

**Project:**

*Rosenthal Center for Contemporary Art*

**Location:**

*Cincinnati, Ohio*

**Owner/s:**

*Lois & Richard Rosenthal Center for Contemporary Art*

**Concrete Producer:**

*Hilltop Basic Resources*

**Construction Manager:**

*Turner Construction*

**Concrete Contractor:**

*Baker Concrete Construction, Inc.*

**Architect:**

*Zaha Hadid*

**Requirements:**

*Compressive Strength:  
3,000 psi (21 MPa) @ 3 days  
6,000 psi (42 MPa) @ 28 days*

**Products Used\*:**

*MasterGlenium® 3030 – high-range water-reducing admixture  
MasterMatrix® VMA 358 – viscosity-modifying admixture*

**Market Sector:**

*Ready-mixed concrete*

## Project Profile

### Self-Consolidating Concrete

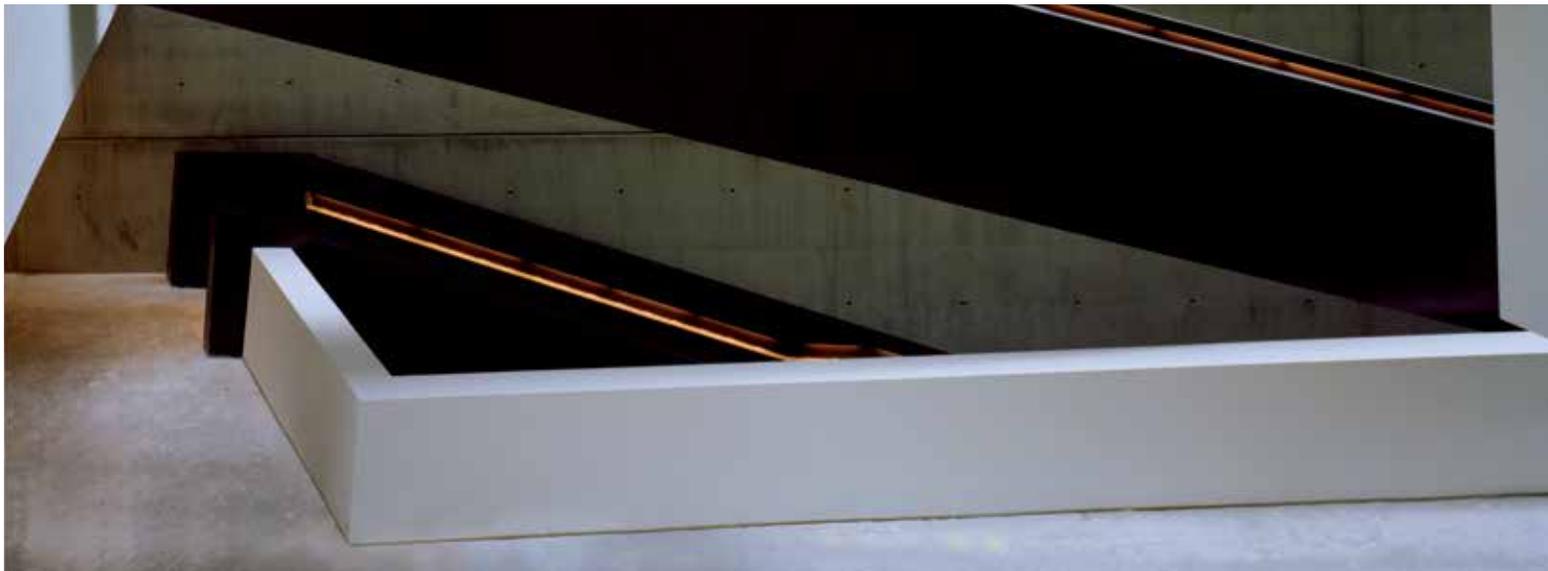
#### Rosenthal Center for Contemporary Art



All photos courtesy of CAC

### The Background

The Lois and Richard Rosenthal Center for Contemporary Art in downtown Cincinnati, Ohio, the new home of Cincinnati's Contemporary Arts Center (CAC), has been designed to "embody the institution's ongoing role as a promoter of daring and farsighted artistic strategies." Internationally-acclaimed architect Zaha Hadid has created an exciting, open-ended structure that was "conceived as a large floating plane that slopes gently upward toward the back of the building, the ground level transforms into a series of ramps that lead up to the galleries." The 80,000 square foot (7,430 m<sup>2</sup>) space is five stories high and sits snugly between existing structures in the downtown landscape.



Because of the unique design, contractors faced major construction challenges trying to ensure proper consolidation of concrete for structural integrity and improved aesthetics. In this application, self-consolidating concrete made with BASF's Master Builders Solutions brand MasterGlenium and MasterMatrix VMA admixtures provided the necessary flow and stability to ensure a perfect finish that is...well...a work of art!

## The Challenge

One component of the design of this building was a roll-up that resembled a 96 ft (29.3 m) skateboard ramp and connected the wall to the floor. The form for this curved roll-up provided very little access for internal vibration.

Formwork for structural diamond shaped columns consisted of square column forms with plywood inserts to create their diamond shape. The form detail resulted in "dead areas" on two sides that restricted access for proper vibration of the concrete.

## The Solution

In order to ensure proper consolidation and to minimize surface blemishes, self-consolidating concrete, using a blend of aggregates, was selected for both the roll-up section and the diamond-shaped columns.

## SCC Mixture Proportions

|                       |   |
|-----------------------|---|
| Cement, Type I        | 750 lb/yd <sup>3</sup> (445 kg/m <sup>3</sup> )   |
| Coarse Aggregate, #57 | 1,000 lb/yd <sup>3</sup> (593 kg/m <sup>3</sup> ) |
| Coarse aggregate, #8  | 500 lb/yd <sup>3</sup> (297 kg/m <sup>3</sup> )   |
| Fine Aggregate        | 1,500 lb/yd <sup>3</sup> (890 kg/m <sup>3</sup> ) |
| Water                 | 300 lb/yd <sup>3</sup> (178 kg/m <sup>3</sup> )   |
| w/cm                  | 0.40  |
| s/a                   | 0.50  |

## Admixtures

|                      |                                |
|----------------------|--------------------------------|
| MasterGlenium 3030   | 12.0 fl oz/cwt (780 mL/100 kg) |
| MasterMatrix VMA 358 | 1.5 fl oz/cwt (100 mL/100 kg)  |

## More Information

The Master Builders Solutions brand brings all of BASF's expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring solutions.

\*Effective January 1, 2014, the names of BASF's Master Builders Solutions brand products have changed:  
Glenium 3030 NS became MasterGlenium 3030  
Rheomac VMA 358 became MasterMatrix VMA 358

## Contact

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