

# BIM: Concrete Contractor's Golden Opportunity

## INDUSTRY

Concrete Construction

## SUMMARY

Building information modeling (BIM) is rewriting the book on how buildings are designed and built, adding unprecedented levels of digital precision and visual understanding. The construction trades, including concrete contractors, stand to reap huge business benefits from BIM enablement. Leica Geosystems, a global provider of BIM construction solutions, has emerged as the go-to resource for the concrete construction industry's BIM migration.

## ANALYSIS

The digital revolution has transformed nearly every industry, from manufacturing and communications to information technology and finance.

The construction industry has largely escaped the disruptive effects of digital transformation—until now. An historic sea change of process transformation is underway across the construction trades. Recent studies report an overwhelming majority of contractors have integrated BIM technologies into their workflow. For concrete contractors and other construction trades, BIM is re-inventing 2D processes with 3D digital precision, speed and economy.

Why is BIM becoming increasingly critical for growth-minded concrete contractors? Can a concrete contractor really profit from BIM processes in the field? A brief examination:

- **Competitive Differentiator.** It's no secret owners and general contractors are driving BIM field adoption. Cathi Hayes, Leica Geosystems NAFTA BIM Business Manager and BIM thought leader, cites an example: "Holder Construction, a general contractor based in Atlanta, GA, self-performs some concrete work. They use Leica total

stations to lay out every aspect of the concrete work in multi-story office buildings. They also use scanners to perform some QC work by comparing the point cloud image with the model. The back-check identifies as-built deviations quickly, saving modification time and expense. No plumb bob or tape measure can match scanning speed and precision. General contractors like Holder increasingly expect BIM compliance from their subcontractors." Industry studies confirm project team selection often turns on BIM capability. *Net:* To compete, adopt BIM.

- **Jobsite Excellence.** The quickening pace of BIM-generated success stories provide ample proof BIM's role in the field will only escalate. Cathi Hayes: "At One World Trade Center, project teams placed every single piece of the building structure utilizing highly coordinated BIM data in combination with Leica construction layout solutions. As-built conditions were quickly identified and evaluated as needed. T.U. Parks, a large Chattanooga, TN-based contractor, used Leica Geosystems construction layout and QC solutions to build a complex curved hospital addition entryway with a 700 foot radius. You can't use a tape measure to lay out large radius curves of that magnitude—it's just not possible. Using BIM data from the project's architects and engineers combined with a Leica iCON robotic total station, Parks made a once-impossible task a breeze. *Net:* BIM expands concrete contractor field capability, services and project engagement opportunities.



## CONCLUSION

Few today dispute BIM's operational value. What started as a design creation solution has swiftly evolved into an entire ecosystem for the construction industry. For the construction trades—especially concrete contractors—the promise of BIM is golden with business-building opportunity.

Leica Geosystems has extensive experience helping concrete contractor gradually evolve to BIM compliance. BIM construction specialists at Leica Geosystems are uniquely qualified to tailor BIM solutions to the contractor's needs and budget.

Leica Geosystems experts make it surprisingly easy to gradually integrate BIM into the contractor's workflow, offering a wide array of entry ramps and scalable solutions, ranging from paper and 2D to 2.5D and full BIM. ●

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### For More Information:

[www.concreteconstruction.net/BIM-learning-center/leica/](http://www.concreteconstruction.net/BIM-learning-center/leica/)

### To Contact Your Leica Geosystems Representative:

[www.leica-geosystems.com/contact](http://www.leica-geosystems.com/contact)

# Transforming Concrete Construction with BIM

Leica Geosystems offers concrete contractors an easy on-ramp to BIM advantages



**Cathi Hayes**  
NAFTA BIM  
Business  
Manager, Leica  
Geosystems

Cathi Hayes is an architect, building information modeling (BIM) pioneer and strategy leader. Today she drives BIM adoption throughout the North American construction industry with Leica Geosystems hardware and software solutions. Her duties include the development and implementation of short- and long-term BIM marketing strategies. She also serves as the voice of Leica Geosystems in the construction industry's growing BIM conversation. Cathi holds degrees from North Carolina State (BEDA Architecture) and the University of Kansas (PBA).

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Concrete construction is undergoing a rapid digital transformation. Long-held design and construction processes are rapidly giving way to digital building information modeling (BIM). Cathi Hayes, Leica Geosystems BIM Business Manager and BIM thought leader, discusses the opportunities and challenges now facing concrete contractors.

## ? What is BIM?

Building information modeling (BIM) is a process with enabling technologies—at the core is an intelligent model that the entire project team utilizes to achieve higher quality design and construction, resulting in less schedule and budget changes. Building designers use our laser scanners, total stations and software solutions to inform the BIM model with as-built reality capture. BIM is a very powerful way to design and build. Unfortunately, BIM usually stops at the construction office with pre-construction coordination. It never makes it to the field. The digital model must be translated to 2D for the construction teams. Translation means errors, misinterpretation and no way to benefit from the 3D model.

Leica Geosystems makes it surprisingly easy for concrete contractors to put BIM to work in the field. Adopting a BIM process means more than building more efficiently... it's also a way to stay relevant and competitive in a rapidly-evolving industry.

## ? What is the value of BIM in concrete construction?

BIM-based construction offers faster, more accurate construction results, drastically reducing rework and liability issues. The highly coordinated data model provides a very accurate and visual representation of the building to be constructed. This can be literally projected onto the construction site, bringing the accuracy in the office to the field. One World Trade Center is

a good example. All concrete and steel structural elements were placed using our solutions and the placement was verified (QA / QC) using Leica Geosystems total stations.

We call our BIM solution concept the BIM Field Trip. The Field Trip is a two-way process that captures reality to BIM and projects BIM into reality. Leica Geosystems scanning hardware and software informs the 3D model with a highly-accurate as-built point cloud. New design models are built around the as-built point cloud and then literally projected onto the job site bringing BIM to reality. During construction, comparing the as-built point cloud against the as-designed model and immediately identifies deviations and heads-off expensive downstream coordination issues in the field.

You can't achieve this kind of accuracy with a plumb bob and tape measure, especially with today's non-geometric designs and demanding construction schedules. BIM in the field means new levels of construction accuracy, speed, confidence and savings.

## ? What is the biggest BIM misconception?

That's it's difficult to get started. It's not. We offer many entry ramps and scalable solutions for nearly any budget and timeline.

Frazier Masonry in southern California is a good example. They came to us and said, "How do we start?" We showed Frazier how to gradually move from paper to digital in a controlled progression. They love our solution. It's simple, easy to use and the learning curve is low. They saw how to perform field measuring much faster, easier and more accurately.

I encourage anyone that's considering BIM to talk to your Leica Geosystems rep. You'll be surprised by how affordable and easy it is to 'go BIM.' ●

# Concrete Contractors Punch a Winning Ticket with Leica Geosystems' **BIM Field Trip**

Early adopters report big gains in project speed, performance and profits

“Not to be trite, but this is a game changer.”

The speaker: Architect, building information modeling (BIM) pioneer and Leica Geosystems strategy leader Cathi Hayes on what the BIM revolution means to concrete contractors.

“BIM has revolutionized construction industry communication. Data, specifically digital data, is the new operating language for architects, structural engineers, general contractors and the construction trades – specifically concrete contractors,” Hayes observes.

“I never imagined the BIM transformation would come this far, this fast,” Hayes says.

A long-time BIM advocate, Hayes is now helping lead the charge at Leica Geosystems with a solution called the BIM Field Trip.

The BIM Field Trip re-imagines how construction workflow runs with an elegant two-way data exchange:

- Bring reality to BIM
- Bring BIM to reality

“The business benefits to the concrete contractor are impressive,” Hayes says about the BIM Field Trip. “Consider a BIM-enabled layout. Now concrete contractors can finally retire the plumb bob and measuring tape in favor of digital precision, speed and economy. Instead of a three- or four-person survey team, a single person now does the same work with superior results.

“Imagine you’re a concrete contractor making as-built comparisons with the BIM (building information model) in real-time. No delays. No hassles. Suddenly as-built deltas can be

precisely evaluated and modified, if need be, on the fly. You know what extra project velocity means to schedules, budgeting and heading-off downstream coordination issues.”

Hayes illustrates how early field BIM adopters are dramatically moving the performance needle. She cites a series of projects, from the iconic One World Trade Center in Manhattan to work from respected contractors Frazier Masonry in southern California, Holder Construction Group in Atlanta, GA and T.U. Parks in Chattanooga, TN as prime examples of the Leica Geosystems BIM Field Trip at work.

“No one disputes BIM’s coordination, layout and QC power. But job site enablement has been the sticking point. How do you move BIM past pre-construction the construction office? The BIM Field Trip clears the last hurdle with a proven, surprisingly affordable solution,” Hayes reports.

**So, the question: Is this the time to make your BIM move?**

“I completely understand why some concrete contractors might hesitate,” Hayes continues. “To them, I say judge BIM enablement for yourself. The team at Frazier Masonry had the same tough questions about BIM-budgeting, upgrade path and learning curve that most do. Frazier loved how we tailored a solution that works for their level of BIM adoption, budget, timeline and team.

“Let’s face it. It’s no longer about if. It’s all about when with BIM. There’s never been a better time to consider your BIM options.” ●



**About  
Cathi Hayes**  
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Cathi Hayes is an architect, building information modeling (BIM) pioneer and strategy leader. Today she drives BIM adoption throughout the North American construction industry with Leica Geosystems scanning, construction layout and software solutions. Her duties include the development and implementation of short- and long-term BIM marketing strategies. She also serves as the voice of Leica Geosystems in the construction industry’s growing BIM conversation. Cathi holds degrees from North Carolina State (BEDA Architecture) and the University of Kansas (PBA).

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# 10 Reasons

## Why LEICA GEOSYSTEMS Is the Concrete Contractors' Go-To BIM Source

As a concrete contractor, your ability to win project bids often turns on your compliance with industry best practice. One key differentiator in a crowded contractor marketplace is building information modeling (BIM). The fact is, more and more owners and general contractors expect BIM-compliance in their project team selection process.

What is your BIM capability? Are you equipped with the hardware and software solutions you need to effectively compete for a growing wave of BIM-based jobs? Are you keeping pace with BIM-savvy competitors?

Today Leica Geosystems is the building construction trades' go-to source for BIM-enablement. Here are 10 reasons why Leica Geosystems should be on your short list as you consider BIM partners:

- 1. Proven Performance.** Leica Geosystems scanning, total station and software tools currently play a central role in hundreds of jobsites worldwide, from small- and large-scale building construction to massive public works projects.
- 2. Proven Technology.** Scanners, total stations and software from Leica Geosystems are the industry gold standard BIM-ready excellence.
- 3. Proven Support.** Leica Geosystems stands with you with a fail-safe support team. It starts with a legendary reputation for quality and continues with a newly-expanded U.S. support center, online technical support and Leica Geosystems' extensive local network of distribution partners

**4. Proven Compatibility.** Imaging software from Leica Geosystems operates natively within mainstream BIM solutions from Revit and AutoCAD, meaning unmatched speed and accuracy in comparing the as-built with the 3D model.

**5. Proven R&D Leadership.** Your investment in Leica Geosystems technology is protected by one of the industry's most aggressive R&D programs, keeping you current with updated BIM-related software, imaging and layout hardware advancements.

**6. Proven Reliability.** Our technology is continuously field-tested under the harshest conditions, from the tropics and war zones to high altitudes and sub-freezing weather with exceptional dependability. All Leica Geosystems tool are made exclusively in Leica Geosystems manufacturing facilities—never farmed-out to OEMs.

**7. Proven Ease.** Leica Geosystems presents an assortment of easy-entry options to BIM enablement. Even if you're new to BIM, Leica Geosystems has solutions that make first steps confident, productive and affordable.

**8. Proven Scalability.** BIM solutions from Leica Geosystems are tailored to your needs and budget. Our comprehensive array of construction solutions makes it

easy to gradually ramp-up your BIM services and expertise, whether you're new to BIM or seasoned veteran.

**9. Proven Understanding.** Our hardware and software solutions have always served as an integral part of the BIM field solution. Our processes are engineered from the ground up to support project excellence, from BIM-based layout to as-built QC with the model.

**10. Proven Name.** Leica Geosystems, based in Switzerland, is a global company with tens of thousands of customers supported by more than 2,400 employees in 21 countries. Our 200-year history of geospatial positioning excellence is extra peace-of-mind as you weigh your options.

When the stakes are your ability to compete in a rapidly-evolving industry, doesn't it make sense to rely on the first name in BIM construction solutions for concrete contractors? Make the business-smart move. Contact your Leica Geosystems rep today. ●



C-Tech, Holder Construction

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