

Creating Best Practices for Energy Code Compliance

Sally Blair, NORESO
on behalf of the Energy Code Ace Team

September 2015





Brains Behind It

California's Energy Codes & Standards Program

Compliance Improvement Subprogram



Adrian Salas



Lovell Willmore



Jay Bhakta & Gary Shushnar



Jill Marver



Driver: California's Energy Policy

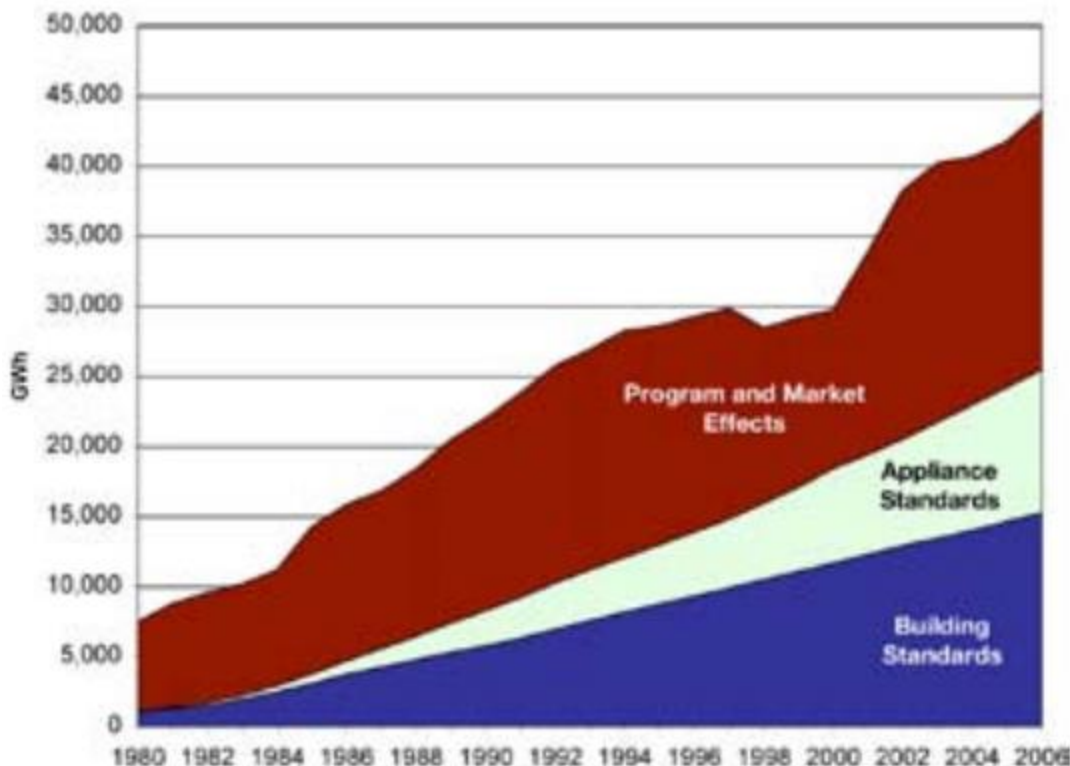
- Energy Action Plan Loading Order:

- ✧ **Efficiency**
- ✧ Demand Reduction
- ✧ Renewables
- ✧ Distributed Generation
- ✧ Efficient, Clean, Fossil-fueled Central-station generation
- ✧ Transmission

- “Big Bold” Goals:

- ✧ ZNE Residential New Construction by 2020
- ✧ ZNE Commercial New Construction by 2030

Cumulative Conservation Savings 1980–2006



Source: California Energy Commission



Compliance is the key

- Compliance improvement helps realize the full benefit of the code advocacy (development) efforts
- Non-compliance happens because:
 - 1 The ZNE goals result in a complex code
 - 2 The complex code results in a complex compliance process
 - 3 The energy code changes traditional design and construction methods
 - 4 Aspects of the energy code are perceived as not being cost effective by customers
 - 5 There are more than 550 local jurisdictions in California!

CEC & IOUs

Architects &
Designers

Energy
Consultants

Plans Examiners

Builders &
Contractors

Building
Inspectors &
HERS Raters

Home &
Building
Owners

Our Approach

In order to improve compliance...

Analyze the compliance supply chain market actors' unique roles and needs

Determine:

- 1) How current performance compares to desired performance
- 2) Reasons for the gap
- 3) Appropriate solutions to improve code compliance

Apply appropriate performance-based solutions that meet stakeholders' specific needs and preferences



GAP	<i>Performance-based</i> SOLUTION
Lack of Knowledge or Skill	 <p>Ace TrainingTM</p>
Lack of Resources	 <p>Ace ToolsTM Ace ResourcesTM</p>
Lack of Awareness	 <p>Ace OutreachTM</p>



We Also Use....

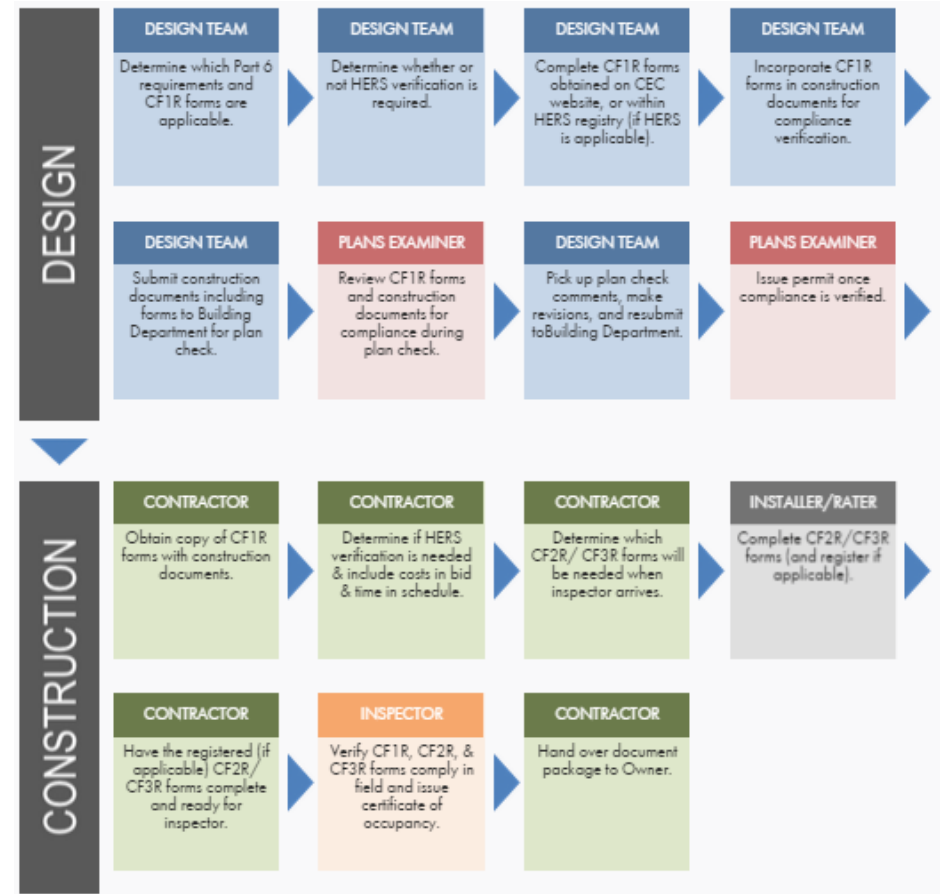
✦ User Centered Design Thinking



- Learn From Failure
- Make It
- Creative Confidence
- Empathy
- Embrace Ambiguity
- Be Optimistic
- Iterate, Iterate, Iterate

From IDEO.org's Field Guide for Human Centered Design

- ✦ Identified need
- ✦ Created quick & dirty prototype
- ✦ Iterated with Advisory Group
- ✦ Developed & launched Beta Tool
- ✦ Soliciting feedback from larger user group



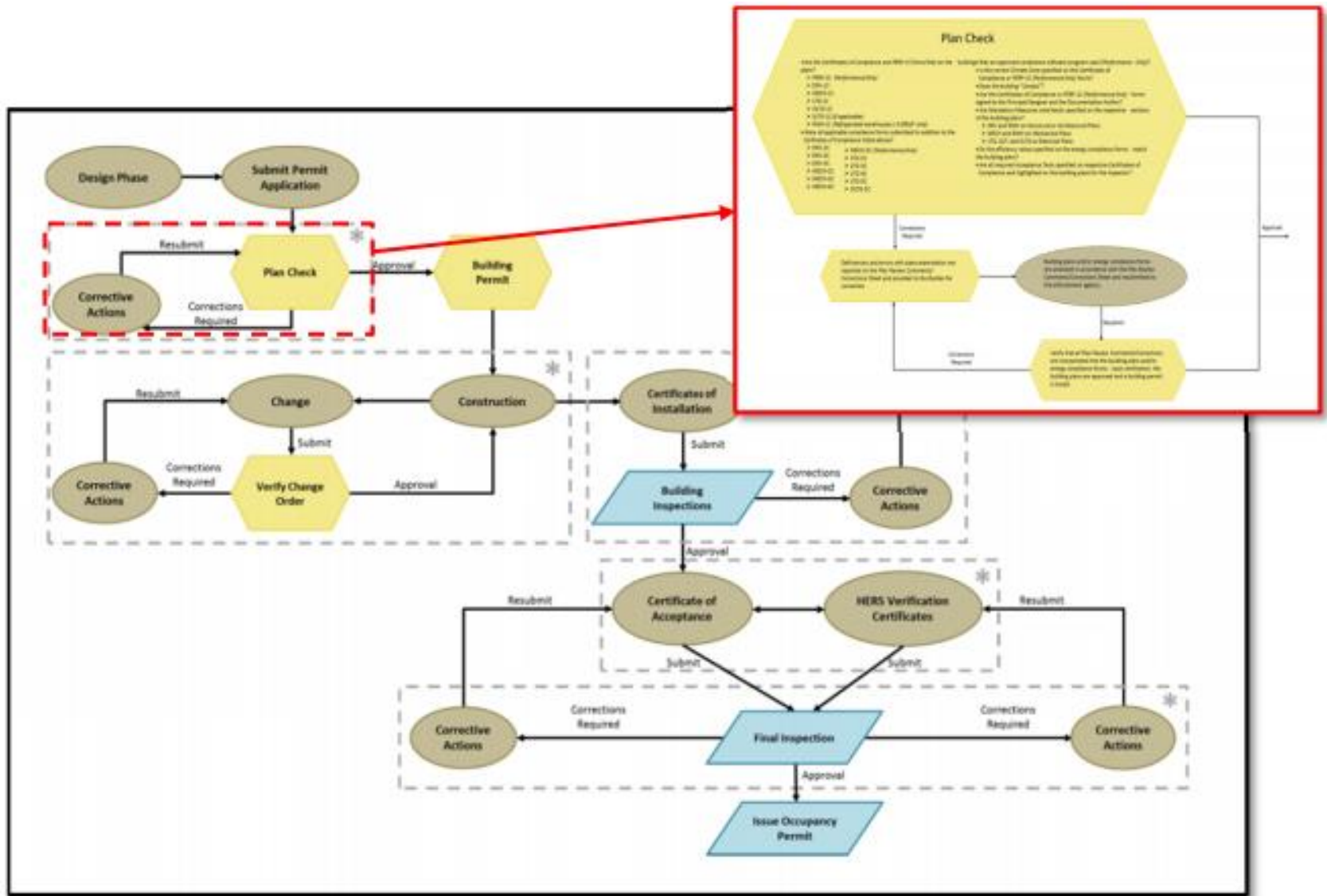


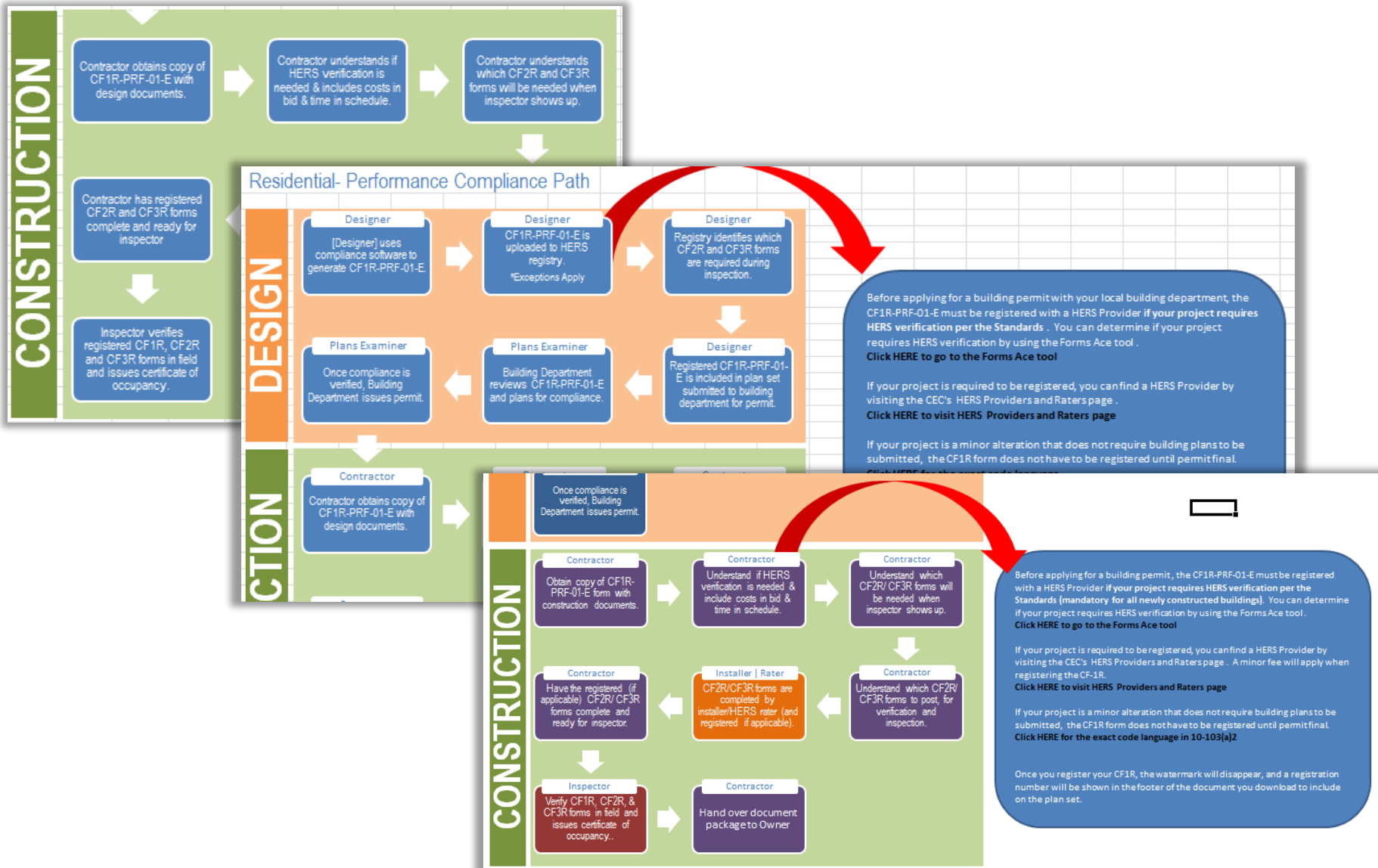
- Observed process & interviewed staff at 7 building departments




- Quarterly meetings with compliance supply chain to discuss needs & document in whitepapers


- Instructors listen for needs during trainings; many interactions with users through work process







**Residential
Performance
Compliance Path**




DESIGNER: Use compliance software to generate CF1R-PRF-01-E

1. Obtain CEC approved compliance software. CBECC-Res is a free resource, developed by the CEC. Approved software developed by third party vendors are also available for purchase.

[Click here for access to CEC approved compliance software.](#)



Tip: Be sure to use an approved version of each software tool! Check the column labeled "Approved versions usable for permit" in the table at the link above to confirm.








2. Close coordination with the project team is necessary to verify compliance using the software, including:

1. Architect
2. Energy consultant
3. Owner
4. Mechanical, Electrical and Plumbing Engineers (MEP)
5. Lighting Designer

Tips & Tricks:

-  **FREE** training on compliance software is offered statewide at regional Energy Education Centers run by the utilities. Check the Energy Code Ace training page for dates and locations. [Click to go to the training page.](#)
-  Modeling assumptions and protocols can be found in the Alternative Calculation Manual (ACM). [Click to find the Title 24, Part 6 2013 ACM.](#)

Step 1 of 14

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To: Blair, Sally NOR
 Cc:
 Subject: [External] FW: New Title 24 Tool - Navigator Ace Released

Subject: New Title 24 Tool - Navigator Ace Released

Hi Linda,

We met during the Keynote at the Green Summit in Sacramento last month and my apologies for not reaching out sooner. Lee forwarded me your email asking for feedback on the New Title 24 Tool - Navigator Ace. Below are my comments.

- I stepped back and started from EnergyCode Ace's homepage as a newly arrived visitor. That being said the value of Navigator Ace should be at the top of the Tool Ace page rather than on the left column. Meaning it should be proudly displayed before Form Ace. I feel this would set the stage with navigating code information.
- Consider a connection from the Navigator Ace's home page to Trigger Sheets since they are helpful with distinguishing between projects. This might help determine that pathway that is most appropriate for the respective project. <http://www.energycodeace.com>
- Might consider a link from the Navigator Ace directly to the Form Ace 2008/2013 to help streamline the registration process. Residential/Nonresidential are auto populated.
- Is it possible to overlay the Navigator Ace with a timeline or phase specific relationship? For example, using the EnergyCode Ace to show the Plan Check Phase. I sense design professionals and builders are more in-tune with time specific events.
- This is more of an overall comment, but I noticed that 'Ace' is sometime applied before and after the modifying words. Maintaining consistency.

Subject: Re: [External] Fw: New Title 24 Tool - Navigator Ace Released

Sent: Thursday, May 21, 2015 2:10 PM

To: outreach@energycodeace.com

Thank you, thank you, thank you!

Thank you,

Much Thanks

**Site Analytics: Almost
2,963 views in 3 months!**

Subject: [External] Fwd: ANNOUNCEMENT from Energy Code Ace: New Title 24 Tool- Navigator Ace Released

To: "admin@energycodeace.com" <admin@energycodeace.com>

Subject: ANNOUNCEMENT from Energy Code Ace: New Title 24 Tool- Navigator Ace Released

Date: Tue, May 26, 2015 2:46 AM

Hello,

With respect to your announcement below, there's one incorrect statement here. This issue already has a lot of confusion associated to it, and it would be useful if we all had consistent messaging.

On this linked webpage below, it states that "**Tip: Be sure to use the most current version of each software tool!**". This is a really bad tip.

http://energycodeace.com/site/custom/public/compliance-ace/NR_Performance_1.pdf

Currently, there are three approved versions of CBECC:

- CBECCv3b is used on its own for a 2D approach
 - CBECCv3b recommends the use of an old archived version of SketchUp for a 3D approach
- CBECCv3 is used with IESVE (2014 feature pack 2)
- CBECCv3a is used with EnergyPro (v6.5 I think)

Thanks,



✦ **Various Modalities:**

- ✦ Traditional Classroom
- ✦ Virtual Classroom
- ✦ Online Self-Studies
- ✦ "Decoding" Talk Series

✦ **Target Audiences/Subjects:**

- ✦ Building Dept. Personnel
- ✦ Energy Consultants
- ✦ Contractors/Installers
- ✦ Architects/Designers
- ✦ Lighting
- ✦ AC QI
- ✦ Refrigeration
- ✦ Modeling Software



✦ **Fact Sheets**

✦ **Trigger Sheets**

✦ **Checklists**

✦ **Quick References**

✦ **Useful Links**

✦ **Website**

✦ **Press**

✦ **Presentations**

✦ **Partnerships**

✦ **Word On the Street**