



# Hennon Group Architects

Your Design Team

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## So, what the heck is this "BIM" thing?

How does BIM benefit my project team?



Case Food Inc. Troutman, NC

Building Information Modeling (BIM) is the collaborative process of creating and managing project data during the life of a building or project. A multi-dimensional, dynamic Building Information Model (BIM) is created to continually analyze and refine a project. This model can be engaged by architects and engineers during the design phase, contractors during the construction phase, and owners are involved throughout the entire process by allowing all parties to fully visualize and promote the project, procure funding, view life cycle analysis, and use it for facility management after completion.

The radical, technological jump from hand-drafting to computer-aided drafting (CAD) parallels the transition from CAD to BIM. Project delivery is enhanced by this emerging technology and methodology benefiting all involved parties. It is important to understand that BIM is not simply a 3D model of the building's design.

BIM combines almost infinite dimensional properties to best create, analyze, construct, and verify a project. Different companies and disciplines are also beginning to define their own dimensions. For example, the U.S. General Services Administration (GSA) has specified dimensions for procurement (6D) and energy analysis (7D). Code analysis is sometimes referred to as 6D by some entities and may one day be used by jurisdictions for fully digital permit reviews. These dimensions are not meant to be sequential but illustrate the multiple facets and opportunities available.

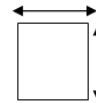
The use of BIM creates numerous benefits for all team members including the architect, engineer, contractor, and owner. One of the overarching reasons for the adoption of BIM technology is collaboration. Various and dissimilar disciplines can work together in a coordinated and cohesive manner to produce a fully-realized, virtually constructed project well before groundbreaking.

### Dimensions of Building Information Modeling

**1D:** A single Point



**2D:** These views show height and width, width and depth, or height and depth. Included in these views are floor plans, elevations, and sections.



**3D:** Height, width, and depth are illustrated simultaneously. These views can be used to create walkthroughs and renderings as well as represent visual information.



**4D:** Integrating time (scheduling) introduce project sequencing and phasing through detailed timelines and/ or time-lapse graphics.



**5D:** Costs and Budget tracking is used to create more accurate takeoffs and verify the feasibility of a project and its components.



**XD or nD:** Other aspects and/ or analysis such as safety, energy, procurement, air quality, lighting, etc.



Existing and proposed dimensional definitions as applied to BIM

During design, BIM software programs can help team members identify problems through clash detection and other analyses, ultimately reducing the number of potential change orders during construction. By creating less room for error, the project is completed quickly and efficiently. Through the added dimension of time (4D), project schedules are automatically updated for any changes that have occurred to an object within the project. Graphic timelines can also be created, improving job site productivity by visually presenting required installation sequences and priorities. With 5D technology, BIM can create more accurate cost estimates of materials, human resources, and other structural components. Takeoffs can be done in just a few hours for site and building modifications. This short time period aids both the contractor and the owner by quickly finding the best and most budget-friendly solution for a project. Integrated software also allows for thorough energy analysis, providing a medium to review sustainable design principles and needed documentation for certification programs such as LEED (Leadership in Energy and Environmental Design). BIM can also be used for code verification and increased safety by evaluating data for fire alarm, sprinkler, and escape route locations.

Depending on the entity, BIM may be implemented in-house or contracted through consultants, design professionals, or contractors. By introducing BIM in-house, its collaborative principles become part of the company's fundamental business model and are operated on the scale and scope of the need. Consultants may be contracted for services as needed and can also act as a transition resource for in-house BIM program development. Design and construction professionals offer the value of day-to-day experience when working on a BIM project, doing what they do best.

For owners and developers, BIM offers enhanced feasibility and utilization studies based on the realities of a project and site, producing real numbers in real time. Lease and tenant improvements, commissioning and green building documentation can also be managed through this same technology. Design professionals benefit from the collaborative opportunities available through comprehensive coordination and management as well as the ability to relate design ideas to the client through graphics for faster milestone approvals. Contractors are able to produce more accurate cost-estimates and takeoffs faster and earlier in the process.

Virtual construction phasing and fully integrated, real time information allows all team members to continuously track the project from inception through post-occupancy. Although most beneficial when introduced at project inception, BIM may be implemented as late as post-occupancy in the form of as-built packages for owners and facility managers.

To learn more about BIM and how your team could benefit through this technology, please contact Scot Hennon at Hennon Group Architects or BIMinc.

<p><b>About Hennon Group</b>  Hennon Group Architects (HGA), based in Mooresville, North Carolina, is a full service architecture and interior design firm that provides retail and commercial design services nationwide. The firm specializes in upscale factory outlets, big box stores, and neighborhood centers</p>	<p><b>About BIMinc.</b>  BIMinc is a firm dedicated to the comprehensive construction of 3D graphical models layered with building data that is indispensable in today's construction market. BIM is beneficial to all aspects of the building. BIMinc can incorporate drawings and information into a complete comprehensive package and graphical model that can be transitioned over to facilities management teams for continued tracking throughout the life of a project. BIMinc services include pricing models for owners and general contractors, conversion of 2D construction drawings to 3D building information models, shop drawings, project delivery schedules, coordinated construction documents, professional renderings, interior coordination, furnishings and equipment tracking, space planning and upfit modeling, and comprehensive takeoffs for cost estimating.</p>
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