

# BUILDING DESIGN + CONSTRUCTION

WHERE  
TECHNOLOGY  
AND INNOVATION  
COLLIDE

JULY 2019

2019  
GIANTS ~~300~~  
REPORT 486

Innovations and Trends From  
the Nation's Largest AEC Firms

BOSTON UNIVERSITY BOOTH THEATRE  
BOSTON, MASS.

17

SGC  
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# 3 'GIANT' TRENDS FOR 2019-2020

**E**very spring, as the *BD+C* editors connect with hundreds of architecture, engineering, and construction firms for our annual *Giants 300* report (see page 17), we get a compelling snapshot of the business and project innovations—and obstacles—at the nation's largest AEC firms.

A record number of firms (483) participated in our 43rd annual *Giants* survey. Collectively, this group represents well more than half of all nonresidential and multifamily building sector design and construction work completed in the U.S. in a given year. Starting on page 18, we report on the latest business happenings and innovations at many of these firms.

Based on feedback from the 2019 *Giant* firms, we pinpointed three emerging trends and themes for 2019-2020:

**1. Firms aim to incubate innovation.**

From innovation competitions to grant programs to seed funding for startups, a growing number of firms are encouraging their employees to invent or reinvent AEC tools, services, processes, and business models. An April 2019 survey of 106 AEC *Giant* firms by *BD+C* showed that nearly half of responding firms (49%) have either implemented or are planning to implement an innovation grant/seed money program.

Last year, Burns & McDonnell (page 22) launched a “Shark Tank”-style innovation incubator, called *Ignite*. Just a few months in and the firm already has funding earmarked for projects related to AI, machine learning, advanced analytics, business intelligence, and robotics.

**2. Data wealth spurs research initiatives.**

The AEC industry isn't exactly known for its research prowess—big or little r—especially concerning occupant performance and preferences in the built environment. But

we're starting to see a shift toward research, thanks in part to the influx of data, data tools, and analytics expertise in the market.

Clayco, HOK, Magnusson Klemencic Associates, Perkins Eastman, and SOM are among the firms to partner with university teams to conduct custom research—in some cases, peer-reviewed initiatives—in recent years. As firms continue to gather and explore data on their projects and business operations, we expect to see a research rush among the AEC *Giants*.

**3. Lean moves beyond construction.**

Twenty-two years ago, the Lean Construction Institute ushered the concepts of Lean manufacturing—last planner system, 5S, 3P, TPM—into the U.S. construction market. Today, you'd be hard pressed to find a large GC or CM that isn't using some form of Lean planning on projects.

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In recent years, we've seen traditional architectural and engineering design firms and owners/developers adopt Lean—whether for efficiencies in internal/external project teaming or for space/operations planning for clients.

Barge Design Solutions, Harvard Jolly, Integrated Project Services, and Trinity all implemented or expanded internal Lean programs last year. Trinity conducts two-day Lean 3P sessions with clients, while Barge Design is using a pull vs. push schedule method to streamline internal scheduling, reduce rework, and provide clear deadlines and impacts to the team's efforts.

For the full *Giants 300* rankings and bonus categories, including complete rankings for 22 building sectors, visit [BDCnetwork.com/Giants2019](http://BDCnetwork.com/Giants2019) (short registration required).