# BIM BOP

## THE 13TH ANNUAL USC BIM CONFERENCE
Friday, June 28th, 2019, 8:00 am (registration) – 5:00 pm
USC, School of Architecture, Los Angeles, CA, USA
The conference will be held in SGM 123 and SGM 124.
Karen Kensek (**kensek@usc.edu**) and Doug Noble (**dnoble@usc.edu)**

## https://arch.usc.edu/calendar/bim-bop-2019

## CONFERENCE SCHEDULE
- This Conference Schedule was last updated 6/25/19.   FINAL!
- Updates to the Conference Schedule will be posted on **https://arch.usc.edu/calendar/bim-bop-2019** when there are changes or edits. Parking directions and a campus map are at the end of this document.
- If you are registered and provided an email address (please don't leave this blank on your registration material – we can't email you updates if we don't have an email address), we will email you the most recent schedule just before the conference date as we will not be printing them out.
- **Box lunch is provided.**

## REGISTRATION
- $55 registration; $155 after June 23$^{rd}$. As usual, there are **no refunds** if you do not attend (send someone else from the office instead).
- Go to **https://events.usc.edu/esvp/esvp_bim2019.php**  (code: **bim2019**) to register.
- Please express your preference for track A or track B. You can go between them. The speakers for each track are listed in this Conference Schedule. Although we have larger than we need lecture rooms, we do not guarantee space in both rooms at all times if everyone decides to go to just one of the rooms. We do promise that there is excellent content for both room tracks.
- Please register each person **individually** if you are doing more than one; register under their name (not yours).  By registering each person individually, we will be able to track the registration better, send out reminder notices, and print accurate name badges. If a different person has to attend, email so we can make a new badge. If a day or two before the conference, just show up and we will write up a new badge.

## KEY INFORMATION
- A stellar line-up of over 30 speakers!  There are sessions on Rhino to Revit interoperability, construction, engineering and fabrication, landscape architecture, architecture – smaller offices, architecture – larger offices, and the new 5 minute BIM BOPS!
- **5 AIA CEUs or 5.5 CM-BIM CE credits.** AIA members, remember to add your name and number to the list on the registration table. AGC members, you will need to submit the conference using the online CM-BIM Renewal Documentation Form (https://www.agc.org/cm-bim-renewal-documentation-form) after the conference. A certificate of completion is not a requirement to submit CE credit.
- Parking information is at the end of this schedule. It is about $12 to park on campus. In addition, the DASH F is convenient. The Expo Metro train would normally stop nearby, but construction is planned in June. Check their website for updates.

## SPONSORSHIPS
- Sponsorships are available. Please contact Douglas Noble, **dnoble@usc.edu.**
- **SPONSORS**:  **Walter P Moore, Clark Construction, GRAPHISOFT, NELSON, Taylor Design**, Archway Systems, Avant Leap, CO Architects, Fuzor, Kelar Pacific, MATT Construction, MVE + Partners, TITAN AEC, BIMobject, Inc., ICS - MTWO, WORKPOINT engineering, AGC America, FORM: Pioneering Design, AIA LA, Platinum 3D Consultants, Inc.

# TRACK A (SGM 123)

**8:45 - 9:00**  **Introduction**

| | SESSION 1A: Rhino - Revit interoperability | MODERATOR: Blaine Grantham, TITAN AEC |
|---|---|---|
| 9:00 - 9:30 am | Las Vegas Stadium: Rhino to Revit on a Fast-Track Construction Schedule | **Stephanie Schneidereit**, HNTB |
| 9:30 - 10:00 am | 1D to 3D \| Concept to Fabrication: Data Interoperability for Specialty Enclosures | **Kais Rawi** and **Laura Karnath**, Walter P Moore |
| 10:00 - 10:30 am | 2019: A BIM Odyssey - Fall of the Monolithic | **Scott Davidson,** Robert McNeel & Associates |
| 10:30 - 10:50 am | | **BREAK** |

| | SESSION 2A: Construction | MODERATOR: Daniel Stafford, MATT Construction |
|---|---|---|
| 10:50 - 11:20 am | Vision Design Craft – the Lucas Museum of Narrative Arts | **Michael Siegel**, Stantec |
| 11:20 - 11:50 pm | BIM Beyond Early Adopters: how to deploy Revit, Navisworks, Open Space, StructionSite, and other tools outside of BIM silos | **Jeremy Futerman,** Hathaway Dinwiddie |
| 11:50 - 12:20 pm | Complex Geometry in Structural Concrete | **Matt Johnson,** MATT Construction |
| 12:20 - 12:30 pm | | **Thanks to our sponsors.** |
| 12:30 - 1:40 pm | | **LUNCH - box lunch provided** |

| | SESSION 3A: Engineering and Fabrication | MODERATOR: Nuri Miller, CO Architects |
|---|---|---|
| 1:40 - 2:10 pm | Faking It Less:  Novel Workarounds to Improve Revit Spatial Delineation, Towards Fire Life Safety, Lighting, Energy, and Acoustic Calculations | **Cassandra Tomerlin** and **Winston Kahn**, ARUP |
| 2:10 - 2:40 pm | From the Factory to the Field: Ancillary Modelling of Complex Architectural Projects | **James Coleman**, A. Zahner Company |
| 2:40 - 3:10 pm | SCAN to BIM: The Future of As-Builting | **Megan Hanson,** NOUS Engineering |
| 3:10 - 3:30 pm | | **BREAK** |

| | SESSION 4AB:  BIM BOPs are in SGM 123 | MODERATOR: Karen Kensek, USC |
|---|---|---|
| 3:30 - 4:30 pm | **10 speakers at 5 minutes each** | |
| | *You don't know what you don't know* – tackling knowledge fluidity within your firm | **Enoch Chow,** Ehrlich Yanai Rhee Chaney Architects |
| | Bring it on!  GC scripting to supplement the BIM | **Stuart Lange,** Clark Construction |
| | Beyond the Buzz – Practical Use of Artificial Intelligence in Design | **Leo Salcé**, Avant Leap |
| | Generative Design with Parametric Results | **Duncan Gilchrist**, GRAPHISOFT |
| | Not Your Father's Workflow: A Guide to Interoperability | **Brian Skowvron,** Gruen Associates |
| | Organic Design in a Linear World | **Martin Torres,** MVE + Partners |
| | Go with the data flow: BIM workflows from non-BIM sources | **Bryan Cowles** and **Nic Tucker,** ARCH \| NEXUS |
| | Revit is NOT a design tool! | **Reg Prentice,** TonicDM |
| | New Growth: The Rise of Mass Timber and Tall Wood Structures in BIM | **Bob Rice,** ICS – MTWO |
| | Evolve or Dissolve: Transforming Your Practice for the New Future | **Evan Troxel,** HMC Architects |
| 4:30 – 4:45 pm | Conclusion | **Karen Kensek,** USC, School of Architecture |

# TRACK B (SGM 124)

| | | |
|---|---|---|
| **8:45 - 9:00** | **Introduction** | |

| | **SESSION 1B: Landscape Architecture** | **MODERATOR:  Chuck Keeley, Kelar Pacific** |
|---|---|---|
| 9:00 - 9:30 am | Methodologies, Trends, and Varying Technologies in Applying BIM to Landscape Architecture | **Michael Todoran**, Zanja Madre Studios |
| 9:30 - 10:00 am | The Anatomy of Landscape Information Models | **James Lively**, Rios Clementi Hale Studios |
| 10:00 - 10:30 am | Revit Integration in Landscape Architecture | **Yong Kim** and **Kenny Tang,** STUDIO MLA |
| 10:30 - 10:50 am | | **BREAK** |

| | **SESSION 2B: Architecture – Smaller Offices** | **MODERATOR: Ethel Rubio, Platinum 3D Consultants, Inc.** |
|---|---|---|
| 10:50 - 11:20 am | Slim BIM: Best Practices for Small(er) Firms | **Ron Culver**, Michael W Folonis Architects |
| 11:20 - 11:50 pm | OKBIM: Early Collisions | **Jason Kerwin,** OKB Architecture |
| 11:50 - 12:20 pm | From Rendering to Reality | **Dan Brunn**, Dan Brunn Architecture |
| 12:20 - 12:30 pm | | **Thanks to our sponsors.** |
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| | **SESSION 3B: Architecture – Larger Offices** | **MODERATOR: Ethel Rubio, Platinum 3D Consultants, Inc.** |
|---|---|---|
| 1:40 - 2:10 pm | Developing Designs in the Third Dimension: Advanced Drawing and Design Techniques for Large Projects | **James (Jed) Donaldson,** Johnson Fain |
| 2:10 - 2:40 pm | BIM with Mixed-Use Developers | **Mark Levine**, NELSON |
| 2:40 - 3:10 pm | Fostering a Culture of Continuous Learning | **Steve Bennett**, Taylor Design |
| 3:10 - 3:30 pm | | **BREAK** |

| | **SESSION 4AB:  BIM BOPs are in SGM 123** | **MODERATOR: Karen Kensek, USC** |
|---|---|---|
| 3:30 - 4:30 pm | **10 speakers at 5 minutes each** | |
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| | Bring it on!  GC scripting to supplement the BIM | **Stuart Lange,** Clark Construction |
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| | Not Your Father's Workflow: A Guide to Interoperability | **Brian Skowvron**, Gruen Associates |
| | Organic Design in a Linear World | **Martin Torres,** MVE + Partners |
| | Go with the data flow: BIM workflows from non-BIM sources | **Bryan Cowles** and **Nic Tucker,** ARCH | NEXUS |
| | Revit is NOT a design tool! | **Reg Prentice,** TonicDM |
| | New Growth: The Rise of Mass Timber and Tall Wood Structures in BIM | **Bob Rice,** ICS – MTWO |
| | Evolve or Dissolve: Transforming Your Practice for the New Future | **Evan Troxel,** HMC Architects |
| 4:30 – 4:45 pm | Conclusion | **Karen Kensek,** USC, School of Architecture |

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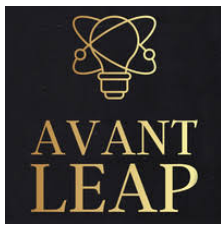
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# SPEAKERS AND TOPICS

Speakers are listed by track number in order of their presentation. These might change. Updates will be posted and a final schedule emailed to registrants a few days before the conference.

# TRACK A (SGM 123)

**SESSION 1A: Rhino - Revit Interoperability**

### Las Vegas Stadium: Rhino to Revit on a Fast-Track Construction Schedule
**Stephanie Schneidereit, HNTB**
Fast-track project delivery is challenging the AEC industry in the way that designs are 3D modeled, documented, and coordinated, demonstrated through the story of the Las Vegas Stadium. The project features a complex façade design and an international team of architects, engineers, and design assist trade partners. The relationships among the project team determined many key digital design and delivery decisions. We will explore a specific challenge – to deliver a for-record Revit model based on curtain wall optimization occurring in other 3D modeling programs, including Rhino 3D. The team used both Grasshopper and Dynamo to automatically populate a Revit model with extremely sophisticated families which push the boundaries of Revit Adaptive Components. The result was native Revit geometry that allowed for design coordination and which responded to the demanding complexity of the Las Vegas Stadium's façade design.

### 1D to 3D | Concept to Fabrication: Data Interoperability for Specialty Enclosures
**Kais Rawi** and **Laura Karnath**, Walter P Moore
The delivery of specialty enclosure systems involves a variety of processes from generation of concept geometry to engineering, rationalization, documentation and ultimately fabrication, each utilizing different digital platforms. The accuracy and fidelity of the digital data is crucial to success. This presentation will use case study projects to showcase interoperability workflows to streamline these processes for different types of geometry from points to curves to complex surfaces.

### 2019: A BIM Odyssey - Fall of the Monolithic
**Scott Davidson**, Robert McNeel & Associates
The adoption of a pure BIM process has been hampered by the ability of legacy legal, technical and workflow processes to change. The days of monolithic applications, siloed data have added to the difficulty. As a software toolmaker we have seen changes in many core technologies that we think may lead to the breakdown of the monolithic approach and the rise of a democratized approach.  It is important to understand how the software foundation has changed in the last few years, because it potentially leads to a fundamentally different approach, one that breaks down inherent boundaries of current workflows. As a community that is interested in BIM adoption how can we work together to bring new developments and what are some creative solution that can take advantage of these new tool-sets available to us. Do you know the way forward?

**SESSION 2A: Construction**

### Vision Design Craft – the Lucas Museum of Narrative Arts
**Michael Siegel**, Stantec
The digital journey of the development of a the Vision of the Lucas Museum of Narrative Art thru Design and Crafting the building.

### BIM Beyond Early Adopters:  How to deploy Revit, Navisworks, Open Space, StructionSite, and other tools outside of BIM silos
**Jeremy Futerman,** Hathaway Dinwiddie
As early BIM adopters, we often focus on the newest and coolest tech, but how do we get the most out of the tools we are already using? This presentation will explore how Hathaway Dinwiddie is utilizing common tools and current technology to save on construction costs by deploying tools outside of traditional BIM silos.

## Complex Geometry in Structural Concrete

**Matt Johnson,** MATT Construction

This presentation will explain how BIM is being used in construction to design formwork, reinforcing steel and how the use of point cloud scans help build complex geometries in structural concrete. The construction project being reviewed is an estate home in a coastal city of California. You will see firsthand what the construction process is from conceptual design to the finished elements of the project. We will review the structural engineer's process of designing reinforcing steel using BIM. Finally, reviewing how point cloud scans can be used to as-built reinforcing steel to assist with future design work.

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## SESSION 3A: Engineering and Fabrication

## Faking It Less: Novel Workarounds to Improve Revit Spatial Delineation, Towards Fire Life Safety, Lighting, Energy, and Acoustic Calculations

**Cassandra Tomerlin** and **Winston Kahn**, ARUP

The title of "Faking it Less" describes processes not yet inherent to Revit but involve using either Dynamo, Excel, or a Revit Add-In in a thoughtful sequence to perform genuine analysis and keep the results within the software, rather than just representing outcomes from a linked file. A case study will be discussed that shows improvements based upon the fidelity of Revit Spaces, beginning with the drafting of space separation lines and then branching to fire life safety egress calculations (involving Excel), lighting fixture connector placement against a family in a linked model (think a Dynamo'd Copy/Monitor), and rationalized geometry for export in the absence of architectural boundaries (Energy-IESVE/Acoustics-Odeon).

## From the Factory to the Field: *Ancillary* Modelling of Complex Architectural Projects

**James Coleman**, A. Zahner Company

Despite increased accessibility and sophistication of 3D modelling softwares, many trades (if they subscribe to BIM at all) still see modelling as a simple submittal – once completed, dead geometry dumped into a messy "all" model for others to review. After nearly 30 years of A. Zahner Company deploying custom digital fabrication work flows within the AEC industry, we continue to push model driven construction far beyond representation. This talk will use current Zahner projects to illustrate the "ancillary" modelling we do and the many corresponding benefits. We'll discuss how initial project models drive everything from our estimating to our factory floor organization and how evolutionary solvers and real-time survey feedback informs our field installation strategy.

## SCAN to BIM: The Future of As-Builting

**Megan Hanson,** NOUS Engineering

We all know what a hassle it is to go to a job site with tape measure, camera, flashlight, ladder, pencil, pad of paper...you get the point. In this session you'll see how 3D scanning technology and the interface with BIM have revolutionized the process of as-builting. The technology significantly compresses the time needed to capture information about existing buildings, yields greater detail and requires less translation (i.e. from field notes to CAD implementation) making the process less error prone. Best of all, the technology captures a wide bandwidth of information so, unlike the standard approach, it alleviates having to make repeat trips to site. The future is here. Scanning technology is no longer out of reach for consulting firms. Come see how Nous Engineering has used 3D scanning on over 50 projects on applications ranging from tenant improvement and retrofit to tree-clash. That's right, tree-clash. You will never want to go to site with only a pad of paper and pencil again!

**SESSION 4AB – BIM BOP!**

*You don't know what you don't know* **– tackling knowledge fluidity within your firm**
> **Enoch Chow,** Ehrlich Yanai Rhee Chaney Architects
> High knowledge fluidity leads to reduced frustration, higher documentation quality, and better project delivery. This presentation will identify methods EYRC Architects is developing to improve knowledge fluidity as well as lessons learned along the way.

**Bring it on!  GC scripting to supplement the BIM**
> **Stuart Lange,** Clark Construction
> As Designers move closer to generative and computational design strategies General Contractors must be equipped with tools to quickly give cost and constructibility feedback on iterative design options. We will give examples of leveraging Dynamo and other scripting to analyze and supplement the design models we receive.

**Beyond the Buzz – Practical Use of Artificial Intelligence in Design**
> **Leo Salcé**, Avant Leap
> In this brief session you'll hear about what fields within AI have relevant applications to A&E design including machine learning and computer vision and an approach to piloting and implementing them.  Learn about the benefits of developing a custom platform vs leveraging commercially available solutions. Overall, understand what's possible today and get a sneak-peak to what's coming in the near future.

**Generative Design with Parametric Results**
> **Duncan Gilchrist**, Avant Leap
> Take advantage of the Rhino and Grasshopper modeling abilities that students and graduates most commonly use to improve on the design capabilities of your firm. Learn how di-directional generative design can be achieved resulting in parametric BIM outputs that are drawn from conceptual BIM massings taken through Grasshopper and returned as native parametric tool types. This connection can be applied to both 2D and 3D content creation, and has the potential to expedite any stage of the design process and broaden your firm's design capabilities.

**Not Your Father's Workflow: A Guide to Interoperability**
> **Brian Skowvron**, Gruen Associates
> Gruen Associates collaborates with high end architectural firms to execute ambitious landmark projects.  We're often tasked with making sure the design is accurately represented in Revit regardless of the original design software.  Like many other aspects of architecture, the process isn't always linear and the challenge is to find the most optimal solution. This requires a great deal of flexibility and creativity to achieve the end goal. This presentation will illustrate some of the obstacles we've encountered in interoperability workflows and how we were able to overcome them.

**Organic Design in a Linear World**
> **Martin Torres,** MVE + Partners
> It is easy to create a product that is linear in nature when designing in Revit because the majority of the elements (walls, windows, doors, etc.) are linear. The Barrington project located at the corner of the Santa Monica and Barrington challenged us with organic forms as the façade system. These forms are branch-like in nature that started from the ground  floor and moved up through entire building. They encase the building like vines growing along a green wall and the openings created by these "vines" are the glazing openings in the building. Our task as the executive architect was to generate these forms digitally so that we can generate construction documents that will lead to production of the organic facade. Since our firm uses Revit for the production of all construction documents, we needed to look for an alternative design tool to create organic shapes that will generate smooth surfaces. We used Rhino to generate different these forms and various iterations which were then brought in to Revit via generic model families. The use of both of these design tools aided us in creation of a unique product that would not have been possible to create in Revit alone.

**Go with the data flow: BIM workflows from non-BIM sources**
> **Bryan Cowles** and **Nic Tucker,** ARCH | NEXUS
> How can you incorporate information coming from someone not comfortable with BIM tools? Architectural Nexus strives to be efficient in more than just building performance by continuously revising our processes to keep the flow of data between teams as seamless and lean as possible.  We'll begin speaking about maintaining the flow of critical information smoothly between software systems. Following this, we'll demonstrate how our BIM standards provide a basis and continual support during the evolution of a project by maintaining our sustainable practices in design and documentation.

### Revit is NOT a design tool!

**Reg Prentice**, TonicDM

The process of design is fundamentally opposite to the process of construction, and the very idea that one tool would be suitable for both is absurd. This BOP will contrast design and construction, lay the foundations for discussion in the design community regarding the nature of the tools we use, and will advocate for software that respects the value proposition of design.

### New Growth: The Rise of Mass Timber and Tall Wood Structures in BIM

**Bob Rice,** ICS – MTWO

Designing sustainable pre-fabricated wood buildings is requiring creative and innovative design strategies. Adopting current standards and adapting to quickly evolving codes and requirements is an exciting new journey in BIM. Where is the industry now, and where is it headed?

### Evolve or Dissolve: Transforming Your Practice for the New Future

**Evan Troxel,** HMC Architects

It's familiar to most of us. We have a working knowledge of digital tools to get the job done. We're even using VR to create and collaborate with clients. We're comfortable—or maybe comfortably numb. But where do we see our practices in 10 years? Truth is, most of us have been reactive to an increasingly tech-dependent profession—whether it's a reaction to the market, client demand, or simply to stay competitive. But it's time to go deeper. To take a broad look at the effects technology has on the practice of architecture at large, and how we are going to get ready for the future, together.

# SPEAKERS AND TOPICS

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# TRACK B (SGM 124)

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**SESSION 1B: Landscape Architecture**

## Methodologies, Trends, and Varying Technologies in Applying BIM to Landscape Architecture

**Michael Todoran**, Zanja Madre Studios

This presentation will examine the Landscape Architect's relationship to Building Information Modeling (BIM) on a Macro Level. As the trajectory for Architects using BIM continues to increase in frequency, landscape architects have been slower to adapt the use of BIM in relationship to Architects. By identifying the obstacles that contribute to Landscape Architects transitioning to a deeper use of BIM paired with examining the assets that advance the adaptation of BIM with the Landscape Architecture field can assist software developers, architects, and landscape architects to advance best practices for BIM and Landscape Architecture.

## The Anatomy of Landscape Information Models

**James Lively**, Rios Clementi Hale Studios

The Landscape Information Model can be imagined simultaneously as co-planar with the Building Information Model and also as entirely distinct. The intricacy of the landscape and of environmental inputs begs for a wholly unique structure of BIM tools. The Landscape Information Model or 'LIM' demands a complete intersectionality with the architecture of the built environment so that projects can be designed as singular organisms. The practice of landscape architecture in BIM requires that nearly every facet of the landscape be quantified, categorized, and given parametric function. Yet, the rationale behind these parameters - especially in Revit - is often counter-intuitive for landscape modeling. Many BIM and pseudo-BIM tools for landscape analysis and design exist, but have yet to become widespread and conventional in practice. This talk will explore the ways that an 'off-the-shelf' copy of Revit can be used to its fullest potential — not only to express landscape design intent during development, but also to efficiently generate some of the more typically complex portions of the landscape drawing set.

## Revit Integration in Landscape Architecture

**Yong Kim** and **Kenny Tang**, STUDIO MLA

Having worked on numerous types of projects at every scale, Studio-MLA's design process is predicated on close collaboration and coordination with design teams to deliver high-quality landscapes. Yong Kim and Kenny Tang will share experiences in coordinating projects in BIM formats and Revit integration strategies for landscape systems, as well as how Studio-MLA is exploring techniques and approaches for utilizing BIM/Revit in landscape design.

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**SESSION 2B: Architecture – Smaller Offices**

## Slim BIM: Best Practices for Small(er) Firms

**Ron Culver**, Michael W Folonis Architects

Exploring the advantages and pitfalls of using BIM in a small office.

BIM software can can only revolutionize a practice if it is used to its fullest advantage. Legacy habits of drawing can lead to dead ends in project workflow, usually only discovered under a deadline when last-minute changes to a project model are executed, requiring major alterations to a drawing instead of minor adjustments. Using real-world examples, this talk will cover how-to's and demonstrate the pitfalls of incorrect drawing practices. It will help participants evaluate what level of modeling is required on project files to attain the greatest efficiency.

### OKBIM : Early Collisions
**Jason Kerwin,** OKB Architecture

As a small office transitioning to Revit from AutoCAD, the process is traditionally viewed as a gradual migration that maintains previous methodologies of design strategies while relying on BIM for optimization in later phases of drawing production. We would like to advocate for the non-efficiency of BIM in crude iterations, raw visualization, and unfiltered simulations that do not embrace material consequences, infrastructural management, or simply, drawing coordination. The idea being that the intelligence of BIM could be momentarily suspended for the study of the formal and atmospheric.

### From Rendering to Reality
**Dan Brunn**, Dan Brunn Architecture

A look into the development of projects, from inception to execution.  Going through commercial, residential and hospitality, we will be presenting a variety of projects and behind the scenes stories of their creation.

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**SESSION 3B: Architecture – Larger Offices**

### Developing Designs in the Third Dimension:  Advanced Drawing and Design Techniques for Large Projects
**James (Jed) Donaldson**, Johnson Fain

The design workflow for every architectural firm is unique and has been in a constant flux for the past 10 years. James Donaldson, Principle at Johnson Fain, along with emerging professional Alexandra Holguin will explore the multifaceted platforms currently being utilized as design and production tools to formalize a workflow between client, consultant, and architect.  Attendees will learn about the process for designing, documenting and constructing with Revit, visualization software and VR experiences for several small and large scale projects in Los Angeles.

### BIM with Mixed-Use Developers
**Mark Levine**, NELSON

NELSON is a national design/architecture firm providing services to some of the largest mixed-use developers in the world. We will discuss current trends and practices of BIM, client expectations, project development/execution, and  integration of BIM workflow across a 25 office, 1100 person firm.

### Fostering a Culture of Continuous Learning
**Steve Bennett**, Taylor Design

No matter how many individuals your company employs, the business environment we live in continues to accelerate at a rapid pace, making it critical to ensure everyone has the tools and knowledge to help your firm compete and succeed. Whether it's changes to your design software, building code changes or new tools being introduced to your project workflows, we as leaders need to be able to bring the entire company along with us on the journey. Find out the secret ingredients Taylor Design is using on the team-learning front and how we employ several methods to reach everyone within the firm, make learning fun, relevant and actionable to current tasks; while making the learning content accessible to future employees.

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**SESSION 4AB – BIM BOP! – go to SGM 123**

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## TROJAN SPONSORS
### Archway Systems
Archway has been a Channel Partner for Bentley Systems, Inc. since 1992. We are the only Platinum Channel Partner in the United States. Archway provides sales, training and consulting services for all 150 products including MicroStation, InRoads, ProjectWise and more. Archway also represents Bentley to the academic community.

### Avant Leap

Avant Leap is a technology management and consulting company that provides innovative solutions and process consulting for AECO with a focus in Automation, Machine Learning, and Cognitive Systems to magnify efficiency in project delivery through the building life-cycle. We help clients identify, implement, and manage the technologies and practices that will enable the organization to significantly impact cost, time, and quality.

### CO Architects

Los Angeles-based CO Architects is nationally recognized for architectural planning, programming and design in the higher education, science & technology, civic and healthcare sectors, and works with leading institutions from coast to coast. Founded in 1986, the firm's specialized expertise includes transformative projects for schools of medicine and the health professions, advanced research and teaching laboratories, leading-edge museums and civic landmarks, and innovative clinical facilities on higher education, healthcare and urban campuses. The firm has designed major "benchmark" and award-winning facilities for clients that include Palomar Medical Center, Natural History Museum of Los Angeles County, Kaiser Permanente, Superior Court of California, and colleges and universities across the U.S.

### Fuzor

Kalloc Studios specializes in next-generation engine and software development. Its flagship software, Fuzor powered by Kalloctech Engine is a full project lifecycle platform for Architecture, Construction and Engineering industry with AR, VR and MR capability. It has been adopted by many top architecture and construction companies in over ten different countries.

### Kelar Pacific

Kelar Pacific provides project services, technology, training, and support for the AECO industry. With over 30 years of experience, services include consulting, implementation, technical support and training related to Building Information Modeling (BIM), Cloud Computing Services, Project Management, Computer Aided Design (CAD), 3D Laser Scanning to model and more.

### MATT Construction

*It's not what you can do yourself; it's what you can do to help others succeed. Paul J. Matt*
An absolute commitment to win-win teamwork earned MATT the Building Team of the Year award from the AIA Los Angeles for two consecutive years. In 2010 and again in 2017, the company also received the AIA Los Angeles Presidential Award for "contributions and commitment which have enriched the practice of architecture and the built environment…through partnership with the clients and architects of Los Angeles." We are proud of these achievements, because they speak not only to how we build, but to our dedication to the collaborative process.

### MVE + Partners

At MVE, our approach is simple, our processes are proven, and our deliverables speak for themselves. We blend art and technology to pinpoint the essence of what makes a place great. Just visit one of our projects and you will see what we mean. We are devoted to our craft, clients, team, and end users. And in all we do, we endeavor to be Exceptional by Design. For forty-five years MVE has had the great fortune to design influential and award-winning projects throughout the world. Our practice is diverse with an eclectic portfolio of successful multifamily, mixed-use, commercial, resort, retail, institutional, and recreational communities and master plans. Our mission as architects is to design with passion, collaborate successfully with clients, and sustainably enrich the communities we influence. We value dedication, innovation, professionalism, success, and legacy. Together, we envision a legacy of exceptional architecture and enduring environments throughout the world.

### TITAN AEC

TITAN AEC is a company that will support you through all phases of design. From conceptual design all the way to construction administration to even building close out. TITAN AEC is your trusted advisor for Architecture, Engineering and Construction. Our organization is not about pushing the next upgrade, but how you can be productive with your existing and future technology.

# CARDINAL SPONSORS

### BIMobject, Inc.

BIMobject is the world's largest and fastest growing digital content management system for BIM objects. Our unique solutions for manufacturers provide development, hosting, maintenance, syndication and publication of the digital replicas of manufactured products. BIMscript is a tool you can use to create content.

### ICS - MTWO

ICS - MTWO is the most collaborative end-to-end construction project performance and delivery solution in the world, from design integration to project completion, operating on the agile Microsoft Azure cloud. The 5D BIM, virtual-to-physical construction delivery system allows construction professionals to make data driven decisions from SD virtual stages to handover to the owner. ICS - MTWO brings all construction stakeholders – along with their talents, perspectives, and data – into one cohesive platform to complete projects safely, on time, and on budget.

### WORKPOINT engineering

WORKPOINT engineering is a full service structural engineering consulting firm comprised of a team of dedicated professionals that deliver high-quality engineering services through collaborative, creative efforts.

# PROFESSIONAL AND MEDIA SPONSORS

### AGC America

AGC of America is the leading association for the construction industry. With over 26,000 member firms, AGC provides a full range of services satisfying the needs and concerns of its members, thereby improving the quality of construction and protecting the public interest. 5.5 CM-BIM CE Credits | AGC of America recognizes BIM BOP 2019 as qualifying for continuing education hours towards the renewal of AGC's Certificate of Management-Building Information Modeling (CM-BIM). Attendees may earn up to 5.5 hours of CE Credits by attending the entire BIM BOP 2019. If attendees are CM-BIM credential holders and would like to receive credit, they will need to submit the conference using the online CM-BIM Renewal Documentation Form after the program.  A certificate of completion is not a requirement to submit CE credit.

### AIA LA

Formed 115 years ago, AIA|LA is one of the largest Chapters of the American Institute of Architects (AIA.) Members include architects, design professionals and students. Through advocacy, education, networking and outreach, AIA|LA serves as a resource to help make the built environment healthier, more sustainable, and economically competitive. Attendees may earn up to 5 hours of CE credits by attending BIM BOP 2019. Sign in on the registration sheet.

### FORM: Pioneering Design

With an emphasis on modern design, FORM fills a unique niche featuring emerging talents and precedent-setting work in the areas of architecture, interior, landscape, furniture, product design, materials, and technology. FORM's aim is to showcase high-concept projects that provoke and inspire. Technology coverage highlights how the manufacturing and design disciplines are bridged, for example, by electronic media, molding, milling and weaving. Readable, intelligent and visually stunning, the magazine presents design with exuberance as well as substance.

### Ethel G. Rubio, Platinum 3D Consultants, Inc.

Ethel G. Rubio, Assoc. AIA is a woman-owned strategic business development and outreach;  and construction/ project management consulting firm.

Platinum 3D Consultants are experts in measuring and modelling the built environment. Using the latest technology, we create 3D digital models from accurate survey data for a diverse and prestigious range of clients. The team at Platinum 3D bring many years of experience and were one of the first to model existing buildings in Revit using accurate survey data. Our extensive knowledge and commitment to our clients guarantees our focus and attention is given to every aspect of delivering a successful project.

# CAMPUS MAP

- There is a lot of construction on campus this summer. I strongly recommend entering campus via Vermont Avenue and 36th Place/Downey Way as there is a convenient parking garage located near there. It costs about $12 to park on campus.
- Track A will be in SGM 123.  Track B will be in SGM 124. Registration and lunch will be in the SGM lobby.
- The conference is **NOT** being held in the School of Architecture buildings (Watt and Harris Halls).
- Please note the red highlights on the second map. A campus map is also available at http://web-app.usc.edu/maps/#upc.
- If you take DASH, please note that DASH F stops near the Downey Way entrance on Vermont Avenue. It costs $0.50, exact change.
- Note that although the Metro Expo Line runs along the south side of campus, there is construction ongoing with the Metro lines this summer. Check to make sure that you can get here (Expo/Vermont stop) before trying to take it!

# University of Southern California
## University Park Campus

**USC**

### Map Key

| | | | |
|---|---|---|---|
| Dining | | Residential | |
| Libraries | | Parking | |
| Galleries, Lectures & Performances | | Emergency Phones | C |

ENTRANCE JEFFERSON BL. (formerly Entrance X)
ENTRANCE McCLINTOCK AV. (formerly Entrance 1) OPEN 24 HOURS
ENTRANCE ROYAL ST. (formerly Entrance 2)
ENTRANCE DOWNEY WAY (formerly Entrance 4)
ENTRANCE McCARTHY WAY (formerly Entrance 3) OPEN 24 HOURS
ENTRANCE WATT WAY (formerly Entrance 5)
ENTRANCE PARDEE WAY (formerly Entrance 6)

Metro Expo/Vermont
Metro Expo Park/USC
Metro Jefferson/USC

Fire Station 15
McAlister Soccer Field
Hebrew Union College–Jewish Institute of Religion
Our Savior Parish and USC Caruso Catholic Center
Hillel Jewish Center
32nd Street/USC Magnet Center
Shrine Auditorium
USC Shrine Parking Structure
University Gateway Apartments
Thornton Practice Facility
Real Estate Mgmt.
USC Eye Institute

Roski Master of Fine Arts Gallery
Graduate Fine Arts Building
Michelle and Kevin Douglas IMAX Theatre and Interactive Media Lab
Zemeckis Center for Digital Arts

Galen Center
Galen Athletic Pavilion
Merle Norman Stadium
McCarthy Way Parking Structure (Formerly PSA)
North Residential College
New Residential College
Everybody's Kitchen
Montgomery Ross Fisher
Davidson Continuing Education Center

Grand Avenue Parking Structure (Formerly UPX)
East Library
3434 South Grand
Campus Development and Facilities
URBNMRKT Café

Engemann Student Health
Jefferson Boulevard Parking Structure (Formerly PSB)
TRT Research
Bank of America
Pharmacy
Fluor Tower
Webb Tower
McClintock Building
Starbucks at Café 84
Lyon Center
University Aquatics Center
McDonald Swim Stadium
Dedeaux Field
Marks Tennis Stadium
Brooks Pavilion
Howard Jones Field
Brian Kennedy Field
Uytengsu Aquatics Center
Gavin Practice Facility
Facilities Planning & Management
Darioush Courts

Kaprielian Hall
Irani Hall
Mudd Hall
Drama Center
Massman Theatre
Michelson Center for Convergent Bioscience
Dornsife Neuroscience Imaging Center
Brain and Creativity Institute
Grace Ford Salvatori Hall
Downey Way Parking Structure (Formerly PSX)
Public Safety
Dauterive Hall
Dauterive Research Center
Scene Dock Theatre
Technical Theatre Laboratory

Norris Dental Science Center
Coffee Bean & Tea Leaf
USC School of Cinematic Arts
SCA
SCB
SCC
SCD
SCE
The Music Complex
Booth Theatre
Little Galen
Heritage Hall
Robert Zemeckis Plaza
Waite Phillips Hall
Tutor Campus Center
Kaufman International Dance Center
Maxine Family Center
John McKay Center
Schoenfeld Hall
Ramo Hall
Booth Hall
University Religious Center
United University Church
Joint Educational Project House
Tommy Trojan
College Academic Services
Annenberg School for Communication
Wallis Annenberg Hall
Widney Alumni House
Alumni Park
Founders Park

E. F. Hutton Park
Social Sciences
Taper Hall
Leavey Library
Doheny Memorial Library
Leventhal School of Accounting
Bovard Administration Building
Bovard Auditorium
Physical Education Building
USC Bookstore
Pertusati University Bookstore

McCarthy Quad
Trojan Grounds
Starbucks at Trojan Grounds
USCard Services
Housing Services
Transportation Services
Merle Way Teahouse
Pardee Tower
Marks Tower
Marks Hall
Fagg Building
Parkside Café
The Lab Gastropub
Tyson Residence Hall
Fluor Residential College
Rosso de's Pizzeria
McKay's
Purchasing Services
Radisson Mid-City Hotel

Tutor Hall
Tutor Café
Seaver Science Center
Neely Petroleum Engineering
Hughes Electrical Engineering
Powell Hall
Olin Hall
Salvatori Computer Science Center
Vivian Hall of Engineering
Biegler Hall
Hedco Neurosciences
Hedco Chemical Engineering
Stabler Hall
Loker Hydrocarbon Research
Seaver Science Library
Stauffer Hall
Stauffer Science Lecture Hall
Sample Hall
Electronic Microscopy
Kaprielian Hall
Zumberge Hall
Science Hall
Hancock Foundation
Moreton
Bloom Walk
Grand Ballroom
Tommy's Place
University Club
Pharmacy
Ticket Office

Andrus Gerontology Center
Parkside International Residential College
Parkside Apartments
Parkside Residential College
Parkside Arts & Humanities Residential College
Parkside Residential Dining
MacDonald Becker Center
Fisher Museum of Art
Conference Center
Watt Way
Watt Hall
Harris Hall
Helen Lindhurst Galleries
Music
Musick Law Building
Newman Recital Hall
Hoffman Hall
George Tirebiter

To Community House
To Coliseum
To Exposition Park
To USC Research Annex
To USC Credit Union
Exposition Boulevard
Exposition Park
Flower Street Parking Structure (Formerly PST)

30th Place
Jefferson Boulevard
West 30th Street
West 32nd Street
West 34th Street
West 35th Street
West 36th Street
West 37th Street
South Hoover Street
South Flower Street
McClintock Avenue
Royal Street
Watt Way
Downey Way
Pardee Way
Vermont Avenue
Trousdale Parkway
Childs Way

N
Scale 500 ft