

Applying 3D PDF within BIM

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BLUEBEAM

About the Company

Digital Workflow and Collaboration Solution leveraging PDF

- Founded in 2002
- Focus on AEC (Architecture, Engineering, Construction)
- Part of the Nemetschek Group
- Bluebeam Revu – PDF Application



BIM

(B)uilding (I)nformation (M)odeling

- Digital representation of the building
- Reliable source of information for decision making
- Typically the 3D Model
- 3D, 4D, 5D and beyond

BIM

Applications

- 3D Design applications such as Revit, VectorWorks, ArchiCAD, and Allplan
- 3D Review and Coordination applications such as NavisWorks

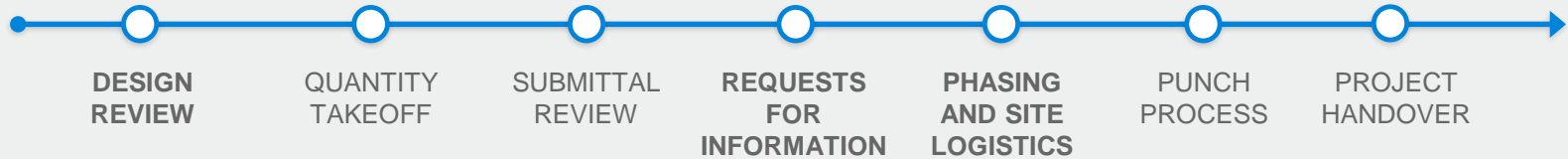
BIM

Where does PDF fit?

Share BIM data for collaboration

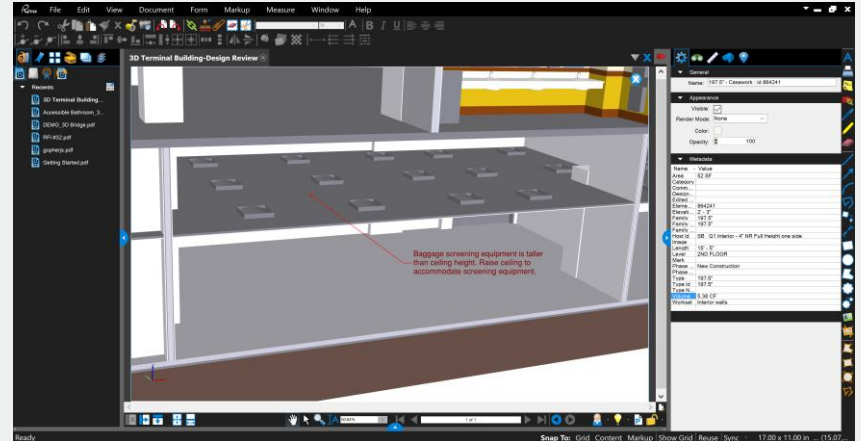
- 3D PDF is a complement to the BIM design applications.
- 3D PDF contains more than just geometry. It contains important searchable metadata associated with the individual components of the building.
- Most BIM applications can publish 3D PDF, either natively or through a plugin.
- IFC can be converted to 3D PDF

PDF Workflows in Construction



Design Review and Coordination

- Share BIM data with decision makers such as owners or consultants outside the design team.
- Make comments on the model
- 3D data allows other project team members to better understand the design than they could with just 2D drawings
- With the combination of coordination software like NavisWorks and 3D PDF, design issues can be discovered and communicated effectively. For example, Ducts, Pipes, Conduits, etc can easily clash and need to be coordinated.



Phasing and Site Logistics

- Each step of construction needs to be planned
- Traditionally done with diagrams or charts
- 3D PDF can help visualize project phasing



Request for Information

- Contractors continually request additional information from the design team. Large projects could have 1000 RFIs.
- The questions are often about missing information from the 2D drawings.
- Architect can more quickly answer questions by attaching subsets of the model as a 3D PDF with markups.

The image shows a screenshot of an RFI (Request for Information) form and a 3D model response. The form is titled "RFI Construction" and includes the following information:

- Project Information:** Project Number: 02-000-720, 12 North Broadway, Los Angeles, CA 90102, Phone: (323) 123-4567, Fax: (323) 123-4568.
- RFI #:** 32
- Date Created:** 20-04-2017
- Date Required:** 28-04-2017
- To:** Architect: Bryan Collins, 766 E. Colorado Blvd. Ste. 200, Pasadena, CA 91101, Phone: (626) 496-2140, Fax: (626) 398-9010.
- From:** General Contractor: John Bailey, RC Construction, 123 Green Drive, Pasadena, CA 91008, Phone: (214) 542-8754, Fax: (714) 562-8765.
- Subject:** Rotunda Window
- Discipline:** Architectural
- Subcontractor:** [None]
- Drawing Reference:** A111-01
- Specification Section Reference:** None
- Sketch Reference:** None
- Question:** Detail needed for arched rotunda window.
- Suggestion:** Provide detail.
- Answer:** See 3D PDF model of rotunda window on page 2. Click the blue markup indicator for more information. Bryan Collins.
- Signature:** Bryan Collins
- Date Answered:** 28-04-2017
- Date Returned:** 28-04-2017

The 3D model response shows a perspective view of a building facade with a large arched window. Red dimension lines are overlaid on the window, indicating the required dimensions for wall extrusions. The text "Provide dimensions for wall extrusions" is written in red next to the dimensions. A blue 'X' icon is visible in the top right corner of the 3D model view.

More Advantages of 3D PDF

- Push, pull, and manipulate the model without fear of damaging the model (Change colors, move roofs or walls)
- The model can be seen as intellectual property and PDF allows sharing the data safely
- 3D models can be mixed with 2d drawings

Q & A