

2020 Project Delivery Webinar

Virtual Design & Construction – The Future of Project Delivery



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December 8, 2020

Moderators



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Project Delivery Knowledge
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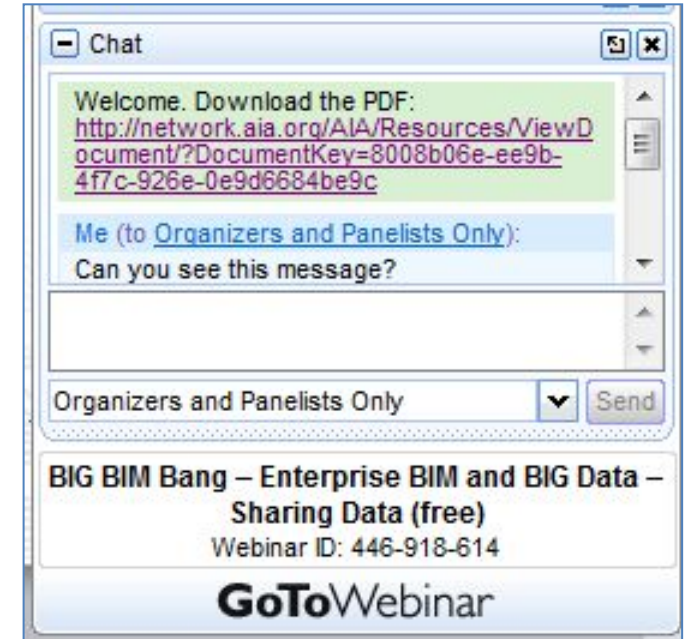
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Virtual Design + Construction

The Future of Project Delivery



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**VDC delivers
your project
on time and
on budget.**



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What is Virtual Design + Construction?

VDC is a proven delivery method that utilizes **people, process and technology** to design and build to your vision and goals.



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Our tech-forward
approach allows us to
deliver a **streamlined
process** for design
and construction.



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Architects can save their clients millions of dollars, deliver their projects on shortened schedules, and provide additional revenue sources for their practices.

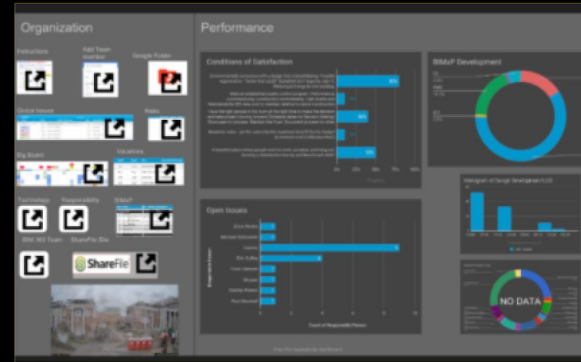


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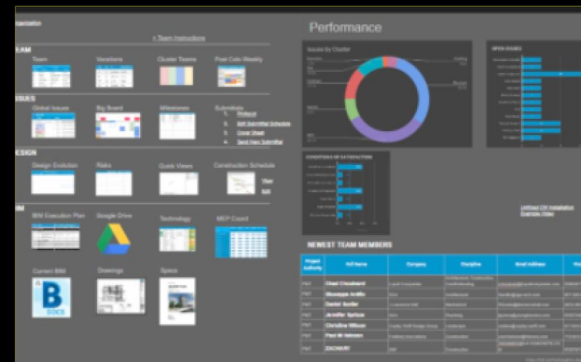
Customized Dashboards



Vanderbilt University, Nashville



WIT, Boston



TitleTownTech, Green Bay



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Learning Objectives

01

How VDC utilizes people, process and technology to support project delivery

02

How VDC tools support project economy and efficiency

03

How VDC implies an unprecedented level of collaboration

04

How architect-led project delivery creates additional revenue opportunities

05

How VDC saves clients time and money

06

How to develop VDC tools to enhance communication with consultants

07

How VDC technology and operations influences the integration of AEC professional performance

08

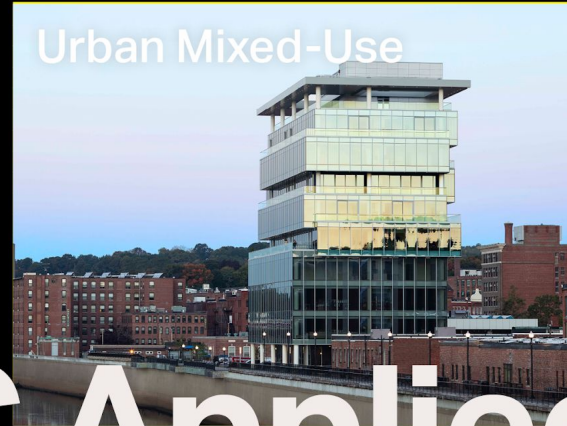
How VDC increases predictability, lower risks and preserves design intent



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VDC Applied to Various Markets



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Benefits & Results

01

Design Intention

Thoughtful and innovative design solutions that solve the clients' business needs and preserve the design intent agreed on by the team.

02

Cost Management

By designing a project's costs and working with a detailed estimate, value engineering is eliminated and the team can anticipate construction conflicts and resolve inconsistencies with a high level of accuracy.

03

Speed-to-Market

An integrated approach with design and construction has proven to accelerate project schedules by eliminating the wait time between information handoffs.

04

Predictable Outcome

Architects have demonstrated on numerous assignments that VDC can improve predictability, lower risks, and achieve cost efficiencies.



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Case Study

50 + 60 Binney Street, Cambridge, MA

Two 10-story, state-of-the-art hybrid laboratory-office buildings, located in Cambridge, MA.



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The Results

50 + 60 Binney Street, Cambridge, MA

100%

of project completed
on schedule

90%

submittals approved on
first submission

85%

consistent reduction
of costly change orders

0

RFI's issued
during entire project



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The 3 Pillars of VDC

People, Process and Technology



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VDC elevates the role of the architect in project delivery

01

**Team
Building**

02

On-Boarding

03

**Our Shared
Expectations**

04

**In-Person and
Virtual
Collaboration**

05

**Customized
Project
Dashboards**

06

**Model-First
Approach**

07

Digital Twin

08

**AI and Machine
Learning
Dashboards**



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An aerial photograph of a construction site. In the foreground, a group of about ten construction workers wearing hard hats and safety vests are standing on a dirt path. Their long shadows are cast across the ground. The background shows a large construction area with various structures and equipment under a clear sky.

01 People

Team Building

VDC fosters an environment of team-building by **bringing the construction and design world together**. The team-building process finds like-minded partners who understand the collaborative mindset of VDC and are willing to think beyond traditional methods.



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02 People

On-Boarding

The Execution Success Planning (ESP), sets the tone for the project and aligns the goals of the entire team, developing consensus about what will define a project success.



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03 Process

Our Shared Expectations

Agreed upon, **Conditions of Satisfaction (CoS)** that the team will collectively establish in order for the project to be considered a success.

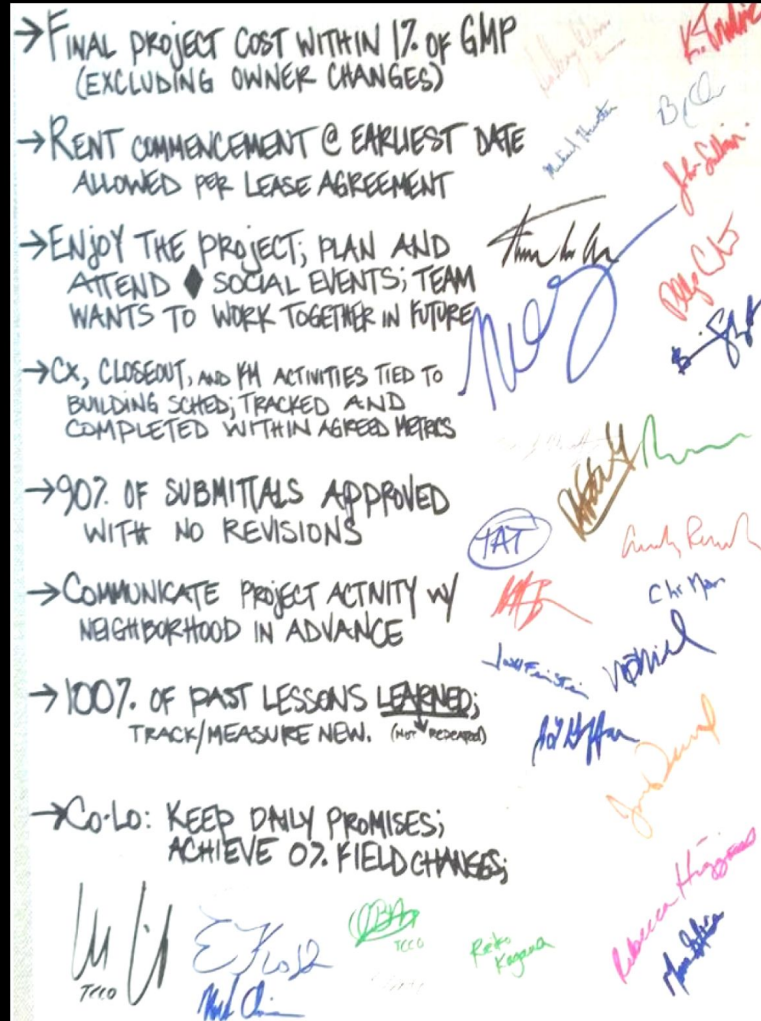


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03 Process



Conditions of Satisfaction Example



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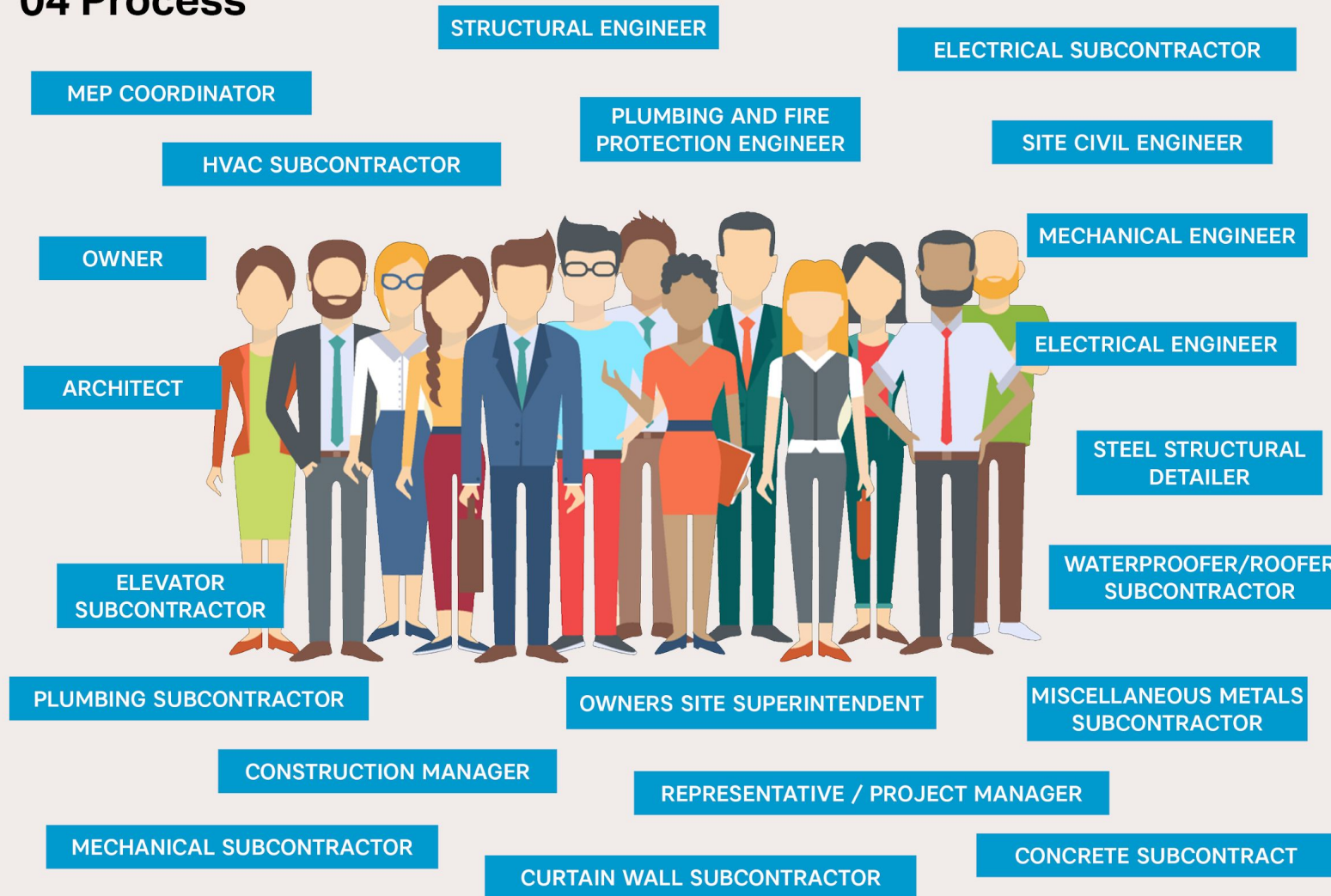
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In-Person and Virtual Collaboration

The power of collective intelligence. **An on-site or digital team command center** where architects, engineers, construction managers, and electrical, plumbing and other subcontractors work side-by-side to bridge the gap between design and construction.



04 Process

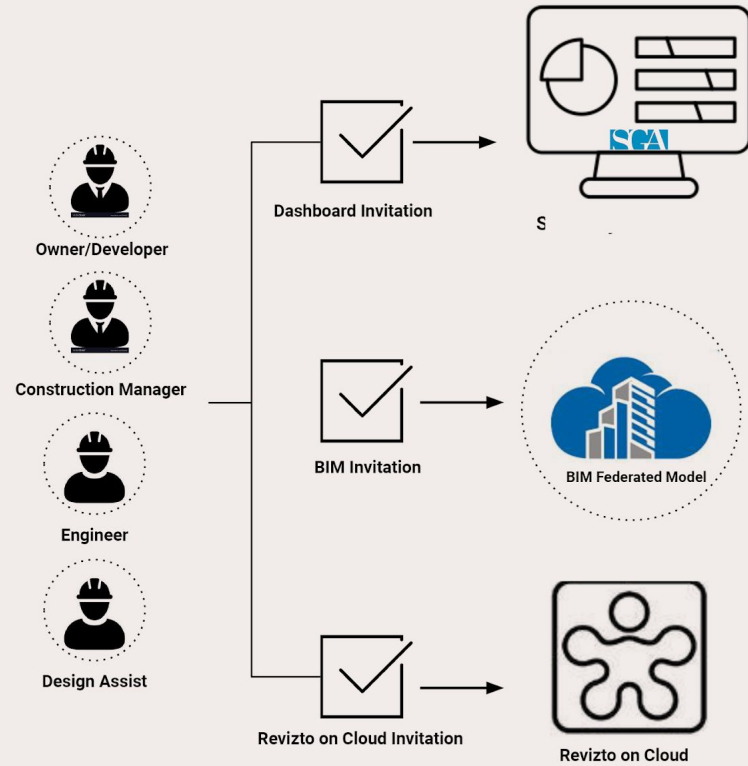


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ON-BOARDING



TRAINING



Training Sessions

| MODEL ELEMENT | Final Model Level of Development | | | |
|--|----------------------------------|-----------|----------|----------|
| | MEP | Structure | Interior | Exterior |
| A SUBSTRUCTURE | | | | |
| A.10 Foundations | + | + | + | + |
| A.12 Wall Foundations (Shells Foundations) | 200 | Structure | MCS | + |
| A.12 Column Foundations | + | + | + | + |
| A.12 Slab Foundations | + | + | + | + |
| A.12 Grade Beams | + | + | + | + |
| A.20 Subgrade Enclosures | + | + | + | + |
| A.15 | + | + | + | + |
| A.40 Subgrade Grade | 300 | Structure | SGA | + |
| A.40 | + | + | + | + |
| A.40 | + | + | + | + |
| B SHELL | | | | |

BIMxp Session

CO-LO



Virtual Co-lo Station

OR



In-person Co-lo



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05 Technology

Customized Project Dashboards

Online tools in real-time that are completely different from the industry standard; dashboards enable teams to be effective on a daily basis.



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Case Study

Wentworth Institute
of Technology



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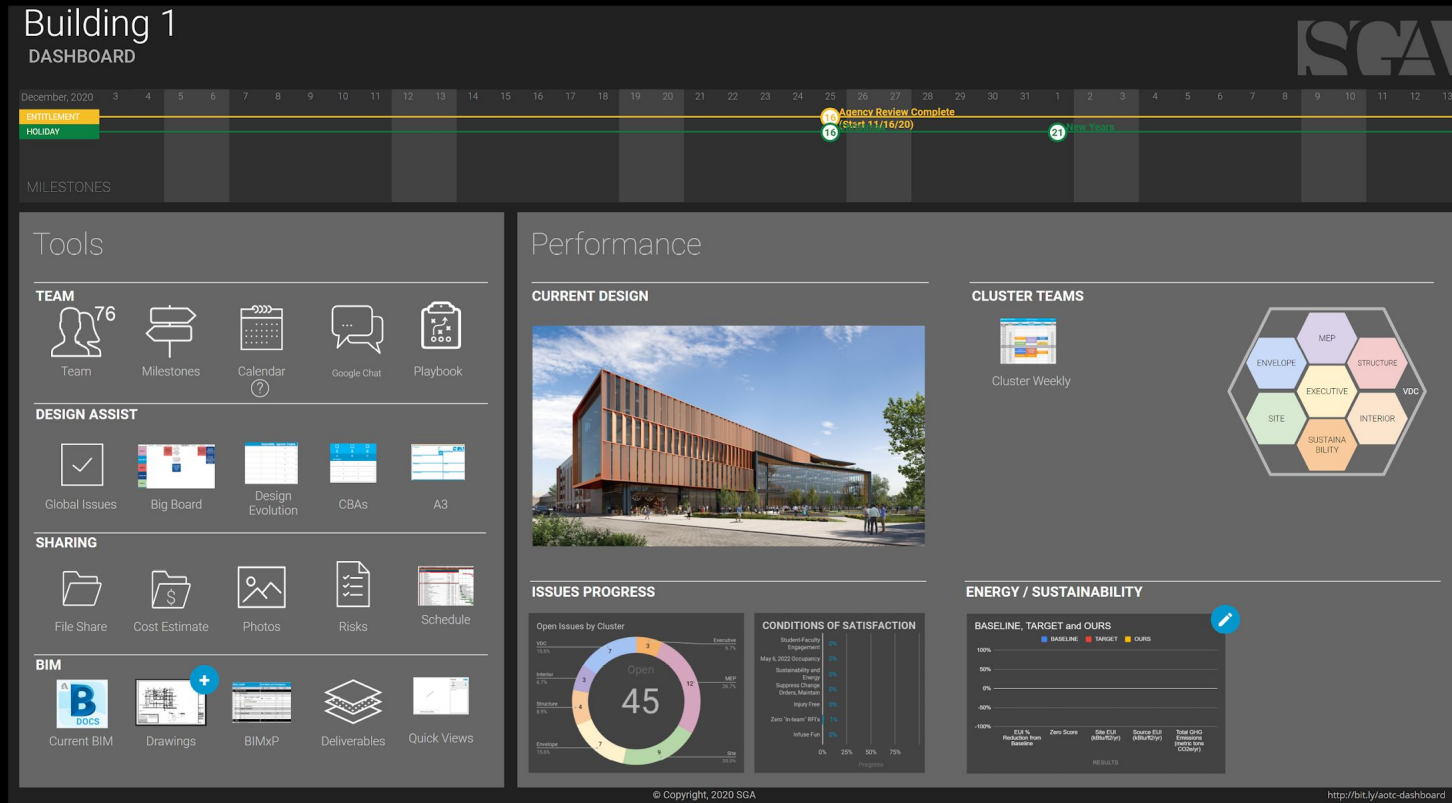
05 Technology



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05 Technology



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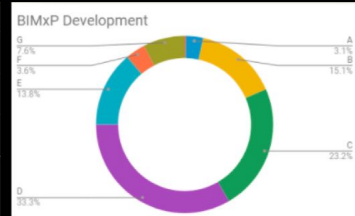
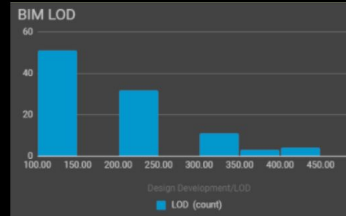
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Model-First Approach

This forward-thinking delivery method enables us to apply a model-first approach to accelerate decision making, reduce unnecessary hand-offs, and enhance project understanding, **resolving issues before they occur in the field.**



06 Technology



Model Element Matrix

Conditions of Satisfaction

BIMxP

Automatic File naming

Automatic File naming

BIMxP is an execution plan evolving in real-time, it's not static. Data is tied into the dashboard in order to track participation and establish LOD tracking and assign the various building elements to the cluster teams.

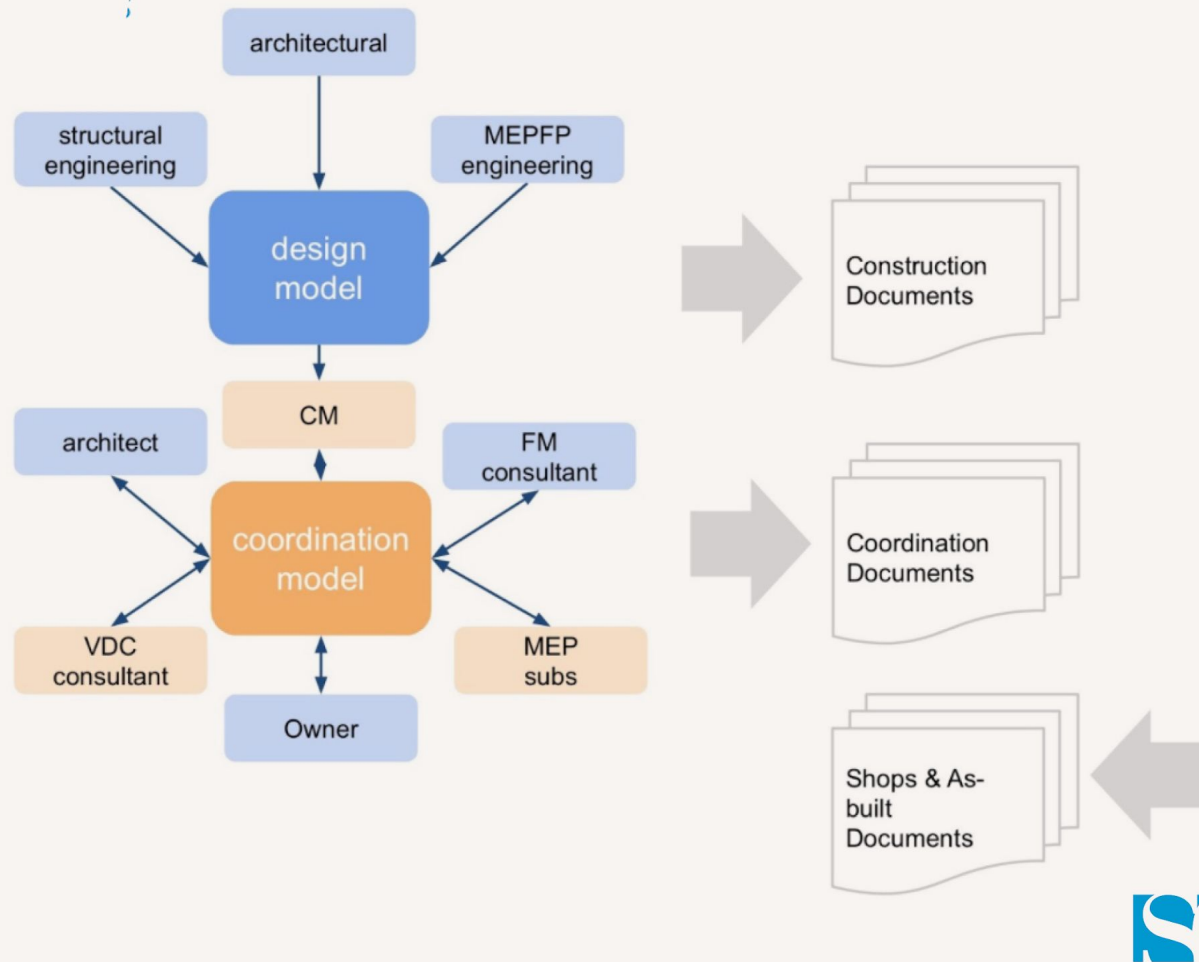


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Typical Models

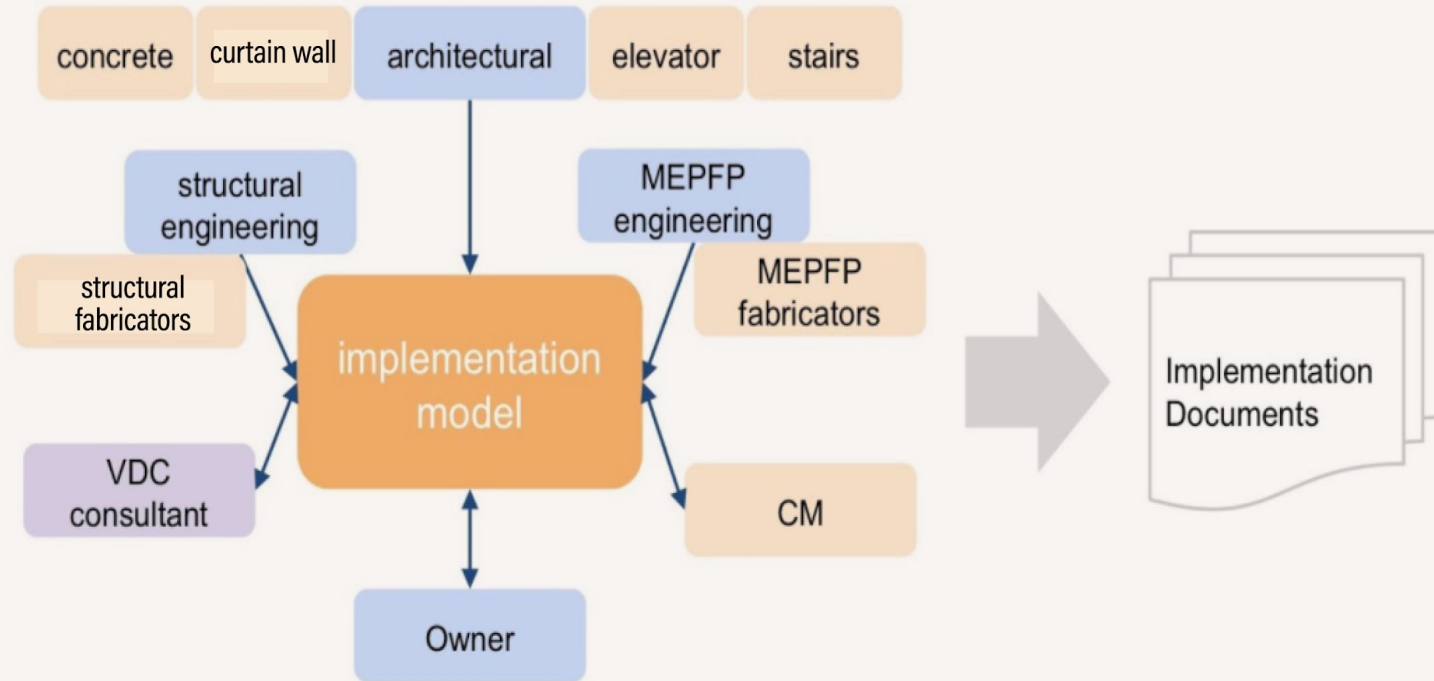


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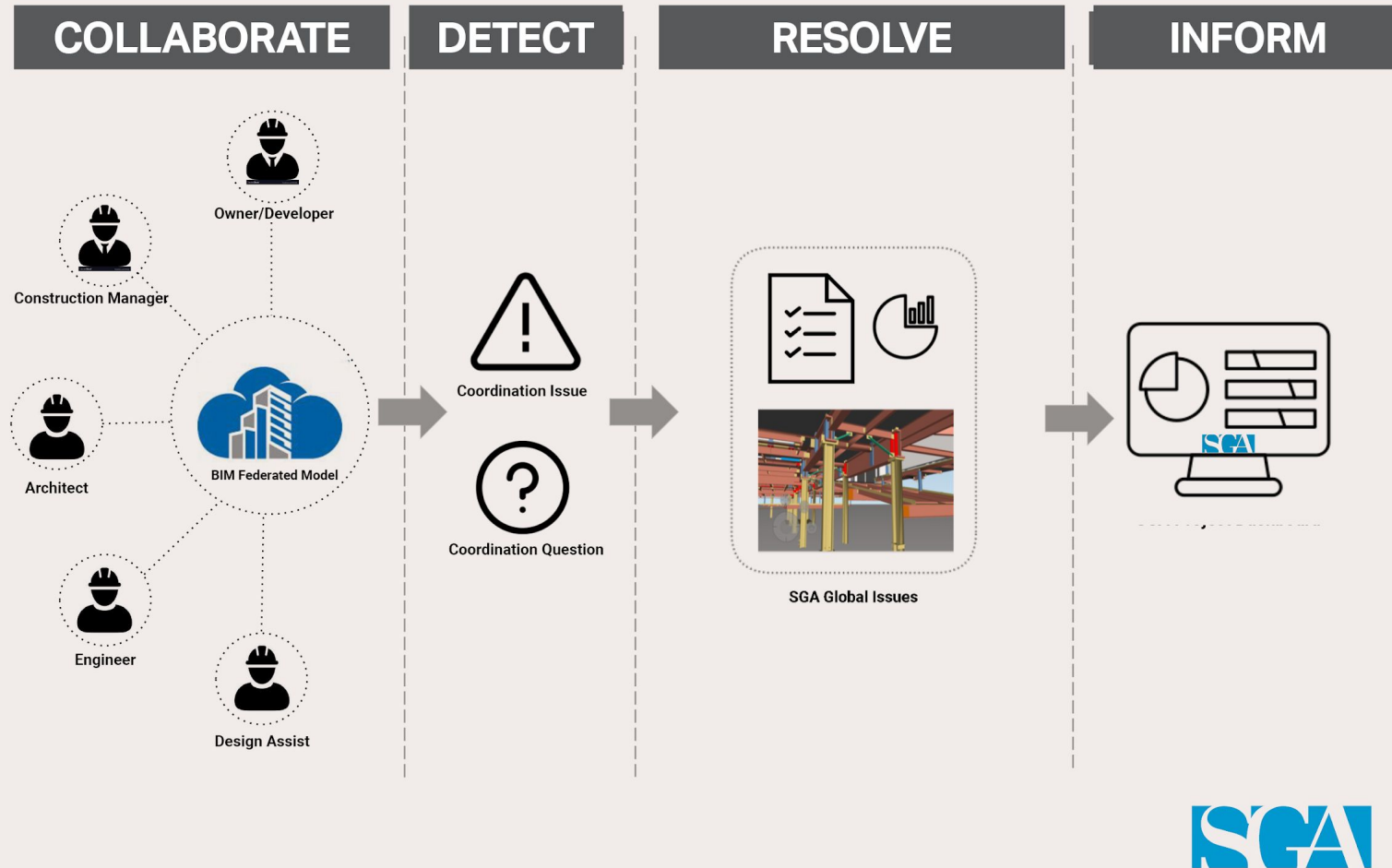
Implementation Models



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07 Technology

Digital Twin

This **pairing of the virtual and physical worlds** allows analysis of data and monitoring of systems to head off problems before they even occur, prevent downtime, develop new opportunities and even plan for the future by using simulations.



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Case Study

Tiletown Tech

Winner of the 2020
Architizer A+ Award for
Architecture and BIM

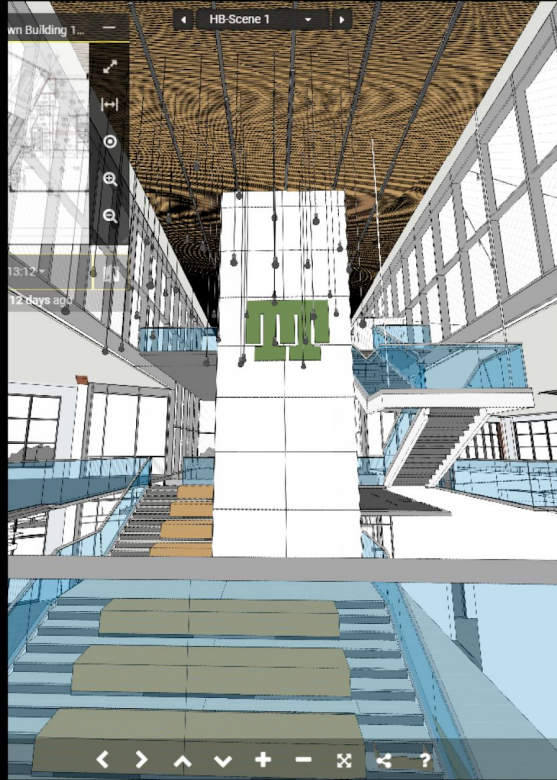


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Case Study



Digital version



Final version



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**Virtual Design +
Construction provides:**

**Design Intent
Cost Management
Speed-to-Market
Predictable Outcomes**



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08 A Glimpse
into the Future

AI and Machine Learning



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Q & A



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AIA KnowledgeNet

<https://network.aia.org/communities>

The AIA **Project Delivery Knowledge Community** (PDKC) 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), virtual design and construction (VDC), and public-private partnerships (P3).

Upcoming Events:

Visit <https://network.aia.org/projectdelivery> for more information



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THANK YOU



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