



BIM Milestones at Limbach

1999

Limbach starts using 3-D fabrication software.

2002

Limbach prepares engineering drawings in 3-D for Pentagon Library & Conference Center in Washington, DC.

2005

Limbach uses 3-D drawings for 3-D coordination with structural, electrical, and fire protection trades at Bakersfield Memorial Hospital in Bakerfield, CA.

2006

Limbach incorporates 3-D, 4-D, & 5-D modeling for the California Science Center.

2009

Limbach utilizes the full application of BIM on design build projects from engineering, through coordination to fabrication throughout all locations.

For additional information on BIM visit:

www.limbachinc.com



Limbach is an environmentally conscious company

Limbach Embraces BIM

LIMBACH

Since 1901 *Consistently Exceeding Expectations*

LIMBACH
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**HARPER
LIMBACH**
Since 1901 *Consistently Exceeding Expectations*

**WESTERN AIR
LIMBACH**
Since 1901 *Consistently Exceeding Expectations*

Limbach Embraces BIM: Building Information Modeling

Providing its customers the best in class mechanical contracting services and implementing new technology is a hallmark of Limbach. This is what consistently separates Limbach from its competitors. Limbach is continuing with this standard by incorporating the process of taking 2-D design drawings and converting them to 3-D shop drawings in our design procedure. With the aid of Building Information Modeling (BIM), Limbach is able to implement a more efficient and cost effective design process. Incorporating BIM into our projects is best described as an evolution; we are learning more on every project and becoming more confident in our direction.

What is BIM?

The key to BIM's innovation is the integration of effective Computer-Aided Design (CAD) and detailed information pertaining to the project. BIM is about combining computable data about a project within the electronic design that can be easily modified and automatically updated. At the highest levels, BIM is also equipped with the ability to detect problems of said design and materials; essentially being able to fix problems before they arise. The ability to keep this information coordinated, easily accessible, and continuously updated is highly beneficial to the effectiveness of the design procedure and produces higher quality work with fewer errors in less time.



Benefits of BIM:

- Increases Collaboration & Connectivity
- Provides a Valuable Project Management Tool
- Provides Visualization of Project
- Reduces Bidding Time & Effort
- Provides Seamless Flow of Information
- Provides One Database of Information
- Automatically Provides Shop Drawings
- Reduces Risk of Error in Design
- Coordinates Design & Construction
- Reduces the Amount of Field Conflict
- Reduces Change Orders
- Reduces RFI's
- Reduces Delivery Time

3-D Trade Coordination

Creating a virtual 3-D model of a building for coordination is a giant leap in construction, and Limbach has taken the lead on several projects. Generating the backgrounds from the design drawings for the trades to utilize is the first step to creating the virtual building. The models will include the slabs, structural steel, ceilings, and any other elements that are essential for efficient coordination and construction. Limbach will provide drawing specifications that include naming conventions, drawing procedures, and establish a process that promotes communication between the coordinating trades. Technology is only half of the battle; utilizing the technology to facilitate communication and correspondence between the trades is the real essence in making 3-D coordination a more efficient process.

BIM...More Than 3-D Modeling

The 3-D (CAD), 4-D (cost estimating) and 5-D (schedule) models provide information about the properties of materials incorporated in the design. It incorporates the functionality of physical objects such as doors and windows, as well as, the notion of abstract concepts such as space and organization. At Limbach, we are currently creating shop drawings that have "smart models", which incorporate real shop standards into the ductwork, accurate actual components, and sizes, locations, orientations, clearances, and tag numbers for the various pieces of equipment. When coordinated fabrication drawings are complete, the software can create custom manifests that can be sent directly to suppliers, manufacturers, and shop facilities for pricing and ordering without having to create hand takeoffs.

