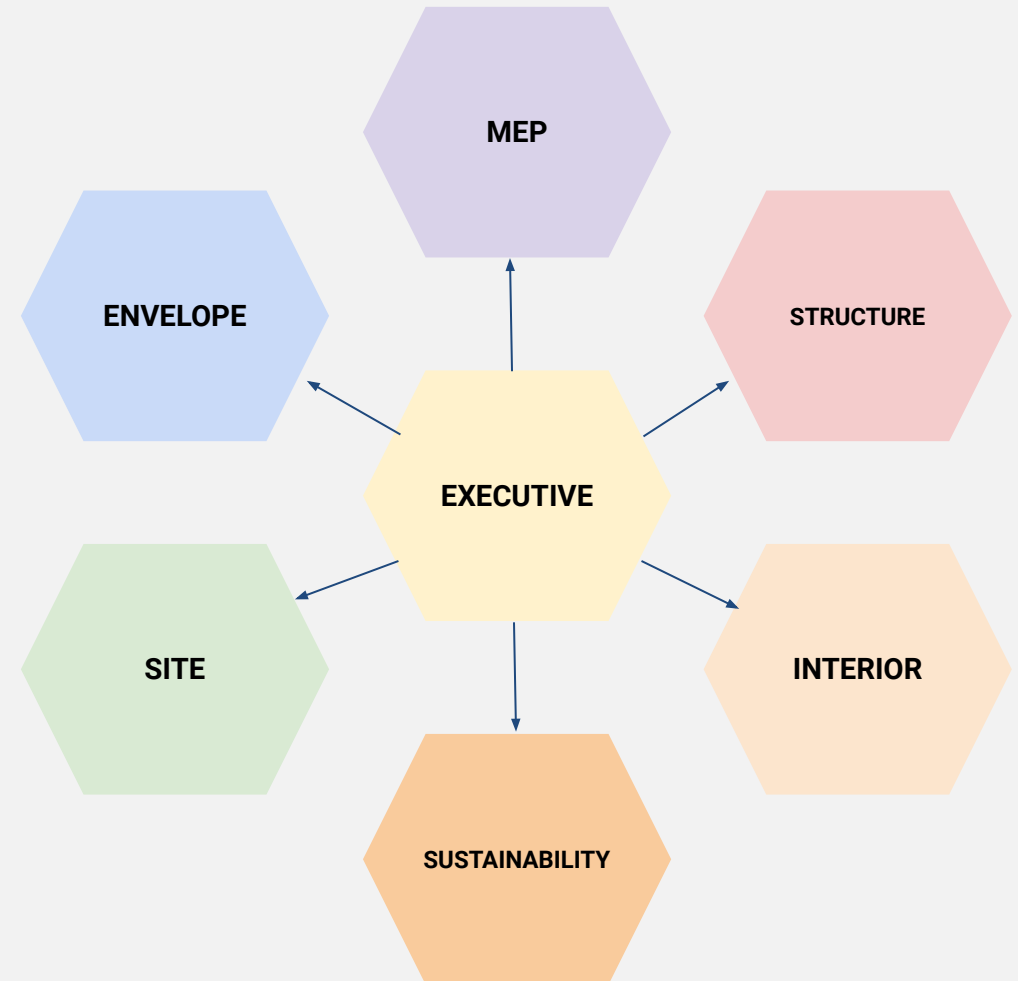
- The Architect's **PM** leads the program and the process.
- All contractors, owners, and subcontractors have access.



The Dashboard

Onboarding & Clusters

1. Project managers **invite** members and explain how to access the Dashboard
2. Members **select** their clusters
3. Clusters are the cross-functional groups that cover a certain **scope** of a project



The Dashboard

Calendar & Milestones

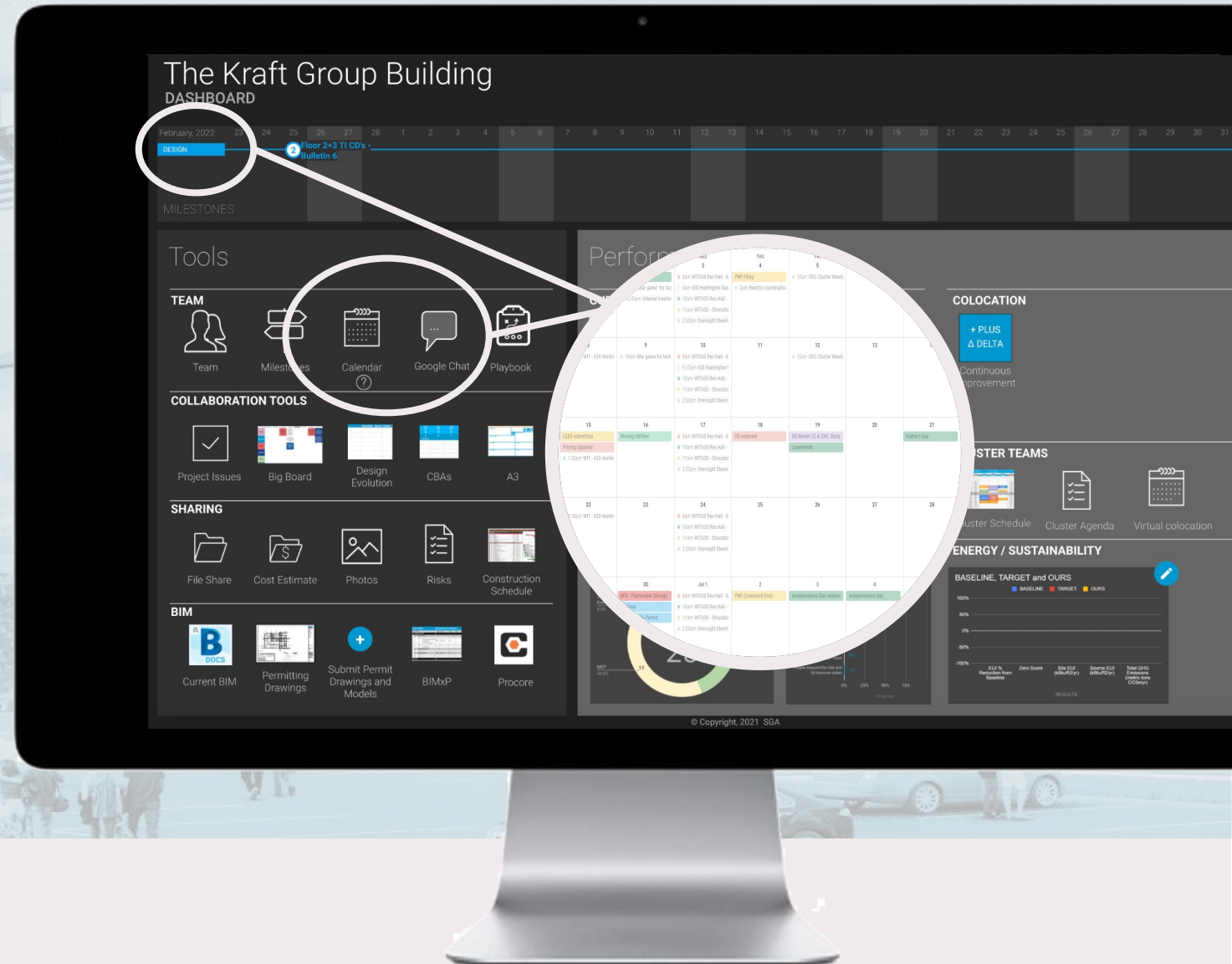
- The calendar is set up by the project manager
- Project milestones automatically appear on the calendar
- Milestones are visualized by start dates
- The calendar can be connected into Outlook and Google
- All meetings must also invite the SGA Dashboard calendar

The Dashboard

Calendar & Milestones

Benefits and Results:

1. Design Milestones
2. Speed-to-Supply
3. Predictable Delivery
4. Site/Project Schedule



Project Issues

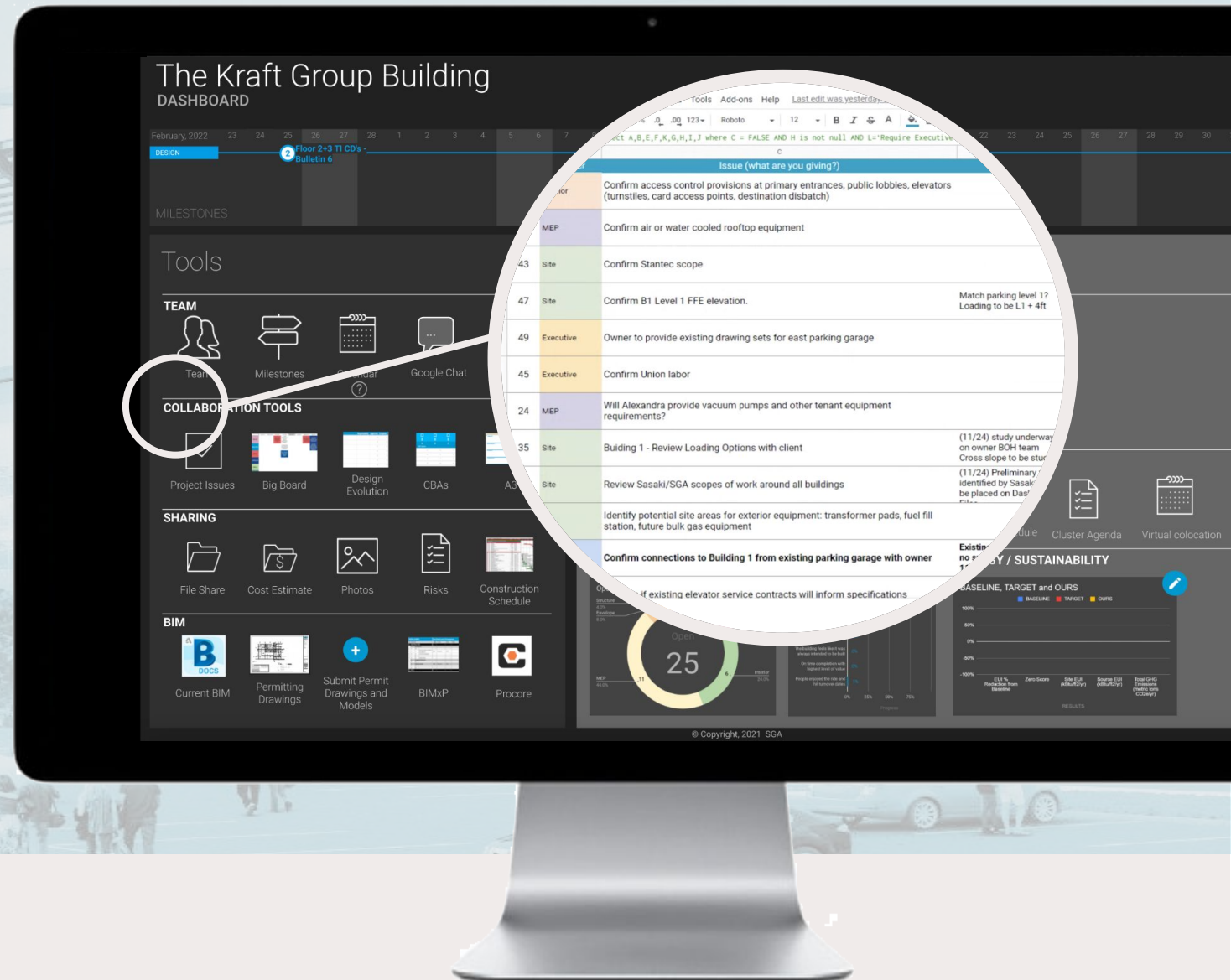
The most critical element of the dashboard

- Add a project issue when information is required by another team
- Internal tasks are handled elsewhere, in project tasks
- The project issues list becomes the agenda for cluster meetings
- Issues can be moved to the last responsible moment, saving time and money

The Dashboard

Benefits and Results:

1. Design Coordination
2. Shared Responsibilities
3. Shared Expectations
4. Risk Mitigation
5. Interactive Collaboration



2022 Programs

2022 Project Delivery Symposium: Delivering the Future

Held March 8-10, 2022

[Now on-demand on AIAU](#)

San Juan FBI Field Office, Hato Rey, PR
Walsh Group - Design Builders
Wight and Co. - Design Architect

LEED gold

A'22 AIA Conference on Architecture 2022
June 22–25, Chicago



2022 Programs

Stand-alone virtual webinars:

Look for one around
September 2022!

SSA National Data Center, Urbana, MD
Hensel Phelps - Design Builders
SOM - Design Architect

GSA Design Excellence Award
Design Build Institute of America award
LEED gold

A'22 AIA Conference on Architecture 2022
June 22–25, Chicago



Other Programs

2021 Project Delivery Knowledge Symposium content
[remains available on AIAU](#)

Keep an eye out for our
2023 Symposium.

Benjamin P. Grogan and Jerry L. Dove Federal Building
Hensel Phelps - Design Builder
Kruek & Sexton - Design Architect
Gensler - AOR

GSA Design Excellence Award
15 major AIA and Design Build Awards

A'22 AIA Conference on Architecture 2022
June 22–25, Chicago



KC's Impact towards AIA's Goals

Project delivery practices that remove barriers to effective, collaborative, integrated project delivery, and that unlock innovation solutions to the owner's design goals are also demonstrably better at:

Delivering value for owners, in terms of on time/on budget performance and lower overall operating costs

KC's Impact towards AIA's Goals

Project delivery practices that remove barriers to effective, collaborative, integrated project delivery, and that unlock innovation solutions to the owner's design goals are also demonstrably better at:

Reinforcing the architect's leadership role in bringing innovative yet practical solutions to the challenges we face.

KC's Impact towards AIA's Goals

Project delivery practices that remove barriers to effective, collaborative, integrated project delivery, and that unlock innovation solutions to the owner's design goals are also demonstrably better at:

The level of integration in the delivery process affects final project outcomes, particularly in terms of achieving sustainability goals

KC's Impact towards AIA's Goals

(Pankow) Revisiting Project Delivery Performance

(Pankow) Influence of PD Methods on Achieving Sustainable High Performance Buildings

(BRIK) The Business Case for Green Building

Keep in touch!

aia.org/pd

Thread Subject
<u>Project Delivery Knowledge Symposium</u>
<u>Blockchain in the AEC industry</u>
<u>Call for projects: seeking projects for research on centering climate/health/equity goals in real estate development</u>
<u>Department of State OBO seeking industry input on advanced design, construction, and manufacturing capabilities</u>
<u>How to Get Infrastructure Done on Time and on Budget</u>

Questions?

Thank you!