

# UNSTATIC SPEAKERS



**JOHN LANARI**

*General Manager — Kinetics  
Enclos*



**MIKE P. MCGRATH**

*President  
MG McGrath*



**MAURE CREAGER**

*Building Science Manager  
SageGlass*



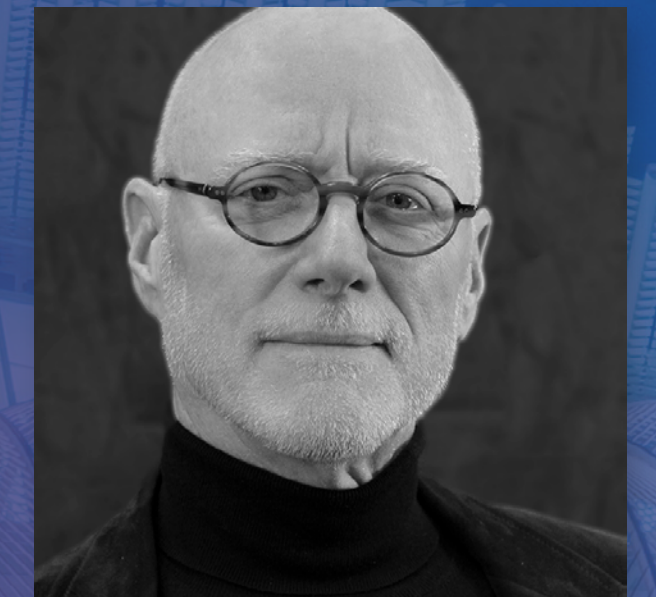
**TOM CARRUTHERS**

*Principal  
Dream The Combine*



**CLAYTON BINKLEY**

*Associate  
Arup*



**MIC PATTERSON,  
PHD, LEED AP+**

*Ambassador  
of Innovation &  
Collaboration  
Facade Tectonics  
Institute*

**John Lanari, PE**

General Manager, Enclos Kinetics

## Education:

BSME – University of Minnesota

## Work Experience:

General Dynamics Space Systems

US Steel Corporation

Uni-Systems

Enclos

# Kinetic Architecture

Earliest Installation

Current Trends

Greatest Challenge

Earliest Installation

# The Colosseum

Rome, Italy



Construction:

Start 72 AD

Completion 80 AD

Purpose:

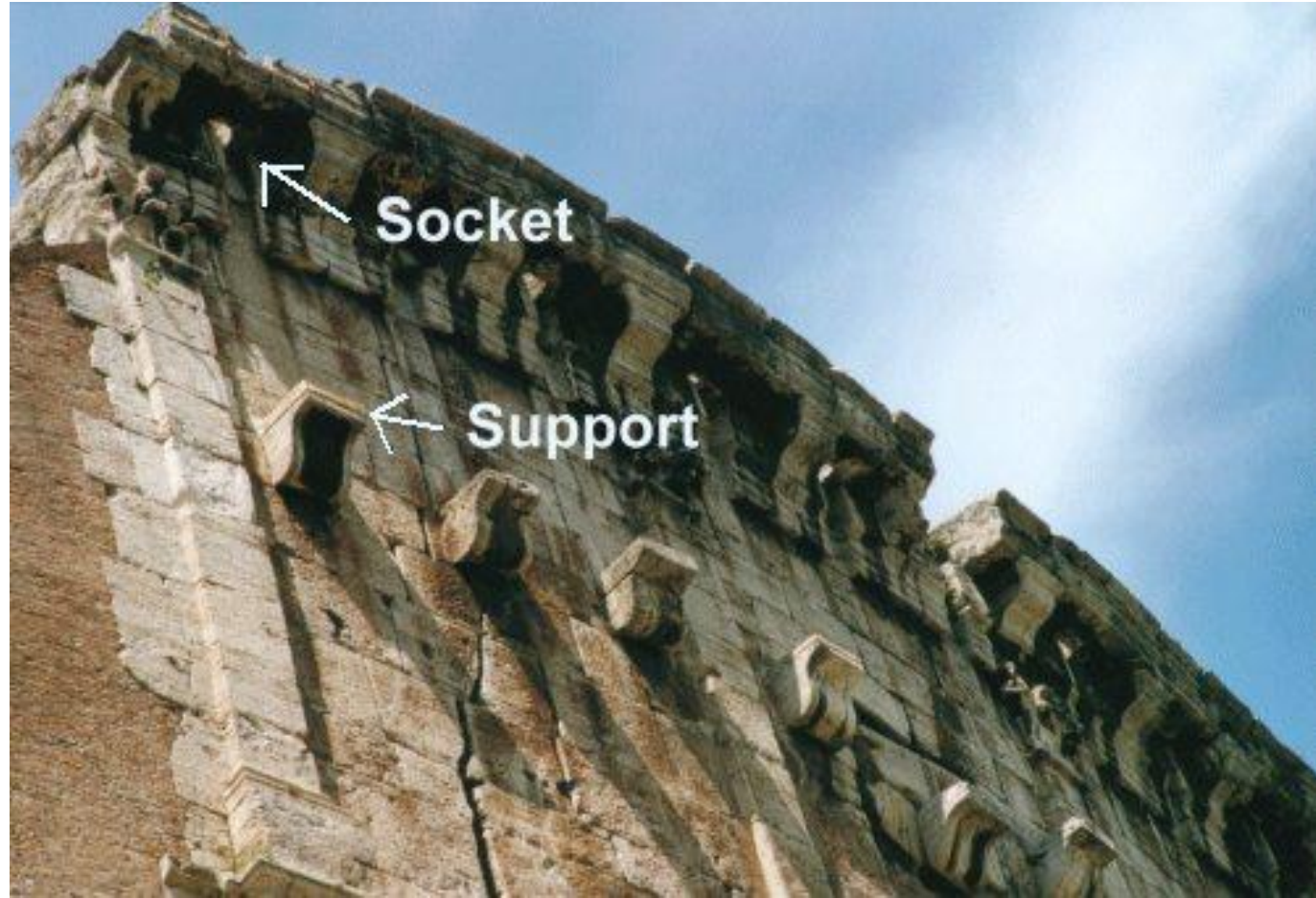
Gladiator Fights

Wild Animal Hunts

Public Executions



Theorized 3D reconstruction with retractable sailcloth awning (velarium)



Velarium supported by 240 wooden columns set around the stadium

# Current Trends



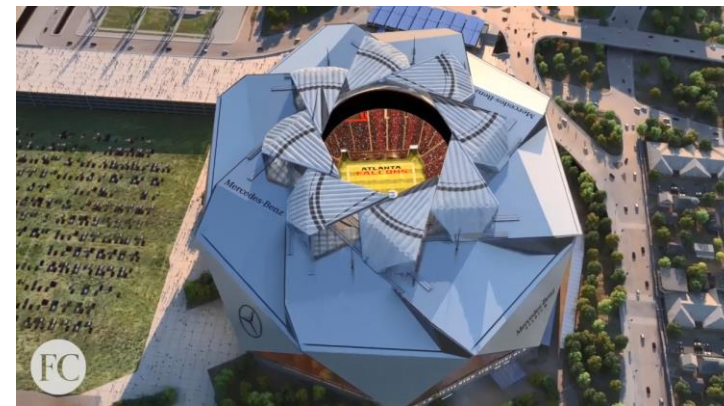
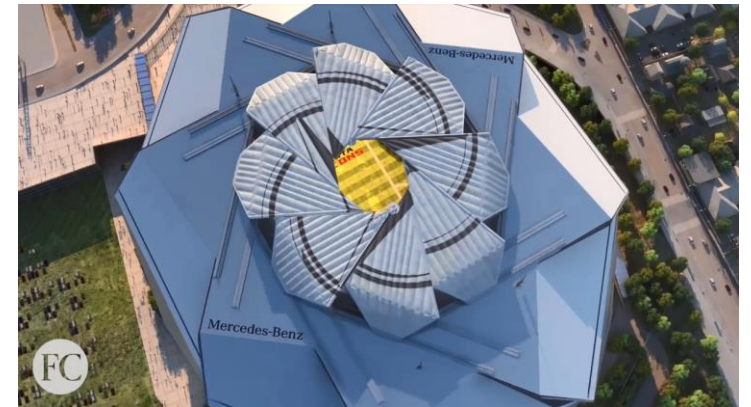
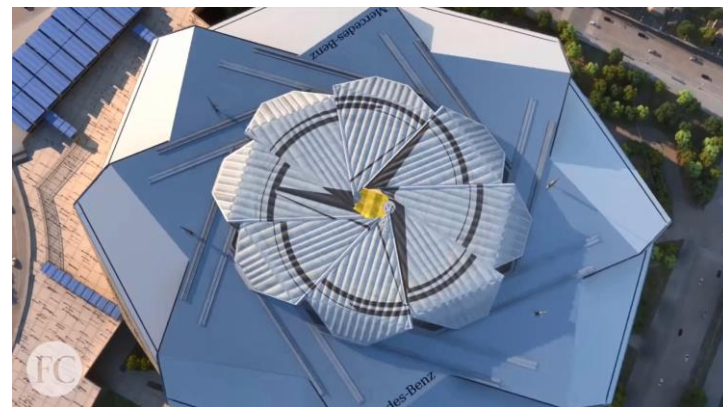
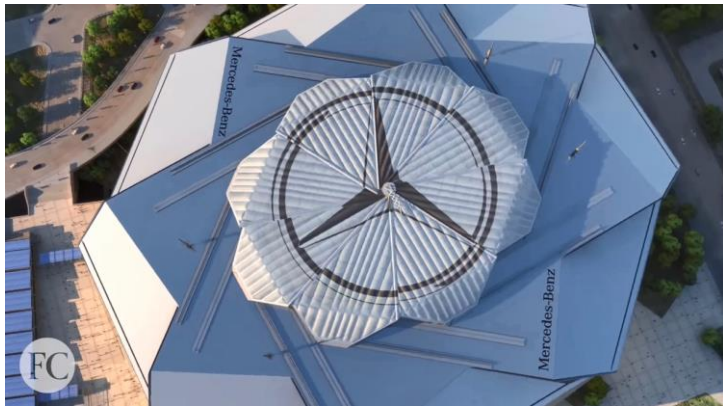
HNTB, MANICA Architecture

## Las Vegas Stadium

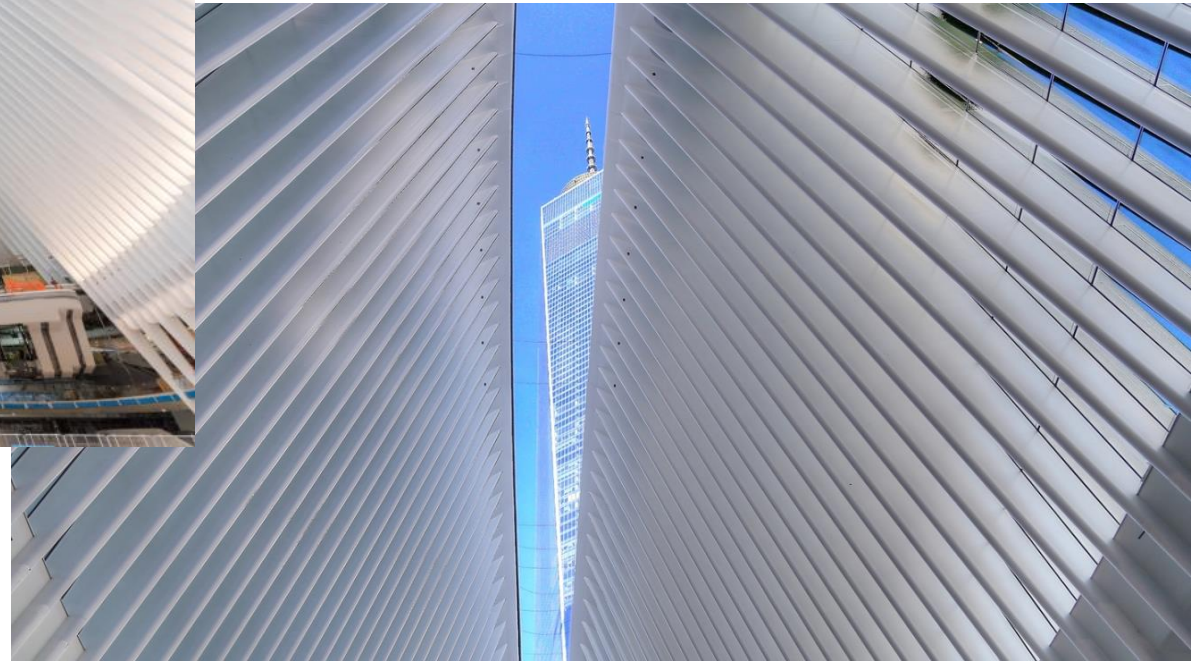


HOK, tvsdesign, Goode Van Slyke  
Architecture and Stanley Beaman & Sears

## Mercedes Benz Stadium



Mercedes Benz Stadium



Santiago Calatrava

## World Trade Center Transportation Hub

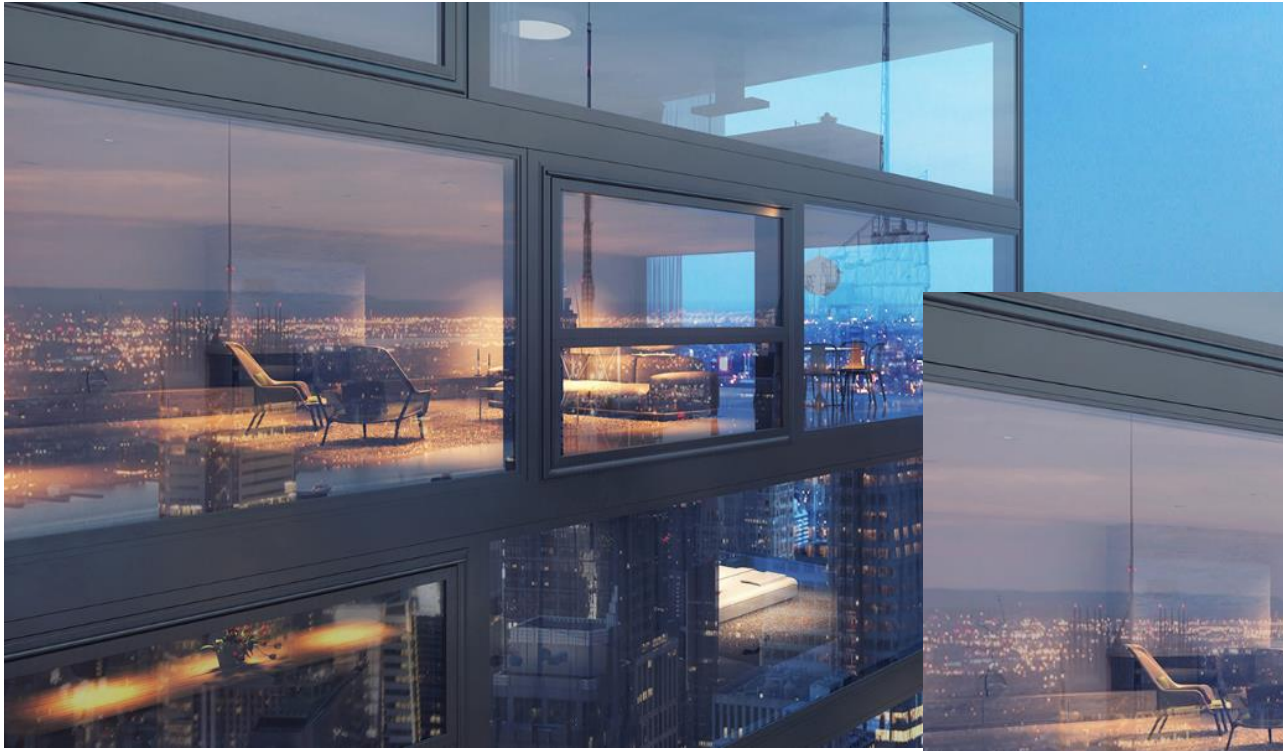


AHR Architects

## Al Bahr Towers Solar Shading



Al Bahr Towers Solar Shading



HofmanDurfardin Architects

## The Bloomframe Window

**Greatest Challenge**

\$

## Kinetic Feature Requirements to Provide Acceptable Cost to Benefit Ratio

- Base structure design
- Simple kinetic design
- System (not component) design

To: Architect

From: Engineer

Re: Kinetic Architecture

You conceive it, we'll make it work.

Thank You!



**MIKE P. MCGRATH**

*President*  
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# Presentation Unavailable

The SageGlass logo consists of the word "SageGlass" in a white, sans-serif font, centered within a solid yellow square. The background of the slide features a pattern of overlapping, semi-transparent yellow diamond shapes that create a sense of depth and movement.

SageGlass®

# Dynamic Facades

Trends in Dynamic Glazing

M Creager Façade Tectonics April 15, 2019

SageGlass®



Photograph courtesy SAGE Electrochromics  
Photograph © Susan Fleck Photography



# Dynamic Glazing Multi-Comfort



  
SAINT-GOBAIN  
**CertainFeed**  
SOLUTIONS

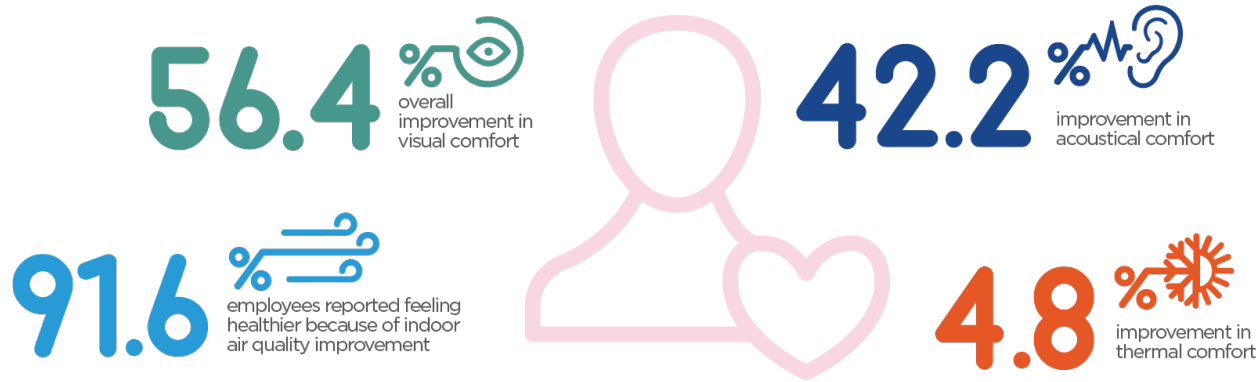
# Study Methodology



- Occupants' experiences were analyzed pre-, during and post-retrofit by employing the Indoor Environmental Quality (IEQ) ToolBox developed by the HiPE lab at the University of Oregon, which managed all elements of the study
- IEQ parameters measured include indoor air quality (IAQ), thermal comfort, visual comfort, acoustical comfort, overall satisfaction and productivity

# Building Results Overview

## HQ OCCUPANTS REPORTED



### Productivity Benefits

Employees reported feeling **38.9%** more productive **22.5%** of employees felt it was easier to do their jobs in the Malvern HQ

### Overall Multi-Comfort Benefits

Overall, occupants reported a **26.3%** improvement for all Multi-Comfort factors, including visual comfort, acoustical comfort, thermal comfort and spatial comfort

### Health Benefits

Employees have experienced a **53.7%** improvement in perceptions of health and well-being

The HQ is also Double LEED Platinum

# Visual Comfort and Dynamic Glazing

How is “visual comfort” defined and delivered?

- Sufficient daylight & proper light spectrum (e.g. Circadian)
- Control of glare
- Views to the exterior (ideally of natural elements)

# How did the HQ perform with visual comfort?



- Spatial Daylight Autonomy (sDA), the amount of space receiving usable daylight during annual occupied hours, increased from 25% to **85%**
- Daylight Glare Probability (DGP), the brightness of and sources of glare, decreased from 40% to **10%**
- **92%** of team members have access to daylight and views of nature
- While not the only factor, dynamic glazing was a major contributor to enhanced visual comfort.



# Dynamic Glazing – Digital Design



SageGlass®

# Dynamic Glazing An Amenity

# Dynamic Glass as an Amenity

What it means to be in The Luminary

## THE AMENITIES



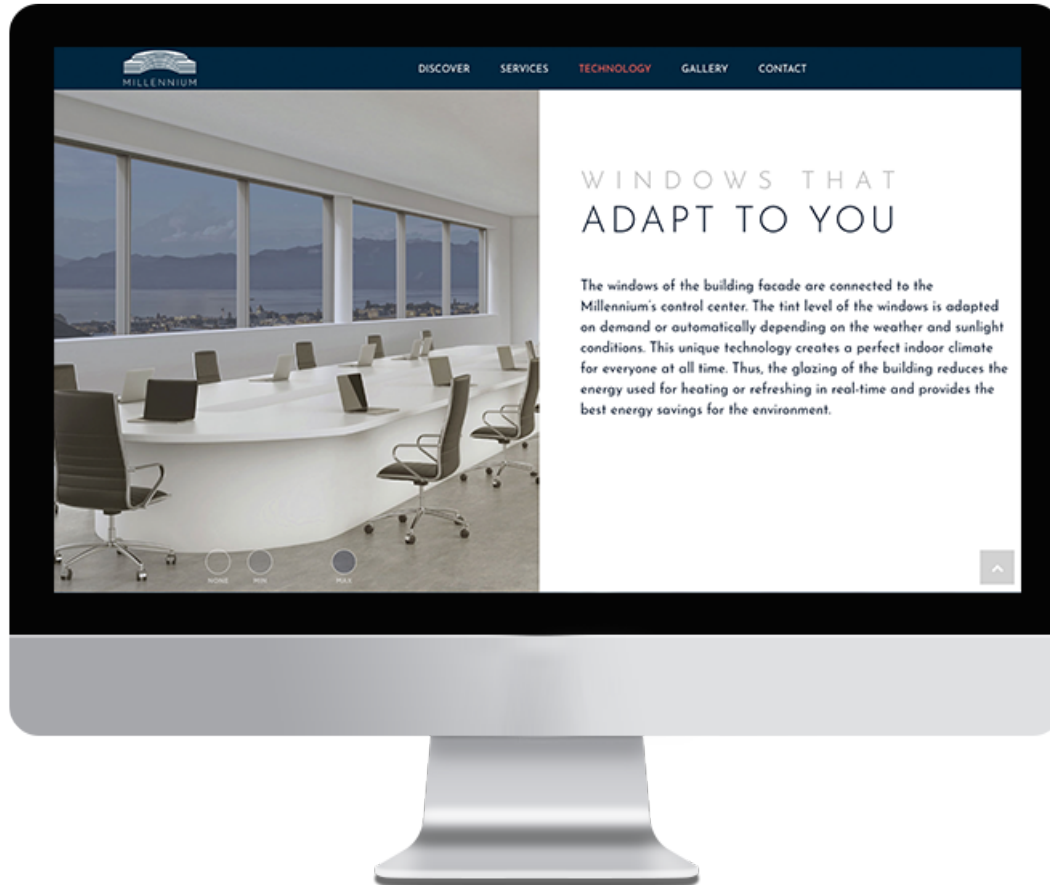
- Top 15 US architecture firm Corgan is designer and anchor tenant of “The Luminary” office building in Dallas, TX
- Situated in Dallas’ West End district, a creative and tech hub, seeking tenants willing to pay for premium amenities
- Developer/Owner Crescent Properties features dynamic glass as an amenity
- Using 2,200 m<sup>2</sup> of dynamic glazing

## THE MAGIC OF SageGlass.™

SageGlass tints on demand, controlling and combatting the sun’s inherent side effects in the form of solar heat gain and glare to improve occupant comfort and productivity, all while helping to improve building performance.



# Dynamic Glass as an Amenity



# Next gen dynamic glazing



## Elegant & Seamless Solar Control

- Gradual, natural in-pane tint transition from fully clear to fully tinted plus intermediate tint states
- Provides precise control of glare and heat while maximizing available daylight
- Neutral interior color rendering
- Tint transition can shift from top-bottom or bottom-top, to control heat and glare exactly where it is needed



SageGlass®

SageGlass Harmony on Millennium Center



SAINT-GOBAIN



SageGlass®

SageGlass Harmony 18% VLT (top) to  
60% VLT (bottom)



SAINT-GOBAIN



We are no longer just making better materials.  
**WE ARE LINKING THAT TO  
THE HUMAN EXPERIENCE...**

Maure Creager

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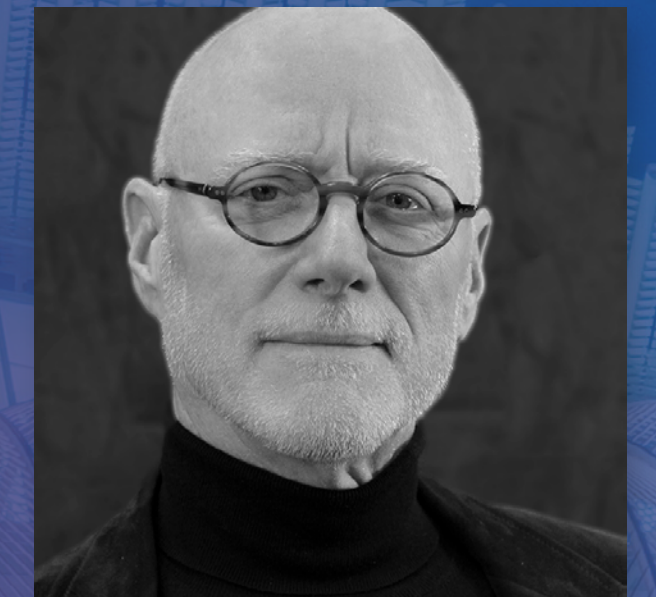
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