HNTB
A greener future with BIM

“Sustainability begins with really understanding how you will use a building. BIM lets you model the space and run analytics so you can make sure the building will efficiently support the people who use it.”

— **Eddy Krygiel**
Director of Design Technology
HNTB

An employee-owned firm, HNTB delivers infrastructure-focused engineering and architecture services to clients in the public and private sectors. The firm was founded in 1914 and is celebrating 100 years of providing infrastructure solutions. Architect Eddy Krygiel, HNTB’s director of design technology, is the author of three books about Building Information Modeling (BIM). This interview was conducted at Autodesk University 2013.

Q: What is the role of BIM at HNTB?

A: Everything we do, we do in BIM. For us, BIM started out as a way to create a better set of coordinated documents. When using 2D CAD, you had to check and cross-check everything repeatedly. It was frustrating and time consuming. BIM has evolved into a way to virtualize all the content related to the building, not just the geometry. It’s not just a documentation or coordination tool anymore. We can use the intelligence that’s built into the model to do things like area and square footage calculations, energy and daylighting analysis, and more.

Q: How has BIM changed the collaborative process?

A: The single biggest change is in how we share information. We’re no longer exporting 2D backgrounds and sharing them back and forth. Instead, we’re sharing a model that has all the elements of a building. Interestingly, we thought we’d have to talk less with BIM, but we actually talk more. The model lets you see behind the curtain of what everyone else is doing. Someone could drop a bunch of mechanical equipment into the model that they plan to move later. Well, that’s going to lead to a conversation because it’s going to be in the way of other people’s work. You have to communicate and coordinate as you go. The end result is a higher-quality design—one the whole team has a better understanding of throughout the process.

Q: What are some of the top business benefits your firm has received from BIM?

A: There's definitely the low-hanging fruit of better documentation, collaboration, and communication. Beyond that, there's more trust across the project team. In terms of long-term benefits for us as a firm, we're seeing more repeat clients. Being able to showcase a success on one project always helps to win another one.

Q: How do you see BIM benefiting clients and projects as a whole?

A: Clients pay quite a bit of money for the models that project teams create to design and construct buildings. There's no reason why owners shouldn't be able to leverage that information after a project is built. So, I'd like to see more use of BIM for facility management and over the life of the building. Nobody ever uses the building exactly the way they plan to throughout its life. Things happen, times change, technology changes, and building uses change. The building model can make accommodating those changes easier.

Q: You've written a book, *Green BIM*, about sustainable architecture and BIM. How do you see BIM helping to address environmental issues?

A: I have a long-standing relationship with sustainability. The house in Kansas City, Missouri, where I live is the first LEED house in the city. I try to live the message. Sustainability begins with really understanding how you will use a building. Then, you look for ways not only to make it more energy efficient, but also more comfortable for the users. When people are comfortable, they're not running space heaters because their part of the building gets too cold when the air conditioner is on. BIM lets you model the space and run analytics so you can make sure the building will efficiently support the people who use it.

Q: How do you see BIM helping to enable more sustainable buildings?

A: Let me draw a contrast between a traditional approach to sustainability and what we can do today with BIM. One of the first projects I worked on as an architect was a large building for a university. We had different models that we built for daylighting and energy analysis. And by models, I mean clay models. Different specialists worked on their models as the designs progressed in 2D. Trying to manage and integrate what the specialists were working with the evolving design was incredibly cumbersome. It was a level of effort that wouldn't have been practical on the average project. BIM democratizes sustainable design and makes it accessible on every project. Architects can analyze daylighting and energy as they work. There's still a role for experts, but BIM can help make sustainability a part of every decision earlier in the design process.

Q: Looking into the future, say several years from now, what's the state of BIM?

I see more owner mandates and increased owner expectations that building models encompass more content. Owners will decide what content they need to manage their facilities. Also, as an industry, we're becoming more focused on energy efficiency and sustainability. BIM makes available analysis capabilities that have the potential to catapult the industry to the next level on both fronts.